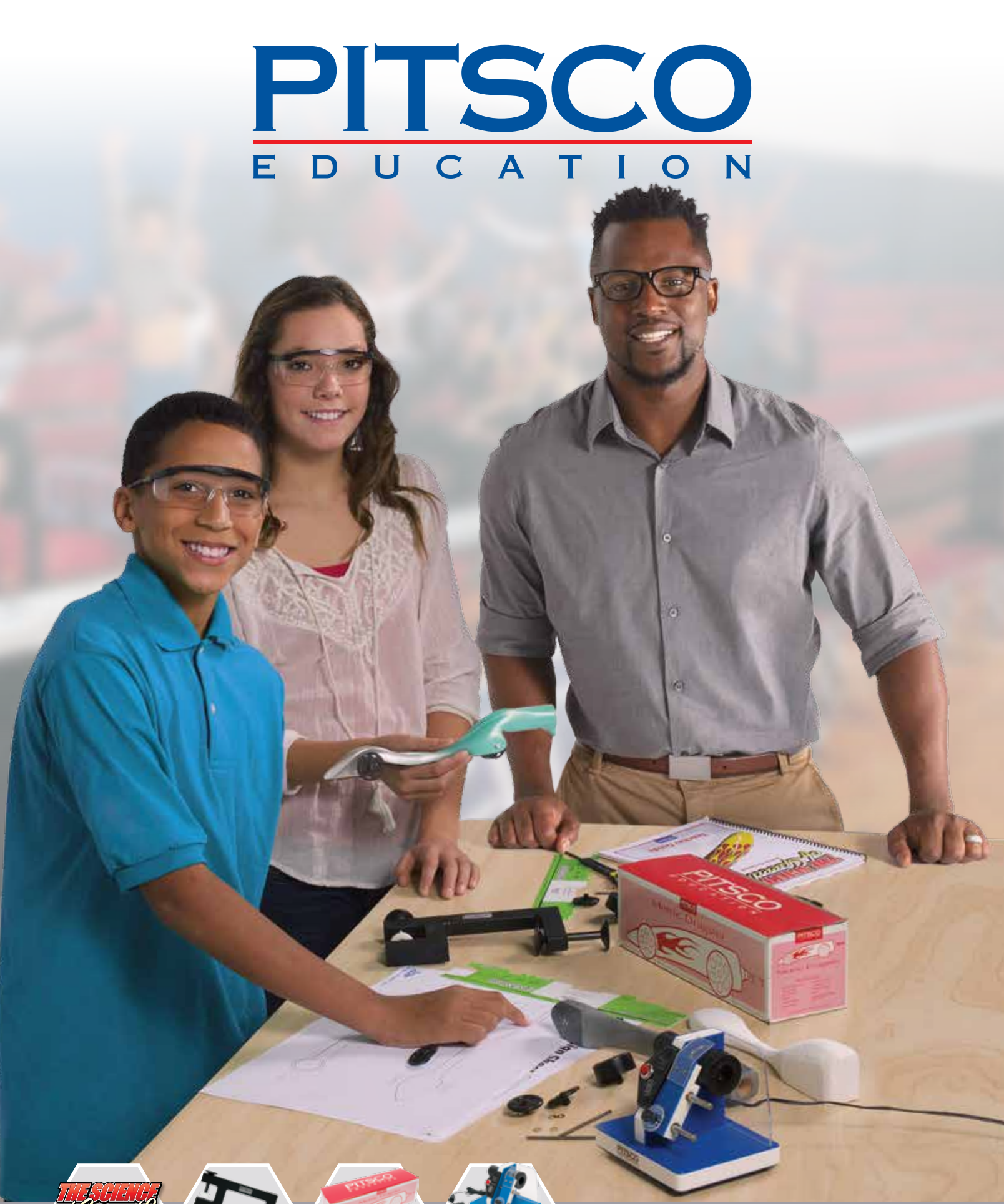
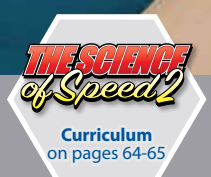
PITSCO
EDUCATION





Curriculum
on pages 64-65


Wheel Deal
on page 81



Metric Dragsters
on page 74


Wheel Lathe
on page 83

2016 Big Book

Dear Friends,

Thank you for being a teacher and for positively influencing students as only great teachers can!

We are excited to provide you with this new 2016 Pitsco catalog – we call it the Pitsco *Big Book*! Inside the *Big Book* you'll find several new products. Look closely at our new **Pitsco Maker Space**™ section (pages 366-371) and the larger **TETRIX® Robotics** section (pages 2-49).

Throughout the *Big Book*, you'll find STEM products that make learning more exciting, more engaging, and more learning-centric for each and every student, helping you ensure their experiences will propel them to a greater knowledge and grasp of concepts.

Check out the exciting new **Science of Speed 2** included on pages 64-65. A website dedicated to Science of Speed 2 is available at www.science-of-speed.com. The site is an excellent resource for designing, building, tuning, and racing dragsters.

Look through every page. Use the sticky flags within the catalog to provide quick look-backs for future purchase considerations.

We love what you do for students! Thanks for being leaders who provide positive, hands-on products, activities, curriculum, and solutions for student success!

Respectfully,

Harvey Dean
C.E.O.

Lisa Paterni
President

P.S. All new products are noted in red in the index.



STEM

STEM education prepares learners for the future through the integration of science technology, engineering, and math concepts using relevant hands-on applications to connect school, community, and work.

ROBOTICS	2-61
DRAGSTERS	62-117
AEROSPACE	118-169
SUSTAINABLE ENERGY	170-209
STRUCTURES	210-237
PHYSICAL SCIENCE	238-271
ENGINEERING	272-299
MATH	300-315
STEM CURRICULUM	316-337
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MAKERSPACE	366-371
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ORDER INFORMATION	394-395



The HOT Plan is a story that can change your world! If you are part of an organization with a vision to succeed---whether a competitive team, a classroom, a business, or a non-profit--- The HOT Plan can show you the way. The book is full of practical insights, tips and 'how-tos'.

The HOT Plan is a part of our success story here at Pitsco and I hope it will be part of your success story in the near future.

Can't wait to tell you about it.

Harvey Dean
C.E.O.

Available now on Amazon. Watch for our autograph-copy book launch in 2016!

PITSCO EDUCATION

Please recycle.

ROBOTICS

*"**TETRIX**® was fun in that it forced you to think outside of the box, but it was also very helpful for teaching basics about **engineering** and construction. You can learn a lot about **structural integrity** from putting together a basic frame with a TETRIX kit. . . . Every year the TETRIX kit has improved, which is awesome."*

– Kjersti Chippindale, Former *FIRST*® Tech Challenge Team Member, Forest Grove, OR



Check out this new book by Harvey that describes Pitsco's system for success--- "The HOT Plan." See page 1.

See related product on pages 41-43.



PRODUCTS:

Pitsco robotics such as TETRIX PRIME and TETRIX MAX provide motivating ways for students to implement mechatronics – the combination of engineering, electronics, and mechanical systems.

NEW! **TETRIX PRIME Expansion Set** – page 6
NEW! **TETRIX PRIME Getting Started Package** – page 8
NEW! **TETRIX MAX R/C Starter Set** – page 24
T-Bot® II – page 52

ACTIVITIES:

Robotics activities will inspire students' creativity and application of math and science as they work in teams.

T-Bot II Teacher's Guide – page 52
A Teacher's Guide to Integrating Simple Machines in Robotics – page 29
TETRIX MAX R/C Robotics Engineering Teacher's Guide – page 29





CURRICULUM:

TETRIX PRIME Robotics STEM Units foster essential work skills such as collaboration and problem solving.

NEW! **TETRIX PRIME Robotics: Remote Control STEM Unit** – page 20
NEW! **TETRIX PRIME Robotics: Autonomous STEM Unit** – page 20
NEW! **TETRIX PRIME Robotics: Automation Manufacturing STEM Unit** – page 21
Robotics Engineering Course – Remote Controlled – page 46



SOLUTIONS:

At Pitsco Education, we believe that the ultimate solution is one that engages students and excites them about learning. The integration of Pitsco products, activities, and curriculum into a classroom creates a hands-on learning solution that positively affects learners.

"Robotics keeps students engaged and involved more than any other activity. It's hands on. They're building stuff and they're collaborating. . . . This allows them to have that verbal communication with each other, which is so important for their future."

– Roni Gonzales, K-6 Gifted and Talented Facilitator, Somerset Elementary School, Somerset, TX



PITSCO TETRIX PRIME

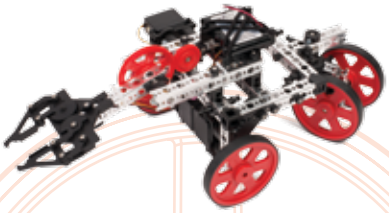
Get Started with TETRIX® PRIME!

TETRIX PRIME, like its big brother TETRIX MAX, is built for rugged durability. The basic building block for the system is a 16 mm square beam made from 7005 aluminum. These beams provide the rigidity and durability required for constructing robots.

Pick your own Control Platform!

The TETRIX PRIME Building System can be used to create endless mechanized robotic designs, enabling control with many popular programmable controller and motor board platforms available today; such as Arduino®, Raspberry Pi®, National Instruments' myRIO®, LEGO® Education's NXT and EV3, and more.





PRIME FEATURES

- Quick assembly and disassembly provide options for classroom implementation.
- R/C control – right out of the box
- Compatible with TETRIX® MAX components

TETRIX® PRIME R/C STARTER SET

A Pitsco Exclusive

Eager to start using TETRIX® PRIME? Dive into this robot building system that uses quick rivets, square aluminum beams, sturdy acetal gears, and more.

This starter set includes what you need for students to begin building robots, including any of three hero models. Step-by-step instructions are included in the builder's guide.

TETRIX PRIME is compatible with various programming platforms such as National Instruments' myRIO, LEGO® Education's NXT and EV3, Arduino, Raspberry Pi, and more.

Includes four AA batteries.

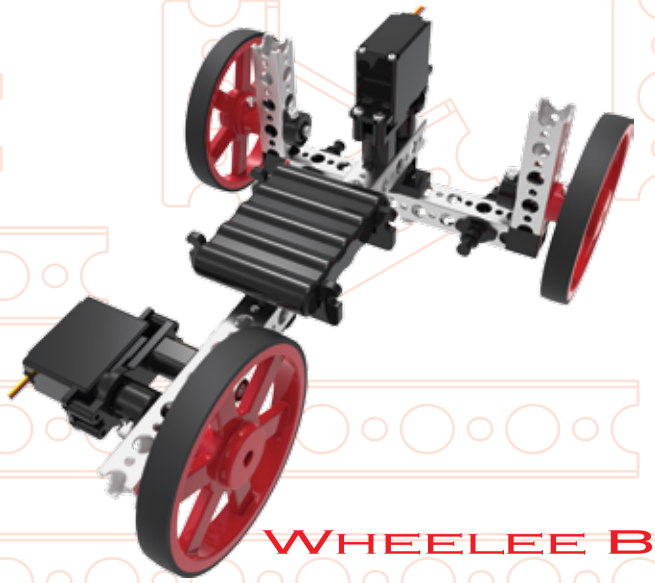
Note: The set is a collection of robot construction parts with unlimited design possibilities. The three pictured bots are tutorials on learning the construction system. Each bot is built in progression, one at a time. To build the next bot, you must disassemble the first.

Ages 12+

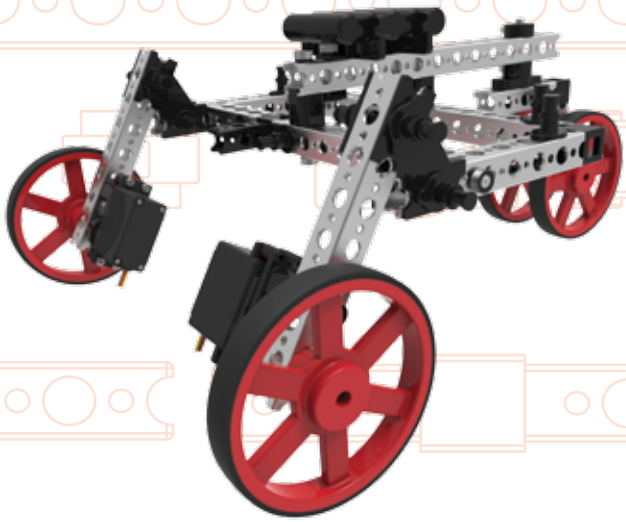
QX40384—$329

TETRIX® PRIME R/C STARTER SET CONTENTS

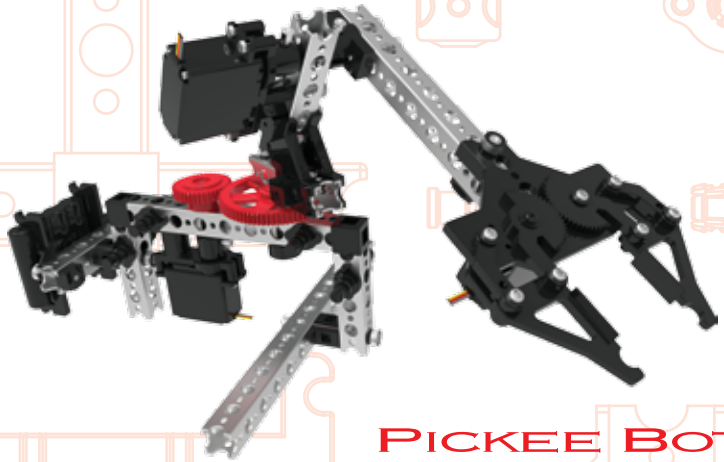
Number	Part Name	Quantity
BEAMS		
40201	TETRIX® PRIME 4-Hole Square Beam	4
40202	TETRIX® PRIME 5-Hole Square Beam	4
40203	TETRIX® PRIME 6-Hole Square Beam	4
40204	TETRIX® PRIME 7-Hole Square Beam	4
40205	TETRIX® PRIME 8-Hole Square Beam	4
40206	TETRIX® PRIME 13-Hole Square Beam	2
40207	TETRIX® PRIME 15-Hole Square Beam	2
INTERNAL CONNECTORS		
40212	TETRIX® PRIME 3-Way Beam Connector	4
40213	TETRIX® PRIME Tee Beam Connector	4
40211	TETRIX® PRIME 90-Degree Beam Connector	4
40214	TETRIX® PRIME Beam End Connector	4
40322	TETRIX® PRIME Beam Extension Connector	4
40215	TETRIX® PRIME Beam Straight Connector	4
EXTERNAL CONNECTORS		
40208	TETRIX® PRIME 90-Degree Beam Bracket	10
40209	TETRIX® PRIME 60-Degree Beam Bracket	10
40210	TETRIX® PRIME Tee Beam Bracket	10
40216	TETRIX® PRIME Straight Block Beam Connector	10
40217	TETRIX® PRIME 90-Degree Cross Block Connector	10
CONNECTING HARDWARE		
40219	TETRIX® PRIME Quick Rivet Connector	24
40220	TETRIX® PRIME Quick Rivet Pegs	24
40221	TETRIX® PRIME Wing Nut	24
40323	TETRIX® PRIME Thumbscrew	25
WHEELS, GEARS, & SERVOS		
40222	TETRIX® PRIME Wheel with Tire	4
40223	TETRIX® PRIME 40-Tooth Plastic Gear	4
40224	TETRIX® PRIME 80-Tooth Plastic Gear	4
40538	HiTec HS322-HD Servo Motor	2
40379	HiTec 1425CR Continuous Rotation Servo Motor	2
40232	TETRIX® PRIME Servo Mounting Bracket	4
WHEEL, GEAR, & SERVO HARDWARE		
40230	TETRIX® PRIME Shaft Servo Hub	4
40225	TETRIX® PRIME 80 mm Steel Axle	6
40226	TETRIX® PRIME 40 mm Steel Axle	6
40227	TETRIX® PRIME 8 mm x 6 mm Bronze Bushing	12
40228	TETRIX® PRIME Beam Attachment Hub	4
40229	TETRIX® PRIME D-Shaft Set Collar	8
GRIPPER ASSEMBLY & CONTROLLERS		
40234	TETRIX® PRIME Gripper Kit	1
40377	TETRIX® PRIME Wireless Joystick Gamepad System	1
BATTERIES & HARDWARE		
40236	TETRIX® PRIME Battery Mount Bracket	2
40235	TETRIX® PRIME 6 V NiMH Battery Pack	1
40457	TETRIX® PRIME Battery Pack On/Off Switch	1
40378	TETRIX® PRIME 5-Cell NiMH Battery Pack Charger	1
36404	4-in-1 Screwdriver	1
40341	Miniature Ball-point Hex Driver	1
40516	Socket Head Cap Screw	25
60160	TETRIX® PRIME Builder's Guide	1
40499	Plastic 2 oz cups	4
14041	Golf Balls, Practice	4



WHEELEE BOT



BUGGEE BOT



PICKEE BOT

Building instructions for the three pictured models are included in the builder's guide. The TETRIX® PRIME R/C Starter Set offers unlimited design possibilities.

PITSCO TETRIX PRIME EXPANSION SET



NEW!

TETRIX® PRIME EXPANSION SET

A Pitsco Exclusive

Expand the horizons of your TETRIX® PRIME R/C Starter Set. Engineer bigger, more advanced robots, increase the robustness of builds, and combine all the TETRIX PRIME components using the additional parts and pieces included in the TETRIX PRIME Expansion Set.

The TETRIX PRIME Expansion Set comes with three major parts that will provide students more design options for their robots:

- Aluminum linkages – Mechanical linkages connect to manage force and movement.
- Aluminum plates – Create custom gearboxes, strengthen connections, or create new ways to connect and combine all the TETRIX PRIME components.
- Aluminum gussets – Use to connect beams or structural components as well as provide additional strength to joints.

TETRIX PRIME parts and pieces are made from aluminum and plastic.

Ages 12+

QX41549—$179

Go to **TETRIXrobotics.com** for more pricing and information.
All parts in the TETRIX PRIME Expansion Set are available to be purchased separately.

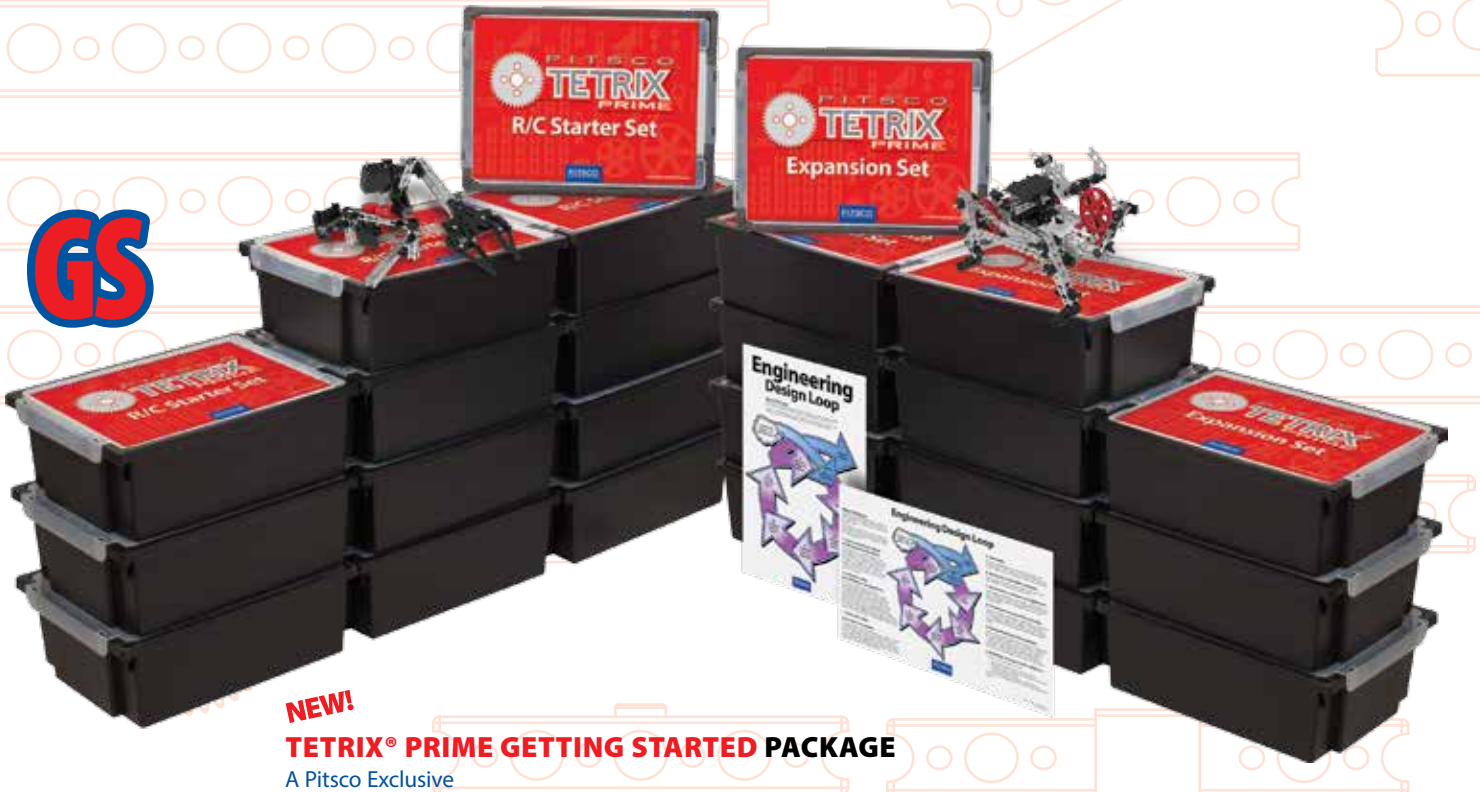
TETRIX® PRIME EXPANSION SET CONTENTS

Number	Part Name	Quantity
ALUMINUM LINKAGES		
41244	TETRIX® PRIME 4-Hole Flat Linkage	4
41245	TETRIX® PRIME 5-Hole Flat Linkage	4
41246	TETRIX® PRIME 6-Hole Flat Linkage	4
41247	TETRIX® PRIME 7-Hole Flat Linkage	4
41248	TETRIX® PRIME 8-Hole Flat Linkage	4
41249	TETRIX® PRIME 13-Hole Flat Linkage	4
41250	TETRIX® PRIME 15-Hole Flat Linkage	4
ALUMINUM PLATES		
41251	TETRIX® PRIME 2 x 2 Hole Plate	2
41254	TETRIX® PRIME 2 x 3 Hole Plate	2
41255	TETRIX® PRIME 2 x 4 Hole Plate	2
41256	TETRIX® PRIME 2 x 6 Hole Plate	2
41257	TETRIX® PRIME 3 x 3 Hole Plate	2
41261	TETRIX® PRIME 4 x 4 Hole Plate	2
41262	TETRIX® PRIME 4 x 5 Hole Plate	2
41263	TETRIX® PRIME 6 x 6 Hole Plate	2
ALUMINUM GUSSETS		
41264	TETRIX® PRIME 60-Degree Gusset	10
41265	TETRIX® PRIME 90-Degree Gusset	10
41266	TETRIX® PRIME 120-Degree Gusset	10
GEARS AND MOTORS		
40223	TETRIX® PRIME 40-Tooth Plastic Gear	4
40224	TETRIX® PRIME 80-Tooth Plastic Gear	4
40538	HiTec HS322-HD Servo Motor	1
AXLE, GEAR, & SERVO HARDWARE		
40225	TETRIX® PRIME 80 mm Steel Axle	6
40226	TETRIX® PRIME 40 mm Steel Axle	6
40229	TETRIX® PRIME D-Shaft Set Collar	8
40230	TETRIX® PRIME Shaft Servo Hub	1
41260	TETRIX® PRIME 16 mm Ball Skid Point	1
40227	TETRIX® PRIME 8 mm x 6 mm Bronze Bushing	12
41665	TETRIX® PRIME 6 mm Plastic Bushing Spacer	50
40232	TETRIX® PRIME Servo Mounting Bracket	1
40228	TETRIX® PRIME Beam Attachment Hub	4
39081	Servo Extension	1
CONNECTING HARDWARE		
40219	TETRIX® PRIME Quick Rivet Connector	25
40220	TETRIX® PRIME Quick Rivet Pegs	25
39107	TETRIX® Stand-Off Posts 6-32 x 32 mm	12
41253	TETRIX® Stand-Off Posts 6-32 x 16 mm	24
41267	TETRIX® PRIME 16 mm Anchor Block	10
40216	TETRIX® PRIME Straight Block Beam Connector	10
40217	TETRIX® PRIME 90-Degree Cross Block Connector	10
40221	TETRIX® PRIME Wing Nut	25
40516	Socket Head Cap Screw	100
40323	TETRIX® PRIME Thumbscrew	25
39094	Kep Nuts	100
TOOLS & ACCESSORIES		
38001	TETRIX® Wrench Set	2
40341	Miniature Ball-point Hex Driver	1
42147	TETRIX® PRIME Expansion Set Builder's Guide	1



The TETRIX® PRIME Expansion Set Builder's Guide comes with step-by-step instructions to build the three models shown here. Each model is built using parts from one TETRIX® PRIME R/C Starter Set combined with an Expansion Set. These models will get you going, but the possibilities are endless!

PITSCO TETRIX PRIME SETS



GS

NEW!

TETRIX® PRIME GETTING STARTED PACKAGE

A Pitsco Exclusive

Robot design and construction for an entire class of 24 students! Students work in teams of two to design and create fully functioning, remote-controlled robots. Each student team will have a TETRIX® PRIME R/C Starter Set, providing all the parts and pieces for building and controlling their robots. Each team will also have a TETRIX PRIME Expansion Set to provide even more variety of structural elements for robot design.

The TETRIX PRIME Build DVD is included to provide an introduction for students to building with TETRIX PRIME. Also included is the Engineering Design Loop Poster Set so students can learn the steps of designing and building prototypes (engineering).

Accessories included for each team are batteries, chargers, gamepad controllers, servos, 4-in-1 tool, nut drive, storage bin with lid, and the *TETRIX PRIME Builder's Guide*.

- QX40384 TETRIX® PRIME R/C Starter Set (12 included)
- QX41549 TETRIX® PRIME Expansion Set (12 included)
- QX60112 Engineering Design Loop Poster Set

QX41946 TETRIX® PRIME Getting Started Package—$5,995

Ages 12+



NEW!

TETRIX® PRIME CLASS PACK

A Pitsco Exclusive

Designed for use with a class of 24 students, the TETRIX® PRIME Class Pack serves 12 teams of two students per team. Students engineer fully functioning, remote-controlled robots. Each student team will have a TETRIX PRIME R/C Starter Set and a TETRIX PRIME Expansion Set to provide a massive number and variety of structural elements for robot design.

Accessories included for each team are batteries, chargers, gamepad controllers, servos, 4-in-1 tool, nut drive, storage bin with lid, and the *TETRIX PRIME Builder's Guide*.

Ages 12+

QX41028—$3,895



GRATNELL BIN SORTING TRAY

A Pitsco Exclusive

This sorting tray fits into any of our containers and offers six different sections, including one long one, for keeping small parts organized.

Ages 12+

QX34074—$7.50



TETRIX® PRIME CONTAINER AND LID

A Pitsco Exclusive

Great for when you've bought extra TETRIX® PRIME parts and want uniform bins to store them in. Includes 11-1/8" x 17" lid.

Ages 12+

QX40666 (12" W x 16-1/2" D x 5-3/4" T)—$12.95



TETRIX® MOBILE STORAGE

A Pitsco Exclusive

If you've bought many extra TETRIX® parts, you might be experiencing component chaos in your classroom. Organize and neaten your robot equipment with this mobile storage unit. Designed to fit TETRIX storage bins in three sections – featuring 36 adjustable rails to fit any bin configuration – the storage unit is made of melamine with a 2 mm PVC edge band. With its 2" rolling casters, it's easy to move wherever you need it. Assembly required.

QX38757—$695
QX31130 Large Blue Bin (12" W x 16-1/2" D x 8-3/4" T)—$8.50
QX31128 Standard Green Bin (12" W x 16-1/2" D x 5-3/4" T)—$6.50
QX31127 Shallow Red Bin (12" W x 16-1/2" D x 3" T)—$4.75
QX31131 Bin Lid—$2.95



18" PORTABLE STORAGE SOLUTION

This handy tote is perfect for carrying many TETRIX® PRIME and MAX parts wherever you might need to go! The storage chest features 12 small removable compartments in the top level – perfect for pulling parts out for working – and six trays on the lower level for larger parts. A cantilever mechanism makes moving from the top to the bottom level easy. Made of professional-grade plastic with metal handle and latches, this chest will withstand years of use. Measures 24 x 42 x 14 cm. Colors may vary.

QX40707—$29.95

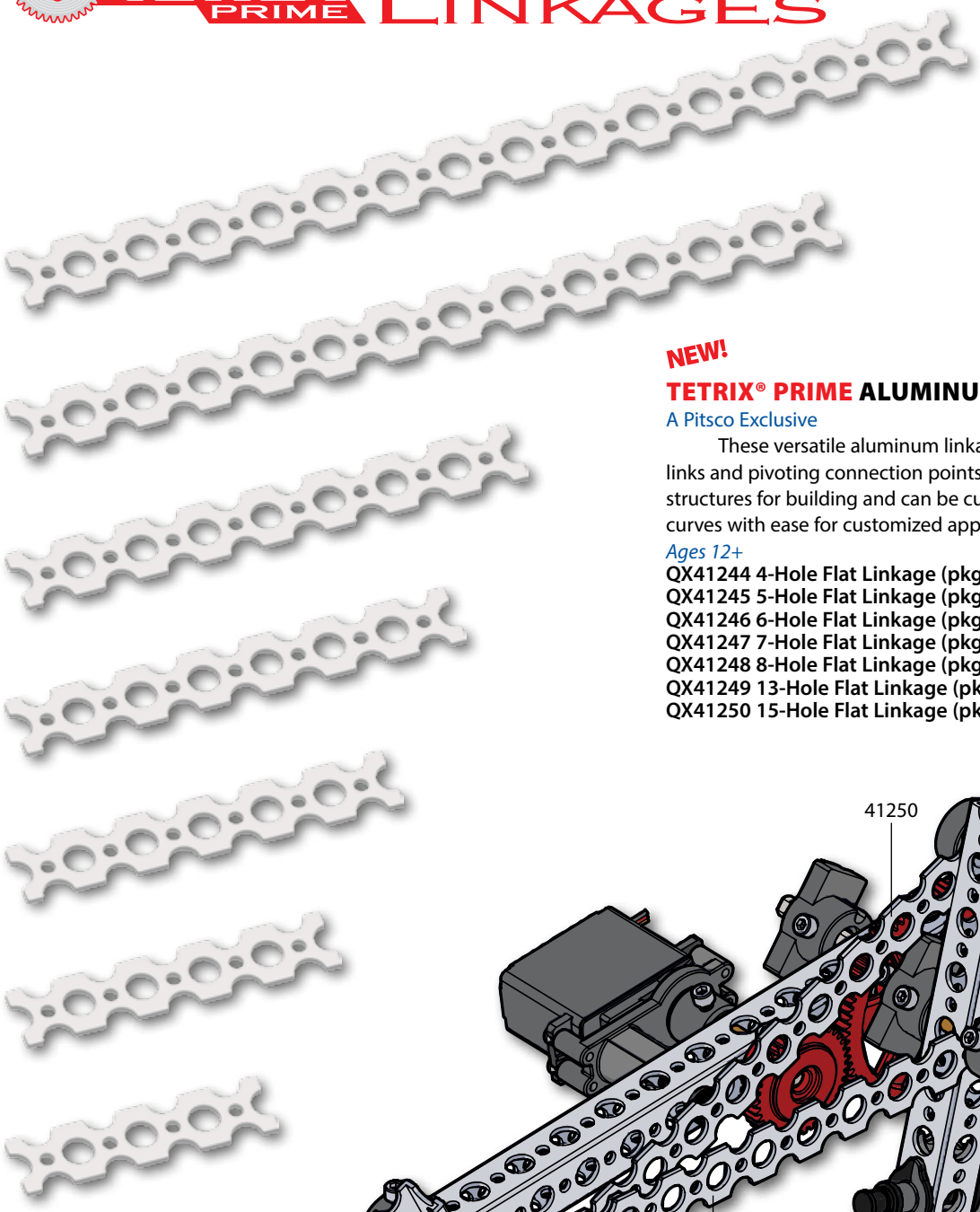


22" PORTABLE STORAGE SOLUTION

This handy tote is perfect for carrying an entire TETRIX® PRIME R/C Starter Set wherever you might need to go! The storage chest features 15 small removable compartments in the top level – perfect for pulling parts out for working – and a lower level for larger parts. A cantilever mechanism makes moving from the top to the bottom level easy. Made of professional-grade plastic with metal handle and latches, this chest will withstand years of use. Measures 30 x 57 x 17 cm. Colors might vary.

QX40709—$39.95

PITSCO TETRIX PRIME LINKAGES



NEW!

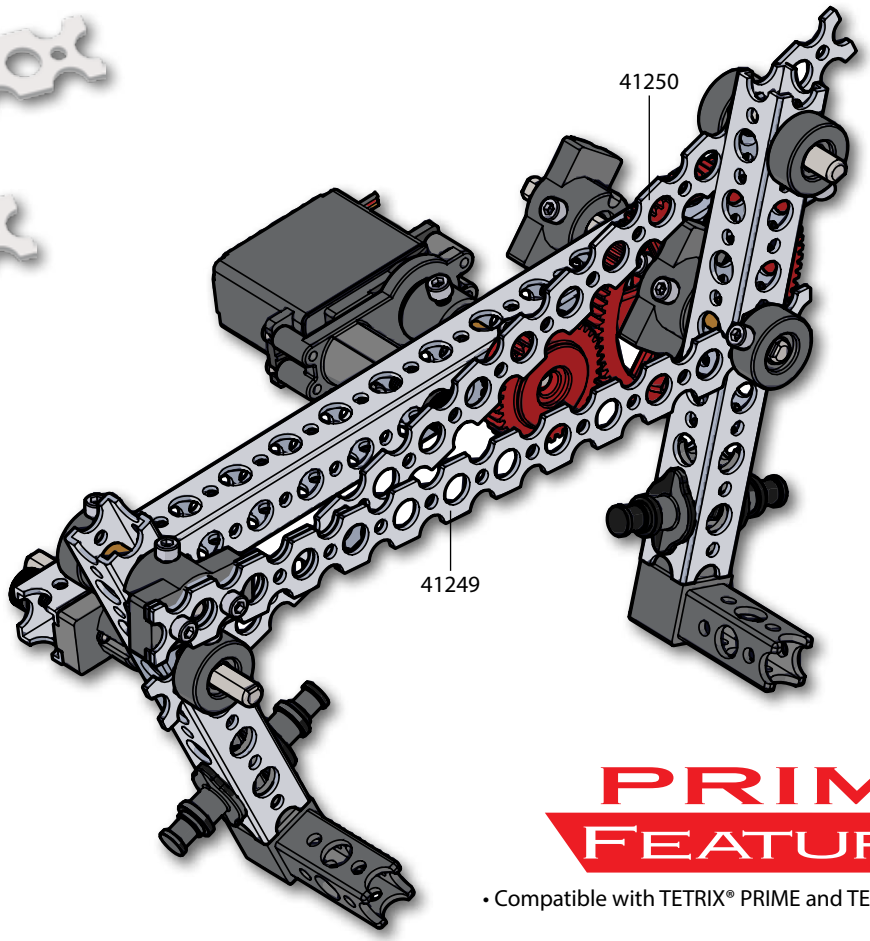
TETRIX® PRIME ALUMINUM LINKAGES

A Pitsco Exclusive

These versatile aluminum linkages make it easy to create custom links and pivoting connection points. The flat linkages are also great structures for building and can be cut and shaped into various angles or curves with ease for customized applications.

Ages 12+

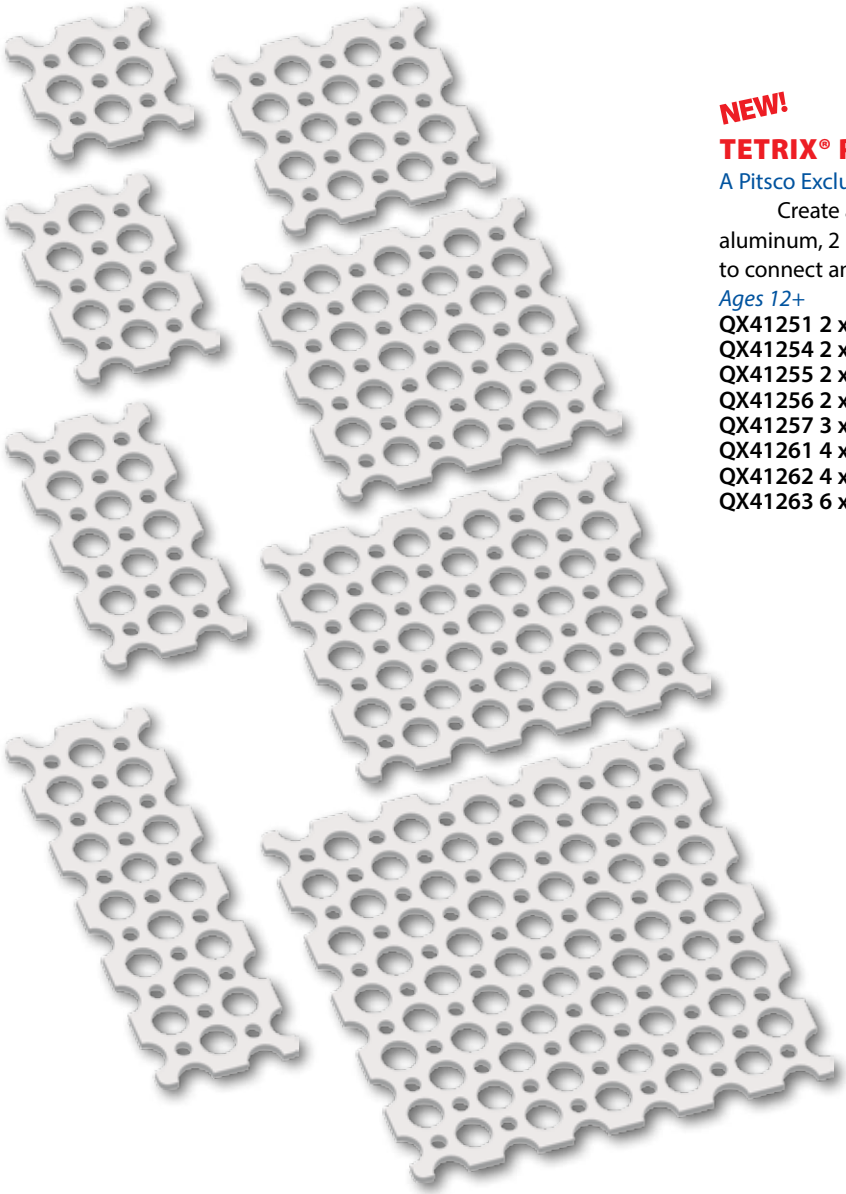
QX41244 4-Hole Flat Linkage (pkg of 2, 64 mm x 16 mm)—$2.95
QX41245 5-Hole Flat Linkage (pkg of 2, 80 mm x 16 mm)—$3.50
QX41246 6-Hole Flat Linkage (pkg of 2, 96 mm x 16 mm)—$3.95
QX41247 7-Hole Flat Linkage (pkg of 2, 112 mm x 16 mm)—$4.50
QX41248 8-Hole Flat Linkage (pkg of 2, 128 mm x 16 mm)—$4.95
QX41249 13-Hole Flat Linkage (pkg of 2, 208 mm x 16 mm)—$5.50
QX41250 15-Hole Flat Linkage (pkg of 2, 240 mm x 16 mm)—$5.95



PRIME FEATURES

- Compatible with TETRIX® PRIME and TETRIX® MAX components

PITSCO TETRIX PRIME PLATES



NEW!

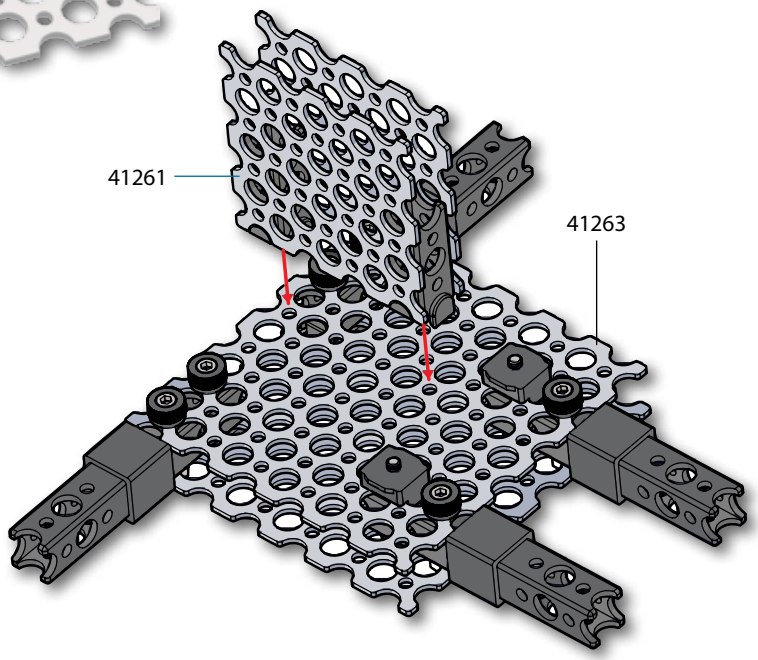
TETRIX® PRIME ALUMINUM PLATES

A Pitsco Exclusive

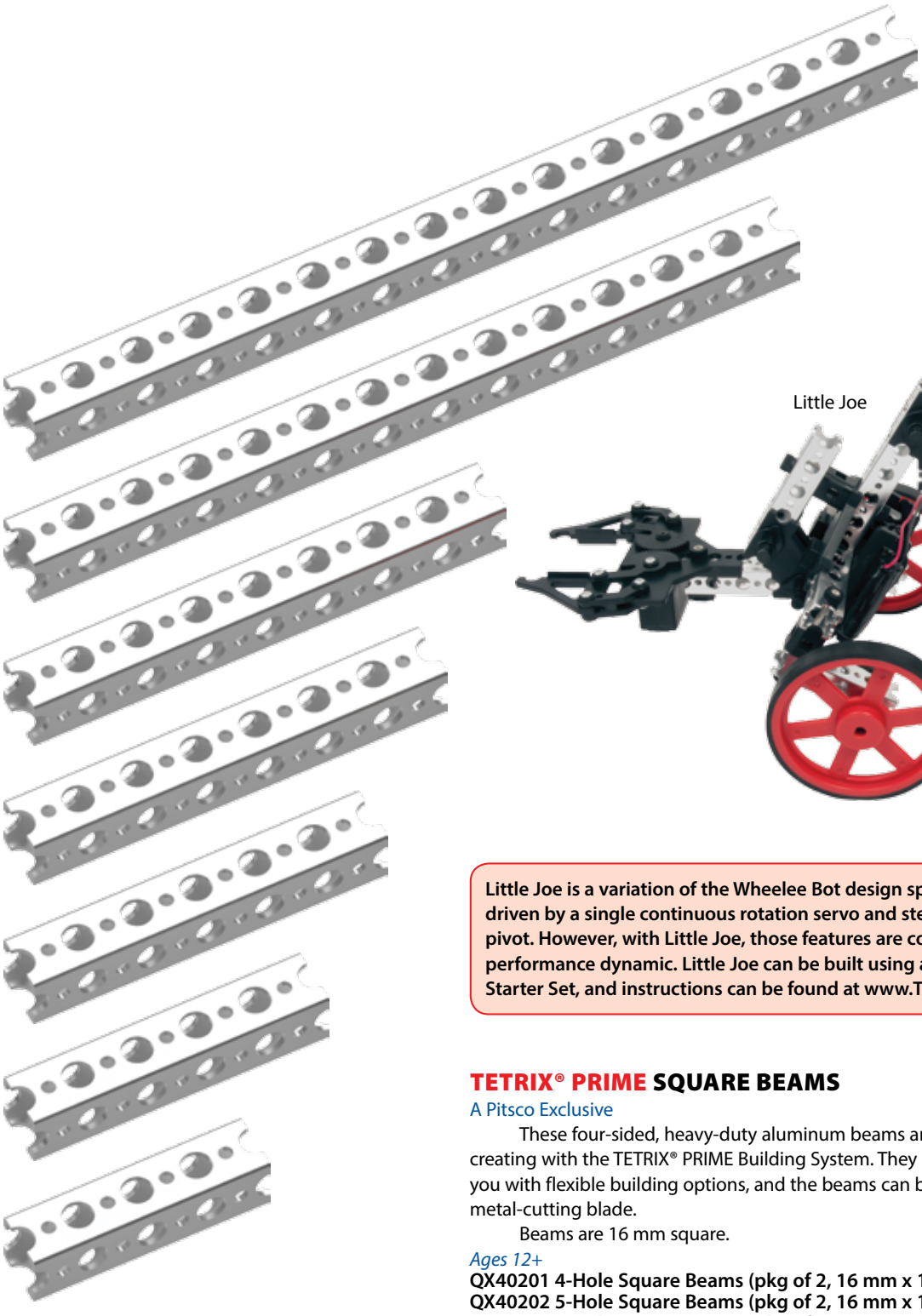
Create a variety of attachment surfaces with these sturdy, aluminum, 2 mm-thick building plates. Great for creating new ways to connect and combine all of the TETRIX® PRIME components.

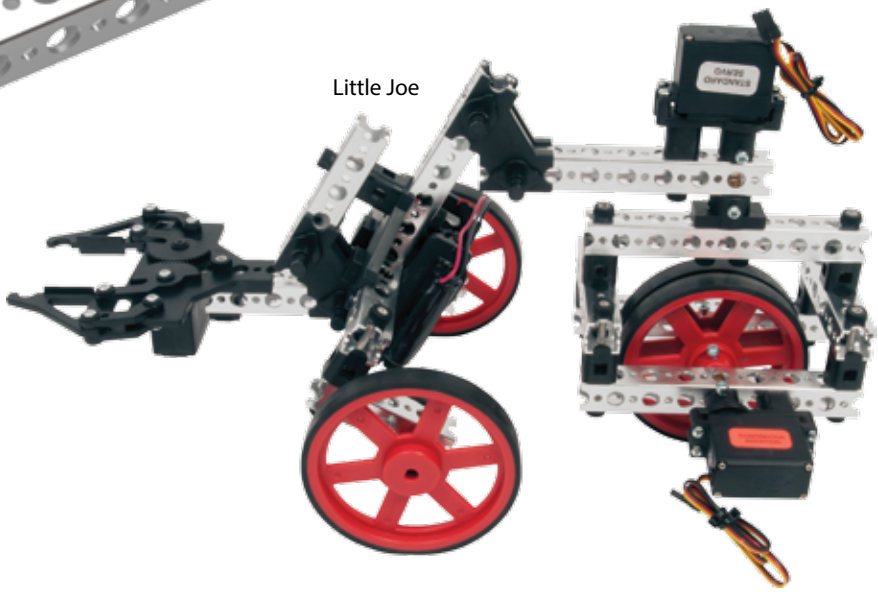
Ages 12+

QX41251 2 x 2 Hole Plates (pkg of 2, 32 mm x 32 mm)—$2.95
QX41254 2 x 3 Hole Plates (pkg of 2, 32 mm x 48 mm)—$3.50
QX41255 2 x 4 Hole Plates (pkg of 2, 32 mm x 64 mm)—$3.95
QX41256 2 x 6 Hole Plates (pkg of 2, 32 mm x 96 mm)—$4.50
QX41257 3 x 3 Hole Plates (pkg of 2, 48 mm x 48 mm)—$4.95
QX41261 4 x 4 Hole Plates (pkg of 2, 64 mm x 64 mm)—$5.50
QX41262 4 x 5 Hole Plates (pkg of 2, 64 mm x 80 mm)—$5.95
QX41263 6 x 6 Hole Plates (pkg of 2, 96 mm x 96 mm)—$6.50



PITSCO TETRIX PRIME BEAMS





Little Joe

Little Joe is a variation of the Wheelee Bot design specs. Like the Wheelee Bot, it is driven by a single continuous rotation servo and steered by a standard servo-driven pivot. However, with Little Joe, those features are combined to create a different performance dynamic. Little Joe can be built using a single TETRIX® PRIME R/C Starter Set, and instructions can be found at www.TETRIXrobotics.com.

TETRIX® PRIME SQUARE BEAMS

A Pitsco Exclusive

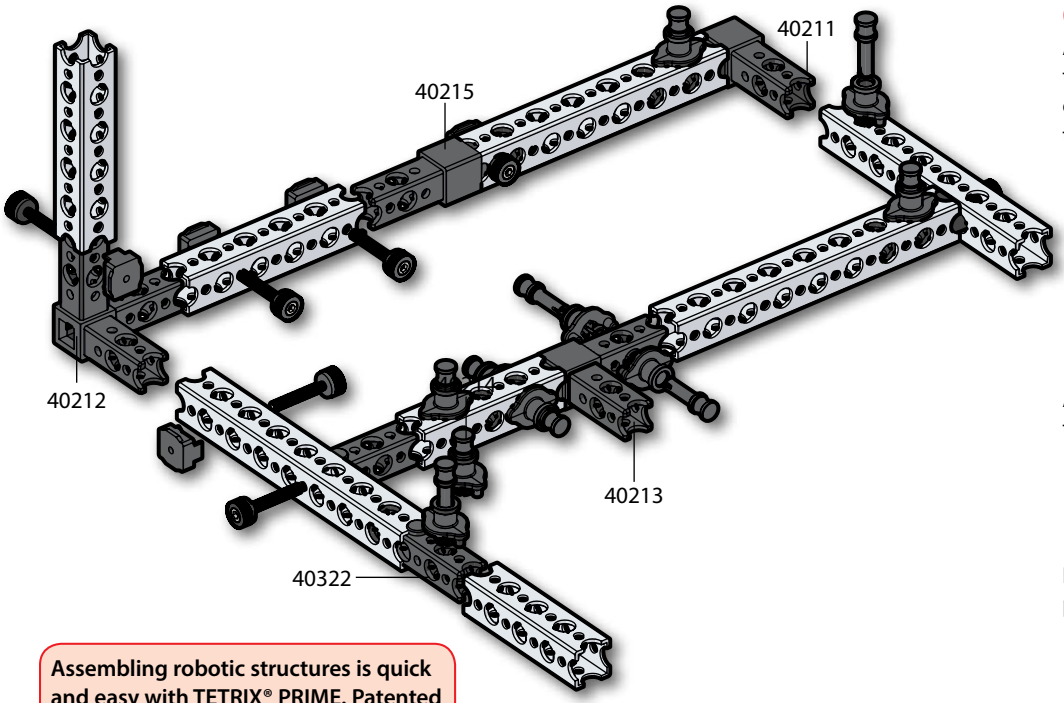
These four-sided, heavy-duty aluminum beams are the structural building blocks for creating with the TETRIX® PRIME Building System. They come in seven lengths to provide you with flexible building options, and the beams can be cut to custom lengths with a metal-cutting blade.

Beams are 16 mm square.

Ages 12+

QX40201 4-Hole Square Beams (pkg of 2, 16 mm x 16 mm x 64 mm)—$4.95
QX40202 5-Hole Square Beams (pkg of 2, 16 mm x 16 mm x 80 mm)—$5.95
QX40203 6-Hole Square Beams (pkg of 2, 16 mm x 16 mm x 96 mm)—$6.95
QX40204 7-Hole Square Beams (pkg of 2, 16 mm x 16 mm x 112 mm)—$7.95
QX40205 8-Hole Square Beams (pkg of 2, 16 mm x 16 mm x 128 mm)—$8.95
QX40206 13-Hole Square Beams (pkg of 2, 16 mm x 16 mm x 208 mm)—$10.95
QX40207 15-Hole Square Beams (pkg of 2, 16 mm x 16 mm x 240 mm)—$11.95

PITSCO TETRIX PRIME INTERNAL CONNECTORS



Connectors and Brackets

Another key to the fastening system is the connectors. These durable plastic connectors that slide into the ends of the tubes provide a mechanism to construct:

- 90° beam connections
- 3-way beam connections
- Tee joint beam connections
- Beam extension connections
- 90° corner connectors
- Three-way corner connectors
- Beam extension connectors

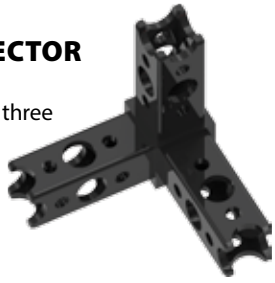
Additionally, there are brackets and gussets that can:

- Provide additional strength.
- Utilize various angles other than 90°.
- Facilitate mounting servos.

Both connectors and brackets are held in place via Quick Rivets or Thumbscrews.

Assembling robotic structures is quick and easy with TETRIX® PRIME. Patented Quick Rivets and Pegs provide secure connections in a snap.

TETRIX® PRIME 3-WAY BEAM CONNECTOR



A Pitsco Exclusive

This internal connector connects the ends of three beams at 90° angles, creating a corner. Made of ABS plastic; requires Quick Rivets and Pegs or Thumbscrews and Wing Nuts (all sold separately).

Ages 12+

QX40212 (pkg of 2)—$3.25

TETRIX® PRIME TEE BEAM CONNECTOR



A Pitsco Exclusive

This internal tee connector connects the ends of three beams at 90° to create a tee joint while keeping the joint neat looking. Made of ABS plastic; requires Quick Rivets and Pegs or Thumbscrews and Wing Nuts (all sold separately).

Ages 12+

QX40213 (pkg of 2)—$3.25

TETRIX® PRIME 90-DEGREE BEAM CONNECTOR



A Pitsco Exclusive

Join the ends of two beams at a 90° angle easily with this internal connector that slides inside the beams to create a clean-looking and strong connection. Made of ABS plastic; requires Quick Rivets and Pegs or Thumbscrews and Wing Nuts (all sold separately).

Ages 12+

QX40211 (pkg of 2)—$2.95

TETRIX® PRIME BEAM END CONNECTOR



Similar to the Tee Beam Connector, this internal connector is used to join a beam end to a beam side at a 90° angle. Made of acetal plastic; requires Quick Rivets and Pegs and a Thumbscrew (all sold separately).

Ages 12+

QX40214 (pkg of 2)—$2.50

TETRIX® PRIME BEAM EXTENSION CONNECTOR



A Pitsco Exclusive

This connector brings together two square aluminum beams end to end without adding any space between. Made of ABS plastic; requires Quick Rivets and Pegs or Thumbscrews and Wing Nuts (all sold separately).

Ages 12+

QX40322 (pkg of 2)—$2.75

TETRIX® PRIME BEAM STRAIGHT CONNECTOR



A Pitsco Exclusive

Sometimes, special sizing requires specialized solutions. This connector is just that: it connects two square aluminum beams end to end, adding one beam width in between. Made of ABS plastic; requires Quick Rivets and Pegs or Thumbscrews and Wing Nuts (all sold separately).

Ages 12+

QX40215 (pkg of 2)—$2.95

PITSCO TETRIX PRIME EXTERNAL CONNECTORS

Excellent solution for mechatronics programs!



TETRIX® PRIME 90-DEGREE BEAM BRACKET

A Pitsco Exclusive

Made of ABS plastic, these external brackets are tough and reliable for connecting two square aluminum beams at a 90° angle. Use in pairs for optimum strength. Requires Quick Rivets and Pegs or Thumbscrews and Wing Nuts (all sold separately).

Ages 12+

QX40208 (pkg of 10)—$4.95



TETRIX® PRIME 60-DEGREE BEAM BRACKET

A Pitsco Exclusive

This external bracket connects two square aluminum beams at a 60° angle. Also used to create 120° angles. Use in pairs for optimum strength. Made of ABS plastic; requires Quick Rivets and Pegs or Thumbscrews and Wing Nuts (all sold separately).

Ages 12+

QX40209 (pkg of 10)—$4.95



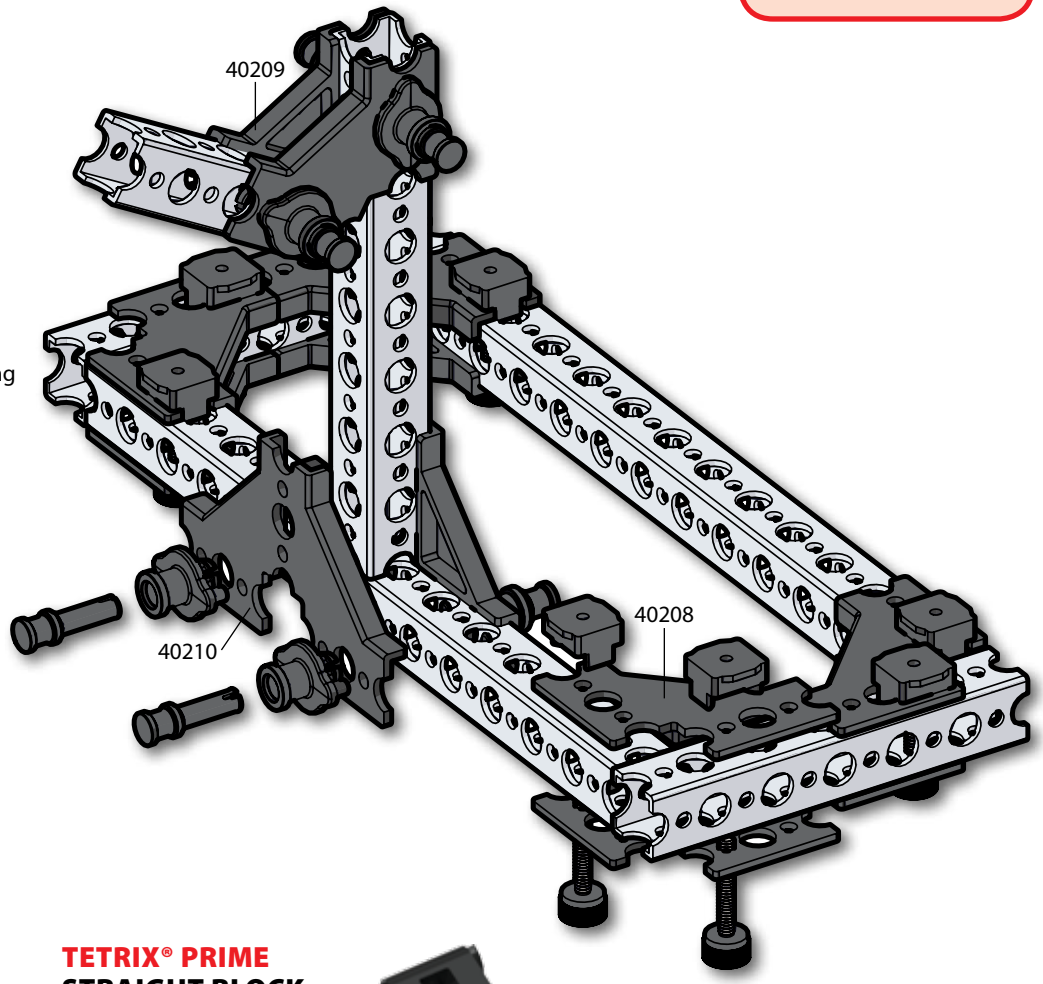
TETRIX® PRIME TEE BEAM BRACKET

A Pitsco Exclusive

PRIME's Tee Beam Bracket connects two Square Beams so one is perpendicular to the other, creating a T. Can connect along the length of one beam to the end of another. Used in pairs with one on each side of the beams. Made of ABS plastic; requires Quick Rivets and Pegs or Thumbscrews and Wing Nuts (all sold separately).

Ages 12+

QX40210 (pkg of 10)—$5.95



TETRIX® PRIME STRAIGHT BLOCK BEAM CONNECTOR



A Pitsco Exclusive

Connects aluminum beams in parallel with one beam width between to enable creative design options. Made of acetal plastic; requires a TETRIX® PRIME Thumbscrew, sold separately.

Ages 12+

QX40216 (pkg of 10)—$7.95

TETRIX® PRIME 90-DEGREE CROSS BLOCK CONNECTOR



A Pitsco Exclusive

Joins two aluminum beams with one beam width in between at a 90° angle. Made of acetal plastic; requires a Thumbscrew, sold separately.

Ages 12+

QX40217 (pkg of 10)—$7.95



NEW!

TETRIX® STAND-OFF POSTS 6-32 X 16 MM

A Pitsco Exclusive

Aluminum hex-shaped stand-off post with 6-32 threads. Used for connecting structural components.

Ages 12+

QX41253 (pkg of 12)—$5.95

NEW!

TETRIX® PRIME 16 MM ANCHOR BLOCK



The Anchor Block is a versatile connection element that allows connections between plates, linkages, or beams from all six surfaces. Made of acetal plastic; requires Thumbscrews, sold separately.

Ages 12+

QX41267—$5.50

PITSCO TETRIX PRIME CONNECTING HARDWARE

TETRIX® PRIME QUICK RIVET CONNECTORS



A Pitsco Exclusive

Use these in conjunction with the patented Quick Rivet Pegs (sold separately). The use of the Quick Rivet Connectors and Pegs enables rapid assembly and disassembly of structures, so you can quickly try many different designs – a plus for classrooms with minimal time and storage. Plus, this connector also accepts the LEGO® Connector Peg, so it's simple to attach LEGO components to a PRIME robot. Made of ABS plastic.

Ages 12+

QX40219 (pkg of 24)—$6.95

TETRIX® PRIME QUICK RIVET PEGS



A Pitsco Exclusive

These pegs are used to lock Quick Rivets in place, resulting in a secure and tight connection. Each Quick Rivet requires one peg; easily removed and reused. Made of ABS plastic.

Ages 12+

QX40220 (pkg of 24)—$4.25

TETRIX® PRIME WING NUT



A Pitsco Exclusive

The TETRIX® PRIME Wing Nut is used with the PRIME Thumbscrew (sold separately) to provide positive fastening of PRIME elements. Made of acetal plastic.

Ages 12+

QX40221 (pkg of 25)—$8.50



TETRIX® PRIME THUMBSCREW

A Pitsco Exclusive

These Thumbscrews are used in conjunction with the TETRIX® PRIME Wing Nuts to securely fasten PRIME components.

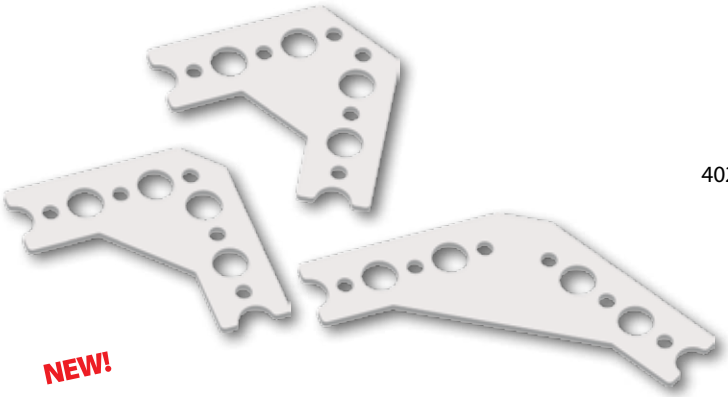
QX40323 (pkg of 25)—$7.95

Fastening

TETRIX PRIME uses a patented fastening system that is simple, intuitive, secure, and quick. This system provides greater flexibility in classroom implementation.

- Assembly and disassembly of robots is quick and easy.
- It is ideal for stacked classroom situations.
- It enables students to modify their robots during iterative designs.

The secret to the fastening system is the patented Quick Rivet snap fastener. For most construction, this will be the hardware of choice. Parts can also be connected with a specialized Thumbscrew that provides additional strength and durability.



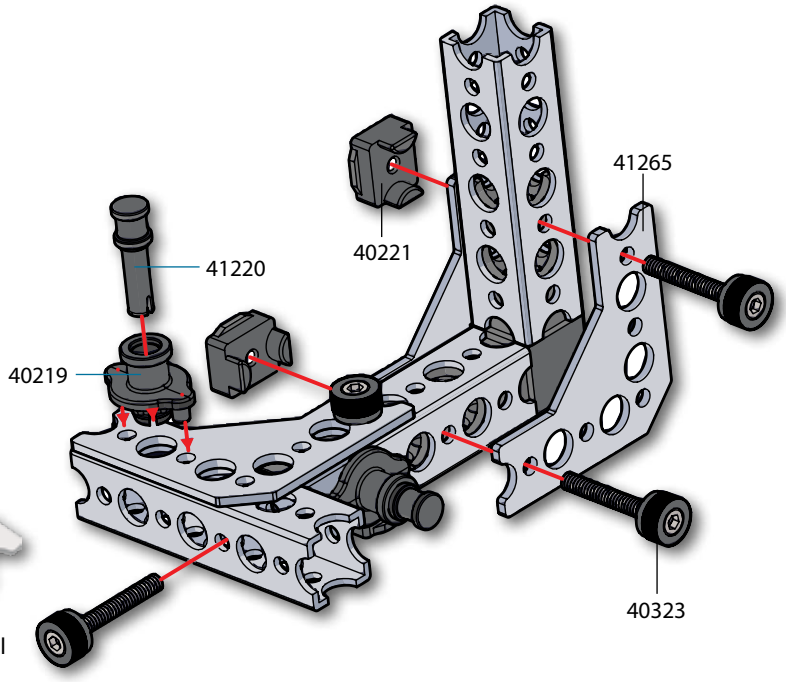
NEW!

TETRIX® PRIME ALUMINUM GUSSETS

These sturdy aluminum gussets are used to connect structural components together at different angles and to provide additional strength where needed. Available in 60-, 90-, and 120-degree angles, these gussets serve as a great way to expand building options and increase the strength and robustness of your robot builds!

Ages 12+

QX41265 90-Degree Gussets (pkg of 10)—$9.95
QX41264 60-Degree Gussets (pkg of 10)—$9.95
QX41266 120-Degree Gussets (pkg of 10)—$9.95



Patented connectors and intuitive component integration provide the PRIME advantage over other robotic building systems.

PITSCO TETRIX PRIME WHEELS, GEARS, & SERVOS



TETRIX® PRIME WHEEL WITH TIRE

A Pitsco Exclusive

Get those TETRIX® PRIME robots rolling with these 90 mm wheels made of sturdy acetal with a built-in hub. A rubber tire is included for better traction. Fits 6 mm steel axles and secures with 6-32 screw included in TETRIX PRIME sets or sold separately.

Ages 12+

QX40222—$7.95



TETRIX® PRIME 40-TOOTH PLASTIC GEARS

A Pitsco Exclusive

TETRIX® PRIME Gears are a step above other plastic gears – these are made to attach to steel shafts and connect TETRIX PRIME Square Beams. Made of sturdy acetal. Fit 6 mm steel axles and secure with 6-32 screw included in TETRIX PRIME sets or sold separately.

Ages 12+

QX40223 (pkg of 2)—$5.95



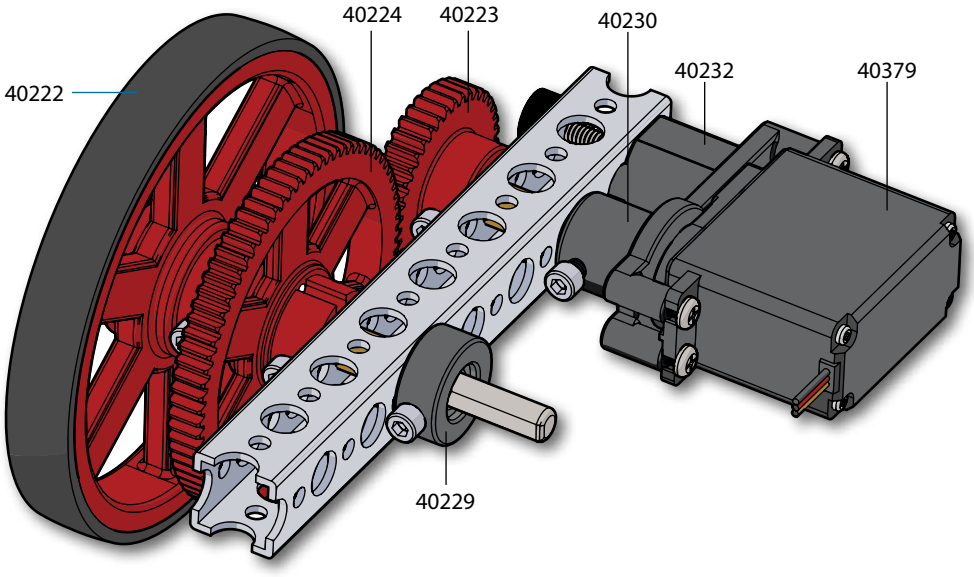
TETRIX® PRIME 80-TOOTH PLASTIC GEARS

A Pitsco Exclusive

TETRIX® PRIME Gears are a step above other plastic gears – these are made to attach to steel shafts and connect TETRIX PRIME Square Beams. Made of sturdy acetal. Fit 6 mm steel axles and secure with 6-32 screw included in TETRIX PRIME sets or sold separately.

Ages 12+

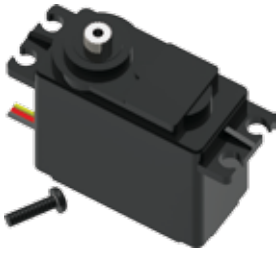
QX40224 (pkg of 2)—$7.95



Motion

Movement is accomplished through:

- Servos (both standard and continuous rotation)
- Wheels
- Shafts
- Bushings
- Gears
- Collars
- Hubs



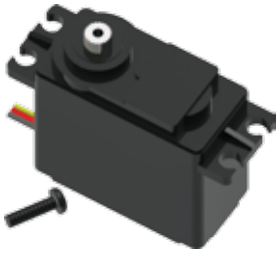
HITEC HS322-HD SERVO MOTOR

This standard servo features Karbonite gears nearly four times stronger than nylon.

Operating voltage: 6 volts. Stall torque: 51 oz/in.

Ages 12+

QX40538—$15.95



HITEC 1425CR CONTINUOUS ROTATION SERVO MOTOR

Keep things rolling with this continuous rotation servo. Fully proportional speed (forward and reverse) for precise movements.

Operating voltage: 6 volts. Stall torque: 42 oz/in.

Ages 12+

QX40379—$22.95



TETRIX® PRIME SERVO MOUNTING BRACKET

A Pitsco Exclusive

Adding servos to TETRIX® PRIME proves to be simple with this mount. Made of acetal plastic, each mount holds one servo in place.

Ages 12+

QX40232—$3.50

PITSCO TETRIX PRIME WHEEL, GEAR, & SERVO HARDWARE

TETRIX® PRIME SHAFT SERVO HUB



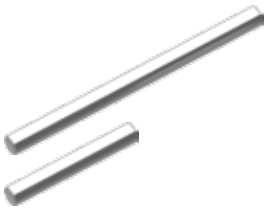
A Pitsco Exclusive

Attach servos to 6 mm axles using this shaft hub. Made of durable acetal plastic.

Ages 12+

QX40230—$1.50

TETRIX® PRIME STEEL AXLES

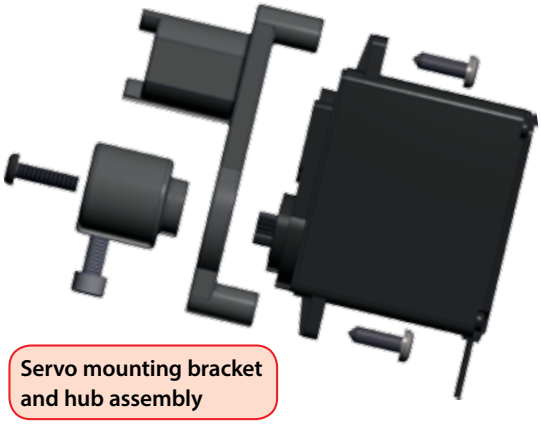


A Pitsco Exclusive

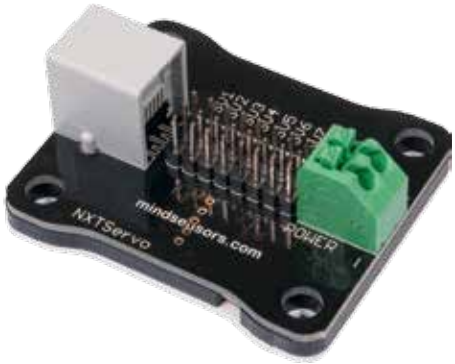
Attach wheels and gears with these precision-ground steel axles. The D profile keeps wheels and gears from spinning on the shaft. 6 mm diameter. Available in 40 mm and 80 mm lengths.

Ages 12+

QX40225 80 mm (pkg of 6)—$12.95
QX40226 40 mm (pkg of 6)—$10.95



Servo mounting bracket and hub assembly



NXTSERVO-V3 MODULE

The NXTServo-v3 Module is designed to work with the LEGO® NXT or EV3 Brick, enabling you to add programming and sensors to your TETRIX® PRIME robots. This module will control the speed and position of up to eight TETRIX PRIME servo motors, using commands sent from the NXT or EV3. Software blocks for NXT and EV3 software, as well as programming examples for ROBOTC® and LabVIEW™, can be downloaded at the web links included.

Note: One motor channel position must be used to connect the TETRIX PRIME six-volt battery to the module.

QX40959—$53.95

NEW!

TETRIX® PRIME 6 MM PLASTIC BUSHING SPACER



A Pitsco Exclusive

These plastic spacer/bushings are used in conjunction with 6 mm axles to keep your mechanisms and wheels running smoothly. Can also be used as a 2 mm spacer between metal surfaces.

Ages 12+

QX41665 (pkg of 50)—$4.50

TETRIX® PRIME BRONZE BUSHING



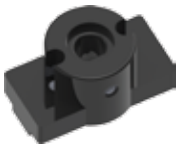
A Pitsco Exclusive

Keep things running smoothly on robots. Sized for the TETRIX® PRIME system, these 8 mm by 6 mm bronze bushings are lightly lubricated to reduce friction on axles.

Ages 12+

QX40227 (pkg of 12)—$9.95

TETRIX® PRIME BEAM ATTACHMENT HUB



A Pitsco Exclusive

Use this hub to attach a 6 mm shaft through an aluminum beam to form a pivot. Made of acetal plastic. Requires TETRIX® PRIME Thumbscrews and Socket Head Cap Screws, sold separately.

Ages 12+

QX40228 (pkg of 2)—$3.95

TETRIX® PRIME D-SHAFT SET COLLAR



A Pitsco Exclusive

Set collars are used to hold a rotating axle in horizontal alignment when constructing pivot joints. Made of acetal plastic; requires Socket Head Cap Screws (sold separately).

Ages 12+

QX40229 (pkg of 2)—$2.50

SOCKET HEAD CAP SCREW



A Pitsco Exclusive

Use these 6-32 Socket Head Cap Screws to secure rotating axle-mounted elements in place. Requires 7/64" hex driver included in starter set.

QX40516 (pkg of 25)—$2.95

22" PORTABLE STORAGE SOLUTION



This handy tote is perfect for carrying an entire TETRIX® PRIME Starter Set wherever you might need to go! The storage chest features 15 small removable compartments in the top level – perfect for pulling parts out for working – and a lower level for larger parts. A cantilever mechanism makes moving from the top to the bottom level easy. Made of professional-grade plastic with metal handle and latches, this chest will withstand years of use. Measures 30 x 57 x 17 cm. Colors might vary.

QX40709—$39.95

See page 47 for more storage solutions.

PITSCO TETRIX PRIME Gripper Assembly & Controllers



TETRIX® Beam and Thumbscrew not included with Gripper Kit.

TETRIX® PRIME GRIPPER KIT

A Pitsco Exclusive

Add function with this kit that enables you to build a gripper for your TETRIX® PRIME robot. After it is built, the gripper can easily be added to a robot, using a thumbscrew and wing nut. Gripper jaws open to 63 mm to pick up objects. Comes with necessary hardware and screws. Requires assembly and a standard servo, sold separately.

Ages 12+

QX40234—$9.95

Control

Basic PRIME control is from a gamepad-style, four-channel wireless controller. The control system is virtually plug and play so students can get their robots moving right away.

If you want to delve into other controls, be our guests! TETRIX PRIME is compatible with:

- LEGO® MINDSTORMS® EV3 and NXT Bricks
- Arduino®
- National Instruments' myRIO
- Raspberry Pi®



TETRIX® PRIME WIRELESS JOYSTICK GAMEPAD SYSTEM WITH RECEIVER

A Pitsco Exclusive

Take remote control out of the past! This affordable four-channel controller is designed in the gamepad style with dual joysticks to feel more natural to students. Plus, it offers high-end perks, including interference-free performance, servo reversing, motor trim adjustment, easy linking, and an R2004GF receiver. Can be used with TETRIX® MAX or TETRIX PRIME systems.

Controller is 2.4 GHz; includes four AA batteries. Controller color might vary.

Ages 12+

QX40377—$64.95



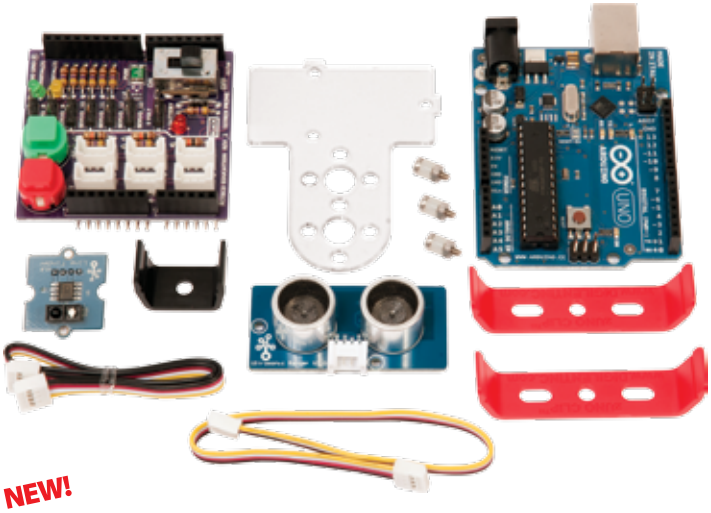
R/C RECEIVER

A Pitsco Exclusive

Buying a new Gamepad System when only the receiver is lost or damaged is wasteful and expensive. We've solved that problem by offering this spare 2.4 GHz receiver.

Ages 12+

QX40656—$11.95



NEW!

TETRIX® PRIME ARDUINO HARDWARE KIT

The Arduino Hardware Kit is a great way to get started programming TETRIX® PRIME robots with the Arduino programming language. This convenient hardware kit contains everything you need to add Arduino control to your TETRIX PRIME R/C Starter Set:

- Arduino Uno
- TETRIX PRIME Arduino servo motor interface shield
- Line follower sensor + mounting hardware and cable
- Ultrasonic sensor + mounting hardware and cable
- Two Arduino Uno mounting clips

All components come with mounting adapters, making it easy to attach to the TETRIX building system hole pattern. Arduino software must be downloaded from the Arduino website. Programming examples and helpful getting started projects can be found at www.TETRIXrobotics.com.

Previous experience and familiarity with the Arduino platform is recommended. A USB cable type A to B is required, but not included in the kit.

Ages 12+

QX42030—$160

PITSCO TETRIX PRIME BATTERIES & HARDWARE



TETRIX® PRIME 6 V NIMH BATTERY PACK

A Pitsco Exclusive

Don't skimp on power! Use this five-cell, six-volt, 1,500 mAh rechargeable battery pack to bring long-lasting power to TETRIX® PRIME motors and electronics.

Ages 12+

QX40235—$16.95



TETRIX® PRIME 5-CELL NIMH BATTERY PACK CHARGER

A Pitsco Exclusive

Keep your robots rolling! Use this as a replacement or an extra charger for the 5-Cell NiMH Battery Pack that comes with TETRIX® PRIME sets.

Ages 12+

QX40378—$18.95



TETRIX® PRIME BATTERY MOUNT BRACKET

A Pitsco Exclusive

It's a cinch to mount battery packs when using this bracket. Features two heavy-duty plastic clips that are used together with a bungee band to tie down the TETRIX® PRIME Battery Pack. An extra band is included.

Ages 12+

QX40236—$3.95



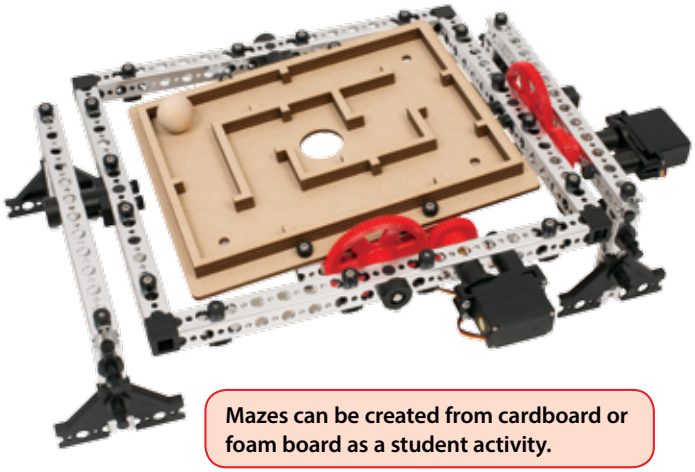
TETRIX® PRIME BATTERY PACK ON/OFF SWITCH

A Pitsco Exclusive

Controls the power between the battery pack and the receiver.

Ages 12+

QX40457—$4.95



Mazes can be created from cardboard or foam board as a student activity.

MINIATURE BALL-POINT HEX DRIVER

A Pitsco Exclusive

Great tool for securing the TETRIX® PRIME Thumbscrews and Socket Head Cap Screws. 6" blade length. 7/64" hex size.

Ages 12+

QX40341—$2.95





4-IN-1 SCREWDRIVER

This adjustable screwdriver features two capped ends – an end with Phillips and flathead screwdrivers. Plus, each end features a small and extra-small size – just pull out each end and flip it around to the other style of head. Great for small projects and electronics. Features a clip to help keep it in your pocket, so you don't lose this handy tool!

QX36404—$1.95

GOLF BALLS, PRACTICE

Not just for golf, these balls are used in activities in the *TETRIX® PRIME Builder's Guide*. These soft foam replacements might come in handy!

Ages 12+

QX14041 (pkg of 4)—$5.95



PLASTIC 2 OZ CUPS

Used as cones and ball catchers in the *TETRIX® PRIME Builder's Guide* activities, extra cups can come in handy or be used as replacements.

QX41769 (pkg of 4)—$1.50



Compatibility

TETRIX® PRIME is instantly compatible with TETRIX MAX and LEGO® Technic components. PRIME and MAX have congruent hole geometries, meaning that the hole patterns match up between MAX and PRIME, allowing the two systems to be easily integrated. And if that weren't enough, PRIME and MAX share the same modules as LEGO Technic – so they all integrate seamlessly to provide exponential opportunities for robotic design and construction.



TETRIX® PRIME Robotics: Remote Control

3 Weeks

The principles of building a remote-controlled robot and using this robot to complete various engaging challenges are the focus of this STEM Unit. The PRIME Starter Set is used for the basic building parts for students to construct various robots and complete challenges while addressing science, technology, engineering, math, and language arts standards. The PRIME Building System enables students to quickly prototype a variety of robots, test them, and engineer them for improved performance.



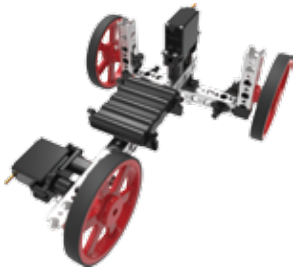
SAMPLE ACTIVITY

Students build a remote control robot and use the speed formula to determine the speed of the robot over a prescribed distance. Using the speed formula they determine how long it will take to move a different distance. They perform a time test to verify their calculations.

Next, students add gears to make the robot move faster and determine the new speed.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

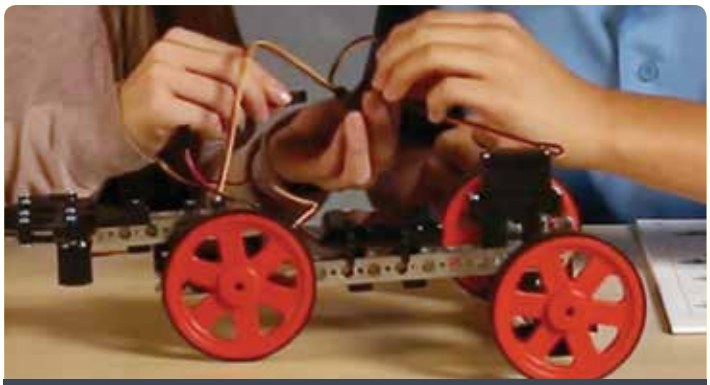
- TETRIX PRIME R/C Starter Set
- Stopwatch
- Painter's tape
- Tape measure
- *TETRIX PRIME Builder's Guide*
- *TETRIX PRIME Robotics: Remote Control Student Logbook*



A Pitsco Exclusive

QX41285 TETRIX® PRIME Robotics: Remote Control STEM Unit—$4,895
QX41286 Remote Control STEM Unit – 4-Student Add-On—$775
QX41193 Remote Control STEM Unit – Logbooks—$10

Serves 24 students



TETRIX® PRIME Robotics: Autonomous

3 Weeks

Using the TETRIX® PRIME Starter Set and adding sensors and an Arduino Uno controller, this unit focuses on creating a robot to complete tasks without operator input. Using an Arduino board and *ArduBlock* software along with ultrasonic and line-follower sensors, students write programs to complete various tasks that increase in complexity. Students use PRIME parts to quickly prototype and test different configurations and overcome additional obstacles. STEM standards are addressed with the engaging activities provided in this unit.



SAMPLE ACTIVITY

Students build a robot and attach a line finder sensor. They create a program of instructions using graphical programming software to have the robot autonomously follow the line.

The students also create instructions to have the robot autonomously navigate other driving courses using sensor input to react to obstacles.

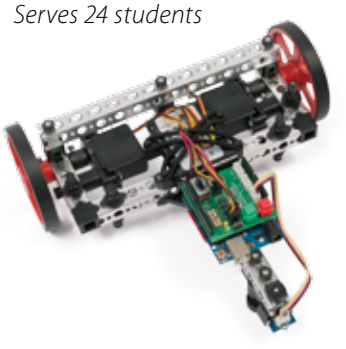
PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- TETRIX PRIME R/C Starter Set
- TETRIX PRIME Controller and Sensor Set
- Black tape
- *TETRIX PRIME Robotics: Autonomous Student Logbook*

A Pitsco Exclusive

QX41287 TETRIX® PRIME Robotics: Autonomous STEM Unit—$6,995
QX41288 Autonomous STEM Unit – 4-Student Add-On—$1,099
QX41452 Autonomous STEM Unit – Logbooks—$10

Serves 24 students





TETRIX® PRIME Robotics: Automation Manufacturing

3 Weeks

Combining the quick prototyping capabilities of the TETRIX® PRIME parts with the strength and ruggedness of the MAX parts, this unit focuses on activities and builds that might be used in manufacturing plants. Using an Arduino board and *ArduBlock* software along with various sensors, students program the computer to accomplish tasks that might normally be found in a manufacturing environment. By combining parts from the two products, students build quick prototypes with the strength to accomplish automated activities that address STEM standards.



SAMPLE ACTIVITY

Students build a pick and place robotic arm. Students create a set of step-by-step instructions using a graphical programming tool to have the robotic arm pick up an object and place it into a new location.

Serves 24 students

This pick-and-place robotic arm is used to move objects in a simulated production line with other robotic elements.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- TETRIX PRIME Automation Set
- *TETRIX PRIME Robotics: Automation Manufacturing Student Logbook*

A Pitsco Exclusive

QX41289 TETRIX® PRIME Robotics: Automation Manufacturing STEM Unit—$9,195
QX41290 Automation Manufacturing STEM Unit – 4-Student Add-On—$1,149
QX41767 Automation Manufacturing STEM Unit – Logbooks—$10

"It's been fantastic! The kids have really enjoyed the units. To be honest, I was a little hesitant about buying the curriculum, thinking I could do it on my own, but what Pitsco provided was perfect!"

Mike
Hutchinson Middle School, Hutchinson, MN



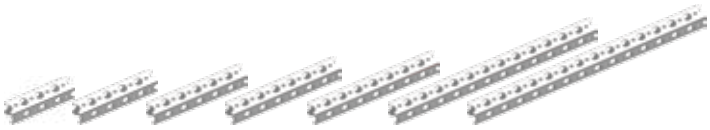
TETRIX® PRIME Robotics: Remote Control, Autonomous, and Automation Manufacturing STEM Unit

Want three robotics curriculum units? This package provides everything necessary to *incrementally* implement TETRIX® PRIME Robotics: Remote Control, TETRIX PRIME Robotics: Autonomous, and TETRIX Robotics: Automation Manufacturing. This package includes 12 TETRIX PRIME Starter Sets and all curriculum, materials, and activities from the other three packages, which combine for nine weeks of robotics.

A Pitsco Exclusive
Ages 12+
QX41297—$10,995



TETRIX® PRIME R/C Starter Set Parts Index



Beams

40201 TETRIX® PRIME 4-Hole Square Beam....12
40202 TETRIX® PRIME 5-Hole Square Beam....12
40203 TETRIX® PRIME 6-Hole Square Beam....12
40204 TETRIX® PRIME 7-Hole Square Beam....12
40205 TETRIX® PRIME 8-Hole Square Beam....12
40206 TETRIX® PRIME 13-Hole Square Beam....12
40207 TETRIX® PRIME 15-Hole Square Beam....12



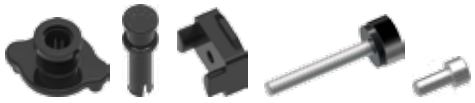
Internal Connectors

40212 TETRIX® PRIME 3-Way Beam Connector....13
40213 TETRIX® PRIME Tee Beam Connector....13
40211 TETRIX® PRIME 90-Degree Beam Connector....13
40214 TETRIX® PRIME Beam End Connector....13
40322 TETRIX® PRIME Beam Extension Connector....13
40215 TETRIX® PRIME Beam Straight Connector....13



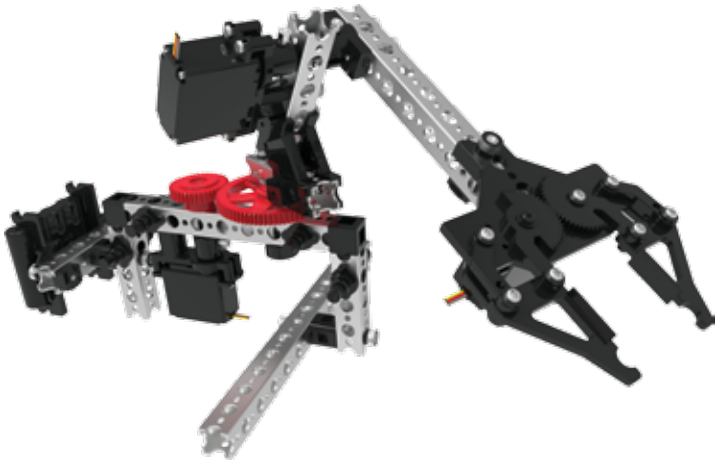
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40208 TETRIX® PRIME 90-Degree Beam Bracket....14
40209 TETRIX® PRIME 60-Degree Beam Bracket....14
40210 TETRIX® PRIME Tee Beam Bracket....14
40216 TETRIX® PRIME Straight Block Beam Connector....14
40217 TETRIX® PRIME 90-Degree Cross Block Connector....14



Connecting Hardware

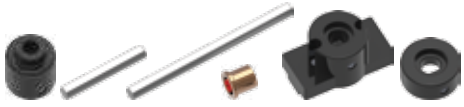
40219 TETRIX® PRIME Quick Rivet Connector....15
40220 TETRIX® PRIME Quick Rivet Pegs....15
40221 TETRIX® PRIME Wing Nut....15
40323 TETRIX® PRIME Thumbscrew....15
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40223 TETRIX® PRIME 40-Tooth Plastic Gear....16
40224 TETRIX® PRIME 80-Tooth Plastic Gear....16
40538 HiTec HS322-HD Servo Motor....16
40379 HiTec 1425CR Continuous Rotation Servo Motor....16
40232 TETRIX® PRIME Servo Mounting Bracket....16



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40229 TETRIX® PRIME D-Shaft Set Collar....17



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40234 TETRIX® PRIME Gripper Kit....18
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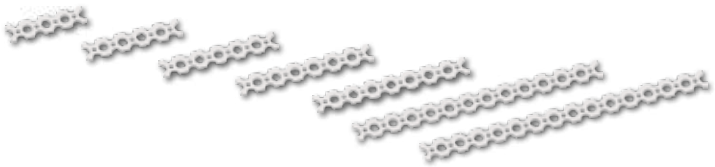




Batteries & Hardware

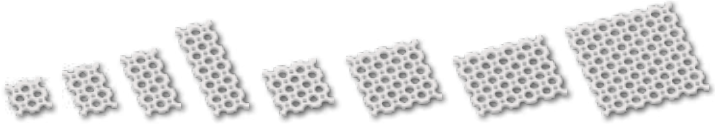
40236 TETRIX® PRIME Battery Mount Bracket....19
40235 TETRIX® PRIME 6 V NiMH Battery Pack....19
40457 TETRIX® PRIME Battery Pack On/Off Switch....19
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41246 TETRIX® PRIME 6-Hole Flat Linkage....10
41247 TETRIX® PRIME 7-Hole Flat Linkage....10
41248 TETRIX® PRIME 8-Hole Flat Linkage....10
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41250 TETRIX® PRIME 15-Hole Flat Linkage....10



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41251 TETRIX® PRIME 2 x 2 Hole Plate....11
41254 TETRIX® PRIME 2 x 3 Hole Plate....11
41255 TETRIX® PRIME 2 x 4 Hole Plate....11
41256 TETRIX® PRIME 2 x 6 Hole Plate....11
41257 TETRIX® PRIME 3 x 3 Hole Plate....11
41261 TETRIX® PRIME 4 x 4 Hole Plate....11
41262 TETRIX® PRIME 4 x 5 Hole Plate....11
41263 TETRIX® PRIME 6 x 6 Hole Plate....11



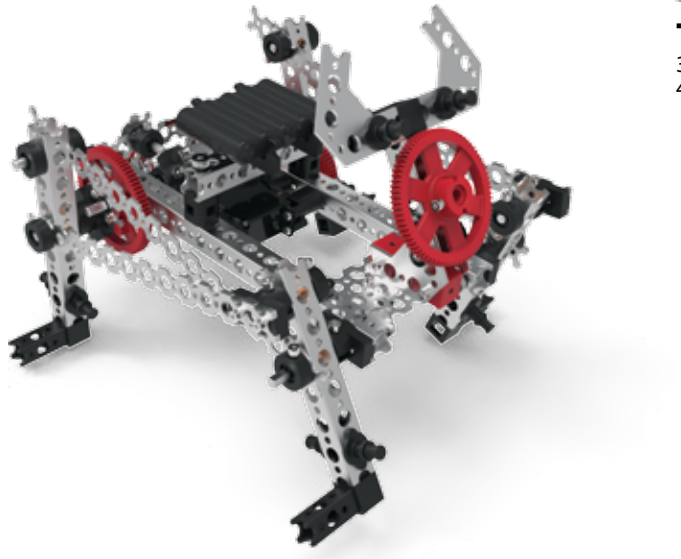
TETRIX® PRIME Aluminum Gussets

41264 TETRIX® PRIME 60-Degree Gusset....15
41265 TETRIX® PRIME 90-Degree Gusset....15
41266 TETRIX® PRIME 120-Degree Gusset....15



Gears and Motors

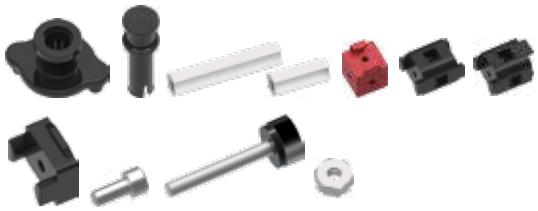
40223 TETRIX® PRIME 40-Tooth Plastic Gear....16
40224 TETRIX® PRIME 80-Tooth Plastic Gear....16
40538 HiTec HS322-HD Servo Motor....16





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40232 TETRIX® PRIME Servo Mounting Bracket....16
40228 TETRIX® PRIME Beam Attachment Hub....17
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Connecting Hardware

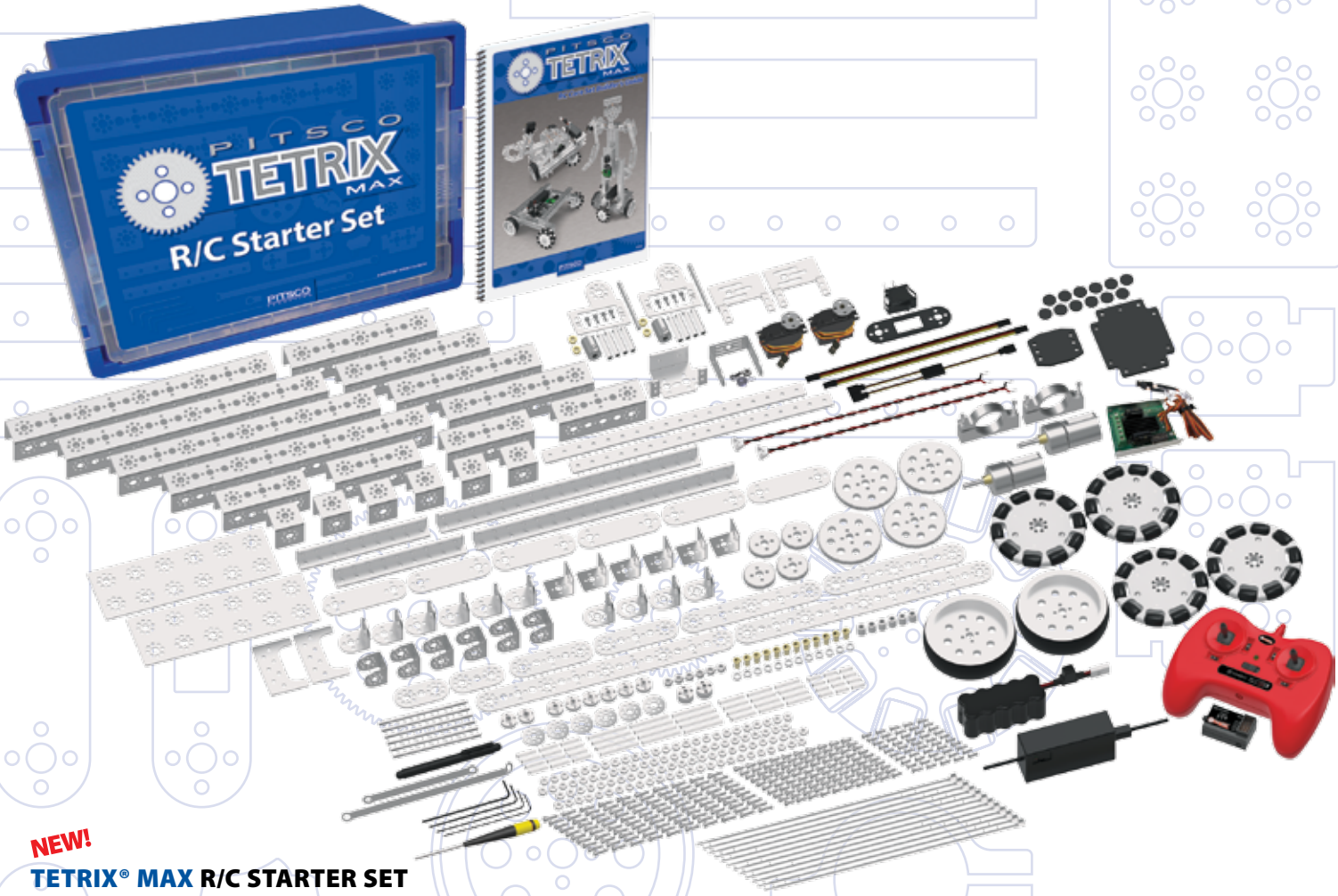
40219 TETRIX® PRIME Quick Rivet Connector....15
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39094 Kep Nuts....31



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40341 Miniature Ball-point Hex Driver....19

PITSCO TETRIX MAX R/C STARTER SET



NEW!

TETRIX® MAX R/C STARTER SET

A Pitsco Exclusive

If you can dream up a design, you can build it with the TETRIX® MAX Building System. TETRIX is a complete design system for students who are serious about engineering.

Featuring heavy-duty, aircraft-grade aluminum elements for construction, powerful drive motors, and expandable capabilities, TETRIX provides the ideal platform for creativity. Whether students want to build a basic square-chassis robot base with a remote control or incorporate other electronics (not included) to design a highly specific autonomous robot, this system is unlimited. Designed to provide one student or a team of students with the hardware to get started on a robotics or other build project, this starter set eliminates the worry that you might miss a needed part to finish the project.

Includes the comprehensive *TETRIX MAX Builder's Guide* (hard copy and CD), a 190-page teacher's resource packed with several model build instructions, safety information, resources, challenges, and more. Includes a variety of TETRIX MAX structural elements, DC motors, servos and hardware, gears, wheels, axles, tubing, flats and angles, and channels. It also includes a gamepad controller and batteries, rechargeable battery and charger, motor and servo controller board, and storage case with lid.

Ages 14+

QX41990—$595



TETRIX® HARD POINT CONNECTORS

A Pitsco Exclusive

Want to connect a TETRIX® MAX robot to LEGO® elements? It's not a problem with this Hard Point Connector that was designed to enable LEGO Technic elements to be connected to the TETRIX MAX Building System.

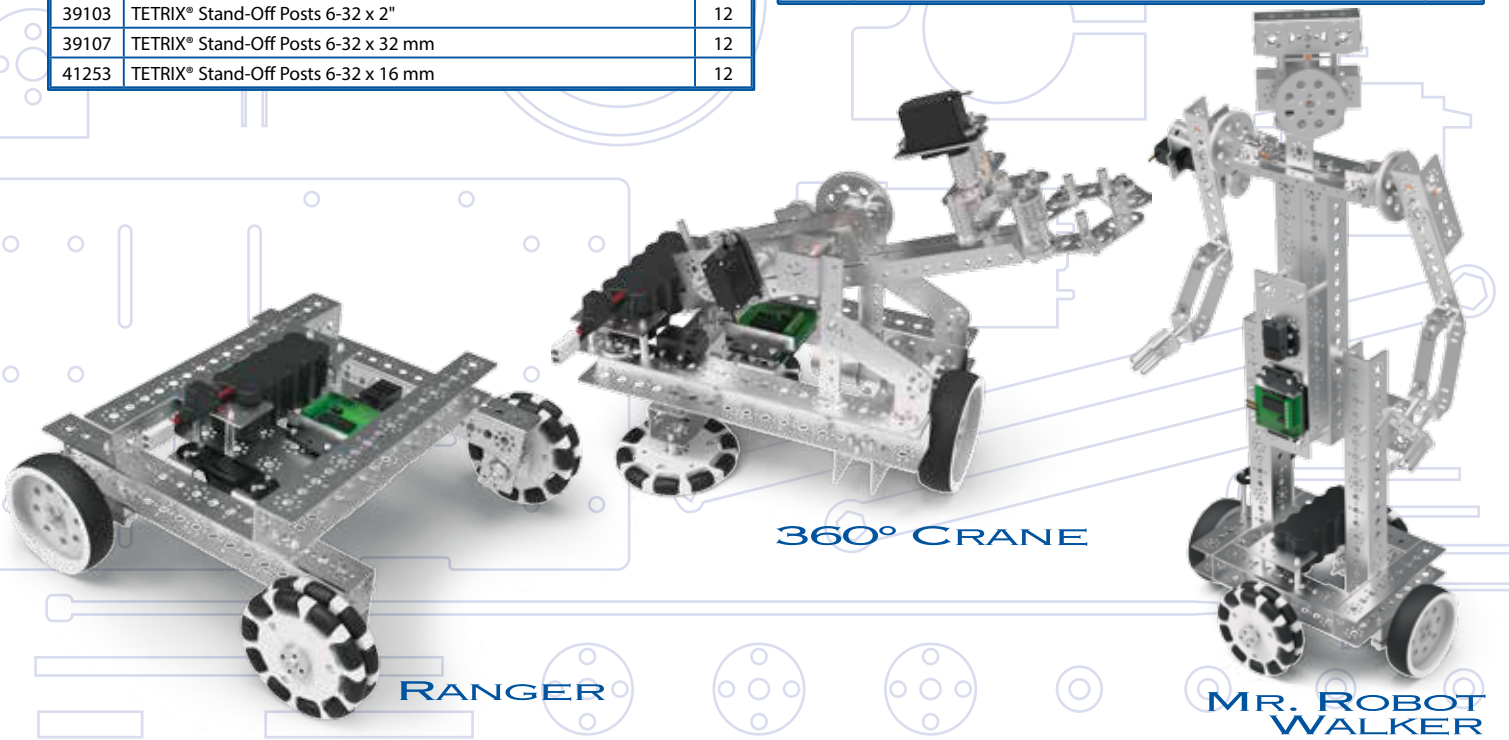
Ages 12+

QX39120 (pkg of 12)—$3.95 SALE!

TETRIX® MAX R/C STARTER SET CONTENTS

CHANNELS		
39065	TETRIX® MAX 32 mm Channel	6
39066	TETRIX® MAX 96 mm Channel	4
39067	TETRIX® MAX 160 mm Channel	4
39068	TETRIX® MAX 288 mm Channel	4
BARS & ANGLES		
39070	TETRIX® MAX 288 mm Flat Bars	2
39071	TETRIX® MAX 144 mm Angle	2
39072	TETRIX® MAX 288 mm Angle	2
PLATES & BRACKETS		
39073	TETRIX® MAX Flat Building Plates	2
39061	TETRIX® MAX Flat Brackets	6
39062	TETRIX® MAX L Brackets	6
39281	TETRIX® MAX Inside Corner Brackets	6
39270	TETRIX® MAX Inside C Connectors	6
41790	TETRIX® MAX Adjustable Angle Corner Bracket	4
FLATS		
39274	TETRIX® MAX Flat 64 mm x 16 mm	2
39273	TETRIX® MAX Flat 96 mm x 16 mm	2
39272	TETRIX® MAX Flat 160 mm x 16 mm	2
39271	TETRIX® MAX Flat 288 mm x 16 mm	2
41791	TETRIX® MAX Adjustable Angle Flat Bracket	6
AXLES, HUBS, & SPACERS		
39079	TETRIX® MAX Motor Hub Pack	2
39172	TETRIX® MAX Axle Hubs	6
39092	TETRIX® MAX Axle Set Collars	6
39088	TETRIX® MAX 100 mm Axles Pack	6
39091	TETRIX® MAX Bronze Bushings	12
39090	TETRIX® MAX Gear Hub Spacers	2
39100	TETRIX® MAX Axle Spacers 1/8"	12
39101	TETRIX® MAX Axle Spacers 3/8"	6
39387	TETRIX® MAX Flat Round Spacer	6
GEARING		
39028	TETRIX® MAX Gear 40-Tooth	4
39086	TETRIX® MAX Gear 80-Tooth	4
POSTS & STANDOFFS		
39102	TETRIX® Stand-Off Posts 6-32 x 1"	12
39103	TETRIX® Stand-Off Posts 6-32 x 2"	12
39107	TETRIX® Stand-Off Posts 6-32 x 32 mm	12
41253	TETRIX® Stand-Off Posts 6-32 x 16 mm	12

SERVOS & HARDWARE		
39060	TETRIX® MAX Single Standard-Scale Servo Motor Bracket	1
39593	TETRIX® MAX Standard-Scale Pivot Arm with Bearing	1
39197	TETRIX® MAX 485 Servo	2
39081	Servo Extension	2
39082	Servo Y Connector	1
41789	TETRIX® MAX Standard Servo Mounting Kit	2
39280	TETRIX® MAX Adjustable Servo Brackets	2
DC MOTORS & HARDWARE		
39089	TETRIX® MAX Motor Mount	2
39530	TETRIX® MAX DC Gear Motor	2
31903	TETRIX® MAX Motor Power Cable	2
TIRES & WHEELS		
39055	TETRIX® MAX 4" Wheel	2
36466	TETRIX® MAX 4" Omni Wheel	2
NUTS, SCREWS, & FASTENERS		
39094	Kep Nuts	100
39097	Socket Head Cap Screws 6-32 x 1/2"	100
39098	Socket Head Cap Screws 6-32 x 5/16"	100
39111	Button Head Cap Screws 3/8"	50
31902	Zip Ties	12
BATTERY & CHARGER		
38009	TETRIX® MAX Battery Clips	2
39057	TETRIX® MAX 12 volt 3000 mAh Battery	1
39830	TETRIX® MAX 12 volt Battery Charger	1
TOOLS		
36404	4-in-1 Screwdriver	1
38001	TETRIX® Wrench Set	2
39104	TETRIX® MAX Hex Key Pack	4
40341	Miniature Ball-point Hex Driver	1
ACCESSORIES		
42146	TETRIX® MAX R/C Builder's Guide	1
ELECTRONICS & CONTROL		
40377	4-Channel Wireless Gamepad, Batteries, and Receiver	2
42073	TETRIX® MAX R/C Motor Controller	1
39129	TETRIX® On/Off Power Switch	1
41928	TETRIX® R/C Components Mounting Kit	2



PITSCO TETRIX MAX EXPANSION SET



NEW!

TETRIX® MAX EXPANSION SET

A Pitsco Exclusive

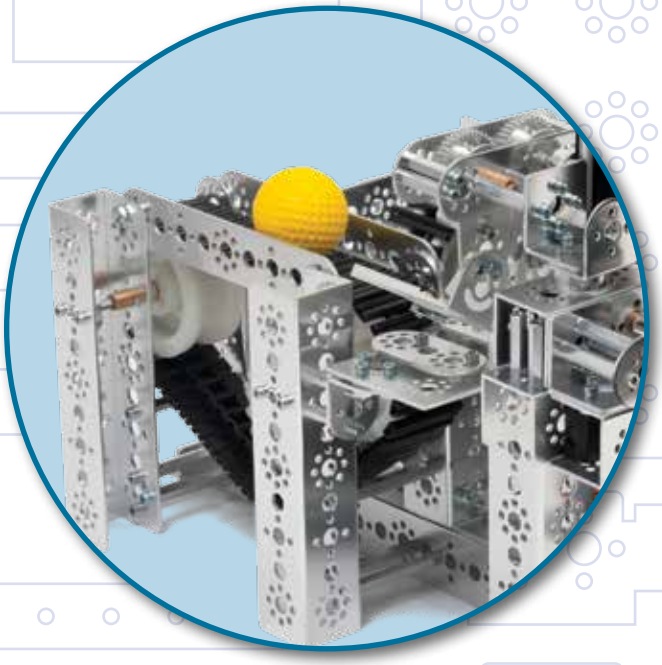
Add this expansion set to your TETRIX® collection to build bigger and more complex robots and complete more challenging engineering projects. This set includes 637 building elements and comes complete with a convenient storage bin.

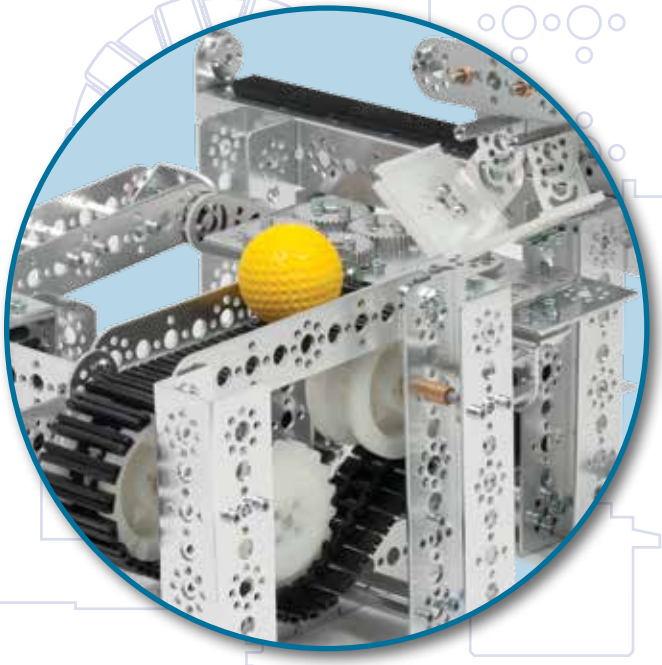
Ages 14+

QX41979—$249

TETRIX® MAX EXPANSION SET CONTENTS

CHANNELS		
39065	TETRIX® MAX 32 mm Channel	4
39066	TETRIX® MAX 96 mm Channel	4
39067	TETRIX® MAX 160 mm Channel	4
39068	TETRIX® MAX 288 mm Channel	2
PLATES & BRACKETS		
39073	TETRIX® MAX Flat Building Plates	2
39061	TETRIX® MAX Flat Brackets	6
39281	TETRIX® MAX Inside Corner Brackets	6
FLATS		
39274	TETRIX® MAX Flat 64 mm x 16 mm	2
39273	TETRIX® MAX Flat 96 mm x 16 mm	2
39272	TETRIX® MAX Flat 160 mm x 16 mm	2
39271	TETRIX® MAX Flat 288 mm x 16 mm	2
AXLES, HUBS, & SPACERS		
39172	TETRIX® MAX Axle Hubs	6
39092	TETRIX® MAX Axle Set Collars	12
39088	TETRIX® MAX 100 mm Axles Pack	6
39091	TETRIX® MAX Bronze Bushings	24
39090	TETRIX® MAX Gear Hub Spacers	2
41792	TETRIX® MAX 4 mm Bronze Bushings	12
39100	TETRIX® MAX Axle Spacers 1/8"	12
39101	TETRIX® MAX Axle Spacers 3/8"	6
GEARING AND SERVOS		
39028	TETRIX® MAX Gear 40-Tooth	4
39086	TETRIX® MAX Gear 80-Tooth	2
39085	TETRIX® MAX Gear 120-Tooth	2
39300	TETRIX® MAX Rack and Pinion Linear Slide Pack	1
40379	TETRIX® MAX 1425CR Continuous Rotation Servo	1
POSTS & STANDOFFS		
39107	TETRIX® Stand-Off Posts 6-32 x 32 mm	12
41253	TETRIX® Stand-Off Posts 6-32 x 16 mm	12
TANK TRACKS		
36460	TETRIX® MAX Tank Tread Chain Links	100
36462	TETRIX® MAX Tank Tread Idler Wheels	6
36461	TETRIX® MAX Tank Tread Sprockets	2
36463	TETRIX® MAX Tank Tread Conveyor Paddles	24
NUTS, SCREWS, & FASTENERS		
39094	Kep Nuts	100
39097	Socket Head Cap Screws 6-32 x 1/2"	100
39098	Socket Head Cap Screws 6-32 x 5/16"	100
39111	Button Head Cap Screws 3/8"	50
ACCESSORIES		
42145	TETRIX® MAX Expansion Set Builder's Guide	1
14041	Golf Balls, Practice	4







Existing LEGO® MINDSTORMS® users can use TETRIX!

You need the following:

- **EV3 Programming Blocks**
  (developed specifically for the EV3 programming environment)
  Download at www.TETRIXrobotics.com/EV3downloads.
- **HiTechnic DC Motor Controller (34303)** – (page 33)
  and/or **HiTechnic Servo Controller (34302)** – (page 34)
- **TETRIX® Hard Point Connectors (39120)** – (page 24)
- **Power Source**
  We recommend the TETRIX® MAX 12-Volt Rechargeable NiMH Battery Pack (39057) and NiMH Battery Pack Charger (39830) (page 42).

Download FREE EV3 programming blocks at www.TETRIXrobotics.com/EV3downloads.

PITSCO TETRIX MAX

GS



NEW!

TETRIX® MAX GETTING STARTED PACKAGE

A Pitsco Exclusive

Get the ultimate TETRIX® MAX Building System package for an entire class of 24 students to build a variety of packages. The Getting Started package includes the TETRIX MAX Core Set, Expansion Set, and the R/C component set, as well as a teacher's guide, the Engineering Design Loop Poster, and TETRIX MAX Build DVD.

Teacher's guide comes in both hard copy and CD and includes several model build instructions, safety information, resources, challenges, and more.

- QX41990 TETRIX® MAX R/C Starter Set (6 included)
- QX41979 TETRIX® MAX Expansion Set (6 included)
- QX60112 Engineering Design Loop Poster Set
- QX60088 A Teacher's Guide to Integrating Simple Machines in Robotics

QX41944 TETRIX® MAX Getting Started Package—$4,995

Ages 14+



NEW!

TETRIX® MAX R/C CLASS PACK

A Pitsco Exclusive

Your robotics classroom solution! The TETRIX® MAX R/C Class Pack provides parts, pieces, and control components for designing and constructing R/C robots using the TETRIX MAX Building System. This pack serves 24 students (six teams of four students each).

Ages 14+

QX41982—$3,495

TETRIX® MAX R/C ROBOTICS ENGINEERING TEACHER'S GUIDE



A Pitsco Exclusive

The *TETRIX® MAX R/C Robotics Engineering Teacher's Guide* applies students' creativity to the field of robotics to help them learn about robot engineering, simple machines, torque, power, and problem solving. Activities guide students in creating robots that draw, dance, herd golf balls, and more! Paperback/Spiral-bound, 84 pages.

Ages 14+

QX59793—$39.95

A TEACHER'S GUIDE TO INTEGRATING SIMPLE MACHINES IN ROBOTICS



A Pitsco Exclusive

Looking to use robotics to teach simple machines? If so, use the expertise of an education professor who helped design a national robotics event!

A Teacher's Guide to Integrating Simple Machines in Robotics gives you the know-how to teach simple machines and how they are used in robotics design. It provides simple machines information, more than 12 problem-solving activities, graphic organizers, assessment tools, sample lesson plans, and more.

Matt Seimears, associate education professor at Emporia State University, Kansas, wrote the guide and brought to it experience from helping to design Robotics: Urban Search & Rescue, a SkillsUSA® demonstration event in technology. Spiral-bound, 61 pages.

Ages 14+

QX60088—$24.95

NEW!

MAKE: MAKING SIMPLE ROBOTS



Written in language that non-engineers can understand, *Making Simple Robots* helps beginners move beyond basic craft skills and materials to the latest products and tools being used by artists and inventors.

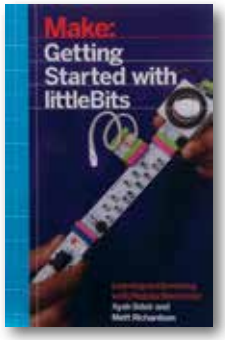
Each project includes step-by-step directions as well as clear diagrams and photographs. And every chapter offers suggestions for modifying and expanding the projects so that you can return to the projects again and again as your skill set grows. Paperback, 200 pages.

Ages 12+

QX41916—$19.95

NEW!

MAKE: GETTING STARTED WITH LITTLEBITS



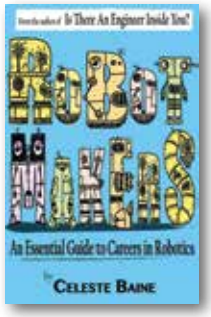
littleBits are electronic building blocks with more than 60 modules and trillions of combinations. This book teaches you just enough electronics to start making things with littleBits and takes you through connecting littleBits to the cloud and programming with its *Arduino*-compatible module. Paperback, 167 pages.

Ages 12+

QX41915—$16.95

NEW!

ROBOT MAKERS



As the world of robotics continues to grow and improve, so do the opportunities in robotics careers. Celeste Baine, a biomedical engineer and award-winning author, takes the reader into the field of robotics to see what lies within, the possibilities ahead, and how to get there. Learn about the different types of robots and how they are used, which college degrees are essential, and what your financial future as a roboticist could look like. Paperback, 139 pages.

Ages 12+

QX41546—$29.95

NEW!

MAKE: GETTING STARTED WITH SENSORS



If you incorporate *Arduino* or Raspberry Pi into your project, you can build much more sophisticated projects that can react in interesting ways and even connect to the Internet. This book teaches the basic electronic circuits to read and react to a sensor, how to use *Arduino* to develop sensor systems, and how to build sensor projects with the Linux-powered Raspberry Pi. Paperback, 125 pages.

Ages 12+

QX41918—$16.95

NEW!

MAKE: SENSORS



Make: Sensors is the definitive introduction and guide to the sometimes tricky world of using sensors to monitor the physical world. With dozens of projects and experiments for you to build, this book shows you how to build sensor projects with both *Arduino* and Raspberry Pi. Paperback, 377 pages.

Ages 12+

QX41919—$27.95

To see more TETRIX ideas, products, and inspiration, visit **www.pitsco.com/TETRIX**.

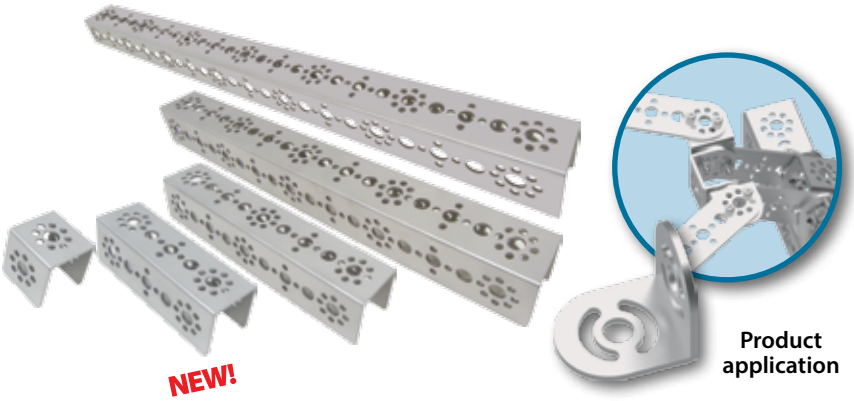
PITSCO TETRIX MAX CHANNELS

TETRIX® MAX CHANNELS

A Pitsco Exclusive

Heavy-duty aluminum channel pieces are the structural base for building with the TETRIX® Building System. Comes in five different lengths for flexible building – also, pieces can be cut to custom lengths with a metal-cutting blade.

QX39065 (32 mm x 32 mm x 32 mm) (pkg of 2)—$9.95
QX39066 (96 mm x 32 mm x 32 mm) (pkg of 2)—$11.95
QX39067 (160 mm x 32 mm x 32 mm) (pkg of 2)—$16.95
QX39068 (288 mm x 32 mm x 32 mm) (pkg of 2)—$27.95
QX39069 (416 mm x 32 mm x 32 mm)—$17.95



Product application



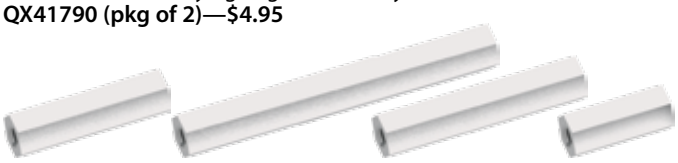
NEW!

TETRIX® MAX ADJUSTABLE ANGLE CORNER BRACKET

A Pitsco Exclusive

These slotted corner brackets allow the structural elements to be connected at varying angles to modify and customize builds.

QX41790 (pkg of 2)—$4.95



TETRIX® STAND-OFF POSTS

A Pitsco Exclusive

Hex stand-off posts; female/female, 6-32.

QX39102 (1") (pkg of 12)—$3.95
QX39103 (2") (pkg of 12)—$7.95
QX39107 (32 mm) (pkg of 12)—$4.95
QX41253 (16 mm) (pkg of 12)—$5.95



Product application

TETRIX® MAX INSIDE CORNER BRACKETS

A Pitsco Exclusive

Two-sided brackets fit the outside of TETRIX® Channels and can be used to bookend a channel to secure it to another structural element.

QX39281 (pkg of 2)—$4.95



TETRIX® MAX THREADED ROUND SPACERS

A Pitsco Exclusive

These lightweight aluminum spacers are exactly 1/2 the width of TETRIX® Channels and feature four tapped holes to provide secure 16 mm spacing between TETRIX structural elements. These handy spacers are useful for obtaining proper gear mesh spacing when building geared servo mechanisms and for a variety of other adjustments and attachment needs.

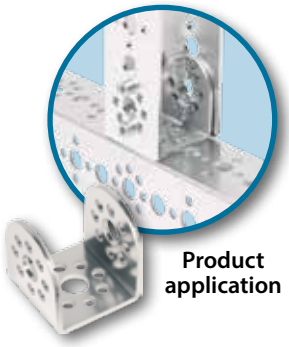
QX39592 (pkg of 2)—$11.95

TETRIX® MAX INSIDE C CONNECTORS

A Pitsco Exclusive

A three-sided bracket that fits inside a TETRIX® Channel? You bet! This connector helps to create perpendicular joints when space is tight. This can be placed facing out of the end or the open side of the channel. The connector is very strong as it attaches to two sides of the structural element.

QX39270 (pkg of 2)—$4.95



Product application

TETRIX® MAX PLASTIC QUICK RIVETS

A Pitsco Exclusive

Prototyping a TETRIX® robot will never be the same – these rivets make trying out different designs quick and easy. Instead of the tedious tightening of nuts and bolts to assemble a prototype, just pop in these nylon rivets and insert the locking pin. The pin makes the rivet's end flare out to secure the connection of TETRIX structural elements. And they are easily removed and reused.

QX39277 (pkg of 100)—$9.95



Product application

PITSCO TETRIX MAX FLATS, ANGLES, & FASTENERS



TETRIX® MAX FLATS

A Pitsco Exclusive

TETRIX® Flats create added versatility whether you're making a flat surface or creating a scoop or other angled piece. The elements come in four lengths, and you can shape them into various angles using a metal-bending tool, sold separately. Create rails, braces, brackets, gussets, and other custom pieces with ease.

QX39271 (288 mm x 16 mm) (pkg of 2)—$9.95
QX39272 (160 mm x 16 mm) (pkg of 2)—$7.95
QX39273 (96 mm x 16 mm) (pkg of 2)—$6.95
QX39274 (64 mm x 16 mm) (pkg of 2)—$4.95

TETRIX® MAX FLAT BRACKETS



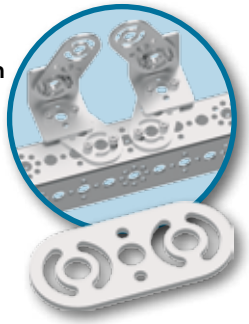
A Pitsco Exclusive

Perfect for connecting structural elements or for creating a servo leverage arm. Made of heavy-duty aluminum.

QX39061 (pkg of 2)—$5.95

NEW!

Product application



TETRIX® MAX ADJUSTABLE ANGLE FLAT BRACKET

A Pitsco Exclusive

Structural elements can be connected at varying angles with these slotted flat brackets.

QX41791 (64 mm x 16 mm) (pkg of 2)—$5.95

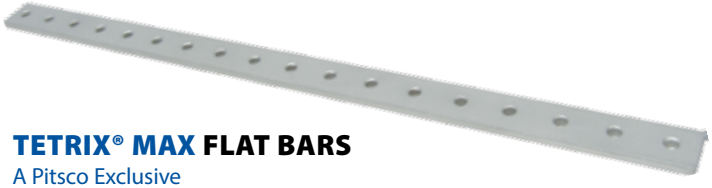
TETRIX® MAX L BRACKETS



A Pitsco Exclusive

Brackets with 90° angles connect structural elements. Made of heavy-duty aluminum.

QX39062 (pkg of 2)—$4.95



TETRIX® MAX FLAT BARS

A Pitsco Exclusive

These structural pieces are 288 mm long and made of heavy-duty aluminum. Can be cut to custom lengths with a metal-cutting blade.

QX39070 (pkg of 2)—$9.95

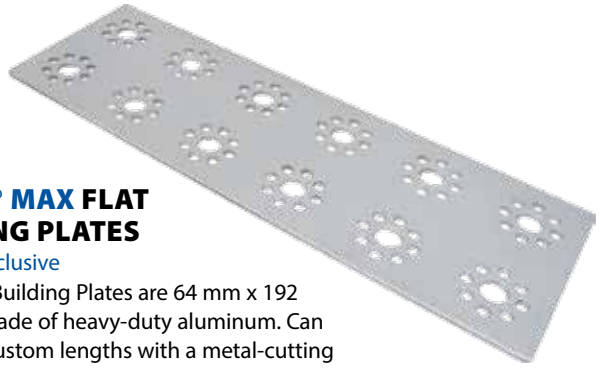


TETRIX® MAX ANGLES

A Pitsco Exclusive

Structural pieces feature 90° angles and heavy-duty aluminum construction. Can be cut to custom lengths with a metal-cutting blade.

QX39072 (144 mm x 16 mm x 16 mm) (pkg of 2)—$10.95
QX39071 (288 mm x 16 mm x 16 mm) (pkg of 2)—$13.95



TETRIX® MAX FLAT BUILDING PLATES

A Pitsco Exclusive

Flat Building Plates are 64 mm x 192 mm and made of heavy-duty aluminum. Can be cut to custom lengths with a metal-cutting blade.

QX39073 (pkg of 2)—$12.95

TETRIX® MAX FLAT ROUND SPACER



A Pitsco Exclusive

Ideal for maintaining proper distance between two TETRIX® elements attached on either side of a structural part. The Flat Round Spacer is 2 mm thick – the same wall thickness as TETRIX structural elements.

QX39387 (pkg of 6)—$5.95

SOCKET HEAD CAP SCREWS



These 6-32 Socket Head Cap Screws connect your robot design. Requires hex keys, sold separately, to tighten and loosen the screws.

QX39098 (5/16") (pkg of 100)—$9.95
QX39097 (1/2") (pkg of 100)—$9.95
QX39195 (1-1/2") (pkg of 20)—$7.95

BUTTON HEAD CAP SCREWS



These 6-32 screws feature a low-profile head – great for areas where moving parts are close to the screw heads. Requires hex keys, sold separately, to tighten and loosen the screws.

QX39111 (3/8") (pkg of 50)—$8.95

KEP NUTS

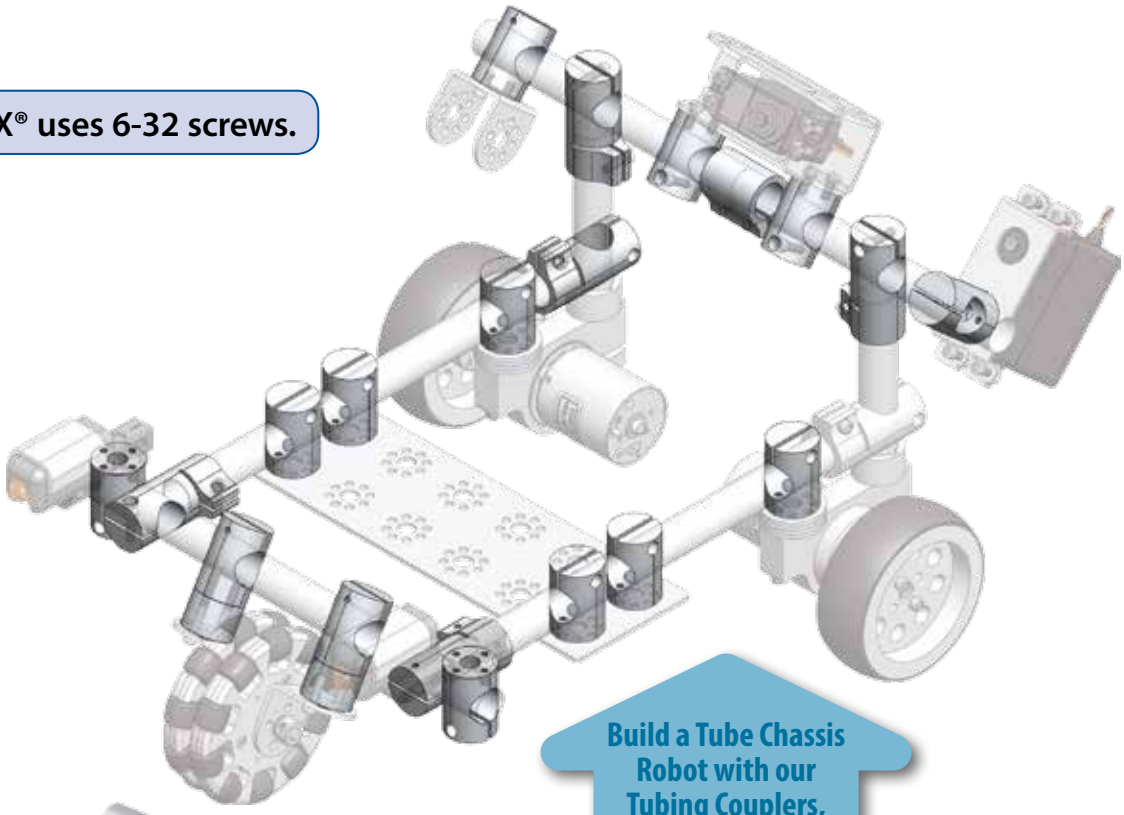


Kep Nuts feature a star washer that locks down on the heavy-duty aluminum structural elements for added strength to any TETRIX® robot design.

QX39094 (pkg of 100)—$2.95

PITSCO TETRIX MAX TUBING

TETRIX® uses 6-32 screws.



Build a Tube Chassis Robot with our Tubing Couplers, Corner Blocks, and Anchor Blocks!



TETRIX® MAX TUBES

A Pitsco Exclusive

Light and strong, the TETRIX® Tubes can be used as long extensions. Made of heavy-duty aluminum, they come in three different sizes but can also be cut to custom lengths with a metal-cutting blade.

QX39074 (80 mm) (pkg of 2)—$2.95
QX39075 (145 mm) (pkg of 2)—$5.95
QX39076 (220 mm) (pkg of 2)—$8.95



TETRIX® MAX TUBE REINFORCERS PACK

A Pitsco Exclusive

Insert these precision-machined aluminum TETRIX® Tube Reinforcers into the end of TETRIX Tubes for reinforcement when applying a TETRIX Tube Clamp.

QX39193—$1.95

TETRIX® MAX TUBE CLAMPS

A Pitsco Exclusive



Used to bolt TETRIX® Tubes to structural elements, these Tube Clamps feature heavy-duty aluminum construction.

QX39077 (pkg of 2)—$6.95

TETRIX® MAX TUBING CORNER BLOCKS

A Pitsco Exclusive



Easily make 90-degree corners or T-joints from TETRIX® Tubes by using this aluminum Corner Block. The clamping design holds tubes tightly in place.

QX39378 (pkg of 2)—$9.95

TETRIX® MAX TUBING ANCHOR BLOCKS

A Pitsco Exclusive



Extremely versatile, the aluminum TETRIX® Tubing Anchor Block makes it easy to connect TETRIX structural elements, Brackets, and Motor Mounts to TETRIX tubing.

QX39377 (pkg of 2)—$7.95

TETRIX® MAX TUBING COUPLERS

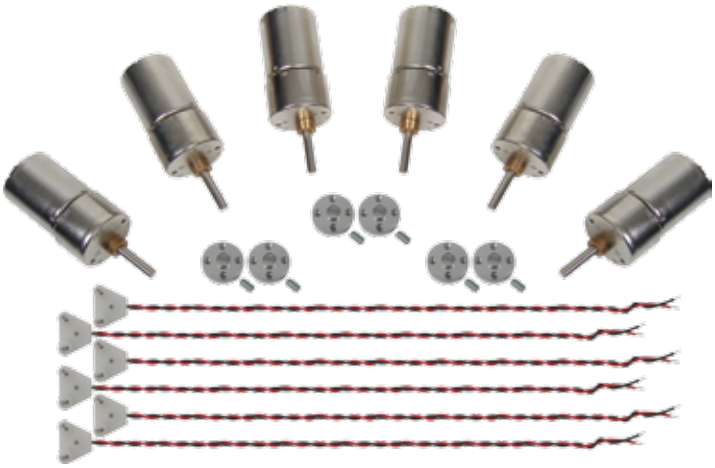
A Pitsco Exclusive



Easily connects two TETRIX® Tubes end to end to create extra-long components.

QX39379 (pkg of 2)—$6.95

PITSCO TETRIX MAX MOTORS



TETRIX® MAX DC MOTOR BULK PACK

A Pitsco Exclusive

When you're on a robot-building spree, this DC Motor Bulk Pack will come in handy.

Includes six DC Gear Motors, six Motor Power Cables, and three TETRIX® motor hub packs (two per pack for a total of six hubs).

QX39147—$165

TETRIX® MAX DC GEAR MOTOR

A Pitsco Exclusive



Redesigned for improved performance, this motor can handle more heat buildup and now has tougher coil protection and a harder steel alloy to prevent gear stripping. Twelve-volt DC motor features 152 rpm and 320 oz-in. of torque. **Note:** Gear train damage can occur if the motor shaft is stalled while being powered.

QX39530—$24.95



TETRIX® MAX MOTOR MOUNT

A Pitsco Exclusive

Attaches the DC Drive Motor to your robot. Includes the Motor Mount, two kep nuts, and two cap screws.

QX39089—$15.95

NEW!

TETRIX® MAX R/C MOTOR CONTROLLER



Take control of your TETRIX® DC motors – this controller plugs into your TETRIX wireless gamepad receiver to enable you to control the speed and direction of two TETRIX 12-volt DC motors.

QX42073—$89.95



TETRIX® MAX MOTOR POWER CABLE

A Pitsco Exclusive

For use with the DC Drive Motor.

QX31903—$1.95



TETRIX® MAX FUSE-PROTECTED MOTOR POWER CABLE

A Pitsco Exclusive

Designed with an in-line thermal switch to help protect the motor from drawing excessive current under heavy loads or in the stall condition when you are prototyping or experimenting with design ideas. For use with the DC Gear Motor.

QX36465—$12.95





TETRIX® MAX DC MOTOR MOUNT

A Pitsco Exclusive

An increased number of attachment holes makes this two-piece DC motor mount more flexible – mount a motor between or alongside Channels as well as on top of them.

QX39376—$15.95

HITECHNIC DC MOTOR CONTROLLER FOR TETRIX®

A Pitsco Exclusive



The HiTechnic DC Motor Controller for TETRIX® connects to an NXT Intelligent Brick sensor port and will enable you to control powerful DC gear motors for use with TETRIX robots. The controller has two H-bridge outputs to control the speed and direction of two DC gear motors and is designed to connect to the TETRIX hole pattern.

QX34303—$89.95

PITSCO TETRIX MAX QUARTER-SCALE SERVOS



TETRIX® MAX QUARTER-SCALE HS-755HB SERVO MOTOR WITH HORN

A Pitsco Exclusive

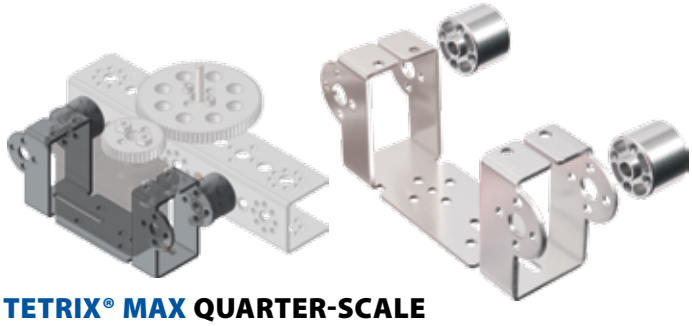
The Quarter-Scale Servo for TETRIX® offers a whopping 183 oz-in. of torque, 180-degree rotation, and superior strength and performance. Perfect for robot builds that require more power and durability.

The servo features Karbonite gears that offer incredible toughness and strength. Attach this Quarter-Scale Servo to your TETRIX robot with ease with one of our Quarter-Scale Servo Mounting Brackets.

Each servo includes one TETRIX Aluminum Servo Horn.

Ages 14+

QX39904—$36.95



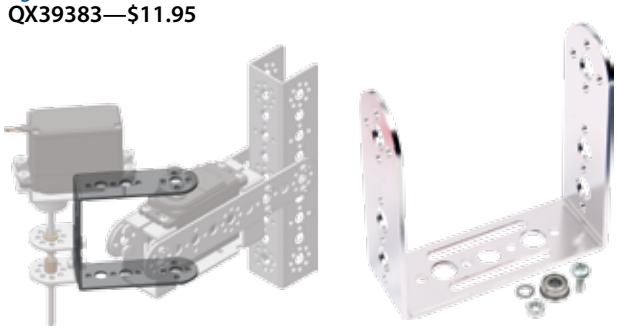
TETRIX® MAX QUARTER-SCALE SERVO FRAME MOUNTING BRACKET

A Pitsco Exclusive

Providing you flexibility in positioning a servo, this Frame Mounting Bracket holds the servo and can be attached in several ways. Easy to use. For use with a quarter-scale servo; includes two 16 mm round aluminum mounting standoffs.

Ages 14+

QX39383—$11.95



TETRIX® MAX QUARTER-SCALE PIVOT ARM WITH BEARING PACK

A Pitsco Exclusive

Used with the Frame Mounting Bracket, the Pivot Bracket creates strong, durable pivot joints while minimizing side load on the servo shaft. Compatible only with TETRIX® Quarter-Scale Servo Frame Mounting Bracket (39383); includes a 3 mm Bearing Pack.

Ages 14+

QX39594—$8.95



TETRIX® MAX QUARTER-SCALE HS-785HB WINCH SERVO MOTOR WITH HORN

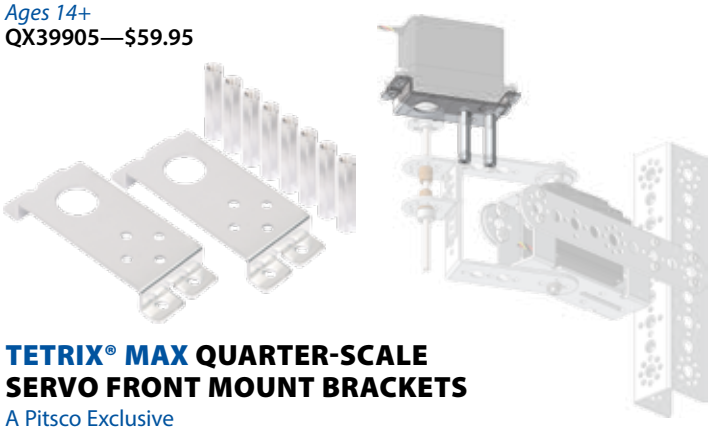
The HS-785HB is a super-duty servo with advanced features. Incorporated into this servo are heavy-duty Karbonite gears and integrated circuitry for accurate positioning over a 1,260-degree range (3.5 rotations).

Delivering a maximum torque of 183 oz-inches, this unique servo offers greater rotational range control and power to TETRIX® robot builds. Attach this quarter-scale servo to your TETRIX robot with ease with one of our Quarter-Scale Servo Mounting Brackets.

Each servo includes one nylon dual-wind pulley and one TETRIX Aluminum Servo Horn.

Ages 14+

QX39905—$59.95



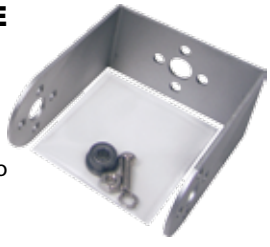
TETRIX® MAX QUARTER-SCALE SERVO FRONT MOUNT BRACKETS

A Pitsco Exclusive

Utilizing front-facing mounting holes, this bracket enables you to power a shaft through TETRIX® structural elements for extra support in heavy-duty servo applications. Use with a quarter-scale servo; includes eight 32 mm TETRIX Stand-Off Posts.

Ages 14+

QX39380 (pkg of 2)—$9.95



TETRIX® MAX STANDARD-SCALE SERVO JOINT PIVOT BRACKETS

A Pitsco Exclusive

Each bracket features a pivot bearing. Made of heavy-duty aluminum. Compatible only with TETRIX® Single Standard-Scale Servo Motor Brackets (39060).

Ages 14+

QX39063 (pkg of 2)—$7.95 SALE!



HITECHNIC SERVO CONTROLLER FOR TETRIX®

The HiTechnic Servo Motor Controller for TETRIX® connects to an NXT Intelligent Brick sensor port and will enable you to control up to six R/C-type servo motors for use with TETRIX robots, enabling you to add proportional positioning to your robotic creations.

QX34302—$79.95

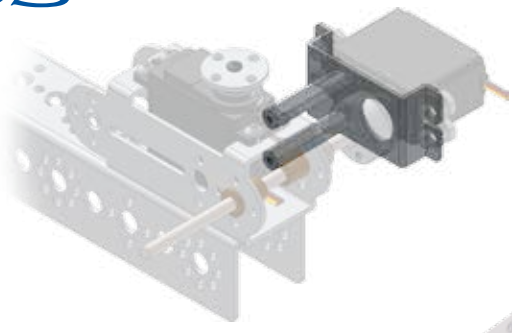
PITSCO TETRIX MAX STANDARD-SCALE SERVOS



180° STANDARD-SCALE HS-485HB SERVO MOTOR

Standard rotational range is 90 degrees, but this servo can be operated to 180 degrees with controllers capable of generating a pulse range from 600 usec to 2400 usec.

QX39197—$24.95





TETRIX® MAX STANDARD-SCALE SERVO FRONT MOUNT BRACKET

A Pitsco Exclusive

Utilizing front-facing mounting holes, this bracket enables you to power a shaft through TETRIX® structural elements for extra support in heavy-duty servo applications. Use with a standard-scale servo; includes six 32 mm TETRIX Stand-Off Posts.

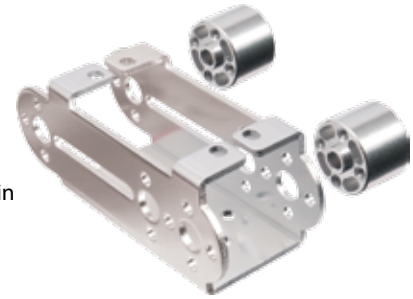
QX39381—$5.95



TETRIX® MAX CONTINUOUS ROTATION SERVO

Featuring fully proportional forward and reverse speed control, this servo rotates continuously in either direction – as needed for wheels. This high-quality servo is designed with a wide neutral dead band to eliminate the "creep" that occurs in many other continuous rotation servos. **Note:** This servo does not have position feedback.

QX39177—$19.95 SALE!



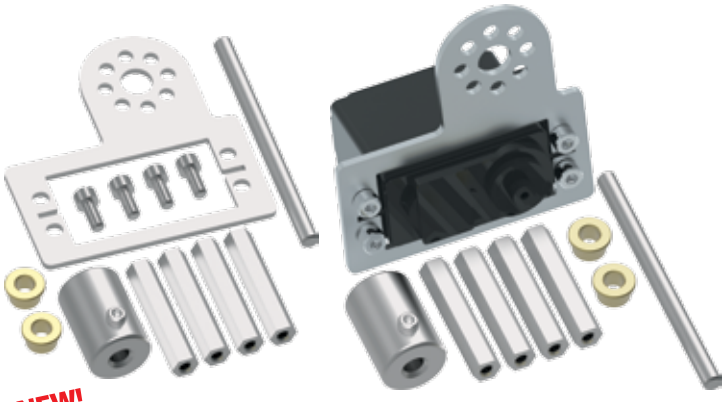
TETRIX® MAX STANDARD-SCALE SERVO FRAME MOUNTING BRACKET

A Pitsco Exclusive

Providing you flexibility in positioning a servo, this Frame Mounting Bracket holds the servo and can be attached in several ways. Easy to use. For use with a standard-scale servo; includes two 16 mm round aluminum mounting standoffs.

Ages 14+

QX39382—$11.95



NEW!

TETRIX® MAX STANDARD SERVO MOUNTING KIT

A Pitsco Exclusive

This mounting kit enables easy alignment of standard-size servo motor shafts to the TETRIX® hole pattern. The flexible attachment options allow for a multitude of design possibilities. Includes mounting plate, bearings, stand-offs, and aluminum servo shaft to 4.7 mm steel D-shaft axle adapter.

Ages 14+

QX41789—$10.95

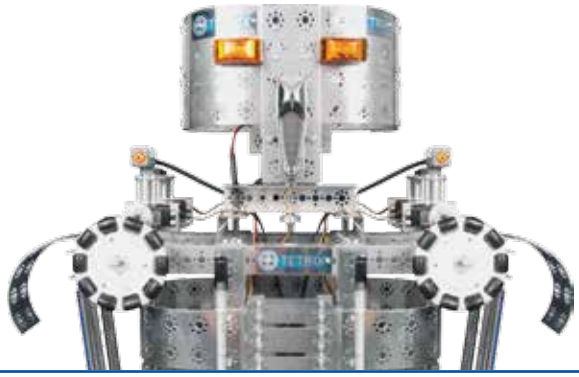


TETRIX® MAX STANDARD-SCALE PIVOT ARM WITH BEARING PACK

A Pitsco Exclusive

Used with the Frame Mounting Bracket, the Pivot Arm creates strong, durable pivot joints while minimizing side load on the servo shaft. Compatible only with TETRIX® Standard-Scale Servo Frame Mounting Bracket (39382); includes a 3 mm Bearing Pack.

QX39593—$8.95



PITSCO TETRIX MAX SERVO HARDWARE

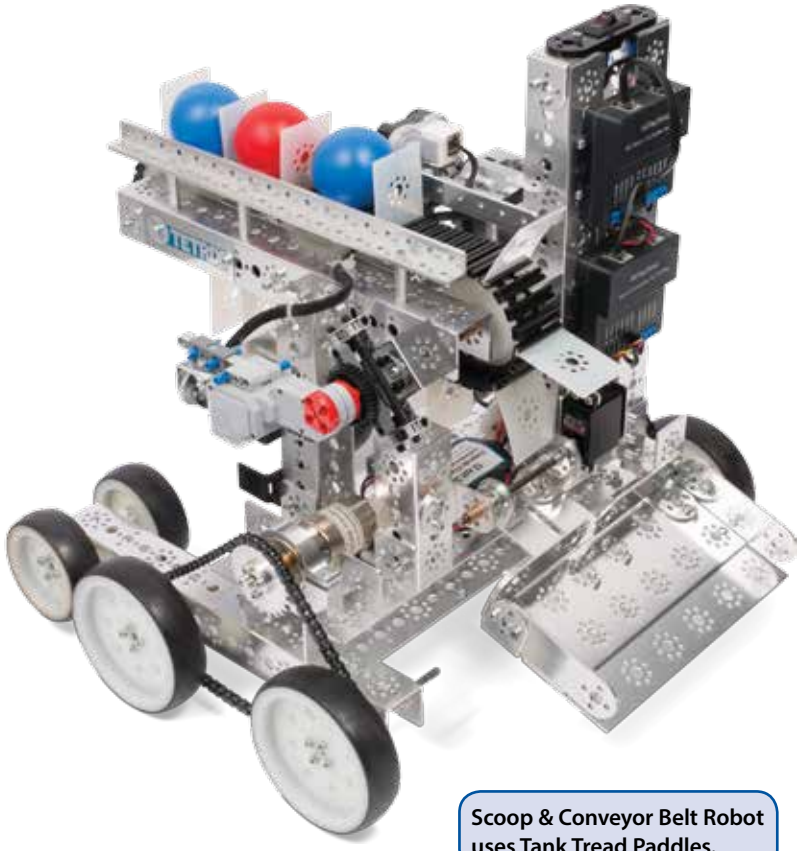
TETRIX® MAX THREADED ROUND SPACERS

A Pitsco Exclusive



These lightweight aluminum spacers are exactly 1/2 the width of TETRIX® Channels and feature four tapped holes to provide secure 16 mm spacing between TETRIX structural elements. These handy spacers are useful for obtaining proper gear mesh spacing when building geared servo mechanisms and for a variety of other adjustments and attachment needs.

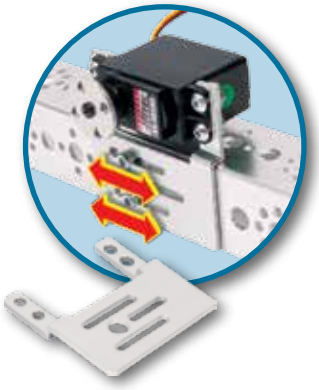
QX39592 (pkg of 2)—$11.95



Scoop & Conveyor Belt Robot uses Tank Tread Paddles.

TETRIX® MAX ADJUSTABLE SERVO BRACKETS

A Pitsco Exclusive



Get more gearing options with this adjustable bracket that features 16 mm of horizontal adjustability. Just attach a servo, sold separately, and bracket close to the gears and slide it over for a perfect fit!

QX39280 (pkg of 2)—$10.95

TETRIX® MAX SINGLE STANDARD-SCALE SERVO MOTOR BRACKETS

A Pitsco Exclusive



Heavy-duty aluminum brackets each hold one servo in place.

QX39060 (pkg of 2)—$9.95



SERVO Y CONNECTOR

For connecting two servos to one channel.

QX39082—$3.50

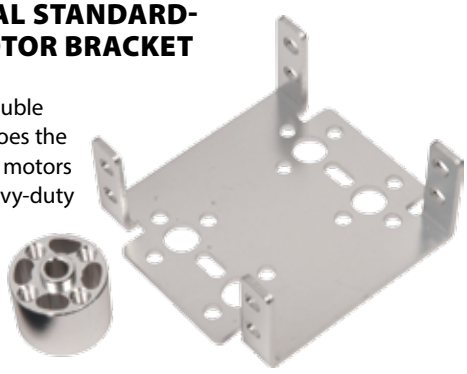
SERVO EXTENSION

Give your servo a little more room to roam with this extension.

QX39081—$1.95

TETRIX® MAX DUAL STANDARD-SCALE SERVO MOTOR BRACKET

A Pitsco Exclusive



When you need double the power, this bracket does the trick. Use it to attach two motors side by side. Made of heavy-duty aluminum.

QX39064—$7.95

TETRIX® MAX PIVOT BEARING

A Pitsco Exclusive



Replacement pivot bearing for all TETRIX® pivot arms and brackets.

QX39093 (3 mm)—$2.95

TETRIX® MAX SERVO HORN

A Pitsco Exclusive



Forget those plastic servo horns! This heavy-duty aluminum servo horn lends extra strength to your servo applications.

QX39020—$5.95

PITSCO TETRIX MAX GEARS



TETRIX® MAX GEARS

A Pitsco Exclusive

TETRIX® Gears are a step above kits and systems with plastic gears – these are made of heavy-duty aluminum and really stand up to wear and tear. Three sizes available.

QX39028 (40-tooth, 33.75 mm outside diameter) (pkg of 2)—$22.95
QX39086 (80-tooth, 65.5 mm outside diameter)—$17.95
QX39085 (120-tooth, 97.3 mm outside diameter)—$27.95



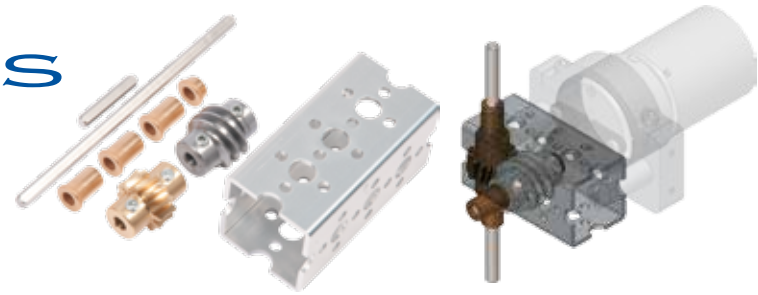
TETRIX® MAX GEAR PACK

A Pitsco Exclusive

Get all three sizes of the TETRIX® Gears in this one pack. Includes:

- Four 40-tooth gears
- Two 80-tooth gears
- Two 120-tooth gears

QX31901—$89.95



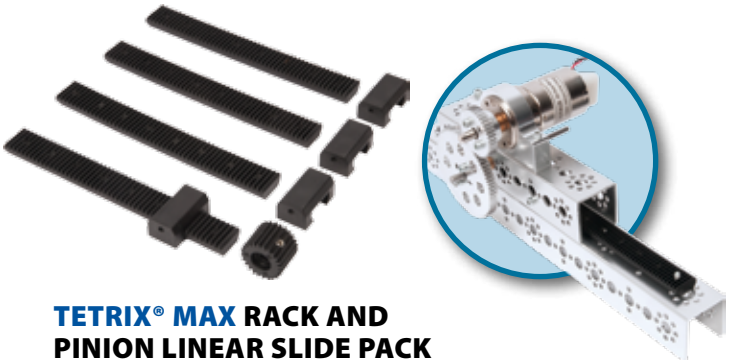
TETRIX® MAX WORM GEAR BOX

A Pitsco Exclusive

Utilizing a 4:1 gear ratio for slow and smooth rotational motion, this gear box minimizes backlash and greatly reduces the chance of a back-driving gear motor, so its position can be held even when power is not applied. All-metal construction for durability and power.

Additional gearing options are available with TETRIX® 10:1 Worm Gear or TETRIX 20:1 Worm Gear.

QX39375—$34.95
QX39900 TETRIX® MAX 10:1 Worm Gear—$15.95
QX39901 TETRIX® MAX 20:1 Worm Gear—$15.95



TETRIX® MAX RACK AND PINION LINEAR SLIDE PACK

A Pitsco Exclusive

Adding a forklift, conveyor, sorter, or other linear-motion component to robots is made simple with this pack. The rack gears – used individually or laid end to end – are attached to a TETRIX® Channel. The slide blocks and pinion gear go onto another Channel that slides across the rack gears when powered by gears and a DC motor with motor mount, sold separately.

Includes four GF nylon rack gears (5" long), four GF nylon slide blocks, and one aluminum pinion gear.

QX39300—$19.95

Product application



TETRIX® MAX BEVEL GEAR & ACETAL BEARINGS

A Pitsco Exclusive

The TETRIX® bevel gear and bearings pack includes two heavy-duty aluminum gears along with two acetal bearings that allow for the transfer of the direction of motion at 90 degrees.

QX38007 (pkg of 2 gears and 2 bearings)—$29.95



Walking Dog built with TETRIX® MAX and LEGO® EV3

PITSCO TETRIX MAX WHEELS







TETRIX® MAX OMNI WHEEL PACKS

A Pitsco Exclusive

With the use of 10 rollers, these wheels have the ability to drive forward and laterally. Available in 3" and 4" sizes.

QX31132 (3") (pkg of 2)—$24.95
QX36466 (4") (pkg of 2)—$29.95

TETRIX® MAX ALL-TERRAIN TIRE

A Pitsco Exclusive

Ready to make the sickest robot on the playing field? Add these tires so robots have a better grip for climbing or taking on uneven or rough surfaces – and get a monster-truck look at the same time! The tire tread has a little squish factor to help it grab surfaces.

Includes a nylon rim, TETRIX® all-terrain axle hub, TETRIX all-terrain motor hub, and mounting hardware.

QX39282 (5" L x 2-1/2" W)—$21.95



TETRIX® Curiosity Rover

The rover robot is constructed using Pitsco's patented TETRIX® MAX Building System and is propelled by a powerful all-wheel-drive motor system. Its rocker-bogey suspension is engineered for traversing rough and uneven terrain without a hitch.

Included on board is a variety of sensors for both autonomous and remote-controlled operation and a Wi-Fi webcam for live video and sound streaming over the web.

TETRIX® MAX HUB/ MOTOR SHAFT ADAPTER

A Pitsco Exclusive

Securely connects the TETRIX® All-Terrain Tire to the 12-volt DC Gear Motor. Features the industry-standard 12 mm hex pattern.

QX39278—$6.95





TETRIX® MAX HUB/AXLE ADAPTER

A Pitsco Exclusive

Connects the TETRIX® All-Terrain Tire to a TETRIX Axle. Features the industry-standard 12 mm hex pattern.

QX39279—$6.95



TETRIX® MAX WHEEL

A Pitsco Exclusive

Add some mobility to your TETRIX® robot with these wheels that come in two sizes.

QX39025 (3")—$15.95
QX39055 (4")—$19.95

TETRIX® MAX GEAR HUB SPACERS

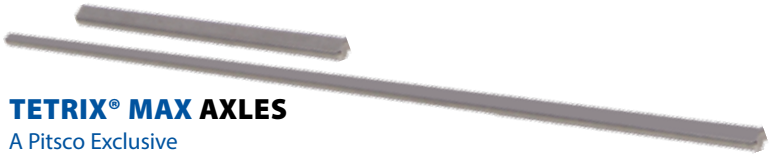
A Pitsco Exclusive

Provides adequate spacing between wheels and gears. Includes four cap screws for each spacer.

QX39090 (pkg of 2)—$6.95

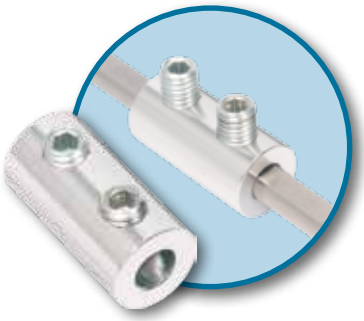


PITSCO TETRIX MAX AXLES



TETRIX® MAX AXLES
A Pitsco Exclusive

Attach wheels and gears with these precision-ground axles. Available in 100 mm and 250 mm lengths.
QX39088 (100 mm length, 5 mm diameter) (pkg of 6)—$15.95
QX35871 (250 mm length, 5 mm diameter) (pkg of 3)—$15.95



TETRIX® MAX AXLE SHAFT COUPLERS
A Pitsco Exclusive

Make an extended axle without a hitch – just use this coupler to connect two axle shafts together.
Ages 14+
QX39275 (pkg of 2)—$4.95



TETRIX® MAX MOTOR/ AXLE SHAFT COUPLERS
A Pitsco Exclusive

Motor and axle shafts might be different sizes, but they can connect with ease using this coupler: one side fits the motor shaft while the other side fits the axle shaft.
Ages 14+
QX39276 (pkg of 2)—$4.95

TETRIX® MAX AXLE HUBS
A Pitsco Exclusive



Used to attach gears and wheels to axles and axles to structural elements. Features heavy-duty aluminum construction.
QX39172 (pkg of 2)—$6.95

TETRIX® MAX MOTOR SHAFT HUBS
A Pitsco Exclusive



Attach wheels and gears to motor shafts with these hubs. Each hub comes with a screw and is made of heavy-duty aluminum.
QX39079 (6 mm) (pkg of 2)—$5.95

TETRIX® MAX AXLE SET COLLARS
A Pitsco Exclusive



Axle Set Collars lock a rotating axle to secure the horizontal alignment.
QX39092 (pkg of 6)—$3.95

TETRIX® MAX AXLE SPACERS
A Pitsco Exclusive



These spacers are handy when you need a little space between wheels, gears, and other elements on axles.
QX39100 (1/8") (pkg of 12)—$1.95
QX39101 (3/8") (pkg of 6)—$.95



The Gum Ball Bot, built using the TETRIX® MAX Building System, is a robot that just keeps on giving! Hit the touch sensor, and a prize drops from the ball and rides the conveyor into the hands of the recipient.

TETRIX® MAX 11 MM BRONZE BUSHINGS
A Pitsco Exclusive



These 11 mm long bronze axle bushings are greased to reduce friction.
QX39091 (pkg of 12)—$13.95

NEW!

TETRIX® MAX 4 MM BRONZE BUSHINGS
A Pitsco Exclusive



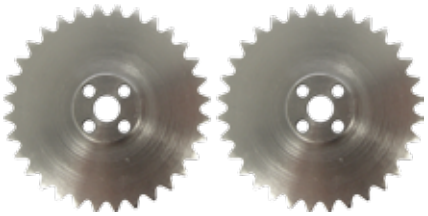
These 4 mm long bronze bushings are handy for tighter space requirements.
Ages 14+
QX41792 (pkg of 12)—$13.95



TETRIX® MAX ACETAL BEARINGS
A Pitsco Exclusive

These bearings provide extra support when building mechanisms interact with heavy-duty loads.
QX38008 (22 mm diameter x 9.25 mm) (pkg of 2)—$7.95

PITSCO TETRIX MAX SPROCKETS



TETRIX® MAX 32-TOOTH SPROCKET PACK

A Pitsco Exclusive

Show your power with TETRIX® sprockets made from heavy-duty aluminum for maximum performance under heavy loads. TETRIX sprockets are available in three different ratios and designed to work with the 0.250" TETRIX steel chain.

QX39171 (67.8 mm outside diameter) (pkg of 2)—$29.95



TETRIX® MAX 24-TOOTH SPROCKET PACK

A Pitsco Exclusive

Show your power with TETRIX® sprockets made from heavy-duty aluminum for maximum performance under heavy loads. TETRIX sprockets are available in three different ratios and designed to work with the 0.250" TETRIX steel chain.

QX39169 (51.9 mm outside diameter) (pkg of 2)—$22.95

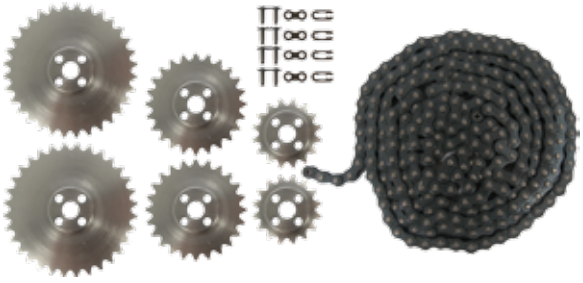


TETRIX® MAX 16-TOOTH SPROCKET PACK

A Pitsco Exclusive

Show your power with TETRIX® sprockets made from heavy-duty aluminum for maximum performance under heavy loads. TETRIX sprockets are available in three different ratios and designed to work with the 0.250" TETRIX steel chain.

QX39165 (35.8 mm outside diameter) (pkg of 2)—$16.95

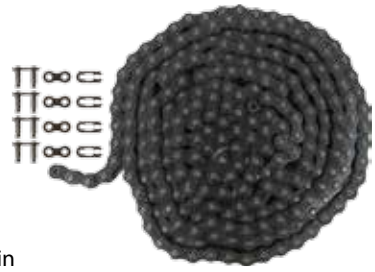


TETRIX® MAX SPROCKET AND CHAIN PACK

A Pitsco Exclusive

Get all the TETRIX® Sprockets and Chain with Links in one package. Made from heavy-duty aluminum for maximum performance under heavy loads. TETRIX chain is a 0.250" steel chain packaged in five-foot lengths.

QX39174—$69.95



TETRIX® MAX CHAIN WITH LINKS

A Pitsco Exclusive

TETRIX® Chain with Links is made to work with all ratios of TETRIX sprockets. The chain pack includes five feet of 0.250" steel chain and four master connecting links. TETRIX chain can easily be cut to custom lengths using the Chain Breaker Tool, sold separately.

QX39173—$13.95



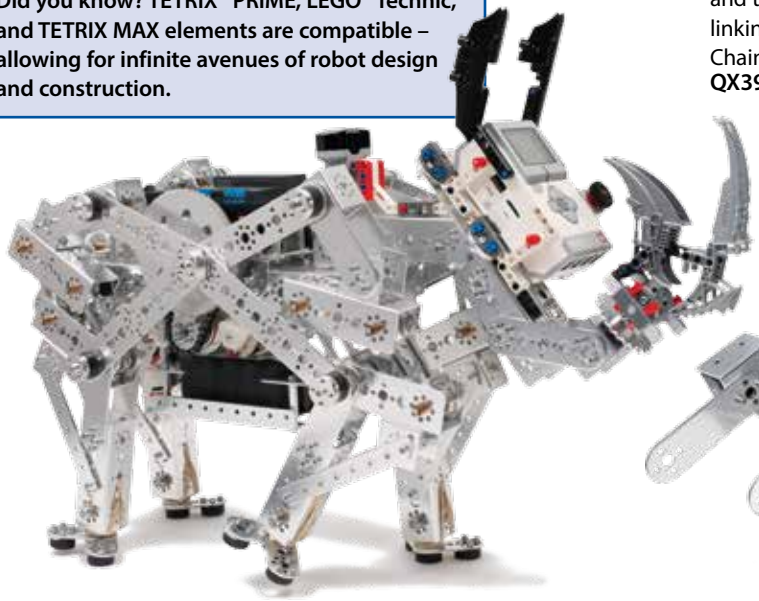
TETRIX® MAX CHAIN BREAKER TOOL

A Pitsco Exclusive

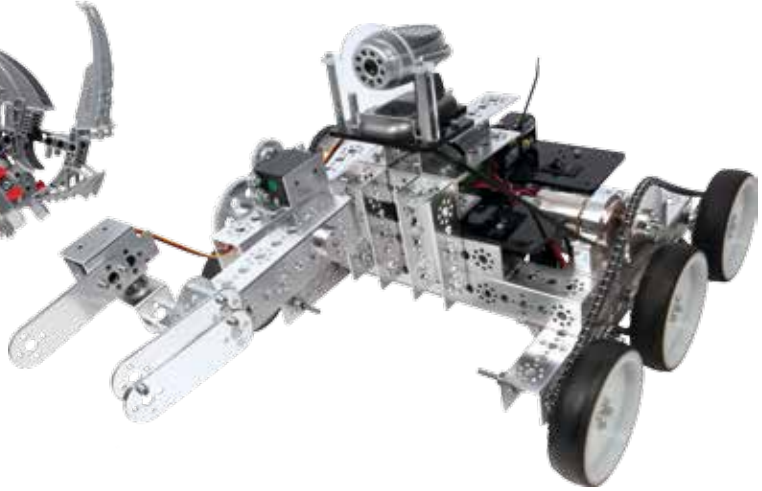
With the Chain Breaker Tool, quickly and easily change the length of the 0.250" TETRIX® Chain with Links. Measure the length you need for your application, position the chain in the breaker block, and turn the side-mounted screw to remove a chain-linking pin. A connecting link (included in the TETRIX Chain with Links pack) is used to reconnect the chain.

QX39217—$16.95

Did you know? TETRIX® PRIME, LEGO® Technic, and TETRIX MAX elements are compatible – allowing for infinite avenues of robot design and construction.

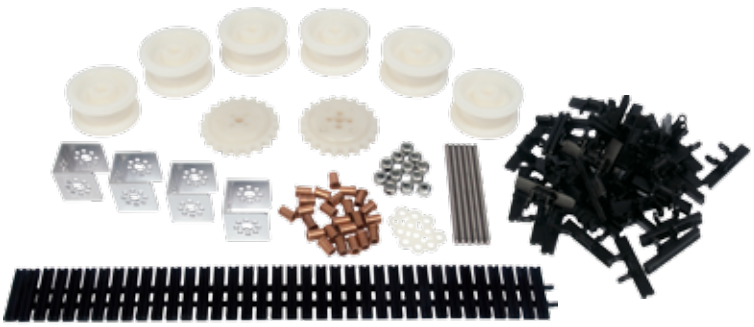


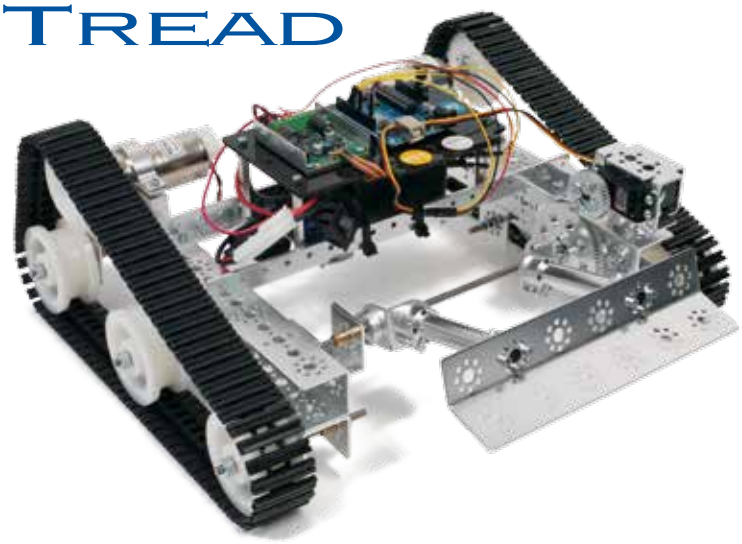
Walking Rhino built with TETRIX® MAX and EV3



Urban Search and Rescue Robot with camera system built with TETRIX® MAX

TETRIX® MAX Tank Tread





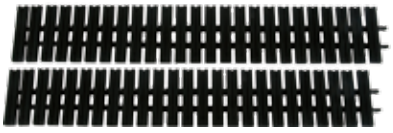
Arduino-controlled Tank Tread Robot built with TETRIX® MAX

TETRIX® MAX TANK TREAD KIT

A Pitsco Exclusive

Give your robots traction with this kit that provides everything needed to attach up to 6.5 feet of tank tread to a robot. TETRIX® chain links are made of highly durable acetal and snap together and apart with ease. Also includes the extra TETRIX parts required to attach the treads to a robot, requiring no additional parts from the TETRIX MAX R/C Starter Set.

QX36468—$99.95



TETRIX® MAX TANK TREAD CHAIN LINKS

A Pitsco Exclusive

When you need longer tank treads, this pack will provide the extra length with the same snap-together TETRIX® chain links as in the Tank Tread Kit. Package of 100 chain links creates up to 3.25 feet of tread.

QX36460—$28.95



TETRIX® MAX TANK TREAD ACCESSORY PACK

A Pitsco Exclusive

Includes 24 Tread Conveyor Paddles and 50 Tread Rubber Inserts.

QX39250—$32.95

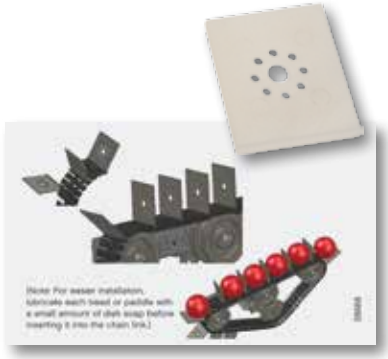
TETRIX® MAX TANK TREAD RUBBER INSERTS

A Pitsco Exclusive

Get extra grip with these rubber inserts – their T-shaped ends slide into the TETRIX® Tank Tread Chain Links for a secure fit.

QX36464 (pkg of 50)—$17.95





TETRIX® MAX TANK TREAD CONVEYOR PADDLES

A Pitsco Exclusive

Nylon paddles feature T-shaped ends that slide into the TETRIX® Tank Tread Chain Links to create conveyor-type mechanisms. Each paddle is 50 mm x 40 mm.

QX36463 (pkg of 24)—$17.95



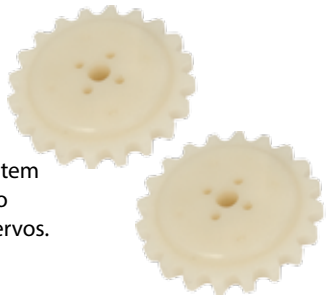


TETRIX® MAX TANK TREAD IDLER WHEELS

A Pitsco Exclusive

Providing rolling support for tank treads, these idler wheels can be used with standard TETRIX® parts.

QX36462 (pkg of 2)—$10.95



TETRIX® MAX TANK TREAD SPROCKETS

A Pitsco Exclusive

These sprockets are the drive system for tank treads. They can be attached to TETRIX® DC motors, motor hubs, and servos. Each sprocket has 20 teeth.

QX36461 (pkg of 2)—$9.95

PITSCO TETRIX MAX CONTROLLER & BATTERIES



NEW!

TETRIX® MAX 12-VOLT BATTERY PACK

A Pitsco Exclusive

The 10-cell, 12-volt AA rechargeable pack is small and lightweight yet still packs a powerful punch. This 2,000 mAh NiMH pack features a built-in 15-amp replaceable fuse for safety.

QX41135—$29.95

QX39830 NiMH Battery Pack Charger—$24.95 SALE!



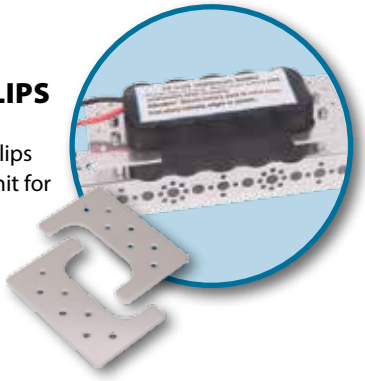
TETRIX® MAX 12-VOLT RECHARGEABLE NIMH BATTERY PACK

A Pitsco Exclusive

Use this 10-cell, 12-volt rechargeable pack to bring long-lasting power to TETRIX® motors and electronics. This 3,000 mAh NiMH pack features a built-in 20-amp replaceable fuse for safety.

QX39057—$49.95

QX39830 NiMH Battery Pack Charger—$24.95 SALE!



TETRIX® MAX BATTERY CLIPS

A Pitsco Exclusive

These heavy-duty aluminum clips provide a safe and sturdy housing unit for the TETRIX® battery pack.

QX38009—$5.95



R/C RECEIVER

A Pitsco Exclusive

Buying a new gamepad system when only the receiver is lost or damaged is wasteful and expensive. We've solved that problem by offering this spare 2.4 GHz receiver.

Ages 12+

QX40656—$11.95



TETRIX ON/OFF POWER SWITCH KIT

Controls the power from the battery pack.

QX39129—$6.95



SWITCH MOUNTING BRACKET

A Pitsco Exclusive

The Switch Mounting Bracket is made of black acrylic and enables the On/Off Switch to be easily mounted onto TETRIX® components.

QX39176—$2.95



BATTERY HOLDER

Holds eight AA batteries.

QX39136—$4.95



BATTERIES

Alkaline batteries for your various projects. These batteries withstand prolonged current drains and last up to three times longer than ordinary dry cells.

QX51046 (AA cell, pkg of 2)—$1.95



TETRIX® PRIME WIRELESS JOYSTICK GAMEPAD SYSTEM WITH RECEIVER

A Pitsco Exclusive

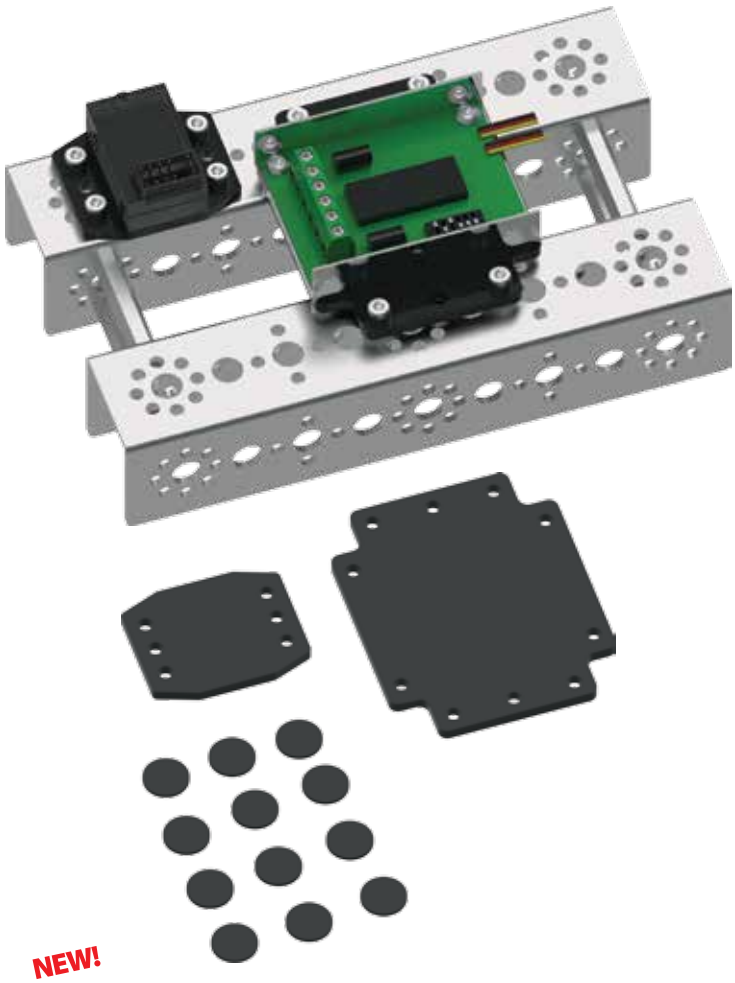
Take remote control out of the past! This affordable four-channel controller is designed in the gamepad style with dual joysticks to feel more natural to students. Plus, it offers high-end perks, including interference-free performance, servo reversing, motor trim adjustment, easy linking, and an R2004GF receiver. Can be used with TETRIX® MAX or TETRIX PRIME systems.

Controller is 2.4 GHz; includes four AA batteries. Controller color might vary.

Ages 12+

QX40377—$64.95

PITSCO TETRIX MAX Mounting Decks & Camera



NEW!

TETRIX® R/C COMPONENTS MOUNTING KIT

Attach an R/C receiver and R/C speed controller to the TETRIX® hole pattern. Plastic decks are attached using screws and nuts included in the TETRIX starter sets. Kit includes two plastic mounting decks and Velcro.

QX41928—$9.95



NEW!

TETRIX® MAX R/C MOTOR CONTROLLER

Take control of your TETRIX® DC motors – this controller plugs into your TETRIX wireless gamepad receiver to enable you to control the speed and direction of two TETRIX 12-volt DC motors.

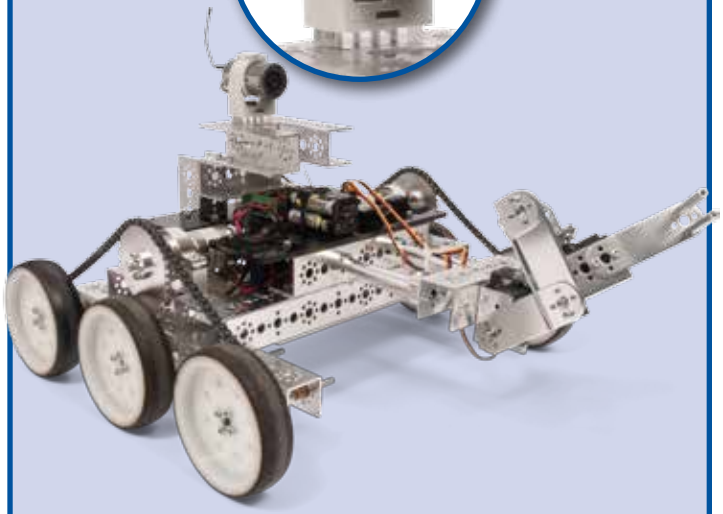
QX42073—$89.95





TETRIX® camera mount included





TETRIX® MAX WIRELESS CAMERA KIT

Ideal for remote-controlled robot events, this indoor/outdoor camera uses a 900 MHz frequency to avoid interference from the 2.4 GHz frequency used by R/C transmitters and other digital devices. It offers a transmission distance of 330 feet and a high-color picture and sound quality – and it's easy to set up and use.

Camera comes with a TETRIX® camera mount, 9 V battery adapter cable, wireless receiver, two 8 VDC power adapters, AV cable, and screws.

QX39683—$140

PITSCO TETRIX MAX ACCESSORIES



METAL-BENDING TOOL

Use this 18" tool to bend TETRIX® Flats or 16-gauge steel pieces. Bends metal up to 90 degrees. Designed for benchtop use; wood base and clamps not included.

Measures 21" L x 3" W x 3-1/2" D.

QX38562—$69.00



MINIATURE BALL-POINT HEX DRIVER

A Pitsco Exclusive

Great tool for securing the TETRIX® PRIME Thumbscrews and Socket Head Cap Screws. 6" blade length. 7/64" hex size.

Ages 12+

QX40341—$2.95



MULTI NUT PLIERS

Designed to hold nuts while bolts are tightened. The long, narrow neck reaches into tight places. Great for building TETRIX® robots.

QX39130—$25.00



TETRIX® WRENCH SET

A Pitsco Exclusive

Get into those hard-to-reach places with the TETRIX® Wrench Set. This set of stamped wrenches enables users to hold kep nut and stand-off building components in place while assembling their robot.

QX38001 (pkg of 2)—$5.95

HEAVY-DUTY TUBING CUTTER

Heavy-duty tubing cutter for cutting the 5/8" diameter structural tubing for TETRIX® robots. The all-metal construction of this cutter makes it easy to cut tubing lengths precisely and with ease. The cutting diameter range is 3/16"-7/8".

QX34724—$38.00



CABLE TIES

Tube of 500 colorful cable ties for a variety of projects at school, home, work, or in the yard. Ties come in a variety of lengths from 4" to 8" and include a screw-on lid for secure storage.

QX58335—$14.95

ZIP TIE PACK

11" flexible nylon cable ties.

QX31902 (pkg of 12)—$1.95





BALLDRIVER HEX KEYS

These hex keys feature the ProHold tip to make screwing and unscrewing faster and easier – even when the screw is at an awkward angle. Made of high-torque steel. Comes in the following inch sizes: 0.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, and 5/32.

QX35859—$11.95



HEX KEYS

This set comes with all four sizes of Hex Keys needed for TETRIX® hex pieces. Includes one each of 7/64", 3/32", 1/16", and 5/64" keys.

QX39104—$.95



4-IN-1 SCREWDRIVER

This adjustable screwdriver features two capped ends – an end with Phillips and flathead screwdrivers. Plus, each end features a small and extra-small size – just pull out each end and flip it around to the other style of head. Great for small projects and electronics. Features a clip to help keep it in your pocket, so you don't lose this handy tool!

QX36404—$1.95



X300 SAFETY GLASSES

Finally, safety glasses that make eye protection look cool. These lightweight, anti-scratch glasses offer a sleek design while providing impact strength, optical clarity, and 99.9% UV protection. Meets ANSI Z87.1-2003 and ANSI + High Impact Standards.

QX34192 Smoke—$1.95
QX34189 Amber—$1.95
QX34191 Mirrored—$1.95
QX34190 Clear—$1.95



HOOK-AND-LOOP FASTENER

Great for a multitude of applications! One 10-foot strip of each material. 3/4" wide.

QX51974—$25.95



WIDE RUBBER BANDS

Approximately 1/2" width x 2" length.

QX56136 (pkg of 50)—$1.95



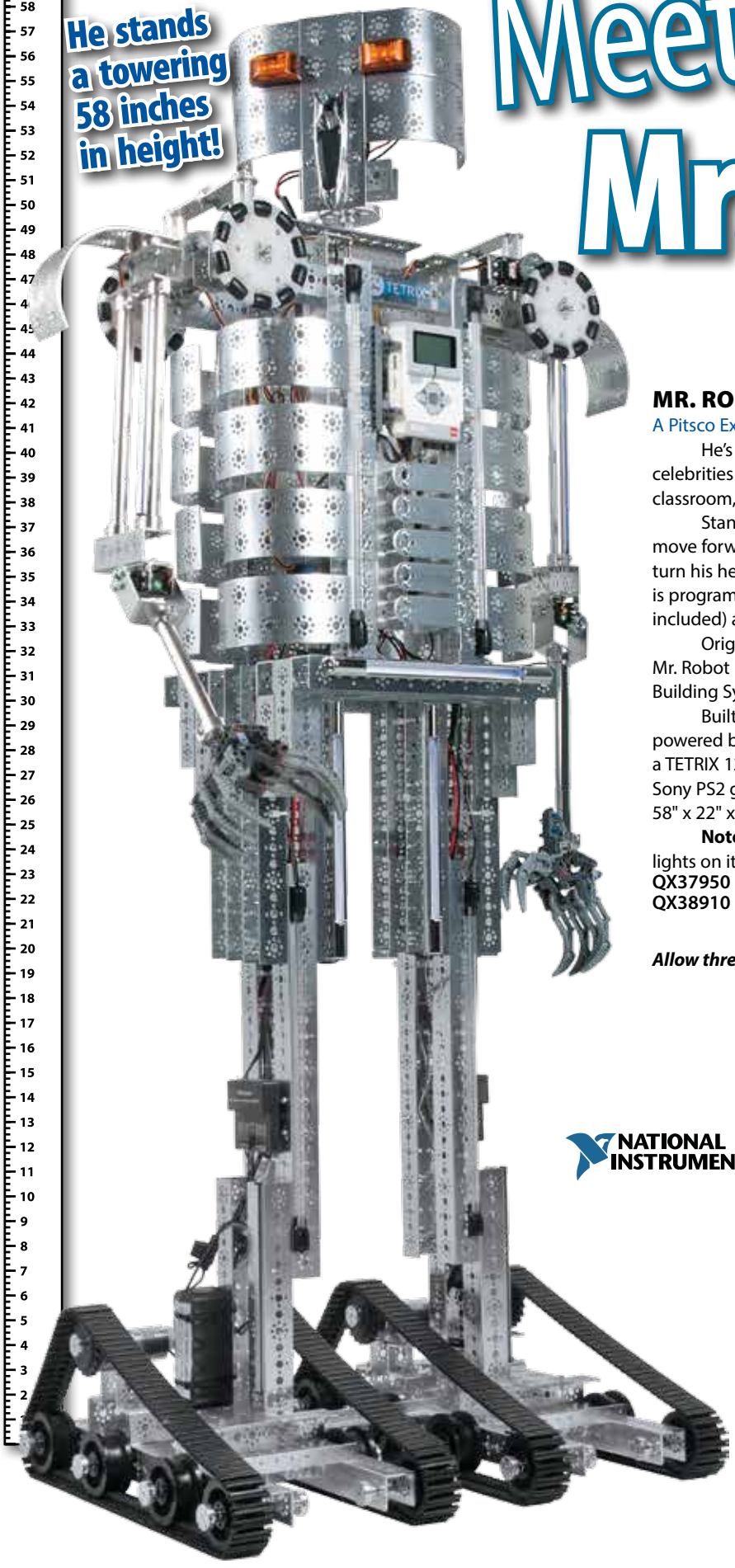
PERMATEX SUPER LUBE

This synthetic lube contains Syncolon, the slipperiest surface known to humankind, so it's great for keeping robot gears running without a hitch.

QX20821—$6.95

Meet Mr. Robot!

He stands a towering 58 inches in height!



MR. ROBOT KIT

A Pitsco Exclusive

He's traveled with will.i.am of The Black Eyed Peas and met celebrities like Ryan Seacrest. Now Pitsco's Mr. Robot can be in your classroom, encouraging students to learn programming!

Standing at almost five feet tall, this humanoid robot can move forward and backward, move his shoulders and elbows, turn his head, laugh, and say "hello" and "thank you." Mr. Robot is programmed using LEGO® MINDSTORMS® EV3 (software not included) and comes pre-programmed and ready to use.

Originally built for the *FIRST*® World Championship in 2011, Mr. Robot has gone on to become an ambassador for the TETRIX® Building System and for robotics education.

Built from TETRIX components, Mr. Robot is durable and powered by two 12 V, 3,000 mAh NiMH battery packs. He comes with a TETRIX 12 V battery charger, an EV3 brick with charger, a wireless Sony PS2 gamepad controller, and an operator's guide. Dimensions: 58" x 22" x 18". Weight: 37.5 pounds.

Note: The robot's eyes light up, but it does not come with lights on its body.

QX37950 Assembled—$6,999
QX38910 Unassembled Kit—$3,500

Allow three weeks for delivery of assembled version of Mr. Robot.

Recent Appearances

NATIONAL INSTRUMENTS™ FIRST® NSTA SkillsUSA®



Robotic Engineering – Remote Controlled

9 Weeks



Robots are everywhere – manufacturing plants, bomb squads, and even on Mars. Using the TETRIX® Building System and other materials, Robotic Engineering – Remote Controlled provides an exploration into robotic design, construction, and operation. Plus, students become proficient at operating the remote control to guide their robots.

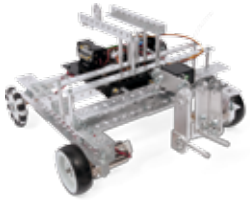
SAMPLE ACTIVITY

After learning the basics of robot construction, students focus on creative problem solving using the TETRIX Building System. In the Robot Artist activity, they design and build a robot that can hold markers to draw on a paper canvas on the floor. First, students apply their knowledge of end effectors and robot maneuverability to create a robot design.

After building the design, they hone their skills as remote control operators to create a pattern, design, or image on the canvas.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- TETRIX MAX R/C Starter Set
- Motor Speed Controller
- Remote control
- Digital scale
- Small tools such as screwdrivers and markers
- Various common materials such as tape and paper
- Assorted items to be moved by robots
- *TETRIX R/C Robotics Engineering Teacher's Guide*
- *Engineering the Future* textbook
- Robotic Engineering – Remote Controlled Scope & Sequence



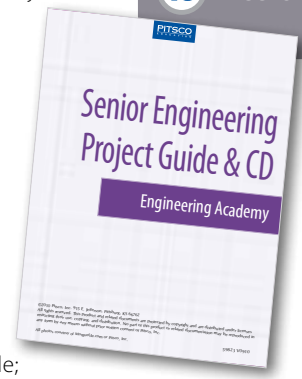
A Pitsco Exclusive

QX39893—$11,550



Senior Engineering Project

18 Weeks



After several semesters of the Engineering Education Courses, some students want a real-life project like the one outlined here. During this semester, students develop their own engineering project and go through the same processes as an engineer. Each student, in consultation with the instructor, determines the scale and detail of his or her project. This course's materials are free with the purchase of four Engineering Education Courses.

SAMPLE ACTIVITY

The open-ended nature of this course means that almost any activity is possible; however, the components of the project are the same whether they are designing a rocket or a robot. Students begin by developing a project proposal with a detailed written description and sketches. Next, they determine what resources they need and have available, followed by creating a budget.

The design and experimentation stage begins the hands-on element of the course, and students follow this by completing the final version of their project. To end the course, each student delivers a project presentation.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Digital projector
- Student equipment needs vary depending on project
- Assorted materials as required by the chosen project
- Senior Engineering Project Teacher and Student Outlines
- Senior Engineering Project Introduction on *PowerPoint*

FREE with purchase of four or more courses. A $495 value!

Engineering Courses serve 24 students. Some common materials and equipment are required but not supplied, such as scissors, graph paper, and so on. Contact your Education Consultant for assistance.



SORTING TRAY

A Pitsco Exclusive

This sorting tray fits into any of our containers and offers six different sections, including one long one, for keeping small parts organized.

Ages 12+

QX34074—$7.50



TETRIX® PRIME CONTAINER AND LID

A Pitsco Exclusive

Great for when you've bought extra TETRIX® PRIME parts and want uniform bins to store them in. Includes 11-1/8" x 17" lid.

Ages 12+

QX40666 (12" W x 16-1/2" D x 5-3/4" T)—$12.95



TETRIX® MOBILE STORAGE

A Pitsco Exclusive

If you've bought many extra TETRIX® parts, you might be experiencing component chaos in your classroom. Organize and neaten your robot equipment with this mobile storage unit. Designed to fit TETRIX storage bins in three sections – featuring 36 adjustable rails to fit any bin configuration – the storage unit is made of melamine with a 2 mm PVC edge band. With its 2" rolling casters, it's easy to move wherever you need it. Assembly required.

QX38757—$695
QX31130 Large Blue Bin (12" W x 16-1/2" D x 8-3/4" T)—$8.50
QX31128 Standard Green Bin (12" W x 16-1/2" D x 5-3/4" T)—$6.50
QX31127 Shallow Red Bin (12" W x 16-1/2" D x 3" T)—$4.75
QX31131 Bin Lid—$2.95



18" PORTABLE STORAGE SOLUTION

This handy tote is perfect for carrying many TETRIX® PRIME and MAX parts wherever you might need to go! The storage chest features 12 small removable compartments in the top level – perfect for pulling parts out for working – and six trays on the lower level for larger parts. A cantilever mechanism makes moving from the top to the bottom level easy. Made of professional-grade plastic with metal handle and latches, this chest will withstand years of use. Measures 24 x 42 x 14 cm. Colors may vary.

QX40707—$29.95

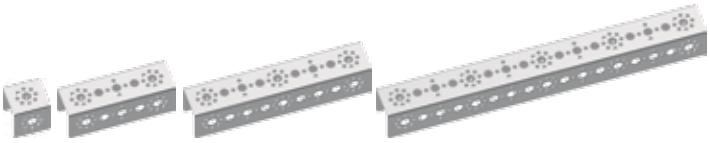


22" PORTABLE STORAGE SOLUTION

This handy tote is perfect for carrying an entire TETRIX® PRIME R/C Starter Set wherever you might need to go! The storage chest features 15 small removable compartments in the top level – perfect for pulling parts out for working – and a lower level for larger parts. A cantilever mechanism makes moving from the top to the bottom level easy. Made of professional-grade plastic with metal handle and latches, this chest will withstand years of use. Measures 30 x 57 x 17 cm. Colors might vary.

QX40709—$39.95

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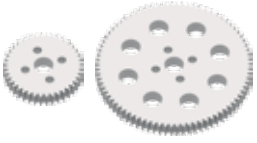
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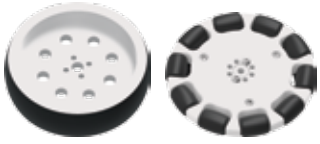
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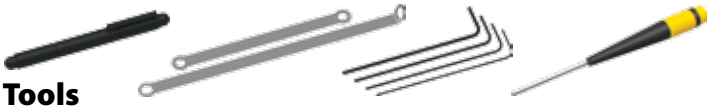
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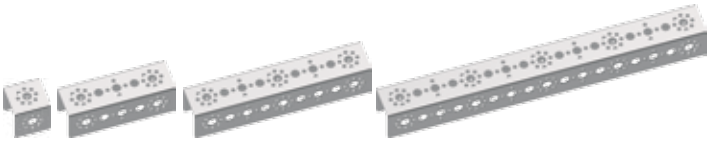
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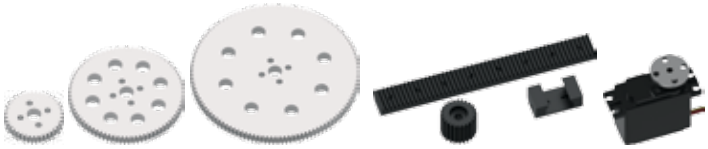
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SAM ROBOT

A Pitsco Exclusive

Ideal for the classroom, the SAM Robot is a robotic arm that can be "trained" by putting it into position and then saving it on a Windows-based computer with the included programming software. Continue to do this until you have finished the program and then run the program. When students use the SAM Robot with the SAM Trainer Board Package, sold separately, they learn to maneuver the robot while placing foam balls on five posts on the trainer board.

Each of SAM's five axes have a 90-degree rotation that enables flexibility with accurate movement. Made of 1/4" ABS plastic, SAM is 10" tall at home position and has a base width of 5.5" and an arm reach of 11".

Includes the robot, software, power pack, USB cable, and instructions. No assembly required.

System Requirements: Windows XP or 7 and one USB port.

Ages 12+

QX36805—$899



SAM TRAINER BOARD PACKAGE

A Pitsco Exclusive

Add this trainer board to your SAM Robot and students can learn to maneuver the robot while placing foam balls on five posts attached to an ABS board that fits snugly against the robot base.

Ages 12+

QX36384—$55



ROBOTIC ARM EDGE KIT

Students learn basic robotic principles by building and operating this robotic arm. After assembly, they use the control box to command the five-axis arm to manipulate small objects. Some of these axes have an impressive range of motion including an elbow range of 300 degrees and a base rotation of 270 degrees. The Robotic Arm Edge has a 15" vertical reach and a 12-1/2" horizontal reach and can lift up to 100 grams. Dimensions: 9" x 6.3" x 15". Assembly required. Requires four D batteries, sold separately.

Ages 12+

QX54915—$54



NEW!

HUMMINGBIRD DUO BASE KIT

Build your own robot with the Arduino-based Hummingbird Duo Base Kit.

- 1 Hummingbird Duo controller
- Power supply, USB cable, terminal tool, snap-in stand-offs
- Red, orange, yellow, and green single-color LEDs
- 2 tricolor LEDs
- 2 hobby servos
- 1 servo extension cable
- 1 light sensor
- 1 temperature sensor

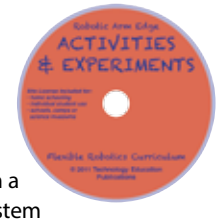
Ages 12+

QX41920—$159



For more coding, see Finch Robot on page 345 in Elementary.

ROBOTIC ARM EDGE CURRICULUM SOFTWARE



Use the *Robotic Arm Edge Curriculum* with a Mac or WIN operating system to get the most learning from the Robotic Arm Edge. Students can research or browse a range of robotics topics including history, system, parts, applications, and sociocultural impact.

Includes printed reproducible student activities ranging from elementary to advanced along with easy-to-follow directions and teacher's answers.

QX54914 WIN/Mac CD-ROM—$39.95

NEW!

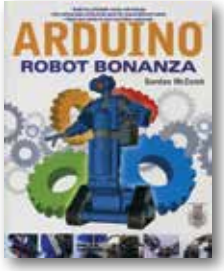
MAKE AN ARDUINO-CONTROLLED ROBOT



Building robots that sense and interact with their environment used to be tricky. Now, *Arduino* makes it easy. With this book and an *Arduino* microcontroller and software creation environment, you'll learn how to build and program a robot that can roam around, sense its environment, and perform a wide variety of tasks. All you need to get started with the fun projects is a little programming experience and a keen interest in electronics. Paperback, 238 pages.

QX41913—$21.95

ARDUINO ROBOT BONANZA



The *Arduino* microprocessor specializes in making electronic projects more accessible to everyday people. This text focuses on using the *Arduino* for building and operating autonomous robots. Parts 1 and 2 lay a solid foundation for using the microprocessor with the Teachbot and making mechanical and electrical components. Part 3 shows the many possibilities with the building and running of robots that are musical, remote controlled, have 10 articulated segments to slither like a snake, and more. Paperback, 400 pages.

QX39606—$31.95

NEW!

MAKE: BASIC ARDUINO PROJECTS

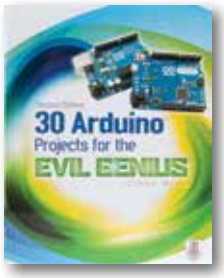


Written for new makers, *Basic Arduino Projects* is a practical guide containing 26 projects. Learn to build electronic circuits that change their behavior, a light-sensitive switch, and LED projects. You'll learn how to control servo motors and to create audio projects such as a theremin, electronic cricket, and metronome. The only restriction is your imagination. Paperback, 245 pages.

QX41912—$17.95

NEW!

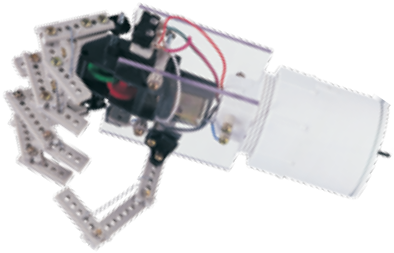
30 ARDUINO PROJECTS FOR THE EVIL GENIUS



This wickedly inventive guide shows you how to program and build a variety of projects with the *Arduino* microcontroller development system. Covering Windows, Mac, and Linux platforms, this book gets you up to speed with the simplified C programming you need to know. No prior programming experience necessary.

Using easy-to-find components and equipment, this do-it-yourself book explains how to attach an *Arduino* board to your computer, program it, and connect electronics to it to create fiendishly fun projects. Paperback, 204 pages.

QX41914—$17.95



BIONIC/ROBOTIC HAND KIT

Few robotics kits enable students to use their creativity to the point that they're custom-engineering a model to do what they wish. Now, the Bionic/Robotic Hand Kit is helping to pave the way! This arm and hand kit has an adjustable thumb and fingers, and it opens and closes at the touch of a switch. The kit contains all the parts needed to build a life-size, battery-powered model and can be designed as a right- or left-hand model.

Ages 12+

QX58678 Unassembled—$149



LAZY SUSAN TURNTABLE

These ball bearing turntables are useful for constructing rotating robotic bases, rotating displays, and lazy Susans. Mounting screws not included.

QX53669 (4")—$1.55
10 or more—$1.40 each
QX53673 (6")—$2.40
10 or more—$2.15 each



GEAR MOTOR 17

Designed for low-voltage power efficiency, this small motor manages to provide plenty of torque. At 6 V, its output is 32.4 rpm, 29 mA free-running current, 69 oz-in. stall torque, and 0.47 stall current. Weighs in at just 35 grams.

QX31589 (46.7 mm x 27.2 mm x 31.2 mm)—$7.50



RIGHT-ANGLE GEAR MOTOR 6

This little motor has tight tolerances and awesome performance – it's a definite step up from the toy motors of this size! Features a safety clutch and a solderable shaft.

At 5 V, it spins at 145 rpm and draws 88 mA no-load. Weighs just 20 grams.

QX31591 (37 mm x 21 mm x 27 mm)—$8.95



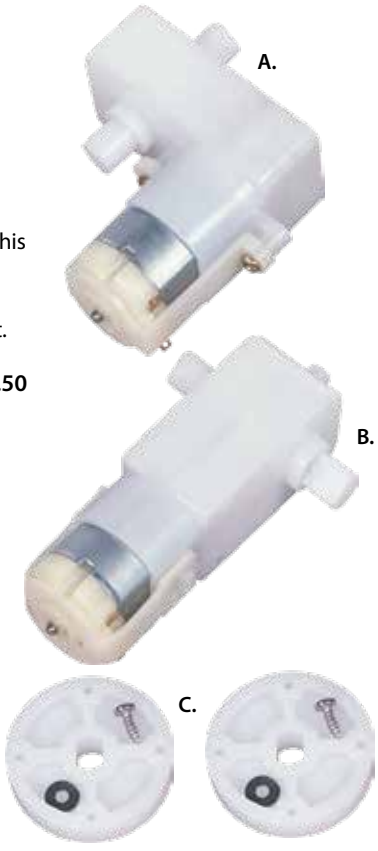
GEARHEAD MOTORS

Get geared up for robotics with these powerful gearhead motors. These can be used for robots, science fair projects, and any other application where a slow, powerful motor is needed.

Specifications:

- 2 oz-ft torque
- 12.5 volts
- 2.6 amps

QX58919 (15 rpm)—$34.95
QX58918 (4.5 rpm)—$39.95



GEARHEAD MOTORS

When you don't need the full speed of a servo and want to try something a little different for your robot, give these gearhead motors a spin. These motors have white plastic coverings and come in straight and 90-degree angle models. They rotate 360 degrees every 1.6 seconds.

A. QX58632 (90°)—$6.95
B. QX58640 (180°)—$6.95
C. QX31622 Gear Motor Mount—$1.50

T-Bot® II



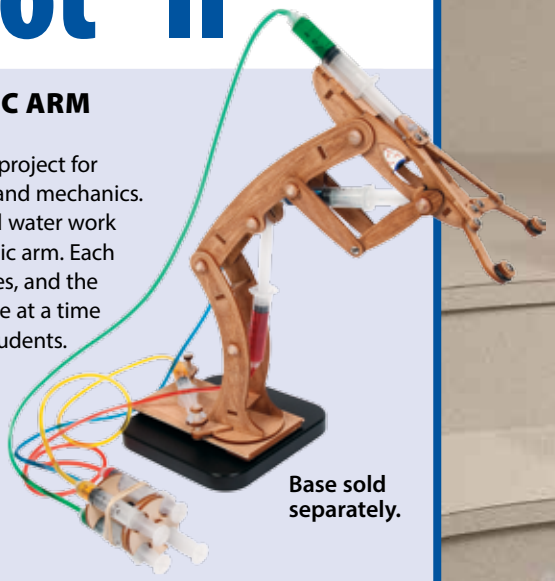
T-BOT® II HYDRAULIC ARM

A Pitsco Exclusive

The T-Bot® II is a great project for illustrating hydraulic power and mechanics. See how syringes, tubes, and water work together to power this robotic arm. Each control moves one of the axes, and the four controls can be used one at a time or all at once by a team of students. The T-Bot II is made from laser-cut wooden parts.

Ages 12+

QX34110—$39.95



Base sold separately.



T-BOT® II HYDRAULIC ARM 10-PACK

A Pitsco Exclusive

Includes what you need to build 10 of our popular T-Bot® IIs. Requires screwdriver, scissors, cool-melt glue gun, and white glue, sold separately. T-Bot II Base (34106) is sold separately.

Ages 12+

QX34245—$360

Standard alignments available via the Standards Navigator at pitsco.com/StandardsNavigator.

Digital downloads available

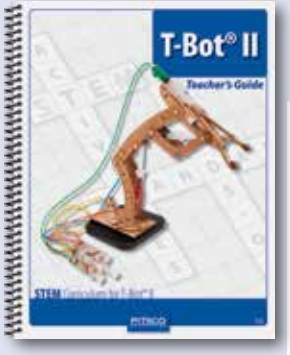
T-BOT® II TEACHER'S GUIDE

A Pitsco Exclusive

Pitsco's T-Bot® II hydraulic robot arm delights students, and this guide will delight teachers. The *T-Bot II Teacher's Guide* overflows with lessons covering the Cartesian coordinate system, simple machines, basic programming, mechanical advantage, electromagnetism, teamwork, and more! Individual activities available for digital download on the website. Paperback/Spiral-bound, 105 pages.

Ages 12+

QX59727—$24.95



Visit www.pitsco.com/TbotII.

All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!

T-BOT® II – GETTING STARTED PACKAGE

A Pitsco Exclusive

Explore lessons in teamwork, robotics, hydraulics, and simple machines with this convenient package. It brings together everything needed for a classroom of 20 to 40 students working in teams of two or four to build the robotic arm and demonstrate teamwork to operate the hydraulic arm's controls.

The T-Bot® II – GS Package includes the following products:

- QX34245 T-Bot® II Hydraulic Arm 10-Pack
- QX34502 HD Bond II (5 two-ounce bottles included)
- QX34122 T-Bot® II Video

QX34111 T-Bot® II – Getting Started Package—$370

Ages 12+

T-BOT® II VIDEO

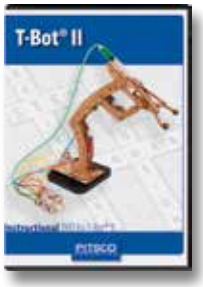
A Pitsco Exclusive

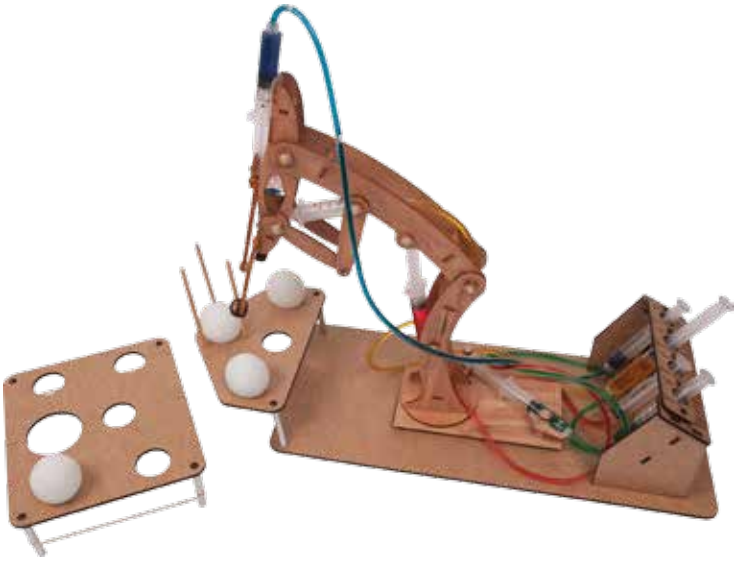
The Pitsco T-Bot® II is a great project for demonstrating hydraulic power, simple machines, and basic robotics. But building the laser-cut kit is a detailed procedure; this video will smooth the path for your students to succeed in building their T-Bot II.

Along with easing the building process, the program explains some of the science and mechanics of this fun class project. Closed-captioned. Time: 38 minutes.

Ages 12+

QX34122 DVD—$24.95





T-BOT® II WITH CHALLENGE SET

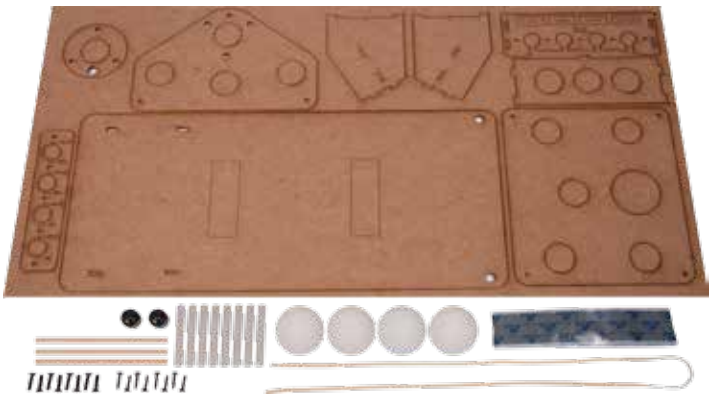
A Pitsco Exclusive

Get the fun and excitement of the T-Bot® II Hydraulic Arm along with the activity potential of the T-Bot II Challenge Set – and save a little in the process.

Included guides cover construction and offer several activity ideas. Requires screwdriver, scissors, cool-melt glue gun, and white and cool-melt glues, sold separately.

Ages 12+

QX37471—$59.95



T-BOT® II CHALLENGE SET

A Pitsco Exclusive

Supporting the T-Bot® II and its controllers, the Challenge Set's holder makes using the hydraulic arm a simple task. The included rectangular and stacking boards and four Ping-Pong balls expand the number of activities possible with the T-Bot II.

Ages 12+

QX37047—$27.95



T-BOT® II BASE

A Pitsco Exclusive

Every T-Bot® II needs a base, and this is the perfect one. Featuring HDPE construction for durability and rubber feet for stability on any smooth surface, the T-Bot II Base measures 6" x 6" x 3/4".

QX34106—$9.95



ASSORTED FOOD COLORING

Add food coloring to water in the T-Bot® II to help you see which syringe powers which part of the robot arm. Pack includes one of each: red, yellow, blue, and green – each in a 0.25-ounce dropper bottle.

QX56736—$5.95

CAN CRUSHER

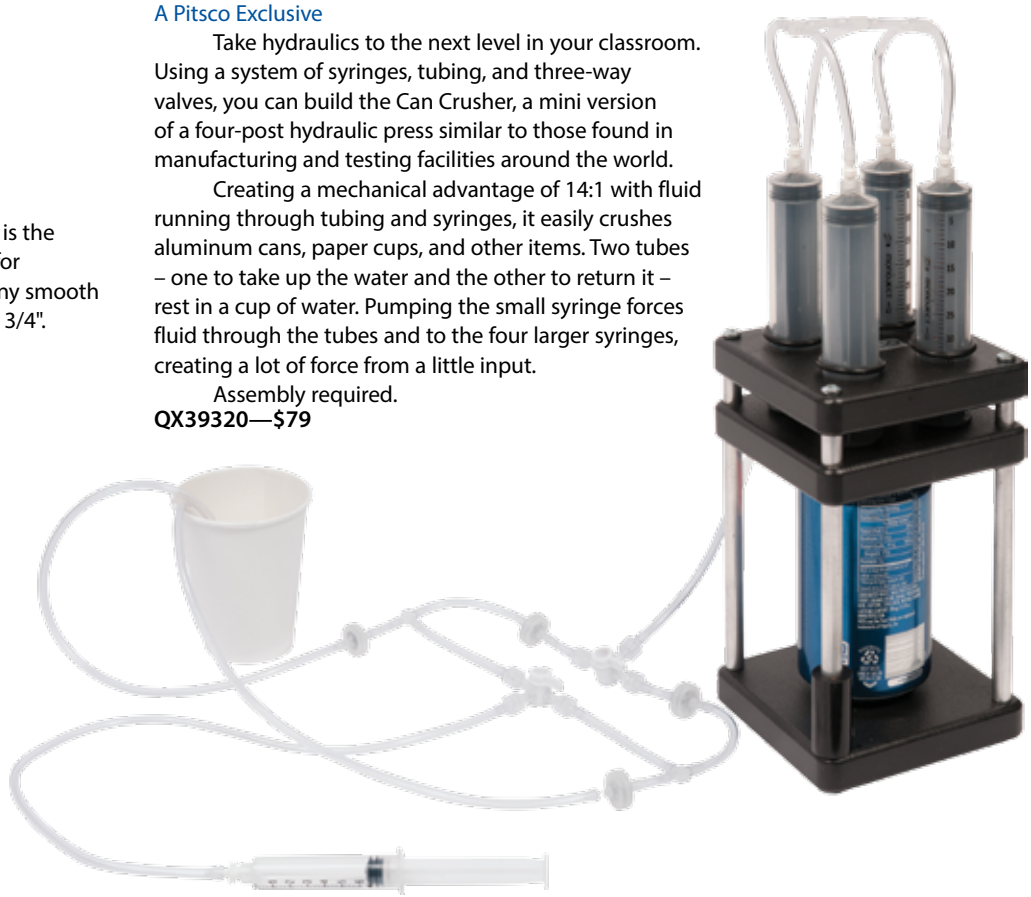
A Pitsco Exclusive

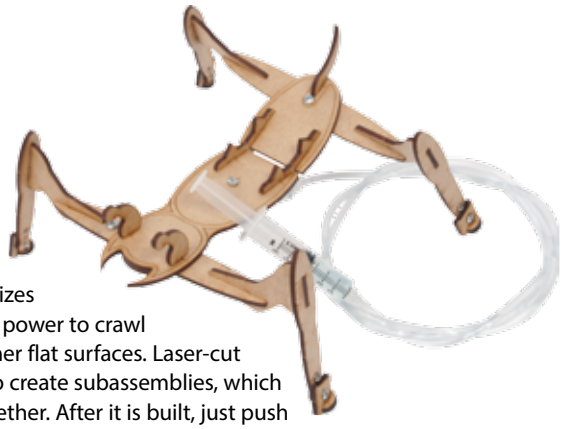
Take hydraulics to the next level in your classroom. Using a system of syringes, tubing, and three-way valves, you can build the Can Crusher, a mini version of a four-post hydraulic press similar to those found in manufacturing and testing facilities around the world.

Creating a mechanical advantage of 14:1 with fluid running through tubing and syringes, it easily crushes aluminum cans, paper cups, and other items. Two tubes – one to take up the water and the other to return it – rest in a cup of water. Pumping the small syringe forces fluid through the tubes and to the four larger syringes, creating a lot of force from a little input.

Assembly required.

QX39320—$79





C-BOT CRAWLER BOT

A Pitsco Exclusive

This crawling critter isn't a pest – it's a fun kit that utilizes mechanics and water power to crawl across the floor or other flat surfaces. Laser-cut parts glue together to create subassemblies, which are then screwed together. After it is built, just push the plunger back and forth to move the C-Bot forward. Great for demonstrating Newton's third law of motion, basic hydraulics, and other concepts.

Ages 12+

QX38287—$15.95



G-BOT GATOR BOT

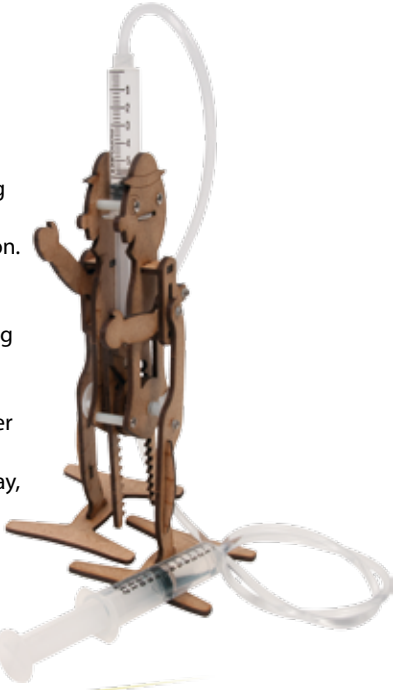
A Pitsco Exclusive

Building this Gator opens students' eyes as to how linear motion can be converted into rotary motion via a drivetrain and one-way bearings. And the built kit makes a fun demonstration of the power of simple hydraulics.

Includes laser-cut hardboard pieces, syringes and tubing, and other needed hardware. Requires a Phillips screwdriver, sold separately.

Ages 12+

QX38536—$25.95



B-BOT BIPED BOT

A Pitsco Exclusive

B-Bot demonstrates something innate to all humans but learned by many robot designers: bipedal motion. Just assemble the kit parts and this little guy will be cruising around in your classroom in no time – and using hydraulic power, no less.

Includes laser-cut hardboard pieces, syringes and tubing, and other needed hardware. Requires a Phillips screwdriver, white or CA glue, and clay, sold separately.

Ages 12+

QX38535—$24.95



FLUID POWER CAR

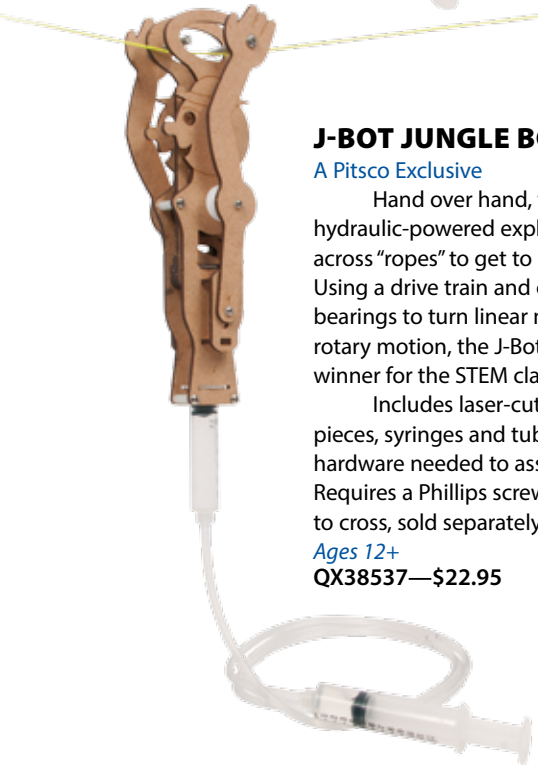
A Pitsco Exclusive

Using two syringes, a gear train, and special bearings, this hydraulic-powered car moves forward even when you pull back on the syringe! A fun way to demonstrate the conversion from linear motion to rotary motion.

Includes the laser-cut hardboard pieces, wheels and axles, syringes and tubing, friction bands, and other hardware needed to build one car. Requires a Phillips screwdriver, sold separately.

Ages 12+

QX38538—$24.95



J-BOT JUNGLE BOT

A Pitsco Exclusive

Hand over hand, this little hydraulic-powered explorer climbs across "ropes" to get to his destination. Using a drive train and one-way bearings to turn linear motion into rotary motion, the J-Bot is a sure winner for the STEM classroom.

Includes laser-cut hardboard pieces, syringes and tubing, and other hardware needed to assemble J-Bot. Requires a Phillips screwdriver and rod to cross, sold separately.

Ages 12+

QX38537—$22.95



HYDRAULIC MACHINES KIT

Bring simple machines and hydraulics to life – even for younger students. These four simple kits demonstrate the platform lifter, scissor lift, cherry picker, and excavator. Just assemble and add water to get things moving! Includes instructions and glue. Construction also requires scissors, sold separately.

Ages 9+

QX35792—$29.95



SYRINGES FOR HYDRAULICS

Syringes are an excellent way to incorporate hydraulic or pneumatic power into your robot curriculum! Connected with tubing, syringes can activate arms, levers, grippers, and more. By combining large and small syringes in the same system, you gain mechanical advantage.

6 CC SYRINGE FOR HYDRAULICS

QX50973—$.50 each
10 or more—$.45 each

12 CC SYRINGE FOR HYDRAULICS

QX50974—$.60 each
10 or more—$.55 each

20 CC SYRINGE FOR HYDRAULICS

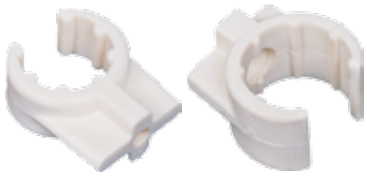
QX52525—$.95 each
10 or more—$.85 each

30 CC SYRINGE FOR HYDRAULICS

QX50975—$1.35 each
10 or more—$1.25 each

35 CC SYRINGE FOR HYDRAULICS

QX52526—$1.50 each
10 or more—$1.35 each



TUBING HANGERS

Use these tubing hangers as clamps to hold syringes tightly for projects. The 1/2" size works well with the 12 CC Syringe, and the 3/4" size works well with the 20 CC, 30 CC, and 35 CC Syringes. We recommend using a 1 x 8 flathead wood screw for mounting (sold separately).

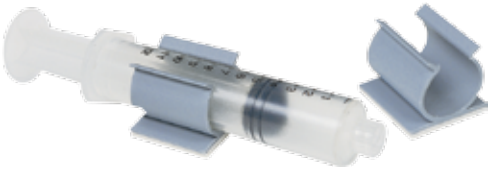
QX57616 (1/2") (pkg of 10)—$2.50
QX57615 (3/4") (pkg of 10)—$2.50



LOCK RINGS

These rings are handy for holding the plastic tubing in place.

QX52073—$3.95



12 CC SYRINGE/MOTOR 280 MOUNTING CLIP

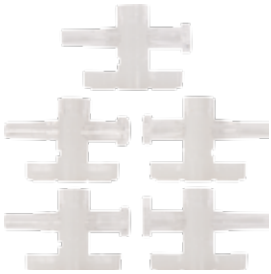
These handy clips can be used to mount the 12 CC Syringe or the Motor 280. Feature self-adhesive backs.

QX29122 (pkg of 5)—$12.50

6 CC SYRINGE MOUNTING CLIP

Clips have self-adhesive backs.

QX29123 (pkg of 5)—$9.75



STOP COCK VALVES

Use these valves to control airflow in your pneumatic projects. Built with a 90-degree-rotation handle and clear plastic construction.

QX50000 Two-way (pkg of 5 two-way valves)—$14.95
QX50001 Three-way (one valve)—$2.50



POLYPROPYLENE ELBOWS

Perfect for those spots where turning a corner with tubing will just not work! These 90° elbows have a 1/8" inside diameter.

QX15576 (pkg of 10)—$4.50



STRAIGHT CONNECTOR

Great for connecting tubing or for passing through solid materials. Standard 1/8" inside-diameter barb connector.

QX15577 (pkg of 10)—$3.25



POLYPROPYLENE TEE

This 1/8" standard tee is ideal for connecting two or more air sources (syringes) to a single actuator (another syringe).

QX15578 (pkg of 10)—$3.95



FLEXIBLE TUBING

Transmits energy from one syringe to another. 1/8" inside diameter.

QX38980 (100' roll)—$16.95



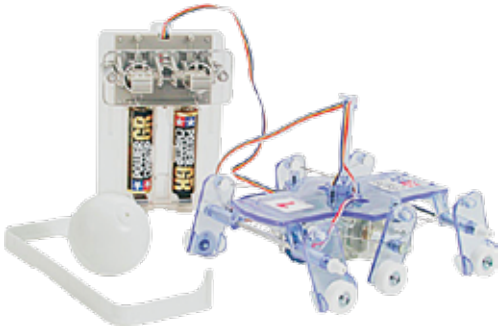
REMOTE-CONTROLLED BOXING FIGHTER KIT

Mix learning and the fun of boxing with the Remote-Controlled Boxing Fighter. The kit has a twin motor gearbox, allowing the boxer to punch while moving forward, backward, left, or right. Hitting the face of another boxer enough – with either an uppercut or a jab – will make it fall over. Included is a practice punch ball for "training" the boxer. Or have your class build more than one fighter and have a real bout!

A small screwdriver is included for robot assembly. Requires two AA batteries, sold separately.

Ages 12+

QX59012 Unassembled—$36



REMOTE-CONTROLLED INSECT KIT

Put away the bug spray; this is one critter you'll want to keep around. This mechanical insect crawls forward, backward, to the right, or to the left – thanks to a two-channel remote control. The remote-control circuit is pre-wired to the motor, and the gearboxes are preassembled to ease assembly. Kit comes with a ball and parts to make goals – so build several robots and have a soccer match! Kit also includes a small screwdriver for robot assembly. Requires two AA batteries, sold separately.

Ages 12+

QX59013—$37



MECHANICAL FISH KIT

You don't need a hook to catch this fish – this little robot uses a submarine motor and underwater gearbox to propel its fish frame through the water. Its upper half, with a dorsal fin, floats while the rest of the robot is submerged. Some assembly required. Requires one AAA battery, sold separately.

Ages 12+

QX35789—$29.95



WALL HUGGING MOUSE KIT

Drive the cat crazy! Tamiya's zigzagging mouse will follow a wall or solid object. This easy-to-build critter works with two motors: the motors switch power based on the signals received from the sensor rod. Features a see-through body so students can see the parts in action. Requires one C battery, sold separately.

Ages 12+

QX59143—$34.95



MECHANICAL KANGAROO KIT

This mechanical kangaroo brings an exotic animal from down under right to the classroom! The kit – which includes a small screwdriver – consists of colorful plates to make the kangaroo body, a motor, and instructions for how to put it together. Show students the movements of the mechanical kangaroo, which hops like the real animal. Requires one AA battery, sold separately.

Ages 12+

QX58450—$16.95



MECHANICAL RABBIT KIT

This mechanical, hopping rabbit will be a real treat for students. With its rear legs kicking it forward, this colorful pink bunny moves like a real rabbit. This is the fastest robot in the Robocraft series. Includes a small screwdriver for robot assembly. Requires one AA battery, sold separately.

Ages 12+

QX59011—$16.95



MECHANICAL BEETLE KIT

More than just a look-alike of the real insect, this mechanical beetle moves like one too! The beetle kit includes colorful body plates, a motor, and a small screwdriver for screw installation. Upon hitting an obstacle, the beetle will use its horn to move around whatever is in its path. Requires one AA battery, sold separately.

Ages 12+

QX58451—$16.95



MECHANICAL DOG KIT

This mechanical walking dog teaches children the science of how things move. Made with colorful plastic plates, the dog has four legs, a body, and even a wagging tail! Includes a small screwdriver for screw installation. Requires one AA battery, sold separately.

Ages 12+

QX58449—$16.95



TRACKED VEHICLE CHASSIS KIT

This kit contains everything you need to build a fully functional 3" x 7" model of a tracked vehicle. The propulsion system consists of four plastic gears and a small motor powered by two AA batteries, sold separately. Construction requires a modeling knife, side cutters, and two Phillips screwdrivers. Assembly diagrams included.

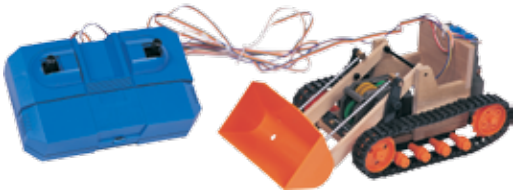
Ages 12+
QX56626—$18.50



REMOTE-CONTROLLED BULLDOZER KIT

This complete kit by Tamiya is plastic with a precut wooden chassis assembly. It includes two electric motors that require two AA batteries (sold separately) and a two-channel remote-control unit. The kit is meant for serious modelers only; instructions are in the form of 3-D diagrams with minimal written instructions.

Ages 15+
QX56981 Unassembled—$34



SHOVEL/DOZER KIT WITH REMOTE CONTROL

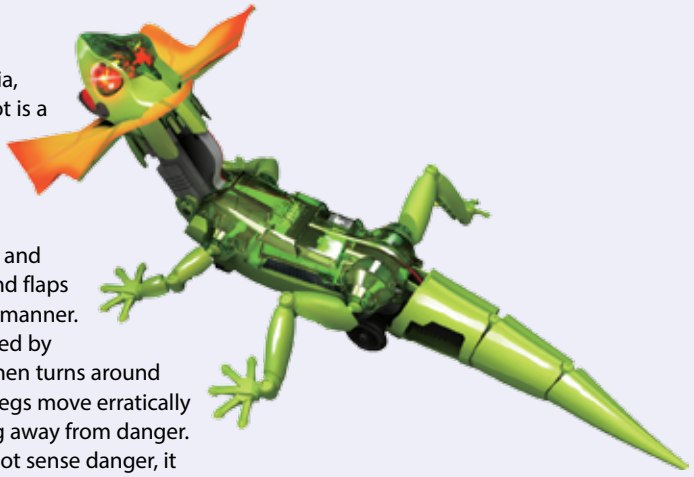
Wheels, a plastic twin-motor gear assembly, a bucket mounted on a wooden chassis, and a plastic remote-control box combine with electronic controls and two small motors (all included) to produce a workable shovel/dozer. The completed model can be directed to move backward and forward, make forward-right and reverse-right turns, and move its shovel up and down. Assembly requires a modeling knife, side cutters, and a Phillips screwdriver. For the serious modeler only – assembly is complex and guided only by diagrams. Requires two D batteries, sold separately.

Ages 15+
QX56625—$40

Each of these robots exhibits one or more specific robotic functions such as mechanical movements, sensing, and avoidance responses, just to name a few! Have a variety of these robots on hand to demonstrate all the various robotic functions available.

NEW!

KINGII DRAGON ROBOT



Native to Australia, the Kingii Dragon Robot is a smart super lizard with artificial intelligence. When this robot feels threatened, it gapes its mouth, flashes its eyes, and dramatically spreads and flaps its frill in a threatening manner. If you are not intimidated by these shenanigans, it then turns around and its front and back legs move erratically as if it were scampering away from danger. When the robot does not sense danger, it might approach you like a pet lizard would.

Ages 10+
QX41794—$37.95

HYPER PEPPY ROBOT KIT



Designed with a touch and sound sensor, this intelligent robot is hyper-reactive! When it comes in contact with objects or when it hears a loud noise, such as hands clapping, it reacts by going into reverse, turning left, and heading down a new path.

Robot includes a preassembled printed circuit board, condenser microphone, and mechanical drive system. Includes step-by-step instructions. Requires basic hand tools and two AA batteries, sold separately.

Ages 12+
QX58658 Unassembled—$35



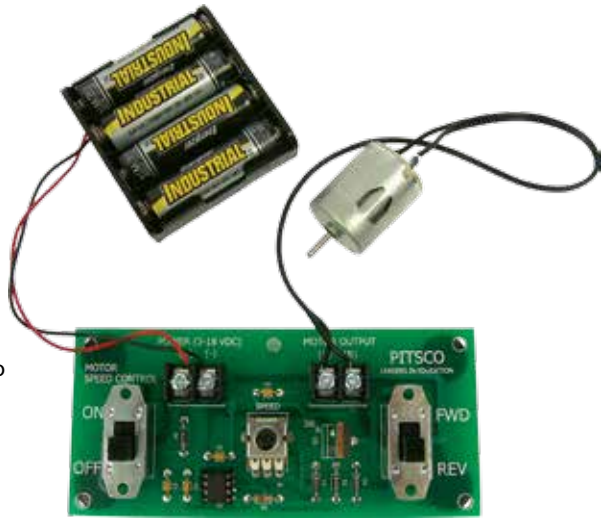
JUNGLE ROBOT KIT

Students will learn the basic principles of robotic sensing and locomotion using the Jungle Robot. Its modular design features a preassembled circuit board, mechanical drive system, and hardware – making it a snap to complete with basic hand tools. A condenser microphone awaits your auditory instructions to climb or walk for a preset time.

Ages 12+
QX58659 Unassembled—$38

DC MOTOR CONTROLLER

A Pitsco Exclusive



Gain power over your motorized gadgets with the DC Motor Controller! This universal controller connects to dozens of DC and gearhead motors – and makes a great soldering activity. After it is built, students can attach it to Pitsco motors, Tamiya gearboxes, and other DC motors to turn them on and off, switch directions, and change speed from zero revolutions per minute (rpm) to the full rpm. The Controller can connect to the included battery pack (6 V) or another power supply from three to 18 volts and features an output of up to six amps.

Includes the PC board and components, motor, four AA batteries, battery holder, 1' hook-up wire, and solder. Requires a soldering pencil or station and small Phillips screwdriver, both sold separately.

Ages 15+

QX33021—$39.95



HIGH-SPEED GEARBOX H.E.

Great for your high-speed needs, this high-efficiency gearbox has two gear ratios possible – 18.1:1 or 11.6:1. It comes with several styles of crank arms for a variety of uses, and it can be mounted vertically or horizontally. Includes an RE-260 motor.

Ages 12+

QX58239—$14.95

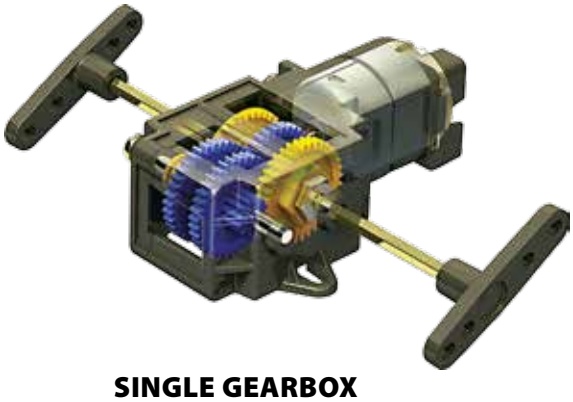


TWIN-MOTOR GEARBOX

In this case, seeing double is a good thing! This gearbox features a two-motor system to boost both power and speed to the hex shaft. Made of high-quality plastic and has gear ratios of 58:1 and 207:1. Includes two FA-130 motors.

Ages 12+

QX56628—$12.50



SINGLE GEARBOX

This compact, single gearbox features one motor and a choice of four gear ratios – 12.7:1, 38.2:1, 114.7:1, and 344.2:1 – to provide emphasis on either speed or power. Smooth and reliable movement ensures stable construction and running. Case and gear made from durable plastic. Includes motor cover and crank arm, FA-130 type motor, and a detailed assembly guide.

Ages 12+

QX59582—$10



3-SPEED CRANK AXLE GEARBOX

High-quality gears and gear case ensure this gearbox's durability and reliability. Features gear ratios of 16.1:1, 58.1:1, and 203.1:1. Can be geared for either power or speed. Includes an FA-130 motor and wiring cord.

Ages 12+

QX56627—$7.75



DOUBLE GEARBOX

This double gearbox with a choice of four gear ratios is suitable for use with remote-controlled robots. The gear ratios – 12.7:1, 38.2:1, 114.7:1, and 344.2:1 – enable builders to emphasize either speed or power. Left-right independent design means different gear ratios can be set for either side of a robotic device. Smooth and reliable movement ensures efficient running. Unit is housed in a solid plastic case for extra durability. Includes FA-130 type motor and a detailed assembly guide.

Ages 12+

QX59581—$12

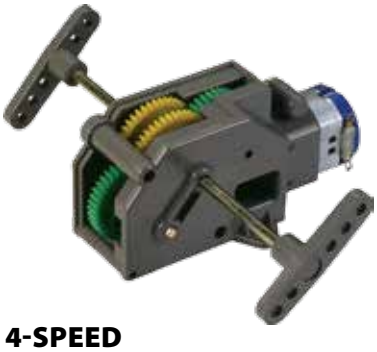


HIGH POWER GEARBOX H.E.

Need extra torque? This high-efficiency gearbox is the right choice. Features two gear ratios – 41.7:1 and 64.8:1 – and several styles of crank arms for design flexibility. Includes an RE-260 motor.

Ages 12+

QX54515—$14.95



4-SPEED CRANK AXLE GEARBOX

Don't let this gearbox's small size fool you – it is packed with power! Choose from four gear ratios – 126:1, 441:1, 1543:1, and 5402:1 – and choose from two included crank arms. Includes an FA-130 motor.

Ages 12+

QX56629—$11.50

6-SPEED GEARBOX H.E.



This high-efficiency gearbox is compact yet gives you plenty of options. Get plenty of flexibility from six gear ratios: 11.6:1, 29.8:1, 76.5:1, 196.7:1, 505.9:1, and 1300.9:1. Includes an RE-260 motor and an assortment of crank arms.

Ages 12+

QX58240—$17.95

4-CHANNEL REMOTE-CONTROL BOX



With this remote-control box by Tamiya, four different motors can be controlled. The control sticks have a self-centering function that automatically moves them back to the neutral position. Use the remote control with Tamiya construction materials for robotics projects. Some assembly and two D batteries are required. Batteries sold separately; instructions included.

Ages 12+

QX58452—$17

PLANETARY GEARBOX SET



This planetary gear set can provide gear ratios ranging from 4:1 to a stump-pulling 400:1 reduction!

Ages 12+

QX52986—$19.95

UNIVERSAL GEARBOX



With several ways to be mounted, this gearbox works for a variety of applications. Includes a hex shaft and a threaded shaft for extra design flexibility and features gear ratios of 101:1, 269:1, and 719:1. Comes with an FA-130 motor.

Ages 12+

QX56623—$9.95

WORM GEARBOX H.E.



Use this versatile gearbox for high-power applications. The anti-reversing worm gear design makes it perfect for winches and cranes. Provides a choice of two gear ratios: 336:1 and 216:1. Includes an RE-260 motor.

Ages 12+

QX52987—$14.95

OFF-ROAD TIRES SET



Two soft rubber tires with wheels for great traction on scale model off-road-type vehicles. Plastic wheel hub is made to fit a hex-shaped axle but will press fit onto 3 mm or 1/8" axles.

Ages 12+

QX54517—$4



TRACK & WHEEL SET

Get creative with this set that offers three different track lengths. Also includes sprocket, idler, and road wheels.

Ages 12+

QX56622—$9



SPORTS TIRE SET

These 56 mm diameter tires come with two sets of hubs (for hex and round shafts) and a wrench for changing hubs.

Ages 12+

QX56620—$7.50

UNIVERSAL PLATE SET



Use this Tamiya universal plate as a chassis mount for your car, truck, or other construction project. Plate is 60 mm x 160 mm and comes with nuts, bolts, and other connecting devices. Perfect for start-from-scratch building projects.

Ages 12+

QX56976—$6

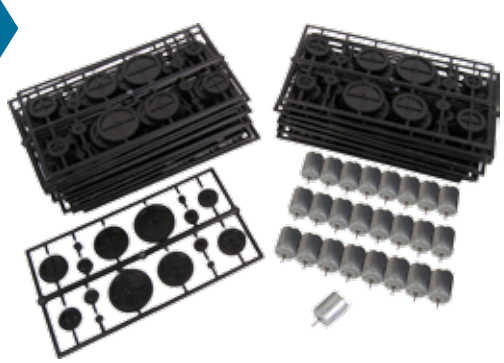
3-MILLIMETER DIAMETER SHAFT SET



You'll find many uses for the shafts in this set – as gearbox axles, for wheels, and more. The eight shafts are all three millimeters in diameter and have the following lengths and characteristics: two 100-millimeter hexagonal, two 150-millimeter hexagonal, two 100-millimeter rounded, and two 100-millimeter threaded. Set comes with a crank arm, hexagonal wrench, screws, and nuts.

Ages 12+

QX57503—$5.50



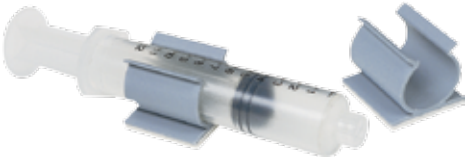
GEARS AND MOTORS CLASS PACK

A Pitsco Exclusive

This pack makes it easy to keep your science lab closet stocked. Pack includes 25 each of the Motor 280 and the Pitsco Gear Font. Perfect for all those solar cars, wind generators, and other small science projects your students create!

Ages 12+

QX31729—$152

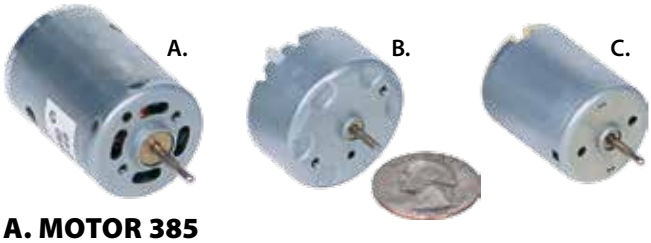


12 CC SYRINGE/MOTOR 280 MOUNTING CLIP

These handy clips can be used to mount the 12 CC Syringe or the Motor 280. Feature self-adhesive backs.

Ages 12+

QX29122—$12.50



A. MOTOR 385

A heavy-duty motor/generator with carbon brushes. It is an excellent choice for robotics design, model racing cars, R/C vehicles, or any other high-torque, low-power consumption applications. 6-24 VDC, 1,300 mA. No-load speed 14,300 rpm, stall torque 7.71 oz-in.

QX50076—$4.50 each
10 or more—$4.05 each

385 MOTOR MOUNT

QX37503—$1.50



B. MOTOR 500

Use this motor/generator with our Pitsco plastic gears. Smooth-running motor with very low starting friction. Operating range: 1.5-6 VDC, 150 mA. Shaft diameter: 2 mm. Operating range of 1.5 to 6 volts.

Note: This is the motor used in Pitsco's Wind Gen kit.

QX50075—$1.95 each
10 or more—$1.75 each

500 MOTOR MOUNT

QX37504—$1.50



C. MOTOR 280

A great little motor/generator for small electric vehicles or solar racers. This is the motor specified by the Junior Solar Sprint competition! Operating voltage: 1.5-3 VDC at 330 mA.

QX54428—$1.75 each
10 or more—$1.60 each

280 MOTOR MOUNT

QX37502—$1.95



GEAR FACTOR

A Pitsco Exclusive

Unlike many gear toys, the Gear Factor turns fascination with gear mechanics into a true educational tool. With six different gear sizes, there are many gear ratios possible. The gears are easy to change and move, making it easy for students to learn about gear combinations, gear ratios, building and testing gear combinations for a building project, and more.

Includes two Gear Fonts with 16 gears to fit the Gear Factor, 16 gear pins, and the approximately 4.25" x 8" base with predrilled gear-pin holes.

Ages 12+

QX32242 Kit—$39
QX33466 10-Pack—$375



GEAR FACTOR VIDEO

A Pitsco Exclusive

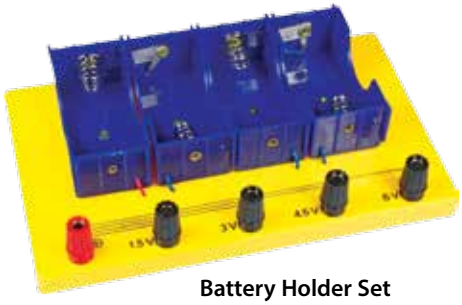
Showing how quick and easy it is to build the Gear Factor, this program quickly moves on to visually demonstrate key terms such as *gear train*, *mechanical advantage*, *ratio*, and *torque*. Then, see how to construct several simple activities with the gear trainer. Closed-captioned. Time: 12 minutes.

Ages 12+

QX33453 DVD—$24.95







Battery Holder Set

BATTERY HOLDERS

Use these battery holders for a variety of projects.

QX56262 One AA Battery Holder—$1.50
10 or more—$1.35 each
QX59609 Two AA Battery Holder—$1.20
10 or more—$1.10 each
QX32969 Two AA Battery Holder with Cover and Switch—$1.50
QX56263 Three AA Battery Holder—$2.75
10 or more—$2.50 each
QX32970 Three AA Battery Holder with Cover and Switch—$1.75
QX55023 Four AA Battery Holder—$1.90
10 or more—$1.70 each
QX32971 Four AA Battery Holder with Cover and Switch—$1.95

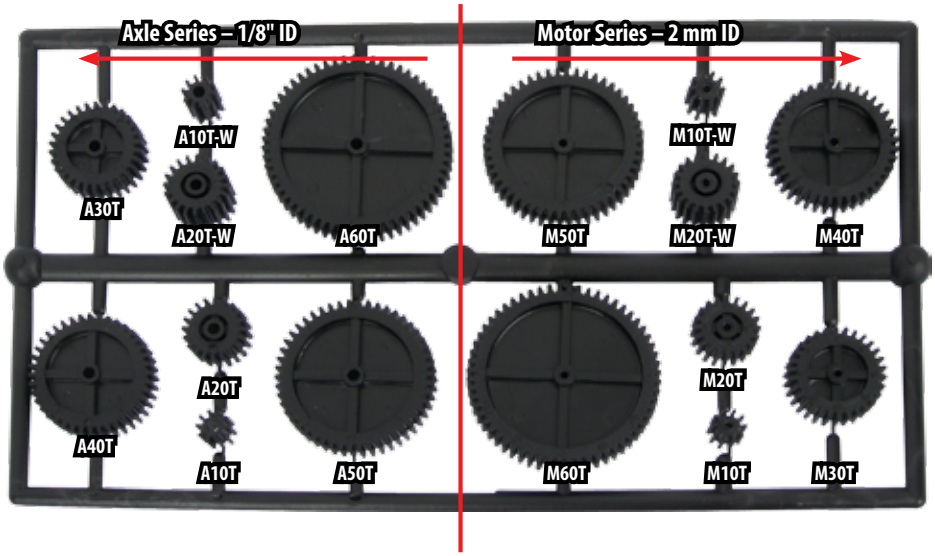
BATTERIES

Alkaline batteries for your various projects. These batteries withstand prolonged current drains and last up to three times longer than ordinary dry cells.

QX51048 (D cell, pkg of 2)—$2.95
QX51049 (C cell, pkg of 2)—$2.50
QX51046 (AA cell, pkg of 2)—$1.95
QX51047 (AAA cell, pkg of 2)—$1.95
QX51050 (9 V, pkg of 1)—$2.25



See our **rechargeable batteries** on **page 205**.



GEAR FONT

A Pitsco Exclusive

Get your motor running! These 16 plastic gears come in an easy punch-out frame and range in size from 1/2" to 2". Redesigned with accurate gear-tooth geometry for a smoother, more fluid fit, these gears can be used on most Pitsco products requiring a gear.

QX25300—$5
10 or more—$4.50 each

All Gears 32 Pitch

Gear Number	No. of Teeth	Outside Diameter	Bore Diameter	Thickness
A10T	10	3/8"	1/8"	1/4"
A10T-W	10	3/8"	1/8"	3/8"
A20T	20	11/16"	1/8"	1/4"
A20T-W	20	11/16"	1/8"	3/8"
A30T	30	1"	1/8"	1/4"
A40T	40	1 5/16"	1/8"	1/4"
A50T	50	1 5/8"	1/8"	1/4"
A60T	60	1-15/16"	1/8"	1/4"
M10T	10	3/8"	2 mm	1/4"
M10T-W	10	3/8"	2 mm	3/8"
M20T	20	11/16"	2 mm	1/4"
M20T-W	20	11/16"	2 mm	3/8"
M30T	30	1"	2 mm	1/4"
M40T	40	1-5/16"	2 mm	1/4"
M50T	50	1-5/8"	2 mm	1/4"
M60T	60	1-15/16"	2 mm	1/4"

AXLE (A) SERIES

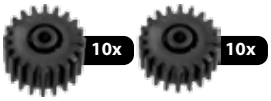


AXLE GEAR PACKAGE A10

A Pitsco Exclusive

Twenty 10-tooth gears that fit a 1/8" axle. Includes ten 1/4" thick gears (A10T) and ten 3/8" thick gears (A10T-W).

QX29650—$8

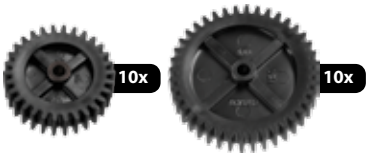


AXLE GEAR PACKAGE A20

A Pitsco Exclusive

Twenty 20-tooth gears that fit a 1/8" axle. Includes ten 1/4" thick gears (A20T) and ten 3/8" thick gears (A20T-W).

QX29651—$10

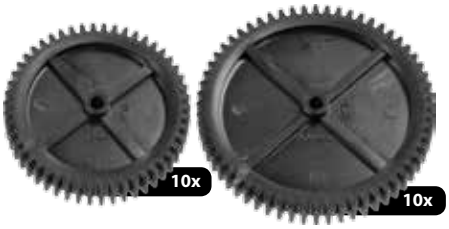


AXLE GEAR PACKAGE A3040

A Pitsco Exclusive

Includes ten 30-tooth gears (A30T) and ten 40-tooth gears (A40T) that fit 1/8" axles. All gears are 1/4" thick.

QX29652—$12



AXLE GEAR PACKAGE A5060

A Pitsco Exclusive

Includes ten 50-tooth gears (A50T) and ten 60-tooth gears (A60T) that fit 1/8" axles. All gears are 1/4" thick.

QX29653—$12

MOTOR (M) SERIES

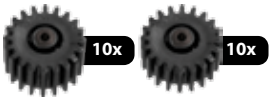


MOTOR GEAR PACKAGE M10

A Pitsco Exclusive

Twenty 10-tooth gears that fit onto our DC motor shafts. Includes ten 1/4" thick gears (M10T) and ten 3/8" thick gears (M10T-W).

QX29646—$15

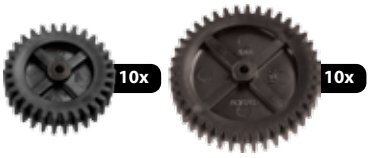


MOTOR GEAR PACKAGE M20

A Pitsco Exclusive

Twenty 20-tooth gears that fit onto our DC motor shafts. Includes ten 1/4" thick gears (M20T) and ten 3/8" thick gears (M20T-W).

QX29647—$12

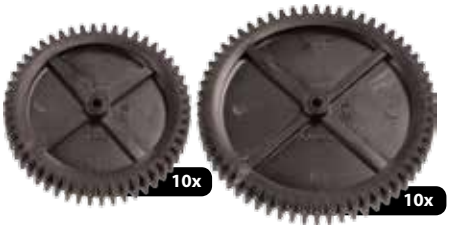


MOTOR GEAR PACKAGE M3040

A Pitsco Exclusive

Includes ten 30-tooth gears (M30T) and ten 40-tooth gears (M40T) that fit onto our DC motor shafts. All gears are 1/4" thick.

QX29648—$8



MOTOR GEAR PACKAGE M5060

A Pitsco Exclusive

Includes ten 50-tooth gears (M50T) and ten 60-tooth gears (M60T) that fit onto our DC motor shafts. All gears are 1/4" thick.

QX29649—$8



SPRUE CUTTER

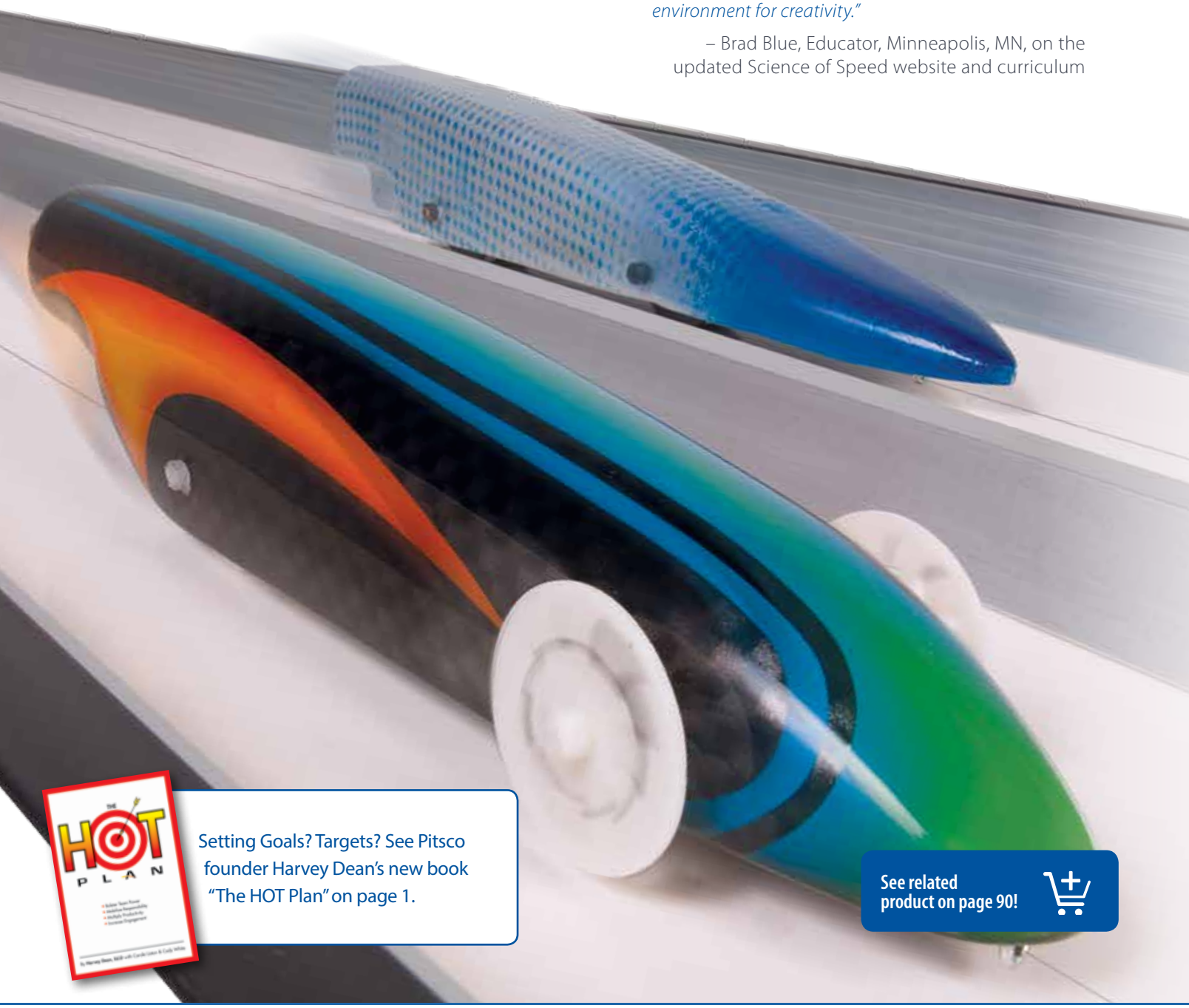
Tired of trimming sprues from molded plastic parts with hobby knives? This 4-1/2" Sprue Cutter saves time and frustration by easily removing parts from fonts and cutting sprues so close you won't need additional trimming.

QX31915—$7.95

DRAGSTERS

*"The site [**www.science-of-speed.com**] has been thoughtfully constructed for multiple users. The teacher will find a deep repository of materials that support the **structure of the learning**, the administrator will find alignment and tight fit to standards, and the students will find a big **makerspace** of sorts – the essential environment for creativity."*

– Brad Blue, Educator, Minneapolis, MN, on the updated Science of Speed website and curriculum



Setting Goals? Targets? See Pitsco founder Harvey Dean's new book "The HOT Plan" on page 1.

See related product on page 90!



PRODUCTS:

From design to build to race, Pitsco dragster products provide exciting hands-on learning opportunities and have been a favorite among educators for years.

NEW! **AP Bottle Racer** – page 68
NEW! **F1 Basic Car Kit** – page 96
AirTech Scout Wind Tunnel – page 88



ACTIVITIES:

Engineering concepts can be explored through a variety of dragster activities included in a variety of teacher's guides.

The Engineered Dragster: Production and Fine Tuning Teacher's Guide – page 73
NEW! ***Balloon Car Elementary STEM Activity Guide*** – page 117
Fold-N-Roll Vehicles Teacher's Guide – page 116



CURRICULUM:

Science of Speed 2 Curriculum combines the fun of CO_2 drag racing with science, technology, engineering, and math.

NEW! **Science of Speed 2 Units** – page 64

SOLUTIONS:

At Pitsco Education, we believe that the ultimate solution is one that engages students and excites them about learning. The integration of Pitsco products, activities, and curriculum into a classroom creates a hands-on learning solution that positively affects learners.

"I guess the one thing that I stick to is letting students fail and then helping them discover success. I like to remind them that engineers fail all the time, and it is what paves the path to a successful product or idea."

– Paul Casey, Pitsco STEM Center Facilitator and Technology Student Association (TSA) Advisor, Norwayne Middle School, Fremont, NC





Science of Speed 2: Let's Get Moving

3 Weeks

Let's Get Moving teaches these concepts through several projects: a pop can engine, a balloon rocket, and air-powered bottle racers. Students not only build their vehicles but also test them and interpret data for the purposes of reengineering.



SAMPLE ACTIVITY

Students build AP Bottle Racers and then test their air-powered cars in a distance trial. After a class discussion about trends in the results, the students consider ways to improve the performance of their vehicles. Students select a variable to investigate. They write a hypothesis about the effect of changing that variable. They also write and perform an experiment to test their hypothesis.

Armed with the knowledge gained from the experiment, students make additional changes to their vehicles. They use their creativity to make a vehicle that is fast and aesthetically pleasing. They also must work within specifications. The vehicles are then pitted against one another in a distance competition.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Pop can engine
- Balloons, string, and other craft materials for making balloon racers
- Stopwatch
- Calculator
- AP Bottle Racer Kits and Launcher
- Videos and other resources on the Science of Speed website (not required)
- *Let's Get Moving Student Workbook*
- *Let's Get Moving Teacher Guide*

A Pitsco Exclusive

QX41705—$865



Science of Speed 2: Design for Speed

6 Weeks

Design for Speed gives students a heavy dose of science and math. Students engage in competitive engineering with the goal of creating the fastest and most eye-pleasing wooden dragster.



SAMPLE ACTIVITY

The entire Design for Speed curriculum is one extended activity that spans approximately six weeks. Students learn about the engineering design process by deliberately following each step of it as they create their dragsters. In the process they learn about researching, designing to specifications, drafting, prototyping, construction, testing, and redesigning. Access to hand tools or power tools (preferred) is assumed. Students are asked to consider what balance they wish to strike between aesthetics and speed.

The final event is a head-to-head speed competition, and the teacher is given resources and ideas for making a big splash with the event, drawing a large audience and recruiting students for the program for next year.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Tool library including saws, drills, and sanders (power tools preferred)
- Foam for prototypes
- Balsa or basswood blanks
- CO_2 cartridges
- CO_2 car race system
- Videos and other resources on the Science of Speed website (not required)
- *Design for Speed Student Workbook*
- *Design for Speed Teacher Guide*

A Pitsco Exclusive

QX41709 Balsa Wood—$995
QX41713 Basswood—$995

Note: Instructional videos and other online resources are available with registration and subscription to Pitsco's learning content management system, Synergy ITC. The first year's subscription fee is included in your purchase of a Science of Speed Unit. Yearly subscription after the first year is $49 per unit per year.

For more **information**, visit **science-of-speed.com.**



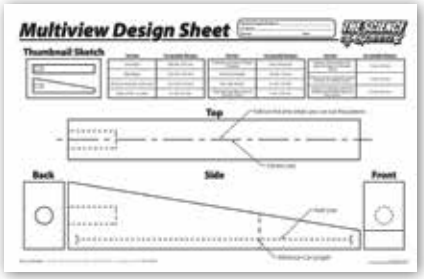
DESIGN FOR SPEED – EQUIPMENT PACKAGE NEW!

A Pitsco Exclusive

This package includes:

- Vision wood-processing center
- 9" band saw
- 10" bench drill press
- 1-gallon wet/dry vac
- Vise clamp

QX41755—$1,650

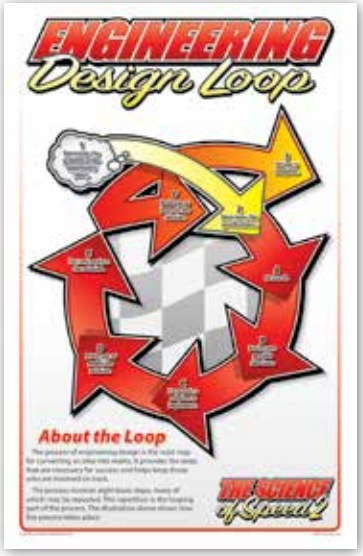


SCIENCE OF SPEED 2 – MULTIVIEW DRAWING SHEET NEW!

A Pitsco Exclusive

Drawing sheets used for designing your car that show views from front, top, back, and side.

QX41685 (11" x 17") (25 sheets)—$4.95



SCIENCE OF SPEED 2 – DESIGN LOOP POSTER NEW!

A Pitsco Exclusive

A poster showing the steps of the design loop process.

QX41686 (11" x 17")—$3.95



LET'S GET MOVING POSTER NEW!

A Pitsco Exclusive

A poster for Science of Speed 2: Let's Get Moving that shows the five phases of the unit.

QX41678 (11" x 17")—$3.95



DESIGN FOR SPEED – TOOLS PACKAGE NEW!

This package contains:

- Foam saber saw (12)
- Hand drill (6)
- Coping saw (24)
- Surform shaver (12)
- Dragster Paint Stand (24)
- CJ600 Digital Scale
- Sanding stick (12)
- Garnet paper (80 grit)
- Garnet paper (120 grit)
- Garnet paper (180 grit)
- Wet/dry sandpaper (400 grit)

QX41756—$889



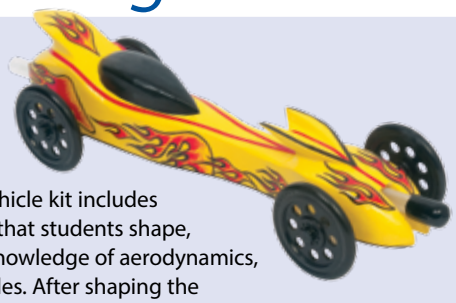
DESIGN FOR SPEED POSTER NEW!

A Pitsco Exclusive

A poster for Science of Speed 2: Design for Speed that shows the 14 phases of the unit.

QX41681 (11" x 17")—$3.95

AP Dragsters



AP DRAGSTER DESIGNER

A Pitsco Exclusive

This air-powered vehicle kit includes a balsa wood body blank that students shape, enabling them to apply knowledge of aerodynamics, friction, and other principles. After shaping the dragster, they assemble it and launch it on the AP Dragster Launcher, an air-powered launcher.

Ages 12+

QX36286—$5.95



AP DRAGSTER DESIGNER 10-PACK

A Pitsco Exclusive

This pack includes 10 kits. Each kit contains a body blank with predrilled axle holes and launch tube channel, four wheels, four axle bushings, two acetal axles, launch tube, straw, tube cap, self-adhesive glue lines, guide supports, sandpaper, and instructions.

Requires the AP Dragster Launcher; an air pump; and simple cutting, shaving, or sanding tools such as a coping saw, wood shaver, sanding stick, or sandpaper, sold separately.

Ages 12+

QX36299—$57.95

AP DRAGSTER DESIGNER 30-PACK

A Pitsco Exclusive

This pack includes 30 kits – enough for a classroom. Each kit contains a body blank with predrilled axle holes and launch tube channel, four wheels, four axle bushings, two acetal axles, launch tube, straw, tube cap, self-adhesive glue lines, guide supports, sandpaper, and instructions.

Requires the AP Dragster Launcher; an air pump; and simple cutting, shaving, or sanding tools such as a coping saw, wood shaver, sanding stick, or sandpaper, sold separately.

Ages 12+

QX36300—$170

Visit **www.pitsco.com/apdragsters**.



AP DRAGSTER – GETTING STARTED PACKAGE

A Pitsco Exclusive

Start to help students understand force and motion, potential and kinetic energies, and more with this fun activity. It uses a plastic bottle to create a racer that flies down the track powered by air pressure. These are fun to build, and students can personalize their racer with paint, decals, or other items.

Pack includes the kits, launcher, tire pump, and other items needed to lead the activity. Track length is 35' to 40'.

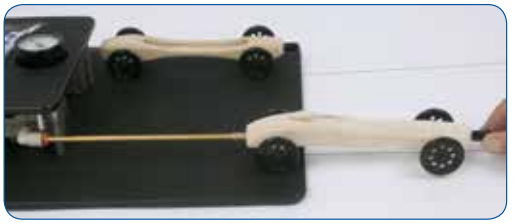
- QX36300 AP Dragster Designer 30-Pack
- QX36020 AP Dragster Launcher
- QX34417 Hand Pump

QX37748 AP Dragster – Getting Started Package—$525

Ages 12+







AP DRAGSTER LAUNCHER

A Pitsco Exclusive

Made for the AP Mini Dragster and AP Dragster Designer Kits, this system is small enough to run a race in the classroom or hallway and then easily be stored. To use the launcher, attach an air pump, slide two air-powered cars on the launch tubes, pump to build air pressure, and press the button to simultaneously launch two cars down a 35- to 40-foot track!

Features a built-in pressure relief system to keep air pressure to fewer than 40 psi. With HDPE construction and a built-in air gauge, the launcher is sturdy, and its dual-pressure tanks provide consistently even launches. Launcher is 16" x 11" x 3" and requires a hand pump or bicycle pump, sold separately. No assembly required.

Ages 9+

QX36020—$350⚠

QX34417 Hand Pump—$19.95

⚠ Please read and follow all teacher tips and safety information provided with this product.



AP MINI DRAGSTER

A Pitsco Exclusive

This dragster kit launches from the AP Dragster Launcher with air power, and its laser-cut chassis parts provide a quick and easy build. Also includes a car body design sheet that students can color and cut out. Or students can design and draw their own car body and use it.

Ages 9+

QX36285—$5.50



AP MINI DRAGSTER 30-PACK

A Pitsco Exclusive

This pack includes 30 kits – enough for a classroom. Each kit contains the design sheet, laser-cut wooden parts, four wheels, four axle bushings, two acetal axles, launch tube, straw, tube cap, self-adhesive glue lines, and sandpaper. Requires the AP Dragster Launcher, an air pump, HD Bond II or similar white glue, glue stick, and scissors, sold separately.

Ages 9+

QX36298—$160



AP MINI DRAGSTER 10-PACK

A Pitsco Exclusive

This pack includes 10 kits – enough for a small group. Each kit contains the design sheet, laser-cut wooden parts, four wheels, four axle bushings, two acetal axles, launch tube, straw, tube cap, self-adhesive glue lines, and sandpaper. Requires the AP Dragster Launcher, an air pump, HD Bond II or similar white glue, glue stick, and scissors, sold separately.

Ages 9+

QX36297—$53.95

CAPLUGS



If you're tired of messy modeling clay, these flexible vinyl caps make great nose cones for straw rockets and AP Dragsters!

QX34489 (pkg of 100)—$10.25

AERO VIZ FOAM CUTTER

A Pitsco Exclusive

This small foam cutter is ideal for creating shapes. Simple to use and economical, the Aero Viz Foam Cutter's hot cutting wire easily makes precise cuts in 1" polystyrene foam. Students can create any shape they can imagine for testing in wind tunnels or for other projects. Just 5.5" L x 5.5" W x 4.5" H, the foam cutter fits on student desks or other small work surfaces. Comes with 32-gauge nichrome wire and four foam blocks. Requires a standard wall outlet for power. Replacement nichrome wire sold separately.

QX36671—$69.95



Note: Only 32-gauge wire will work with the Pitsco Aero Viz Foam Cutter.

AP Bottle Racer



AP BOTTLE RACER KIT

A Pitsco Exclusive

Build an air-powered bottle rocket car to race in no time! This basic kit makes it easy for your students to make a launchable rocket car with ease – no tools required.

Comes with corrugated chassis material, wheels, bushings, axles, string guide tube, bottle, and self-adhesive tabs – everything you need for one car. Launching requires the AP Bottle Racer Launcher and a tire pump, sold separately.

QX38805—$4.95

AP BOTTLE RACER CLASS PACK

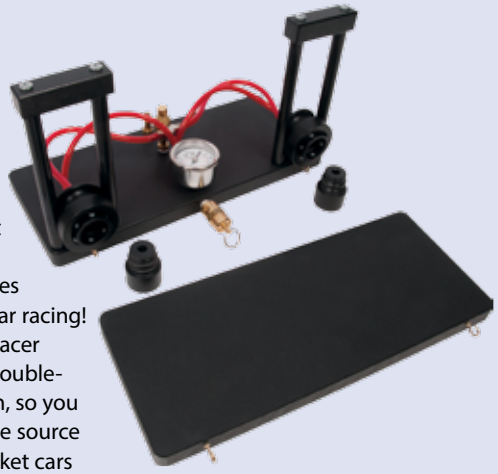
A Pitsco Exclusive

Perfect for resupplying your AP Bottle Racers – GS Pack! Includes 30 of the fun AP Bottle Racer Kits that don't require any tools for students to build – just some paint or decals, sold separately, if desired. Launching requires the AP Bottle Racer Launcher and a tire pump, sold separately.

QX40566—$99

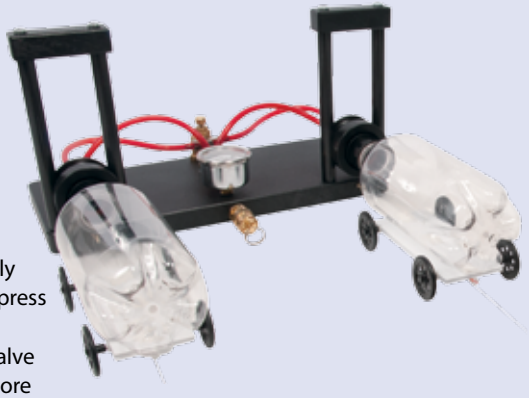
AP BOTTLE RACER LAUNCHER

A Pitsco Exclusive



Pressurized air in a bottle – long part of an exciting option for rocketry – now goes horizontal to power car racing!

The AP Bottle Racer Launcher features a double-launching mechanism, so you attach one air pressure source to race two bottle rocket cars side by side 30 feet or more, depending on the air pressure used. Just attach the nozzles on the cars, insert them into the quick-connect launch pods, apply air pressure, and press a valve to launch.



A release valve prevents using more than 50 pounds of pressure.

Includes the launcher, two nozzles, and string anchor. Launching requires a tire pump and bottle racers, sold separately. **Caution:** Use bottles for only carbonated beverages with this launcher (no water bottles).

QX38787—$189⚠

Visit **www.pitsco.com/bottleracer**.



AP BOTTLE RACER – GETTING STARTED PACKAGE

A Pitsco Exclusive

How do you show young students the basic concepts of force and motion? Try this activity using a plastic bottle to create a racer that flies down the track powered by air pressure. These are fun to build, and students personalize their racers with paint, decals, or other items.

Pack includes the kits, launcher, tire pump, and other items needed to lead the activity. Track length is 35' to 40'.

- QX40566 AP Bottle Racer Class Pack
- QX38845 AP Racer Nozzles
- QX59323 Deluxe Port Pump II
- QX38787 AP Bottle Racer Launcher

QX40535 AP Bottle Racer – Getting Started Package—$375⚠

Ages 12+

Requires no tools – just some paint or decals, sold separately, if desired.

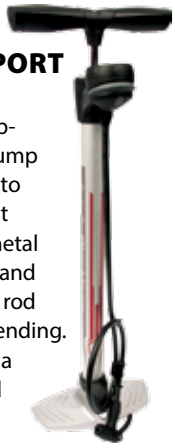
AP RACER NOZZLES



For prestaging extra cars to race with the AP Bottle Racer Launcher (or for replacing lost nozzles), add this two-pack of Delrin nozzles to your racing equipment.

QX38845 (pkg of 2)—$18.95

DELUXE PORT PUMP II



This top-notch bike pump will stand up to years of use. It features all-metal construction and a heavy-duty rod that resists bending. Also features a top-mounted pressure gauge, a locking hose end, and a contoured, rubberized handle.
QX59323—$69.95

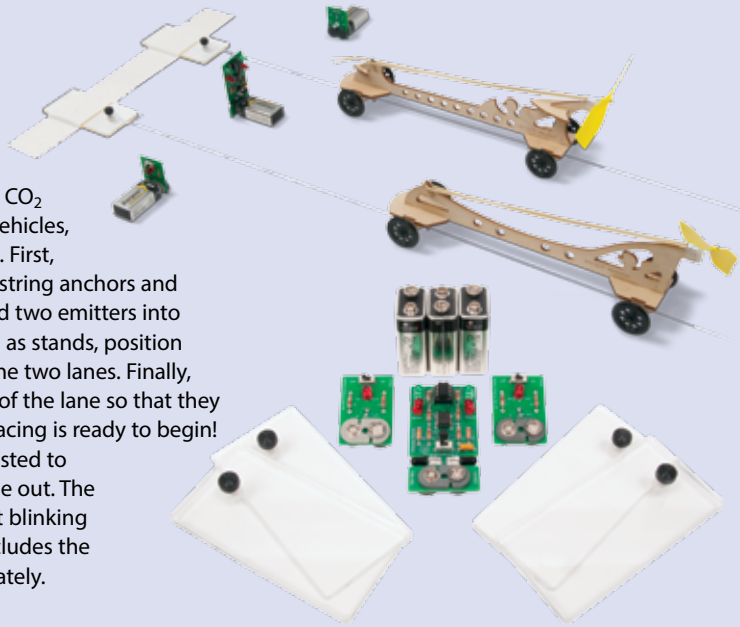
WIN-WIN DETECTOR

A Pitsco Exclusive

Looking for a simple but effective way to determine winners of races? This detector is small, highly portable, and a piece of cake to set up and yet electronically detects the winning lane.

The Win-Win is ideal for any race where two vehicles run on a line such as CO_2 dragsters, AP Bottle Racers, mousetrap vehicles, propeller cars, and Pinewood Derby cars. First, set up your racing lanes with the acrylic string anchors and monofilament line. Plug the detector and two emitters into the 9 V batteries and, using the batteries as stands, position the detector at the finish line between the two lanes. Finally, position the two emitters on either side of the lane so that they trigger the sensor on the detector. The racing is ready to begin!

The Win-Win Detector can be adjusted to any width or racing lane and doesn't time out. The winning lane is indicated by an LED light blinking 10 times. Comes fully assembled and includes the batteries. Requires duct tape, sold separately.
QX39943—$89



FREE HAND FOAM CUTTER

A Pitsco Exclusive

This super-handy tool is great for making prototypes and shaping items from polystyrene foam. The hot cutting wire melts through foam for a clean, perfect cut – with no dust or residue left behind. It's easy to cut intricate shapes from the white foam in Pitsco's dragster kits as well as denser expanded polystyrenes.

When in the vertical position, the cutting wire makes perfect square cuts. The wire can be tilted to achieve a range of angled cuts. Wire temperature can be adjusted for optimum cutting for various types of foams.

The cutter's base is 14" x 14" and made of durable, laminated material. Package includes cutter, control box, power supply, and 100 feet of cutting wire.
QX54527—$335

Note: Only 32-gauge wire will work with the Pitsco Free Hand Foam Cutter.



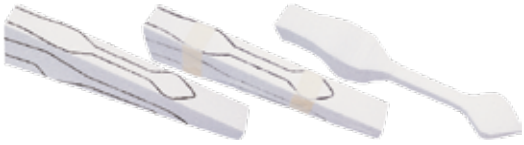
NICHROME WIRE

Use this nichrome wire as replacement for Styrofoam cutters. Available in 18, 24, or 32 gauge.
QX53710 (18 gauge, 10')—$3.95
QX53709 (24 gauge, 10')—$3.50
QX53649 (24 gauge, 200')—$19.95
QX53654 (32 gauge, 100')—$5

FOAM POLYSTYRENE SHEETS



This dense, yet lightweight, expanded polystyrene foam is much sturdier than white Styrofoam. It's great for wings, prototypes, vehicle bodies, intricate shapes, and more. Available in 1" and 2" thicknesses. Sheets are 11.5" x 23.5". When purchased in a package of 10, a sheet of template material is included. Colors vary.
QX54613 (11.5" x 23.5" x 1")—$3.25
QX54614 (11.5" x 23.5" x 2")—$7.50
QX54679 (11.5" x 23.5" x 1", pkg of 10)—$33
QX54680 (11.5" x 23.5" x 2", pkg of 10)—$69



PRECUT STYROFOAM BODY BLANK

Save time and money by having students carve mock-ups of their dragsters from Styrofoam before actually carving the wood model. Same size as our large body blanks.
QX13302 (12" x 1-5/8" x 2-3/4")—$.60
100 or more—$.55 each



STYROFOAM SABER SAW

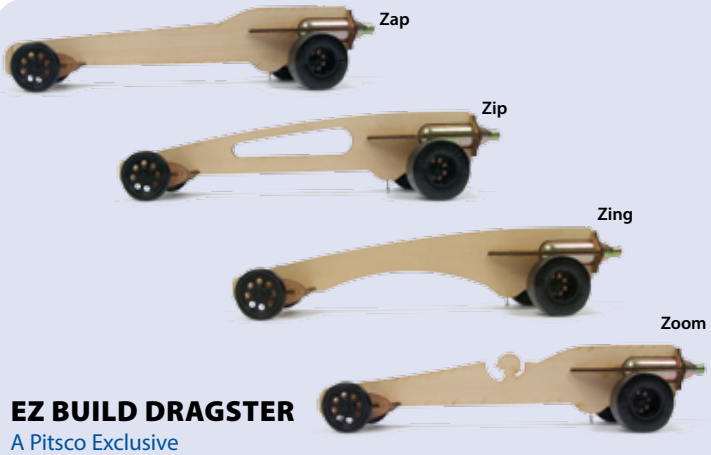
A great tool to have for making various models and props. Includes two blades. Larger blade is 4-1/4" long, and the smaller blade is 1" long. Use to cut foam, wood, and some metals.
QX53775—$8

STYROFOAM FOR MOCK-UPS

White, 1-5/8" x 12" x 36" sheets.
QX10011—$4
10 or more—$3.60 each



EZ Build Dragsters



EZ BUILD DRAGSTER

A Pitsco Exclusive

A unique reinterpretation of the CO_2 dragster, these kits remove the need for power or cutting tools of any kind. Just assemble the dragsters from the laser-cut basswood parts and then glue, finish as desired, and launch!

EZ Build Dragsters are durable – they handle the same racing conditions as standard dragsters. And they provide a powerful activity for demonstrating force, motion, speed, friction, and acceleration.

EZ Build Dragsters launch on any standard CO_2 race system with 4- or 8-gram cartridges and are available in four models – Zip, Zap, Zoom, and Zing – and a class pack that includes 32 complete kits, eight of each model. Each kit includes one 8-gram CO_2 cartridge. Screwdriver and white glue required for assembly.

Ages 12+

QX33070 Zap—$9.95
QX33071 Zip—$9.95
QX33072 Zing—$9.95
QX33069 Zoom—$9.95

SHIPPING INFO
See policies page at back of catalog.



EZ BUILD DRAGSTER 32-PACK

A Pitsco Exclusive

The laser-cut EZ Build Dragster and all the hardware come conveniently packaged for an entire classroom. This class pack includes 32 complete kits – eight each of the four designs: Zip, Zap, Zoom, and Zing. No cutting tools needed; a race system, white glue, and screwdriver are required, sold separately.

Ages 12+

QX34113—$265

Visit www.pitsco.com/ezdragsters.



EZ BUILD DRAGSTERS – GETTING STARTED PACKAGE

A Pitsco Exclusive

The most affordable package we offer for starting a CO_2 dragster activity, it features the EZ Build Dragster – ideal for schools that don't have standard power or hand tools – and a manual start gate with a floor track system.

The EZ Build Dragsters – GS Package includes the following products:

- QX34113 EZ Build Dragster 32-Pack
- QX33133 EZ Start Gate
- QX18060 Deceleration Towel
- QX34125 EZ Build Dragster Video

QX35776 EZ Build Dragsters – Getting Started Package—$499

Ages 12+

EZ BUILD DRAGSTER VIDEO

A Pitsco Exclusive

Be the bearer of an exciting racing activity for your class – even if your school doesn't have tools. This program shows you how simple it is to build a laser-cut EZ Build Dragster and how to race it like any typical CO_2 dragster. Plus, learn about the seven-step design process, the function of CO_2 cartridges, surface and fluid friction, and more. Time: 11 minutes.

Ages 12+

QX34125 DVD—$24.95







Sportster Blanks





Archie Blanks





Roadster Blanks





Flat-Liner Blanks



PRECUT DRAGSTER BLANKS

A Pitsco Exclusive

With the Precut Dragster Blanks, Pitsco does all the drilling and band saw work for you. Just use coping saws and sandpaper to fine-tune the basswood dragster's shape, finish it as desired, and start the races.

Each basswood blank includes two car bodies rough cut to one of four shapes – the car bodies break apart easily. Predrilled axle and cartridge holes enable students to concentrate on adding fine details and reducing the weight to increase style and performance. Requires wheels, axles, bushings, finish, and a race system, sold separately.

Note: These axle holes are drilled to use the Ultimate Axle Bushings, sold separately.

Ages 12+

QX33059 Sportster, two per blank—$19.95
QX33060 Archie, two per blank—$19.95
QX33061 Flat-Liner, two per blank—$19.95
QX33062 Roadster, two per blank—$19.95

PRECUT DRAGSTER 32-PACK

A Pitsco Exclusive

Prepackaged with enough kits for the entire classroom, this class pack brings the excitement of CO_2 racing even where power tools are not available. Includes 32 complete Precut Dragster Kits – eight each of the four designs. Requires a coping saw or work rasp, finish, and a race system, sold separately.

QX34112—$399



See policies page at back of catalog.



PRECUT DRAGSTER VIDEO

A Pitsco Exclusive

Taking one of the four styles of Precut Dragsters and turning it into your own unique CO_2 dragster proves an easier task with this program to keep you on track. This process is complemented by information about the design process, calculating average speed, the third law of motion, and other concepts. Closed-captioned. Time: 12 minutes.

Ages 12+

QX34124 DVD—$24.95

All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!

LSRAV Dragsters

LSRAV DRAGSTER

A Pitsco Exclusive



Hand each student a box with all the parts for a Land Speed Record Assault Vehicle (LSRAV) and get ready to race. The box can be used as a storage container during construction of the LSRAV. Each kit contains a body blank (12" x 2-3/4" tapered to 3/4" with a hole drilled for the CO_2 cartridge), foam body blank, four wheels (two front and two back), CO_2 cartridge, two screw eyes, four brass washers, two 1/8" axles, one soda straw, and a piece of sandpaper (1/4 sheet).

The LSRAV Dragster Kit does not include the student instruction booklet that comes with the Metric Dragster Kit. Instructions are on the box. Includes all components required for making the dragster. **Note:** Includes CO_2 cartridge.

Requires a drill, coping saw, wood file or rasp, ruler, scissors, finish, and a race system, sold separately.

Ages 12+

QX13217 Basswood Kit—$6.95
100 or more—$6.30 each
QX13225 Basswood Kit (without expanded polystyrene blank)—$6.50
100 or more—$5.85 each
QX13219 Balsa Wood Kit—$7.50
100 or more—$6.75 each
QX13226 Balsa Wood Kit (without expanded polystyrene blank)—$7.25
100 or more—$6.55 each

SHIPPING INFO
See policies page at back of catalog.



LSRAV DRAGSTER PACK

A Pitsco Exclusive

Looking for the least expensive way to provide your students with quality CO_2 supplies? Look no more! Here are all the parts for 50 Land Speed Record Assault Vehicles (LSRAVs).

Includes 50 Pitsco AccuHold Blanks, 100 Pitsco Lx Wheels, 100 Pitsco Px Wheels, 50 Pitsco Safety Seal CO_2 Cartridges, 100 steel axles, 200 brass washers, 50 straw bearings, 50 sheets of sandpaper, and reproducible instructions. Requires a drill, coping saw, wood file or rasp, ruler, scissors, finish, and a race system, sold separately.

Ages 12+

QX25702 Basswood 50-Pack—$299
QX25703 Basswood 50-Pack (without expanded polystyrene blank)—$279
QX25699 Balsa Wood 50-Pack—$310
QX25701 Balsa Wood 50-Pack (without expanded polystyrene blank)—$299



EZ START DRAGSTERS – GETTING STARTED PACKAGE

A Pitsco Exclusive

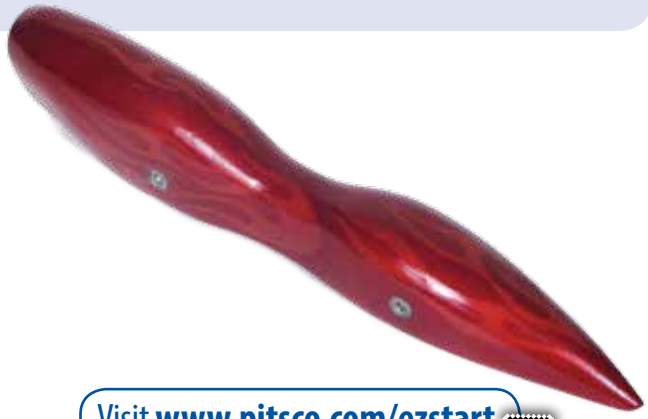
An inexpensive way to introduce dragsters into your curriculum, this package offers enough materials to build 50 dragsters and the equipment to race them.

The EZ Start Dragsters – GS Package includes the following products:

- QX25701 Balsa Wood Dragster LSRAV Pack (without expanded polystyrene blank)
- QX33135 EZ Start Raceway
- QX25500 Wheel Deal
- QX59641 Dr. Zoon Dragster DVD Series

QX33445 EZ Start Dragsters – Getting Started Package—$760

Ages 12+



Visit www.pitsco.com/ezstart.



CARD CAR CLASS PACK NEW!

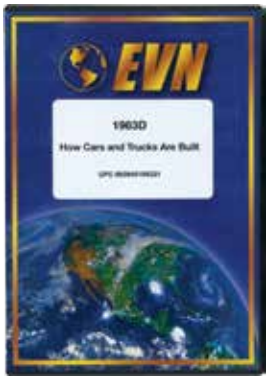
A Pitsco Exclusive

The Card Car activity is the first activity we recommend within the *Dragster Engineering Teacher's Guide*. Students gain an understanding of the basic engineering design process through the use of the Engineering Design Loop. Students work through each step of the engineering design process to develop a gravity-powered vehicle made from index cards. There is an emphasis on the use of design iterations, redesigns, and adherence to specifications. Serves 30 students.

Ages

QX41401—$39.95

HOW CARS AND TRUCKS ARE BUILT VIDEO



We've all seen shiny new vehicles at car lots. Did you ever wonder how vehicles are made? This DVD travels through the assembly plant to show every step of manufacturing a vehicle. Also, it looks at how robotics and computers have improved the assembly process and explores career opportunities in the automotive industry. Time: 18 minutes.

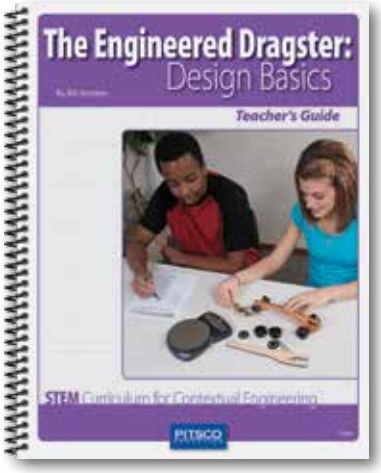
Ages 12+

QX59201 DVD—$84.95



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THE ENGINEERED DRAGSTER: DESIGN BASICS TEACHER'S GUIDE



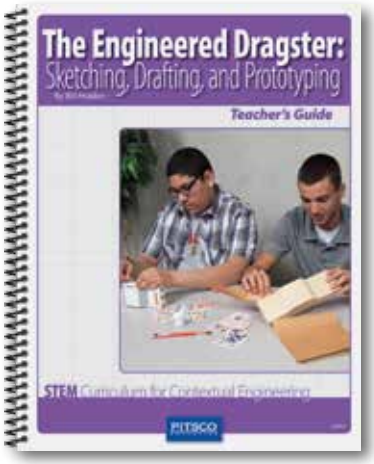
A Pitsco Exclusive

Don't let students wing it – have them design CO_2 dragsters using engineering concepts. This guide starts by teaching them about the engineering design process. As they work through the activities and design dragsters, students will learn about specifications, Newton's laws, identifying and minimizing friction, bearing surfaces, and much more! Paperback/Spiral-bound, 68 pages.

Ages 12+

QX59904—$39.95

THE ENGINEERED DRAGSTER: SKETCHING, DRAFTING, AND PROTOTYPING TEACHER'S GUIDE



A Pitsco Exclusive

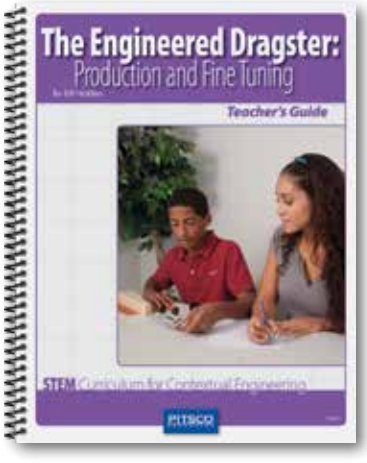
Students design their own CO_2 vehicle, produce a foam prototype, and create a finished Custom Cruiser model. The culminating activity is to deliver a presentation about the process of creating the Cruiser.

Through these activities and challenges, students learn about and apply several concepts: scaling, orthographic drawings, drafting and drafting tools, modeling, and more. Paperback/Spiral-bound, 77 pages.

Ages 12+

QX59905—$39.95

THE ENGINEERED DRAGSTER: PRODUCTION AND FINE TUNING TEACHER'S GUIDE



A Pitsco Exclusive

This guide continues the process of guiding students in designing and building an excellent dragster while understanding the science and technology principles behind it.

Production and Fine Tuning delves into the importance of carefully aligned axles, quality paint finishes, and topics that go beyond shape and basic construction. Principles explored include alignment and drift, rolling and sliding friction, aerodynamic drag, specifications, and symmetry. Paperback/Spiral-bound, 75 pages.

Ages 12+

QX59991—$39.95

Metric Dragsters



METRIC DRAGSTER

A Pitsco Exclusive



Dragsters are an exciting method to teach metrics and the design process. Students design and build a prototype and then produce an actual CO_2-powered dragster and race it! An illustrated, self-directed student workbook holds the students' attention as they learn step-by-step automotive-design processes.

The Race Car Book, a $2 value, is included, along with all components required for making the dragster. **Note:** Includes CO_2 cartridge.

Requires a drill, coping saw, wood file or rasp, ruler, scissors, finish, and a race system, sold separately.

Ages 12+

QX13215 Basswood Kit—$7.50
100 or more—$6.75 each
QX13222 Basswood Kit (without expanded polystyrene blank)—$7.15
100 or more—$6.45 each
QX13218 Balsa Wood Kit—$7.95
100 or more—$7.15 each
QX13224 Balsa Wood Kit (without expanded polystyrene blank)—$7.75
100 or more—$6.95 each

SHIPPING INFO
See policies page at back of catalog.



DRAGPAK

A Pitsco Exclusive

Get the classic dragster in a convenient pack for the whole class! This hands-on activity has been the best motivational project in technology education for more than 30 years. Everything you need to design and build 50 metric dragsters is in the DragPak.

Comes with expanded polystyrene foam blanks to enable students to experiment with body shape before cutting.

Requires a drill, coping saw, wood file or rasp, ruler, scissors, finish, and a race system, sold separately.

QX13244 Basswood 50-Pack—$325
QX13243 Basswood 50-Pack (without expanded polystyrene blank)—$300
QX13245 Balsa Wood 50-Pack—$340
QX13246 Balsa Wood 50-Pack (without expanded polystyrene blank)—$320

Visit **www.pitsco.com/metric**

METRIC DRAGSTERS – GETTING STARTED PACKAGE

A Pitsco Exclusive

Metric drag racing is an excellent way to motivate students while they design, construct, and race their own CO_2 dragsters. This Getting Started package includes everything you need to launch your students' program: materials to build and finish 50 student dragsters, a launching system, instructions, and the *Dr. Zoon Dragster DVD Series*.

The Metric Dragsters – GS Package includes the following products:

- QX33135 EZ Start Raceway
- QX13246 Balsa Wood DragPak (without expanded polystyrene blank)
- QX54528 Dragster Paint Stand (5 stands included)
- QX59507 All-Purpose Sealer (2 bottles included)
- QX53375 Acrylic Paint – Nontoxic (2 packs included)
- QX53469 Paintbrush Assortment
- QX53421 Aerosol Gloss Finish
- QX33915 Metric Dragster Go/No Go Gauge (5 gauges included)
- QX25500 Wheel Deal
- QX59641 Dr. Zoon Dragster DVD Series (5 videos)

QX23654 Metric Dragsters – Getting Started Package—$915

Ages 12+





METRIC DRAGSTER KIT MK-200

A Pitsco Exclusive

Design a shorter, lighter dragster with this kit instead of our regular Metric Dragster Kit. The only difference is that this basswood body blank is about 100 mm shorter than the one in the Metric Dragster Kit.

Ages 12+

QX13216—$6.95
100 or more—$6.25 each
QX13223 Kit (without expanded polystyrene blank)—$6.50
100 or more—$5.85 each

SHIPPING INFO
See policies page at back of catalog.



TOP ELIMINATOR DRAGSTER KIT

A Pitsco Exclusive

This kit is full of goodies to give your car the edge: a premium balsa wood blank (very lightweight), attractive chrome wheels, super-fast acetal axles, low-friction axle tubes, and nylon washers.

Also includes sandpaper, a CO_2 cartridge, a pair each of standard and long screw eyes, and a sheet of Pitsco decals. In lieu of the foam blank, the Pitsco Dragster Paint Stand is included, which can be used to display the finished dragster. Wheels might vary.

Ages 12+

QX54599—$16.95
10 or more—$16.10 each
100 or more—$15.25 each

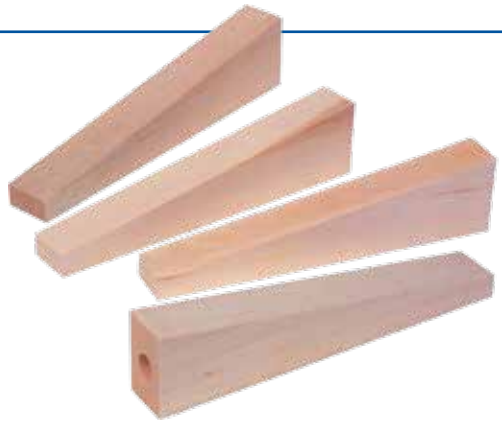
SHIPPING INFO
See policies page at back of catalog.

BASSWOOD BODY BLANKS

A Pitsco Exclusive

The standard in basswood body blanks for the CO_2 cars that Pitsco manufactures. Predrilled hole for a CO_2 cartridge is precisely drilled every time. Choose basswood for a durable car.

QX33558 (12" x 1-5/8" x 2-3/4")—$2.65
100 or more—$2.40 each
QX13253 (8" x 1-1/2" x 2-3/4")—$2.20
100 or more—$2 each





BALSA WOOD BODY BLANKS

A Pitsco Exclusive

Our standard balsa wood body blank is built for a lightweight car that will really zoom down the track! Predrilled hole for a CO_2 cartridge is precisely drilled every time.

QX53347 (12" x 1-5/8" x 2-3/4")—$3.45
100 or more—$3.10 each
QX53436 (8" x 1-1/2" x 2-3/4")—$2.65
100 or more—$2.40 each

PREMIUM BALSA BODY BLANK

A Pitsco Exclusive

The lightest, fastest bodies anywhere! If you want to build that ultralight screaming dragster machine, this is your blank.

The dragster blank is made from premium lightweight balsa wood. Each blank has a mass of 80 grams or less.

QX52086 (12" x 1-5/8" x 2-3/4")—$5
10 or more—$4.50 each

AccuHold provides a perfect fit for CO_2 cartridges in dragsters. No more "too tight" or "too loose" fits – every Pitsco cartridge will fit snugly into every Pitsco dragster blank. Of course, we will continue to sell only the best blanks in the industry, with hole position tolerances within ±1 mm.

Check it out: compare our blanks to our competitors'. Look at the quality of the wood, measure the hole location, insert a cartridge, and declare the winner!



8-GRAM CO_2 CARTRIDGE

A Pitsco Exclusive

The best cartridge available for launching dragsters. Consistent quality ensures the fairest races. Also, each of these cartridges features a safety seal that guards against rupture when exposed to excessive heat. You might locate a cheaper cartridge, but when it comes to consistency, quality, and safety, our cartridges are the best choice.

QX53337—$.60
10 or more—$.55 each
120 or more—$.50 each
720 or more—$.45 each

Please recycle.

4-GRAM CO_2 CARTRIDGE

A Pitsco Exclusive



Cousin to the 8-Gram Cartridge, the 4-Gram Cartridge delivers just a little less firepower – ideal for short tracks. If your track is fewer than 50 feet, try this cartridge to get optimum race times without destroying student dragsters!

QX53338—$.65
10 or more—$.60 each
120 or more—$.55 each
720 or more—$.50 each

Firing CO_2 cartridges does not harm the environment. The amount of carbon dioxide (CO_2) released when the cartridge is fired is the exact amount taken from the atmosphere when the cartridge was manufactured, resulting in a net sum zero effect. And the used steel cartridges can be recycled anywhere steel is recycled. Want to know how cartridges are manufactured? Visit www.pitsco.com/CO2.



THE RACE CAR BOOK

A Pitsco Exclusive



This full-color book takes students through every step of the dragster design and construction process.

Easy-to-understand text, color photos, and illustrations provide clear instruction. Includes special design hints and building tips. A flowchart relates the dragster design process to real-world car design. A final section on race preparation helps students maximize their cars' performance in competition. Paperback, 20 pages. Size: 5-1/2" x 8-1/2".

Ages 12+

QX17483—$2
10 or more—$1.80 each
100 or more—$1.75 each

SHIPPING INFO
See policies page at back of catalog.

CO_2 cartridges have been deemed a hazard if shipped by air. Therefore, a hazardous shipping fee will be added for air delivery. This fee will be in addition to the regular shipping charges.



No comparison, period.

Pitsco is the exclusive educational distributor of the safest, most reliable, and most consistent 4-gram and 8-gram CO_2 cartridges. Safety is built into each cartridge by the patented safety seal. This seal automatically releases excess pressure if the internal pressure rises due to the cartridge being heated or pressurized.

You could purchase inferior, less costly CO_2 cartridges but not from Pitsco. We are very concerned about the safety of students and teachers alike and provide only the safest CO_2 cartridges on the market. If it doesn't say "Pitsco" on the box, then you're not using the safest cartridges available.

SET OF FIVE DR. ZOON DRAGSTER VIDEOS

A Pitsco Exclusive



Dr. Zoon knows dragsters, and so will your students after viewing the entire *Dr. Zoon Dragster Video* series. They will understand how the laws of motion, friction, and aerodynamic drag govern dragster design. Students learn how to construct a prototype from Styrofoam and how to safely and effectively use power or hand tools to produce a balsa wood or basswood model. The correct way to sand, seal, and paint their dragsters is clearly illustrated to help them avoid common finishing mistakes. Then, students learn how to interpret, record, and use the results of wind tunnel and ramp testing to improve a dragster's performance. Closed-captioned. Total time of five videos: 95 minutes.

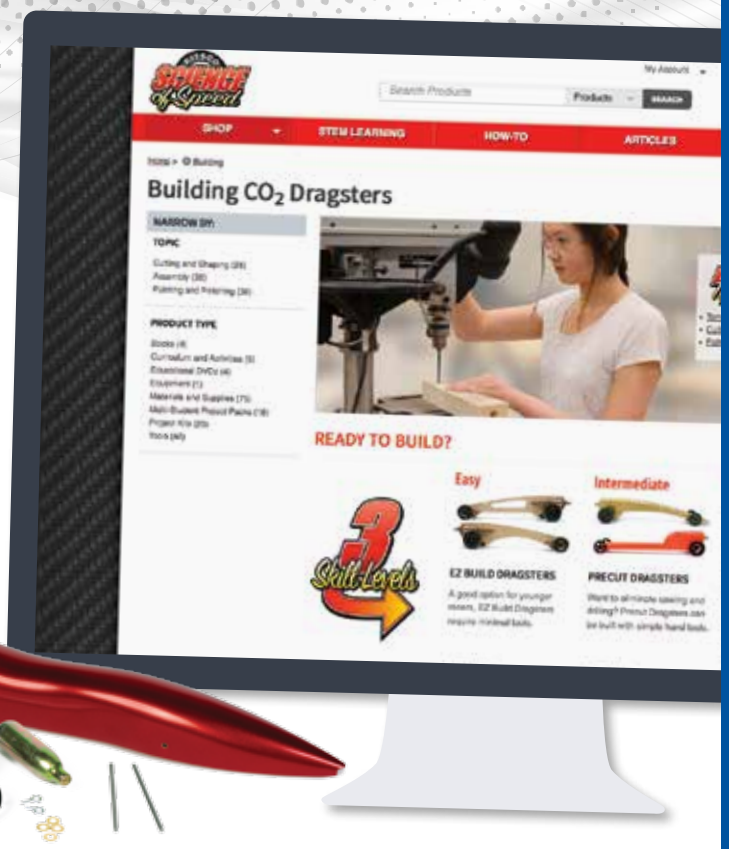
Ages 12+

QX59641 Dr. Zoon Dragster DVD Series—$69.95
These videos are available individually.
QX59850 Dr. Zoon Dragster Design Video—$24.95
QX59851 Dr. Zoon Dragster Production: Hand Tools Video—$24.95
QX59852 Dr. Zoon Dragster Production: Power Tools Video—$24.95
QX59853 Dr. Zoon Dragster Finishing Video—$24.95
QX59854 Dr. Zoon Dragster Testing Video—$24.95



THE SCIENCE of Speed 2

Visit **www.science-of-speed.com** to see an online showroom of student-built cars, inspirational articles, additional equipment and supplies, and so much more!



Custom Cruiser



CUSTOM CRUISER VEHICLE DESIGN KIT

A Pitsco Exclusive

Students use this kit to complete an exciting vehicle design project that culminates in a race competition, much like the Metric Dragster activity. Wide body blanks (3" x 3" x 12") allow for car designs that are closer to production-car proportions.

More emphasis can be placed on car styling and learning the industrial design process than on car performance. The activity can be a follow-up to a clay car design project (clay materials and tools sold separately).

Realistic wheels have removable hubs that can be painted. Includes predrilled balsa wood body blank, CO_2 cartridge, long axles, four wheels, four brass washers, screw eyes, sandpaper, and straw for axle tubes.

Ages 12+

QX54600—$15.95

SHIPPING INFO
See policies page at back of catalog.



CUSTOM CRUISER 25-PACK

A Pitsco Exclusive

When style counts, the Custom Cruiser activity leaves other dragsters in the dust! Wide body blanks enable students to create vehicle designs closer to reality. This package includes 25 complete Custom Cruiser Vehicle Design Kits, each of which includes all parts required to build one vehicle. Requires a drill, coping saw, wood file or rasp, finish, and a race system, sold separately.

Ages 12+

QX33464—$345

Visit **www.pitsco.com/customcruisers**.



CUSTOM CRUISER – GETTING STARTED PACKAGE

A Pitsco Exclusive

You'll cruise through this CO_2-vehicle activity with our Getting Started package. It brings together all the materials needed to build 25 Custom Cruisers, plus a video, teacher's guide, and book to help guide you and your class through the process.

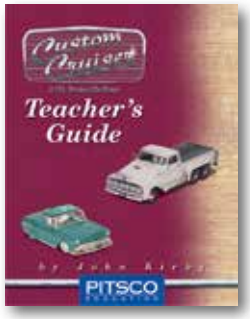
The Custom Cruiser – GS Package includes the following products:

- QX33464 Custom Cruiser 25-Pack
- QX54672 Custom Cruiser Teacher's Guide
- QX59780 Dr. Zoon Custom Cruiser Design Video

QX33444 Custom Cruiser – Getting Started Package—$350

Ages 12+

CUSTOM CRUISER TEACHER'S GUIDE



A Pitsco Exclusive

A must-have for teachers embarking on the Pitsco Custom Cruiser Vehicle Design activity. This book takes you through the entire activity including design concepts, CAD drawings, clay modeling, vehicle construction, and testing. Contains many helpful suggestions for implementing this activity in your classroom. Paperback, 38 pages.

Ages 12+

QX54672—$19.95





CUSTOM CRUISER BLANK

A Pitsco Exclusive

This is one *big* chunk of balsa! Pitsco's Custom Cruiser Kit includes this block for students to transform into their very own design. This 3" x 3" x 12" balsa wood block is predrilled for the CO_2 cartridge and provides plenty of material to make a truck, van, oldie, or other unique design for CO_2 racing.

QX17823—$8.95
10 or more—$8.05 each



GRID PAPER

A Pitsco Exclusive

The all-important final drawing created during The Science of Speed dragster design process must be drawn on quality paper such as 11" x 17" Grid Paper. This double-sided sheet displays quarter-inch squares on one side and one-millimeter squares on the other side. A metric ruler is printed along the bottom for quick-and-easy measurements.

QX55509 (1/4") (100 sheets)—$14.95
QX51850 (1/8") (100 sheets)—$14.95

DR. ZOON CUSTOM CRUISER DESIGN VIDEO

A Pitsco Exclusive

Take a ride into history or into the future – you decide as you design your custom cruiser vehicle! Dr. Zoon provides some ideas and pointers for the process.

To learn about production, finishing, and testing of custom cruisers, check out these Dr. Zoon videos: *Dragster Production: Hand Tools*; *Dragster Production: Power Tools*; *Dragster Finishing*; and *Dragster Testing*.

Note: This is Part 1 of a two-part series on custom cruisers. Closed-captioned. Time: 17 minutes.

Ages 12+

QX59780 DVD—$24.95



DR. ZOON CLAY CAR PROTOTYPES VIDEO

A Pitsco Exclusive

With clay car prototyping, custom cruiser and dragster shapes can be accurately modeled before the construction process. Watch as Dr. Zoon gets his hands into the clay modeling process.

Note: This is Part 2 of a two-part series on custom cruisers. Closed-captioned. Time: 23 minutes.

Ages 12+

QX59909 DVD—$24.95



Dragster Wheels

Dragster wheels in this catalog are exclusively manufactured by PITSCO in the USA.





Designer Wheel



Designer-Super C

GT-FX WHEELS

A Pitsco Exclusive

Designed with style in mind, the GT-FX Wheels are not only cool but also can be used as the front wheels on any car design. Especially good for shell dragsters as the axle hole goes all the way through the wheel. Injection molded.

QX36686 (pkg of 2)—$1
QX36685 (pkg of 100)—$11

DESIGNER WHEELS

A Pitsco Exclusive

Students simply paint the hubs to match or complement their dragsters' color. Tires and hubs are shipped unassembled. The hubs are white polystyrene. The Nitro tires are black polyethylene.

Designer Wheel
QX21896 (pkg of 2)—$1.25
QX13338 (pkg of 100 wheels with hubs)—$24
Designer-Super C Wheels
QX27166 (pkg of 2)—$1
QX27167 (pkg of 100 wheels with hubs)—$19.95



LX WHEELS

A Pitsco Exclusive

The Lx (front) Wheel takes on a more realistic, modern design while offering the speed of the GT series, Nitro, and C Wheels. One-piece construction provides durability.

QX30845 (pkg of 2)—$1
QX30846 (pkg of 100)—$9



GT-FX Wheel Specifications



34.25 mm
Mass = 1.4 g



11.5 mm

Lx Wheel Specifications



34.05 mm
Mass = 2.52 g



13.18 mm

Premium Inside Front Specifications



35.5 mm
Mass = 4.4 g



9.3 mm



PREMIUM INSIDE FRONT WHEEL/AXLE SET

A Pitsco Exclusive

Perfect for the shell dragster with enclosed rear wheels. Each of Pitsco's Premium Inside Front Wheels is precision machined from black acetal – not injection molded like standard wheels. Acetal's excellent dimensional stability, toughness, and abrasion resistance result in wheels with perfect balance, consistent weight, and true roundness. This set includes two wheels and two axles. One enables the wheels to spin freely on the axle, and the other is a friction fit.

QX21791—$10.95



PREMIUM OUTSIDE FRONT WHEEL/AXLE SET

A Pitsco Exclusive

For the ultimate in dragster performance! Each of Pitsco's Premium Outside Front Wheels is precision machined from black acetal – not injection molded like standard wheels. Acetal's excellent dimensional stability, toughness, and abrasion resistance result in wheels with perfect balance, consistent weight, and true roundness. Each set of two wheels comes with a hard, smooth, low-friction chrome/moly axle. These wheel sets are not for just any CO_2 car!

QX21792—$9.95



SUPER C WHEEL

A Pitsco Exclusive

This wheel from Pitsco is sure to enhance any dragster design. This modern five-spoke, star-styled, chrome hub provides the look your students want for their top-performing dragsters.

Along with the hub design, the Super C uses an exclusive snap-on rubber ring, manufactured for your CO_2 dragsters! Use these wheels for the front of your dragster, along with the Nitro Chrome rear wheels, and you will have one sweet dragster!

Tires and hubs are shipped unassembled.

QX27141 (pkg of 2)—$1
QX27142 (pkg of 100)—$27



X WHITE WHEELS

A Pitsco Exclusive

The X White Wheel offers the solid look found on today's Top Fuel dragsters. It is white polystyrene to enable custom painting.

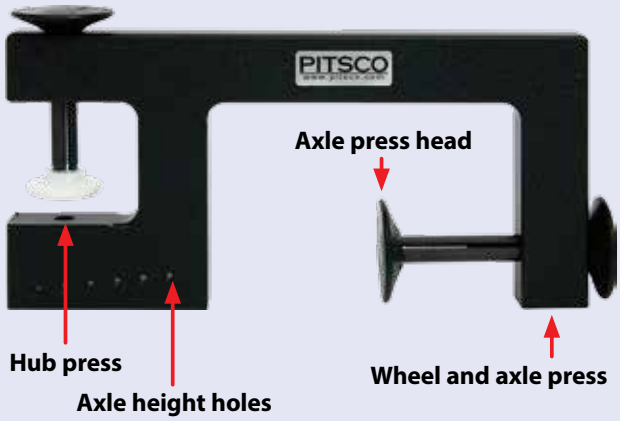
QX13336 (paintable, pkg of 100)—$11

WHEEL DEAL

A Pitsco Exclusive

The Pitsco Wheel Deal is the ideal tool for CO_2 dragster wheel assembly. The Wheel Deal is a hand tool designed with two comfortable presses – one for hub insertion into a wheel, the other for final assembly of the wheels, washers, and axles on the dragster. We've even included axle-height locators as an added feature. No more stubborn hubs, broken wheels, or difficult axles!

QX25500—$24.95
3 or more—$19.95 each



Premium Outside Front Specifications



35.5 mm
Mass = 4.6 g



9.4 mm

X White Wheel Specifications



37.4 mm
Mass = 2.6 g



10.8 mm

Super C Wheel Specifications



36.5 mm
Mass = 2.6 g



11.8 mm

Dragster Wheels



PREMIUM INSIDE REAR WHEEL/AXLE SET

A Pitsco Exclusive

For shell dragsters with enclosed rear wheels. Each of Pitsco's Premium Inside Rear Wheels is precision machined from black acetal. Acetal's excellent qualities result in a great set of rear wheels. This set includes two wheels and two different axles. One axle allows the wheels to spin freely on the axle, and the other is a friction fit.

QX21876—$12.95



COMPETITION DO-IT-YOURSELF WHEEL KIT

A Pitsco Exclusive

Design and construct your own dragster wheels. We offer a 1-1/2" x 4" cylinder of durable, abrasion-resistant acetal that can be made into four wheels on a lathe. The kit also includes two hard, smooth, low-friction chrome/moly axles, 66 mm long.

QX24550—$12.50



GT-RX WHEELS

A Pitsco Exclusive

Designed with style in mind, the GT-RX Wheels are not only cool but also can be used as the rear wheels on any car design. Especially good for shell dragsters as the axle hole goes all the way through the wheel. Injection molded.

QX36688 (pkg of 2)—$1
QX36687 (pkg of 100)—$11



PX WHEEL

A Pitsco Exclusive

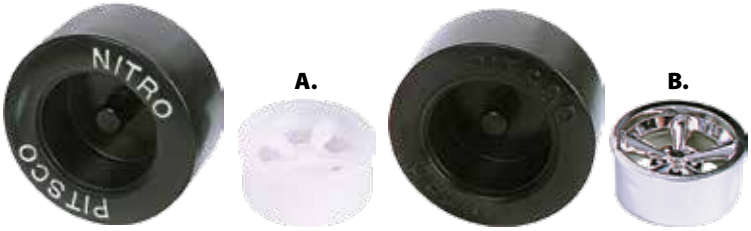
The Px (rear) Wheel embraces a more realistic, modern design while keeping all the speed of the GT series, Nitro, and C Wheels. One-piece construction provides durability.

QX30847 (pkg of 2)—$1
QX30848 (pkg of 100)—$11

NITRO WHEELS

A Pitsco Exclusive

Our most popular wheels are available with black or white raised letters. The Nitro wheels with black raised letters are shipped unassembled.



NITRO WHEEL WITH BLACK RAISED LETTERS/CHROME HUB

QX21526 (pkg of 100)—$31
10 pkgs or more—$27.90 each

NITRO WHEEL WITH WHITE RAISED LETTERS/CHROME HUB

QX21534 (pkg of 2)—$1.75
QX21524 (pkg of 100)—$53
10 pkgs or more—$47.70 each

NITRO TIRE WITH WHITE RAISED LETTERS (NO CENTER HUB)

QX21875 (pkg of 2)—$1.50
QX21874 (pkg of 100)—$35

NITRO TIRE WITH BLACK RAISED LETTERS (NO CENTER HUB)

QX21870 (pkg of 2)—$1
QX21873 (pkg of 100)—$15

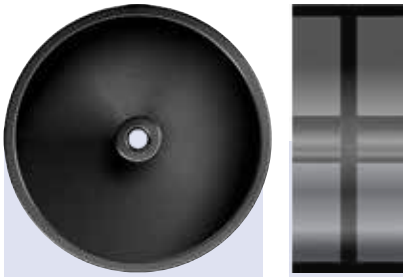
A. NITRO HUB, PAINTABLE

QX21908 (pkg of 2)—$1
QX21909 (pkg of 100)—$10

B. NITRO HUB, CHROME

QX21868 (pkg of 2)—$1.25
QX21869 (pkg of 100)—$18

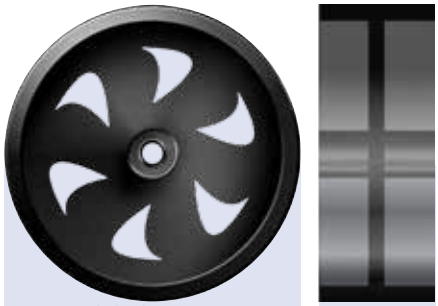
Premium Inside Rear Wheel Specifications



35.5 mm
Mass = 7.6 g

15 mm

GT-RX Wheel Specifications



39.2 mm
Mass = 4.5 g

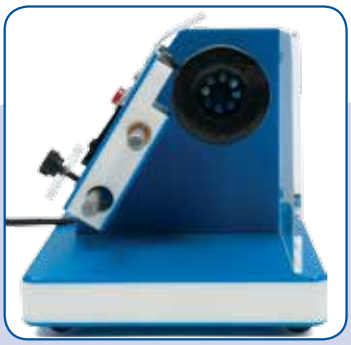
15.4 mm

Px Wheel Specifications



39.71 mm
Mass = 6.49 g

25.13 mm







WHEEL LATHE

A Pitsco Exclusive

The wheel-molding process isn't perfect – but that's no reason your wheels can't be!

This simple tool makes it easy to create perfectly round wheels for your CO_2 dragsters and other model cars. Place the wheel on the lathe and press the run button while moving the cutting tool back and forth across the wheel – adjust the lathe's gauge to the tire as needed.

Requires a standard 120 V wall outlet. For use with standard-size dragster wheels (approximately 35 to 40 mm).

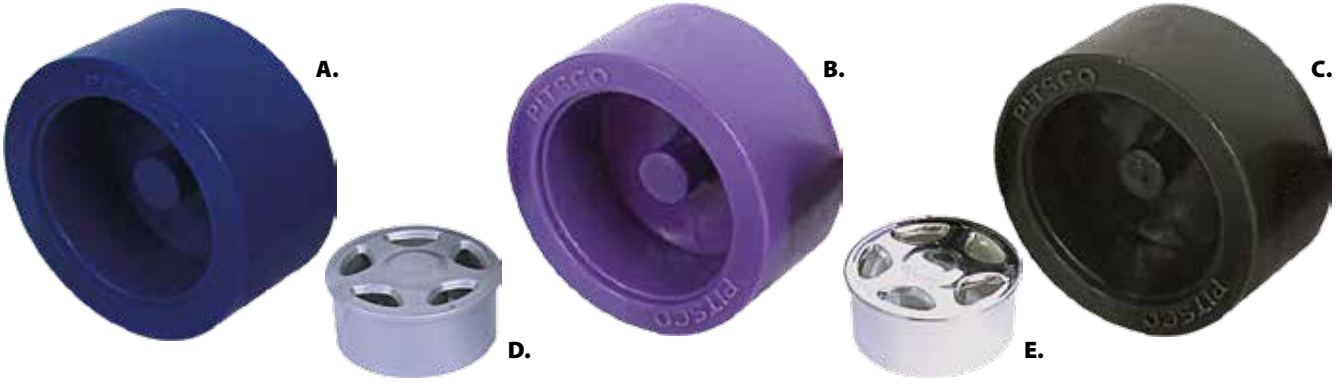
QX39311—$129

FUSION WHEELS

A Pitsco Exclusive

Pitsco's Fusion Wheels fuse great looks and customizable variety. With or without the stylish fusion hubs, these wheels deliver style and performance.

All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!



A. FUSION BLUE TIRE
QX21888 (pkg of 2)—$1
QX54605 (pkg of 100)—$15

B. FUSION PURPLE TIRE
QX21889 (pkg of 2)—$1
QX54606 (pkg of 100)—$15

C. FUSION BLACK TIRE
QX21887 (pkg of 2)—$1
QX54531 (pkg of 100)—$15

D. FUSION HUBS, ALUMINUM
QX21891 (pkg of 2)—$1
QX54608 (pkg of 100)—$8

E. FUSION HUBS, CHROME
QX21901 (pkg of 2)—$1
QX54609 (pkg of 100)—$14

Fusion Tire Specifications



Nitro Tire Specifications





LIL' TERMITE SANDER

A Pitsco Exclusive

The Lil' Termite Sander creates more precise angles and tighter joints for wood structures – as well as deburrs axles for dragsters. Either make angles freehand or use the etched miter angles on the sanding table.

Dimensions are 5" x 3" x 2-1/4" with a round sanding surface 1-1/2" in diameter. Includes five sanding discs and a sanding disc cleaner. Uses 110-120 VAC wall outlet.

QX30574—$59
QX30742 Replacement Sanding Discs (pkg of 5)—$3.95

ULTIMATE AXLE BUSHINGS



A Pitsco Exclusive

Looking for a way to increase the speed and performance of your dragster? Try Pitsco's Ultimate Axle Bushings – the ultimate in friction reduction.

These bushings fit snugly into the axle hole, providing a slick, flat outer surface that will rub against the wheel hubs – similar to the function of washers but better. The interior has been engineered to have only a small surface area that is in direct contact with the axle. These new bearings provide a 94% reduction in the average surface bearing area – the area where friction is produced.

Flange diameter is 0.313". Fits snugly in a 0.25" hole.

QX27138 (pkg of 4)—$1
QX58946 (pkg of 20)—$3.95



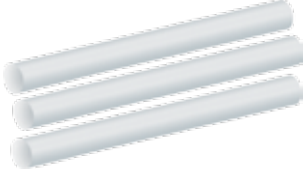
BRASS TUBING/BUSHING MATERIAL

This brass axle material is a lightweight alternative to steel for CO_2 dragsters, mousetrap vehicles, and other model vehicles. When used with brass bushings, this material has ultra-low friction to help you increase speed.

Rods are 12" long – cut them to length using the Tubing Cutter, sold separately.

QX54577 Tubing for Bushings (3/16")—$1.95
QX54579 Tubing for Bushings (5/32")—$1.95
QX54578 Tubing for Axles (1/8")—$1.95
10 pkgs or more of any one item above—$1.75 each

LAMINATE AXLE TUBES



These tubes are laminated and feature a Mylar plastic coating over paper for durability. Use on your own rocket designs.

Ten per package. Inner diameter: 0.156". Outer diameter: 0.171".

QX50071 (2-3/8", pkg of 10)—$1.75
10 pkgs or more—$1.60 each
QX53663 (8", pkg of 10)—$2.50
10 pkgs or more—$2.25 each



PLASTIC STRAWS

For use as axle bushings. 1/8" diameter, 5-3/4" length.

QX33890 (pkg of 500)—$11.95



SOLID ROD FOR AXLES (1/8")

This solid brass axle material is an alternative to steel for CO_2 dragsters, mousetrap vehicles, and other model vehicles. When used with brass bushings, this material has ultra-low friction to help you increase speed.

Rods are 12" long – cut them to length using a metal saw, sold separately.

QX54576 Solid Rod for Axles (1/8")—$1.95
QX58242 Solid Brass Rod for Axles (3/16") —$2.95
QX58243 Solid Brass Rod for Axles (1/4") —$5.95



STEEL AXLES

A Pitsco Exclusive

Use the strength of steel to mount your dragster's wheels!

QX53728 (1-3/4" long, pkg of 100)—$4
10 pkgs or more—$3.60 each
QX53341 (2-1/2" long, pkg of 100)—$6.50
10 pkgs or more—$5.85 each
QX28082 (70 mm (2-3/4"), pkg of 100)—$11.95
QX30712 (5-1/2" long, pkg of 10)—$2



ALUMINUM AXLES

A Pitsco Exclusive

Cut your dragster's axle weight in half by using aluminum instead of steel! Buy these 1/8" diameter axles precut, or cut your own from our three-foot lengths. Use the Precision Metal Saw to cut axles to desired lengths.

QX53626—$.75
100 or more—$.70 each

PRECUT ALUMINUM AXLES

QX28035 (1/8" diameter x 70 mm long, pkg of 100)—$10.50
QX30714 (1/8" diameter x 3" long, pkg of 10)—$1.25

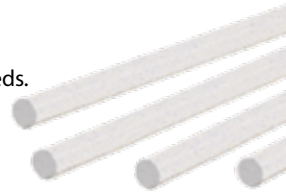


CHROME AXLES

Jazz up your cars with our chrome axles. Steel axles are nickel coated to create a finished look for race cars – plus the slick surface decreases the amount of friction produced. 1/8" x 70 mm.

QX28594 (pkg of 20)—$7.50

ACETAL AXLES



Use this self-lubricating material for axles. Lighter weight and less friction mean faster speeds. Comes in two-foot lengths. Cut axles to desired lengths using the Precision Metal Saw.

QX53625—$2
10 or more—$1.80 each

PRECUT ACETAL AXLES

QX30713 (2-1/2", pkg of 10)—$7

BRASS WASHERS



Washers reduce friction between the wheel and the dragster body. 1/8" inside diameter.
QX15194 (pkg of 100)—$4
10 pkgs or more—$3.60 each

SLICK NYLON WASHERS



Use these lightweight, naturally slick nylon washers to try to get that little bit of extra speed from your dragsters. 1/8" inside diameter.
QX53367 (pkg of 100)—$4.50

ALUMINUM SPACERS



These lightweight spacers can be placed between the wheels of shell cars and can also function as friction-reducing axle bushings. 1/4" outside diameter x 1" length.
QX54584 (pkg of 15)—$9.95

NYLON SPACERS



These lightweight spacers can be placed between the wheels of shell cars and can also function as friction-reducing axle bushings. 1/4" outside diameter x 1" length.
QX54583 (pkg of 30)—$4.95

STANDARD SCREW EYES



Use screw eyes to keep dragsters on the track with monofilament line.
QX15109 (1/4") (pkg of 100)—$3.50
10 pkgs or more—$3.15 each

LONG SHANK SCREW EYES



For use with shell-type dragsters and other applications.
QX53693 (shank is one inch long) (pkg of 100)—$10.95

DRY POWDER GRAPHITE LUBE



Got a lock, hinge, or machine with too much friction? Don't mess with sticky, slippery products – this extra-fine graphite powder is perfect for any moving part that's having trouble with smooth movement.
QX58606—$3.45
10 or more—$3.30 each

PRECISION METAL SAW



Designed for cutting tubing and small metal shapes of brass and copper. Ideal for brass axle material. Has 52 teeth per inch.
QX54620—$11

PRECISION BEARING



The ultimate in reducing rolling friction of dragsters. Inside diameter of bearing is 1/8", allowing it to be pressed onto 1/8" axles. Outside diameter is 3/8", width is 5/32".
QX54551—$4.95
10 or more—$4.45 each

FORSTNER DRILL BIT



This Forstner Drill Bit enables you to drill extremely smooth holes for your dragster precision bearings. 3/8" diameter.
QX54588—$9.95

AXLE RETAINERS



These low-profile rings are placed on the outside of shell car bodies to hold the axle in position. 1/8" inside diameter.
QX54582 (pkg of 100)—$6.95

PUSH NUTS



For shell cars. These are located on the outside of the body and hold the axle in position. 1/8" inside diameter.
QX54585 (pkg of 30)—$6.95

E-RING AXLE CLIP



A small metal clip that secures your dragster's axles when using internal wheels with shell-type bodies. The clip keeps axles from sliding back and forth. Two sizes available. You must groove the axle to hold the clip.
QX53340 (3 mm ID, 6 mm OD) (pkg of 25)—$4
QX59655 (1/8" ID, 3/8" OD) (pkg of 40)—$5



NEODYMIUM MAGNET AND AXLE SET

A Pitsco Exclusive

When you build a dragster or magnetic mousetrap vehicle of your own design, use this set of four 1/4" x 1/4" nickel-plated neodymium magnets and two 0.125 x 66 mm machined axles for a friction-free race to the finish line. **Note:** Magnets might be harmful if swallowed.
QX25043—$7.95⚠

WARNING: This product contains (a) small magnet(s). Swallowed magnets can stick together across intestines, causing serious infections and death. Seek immediate medical attention if magnet(s) are swallowed or inhaled.

TUBING CUTTER



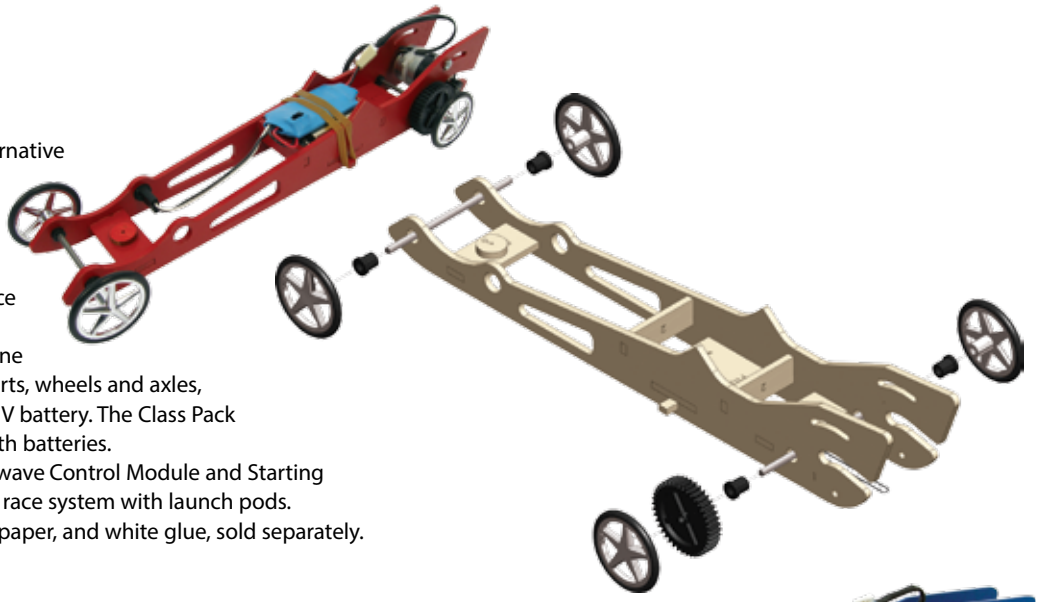
This handy tool cuts small-diameter metal tubing. Great for cutting brass axle tubes and bushings.
QX54575—$7.95
10 or more—$7.35 each

SHOCKWAVE ELECTRIC CAR

A Pitsco Exclusive

Watch sparks fly as dragsters and alternative energy meet!

The Shockwave Electric Car features a laser-cut racer powered by electricity rather than a CO_2 cartridge, and, best of all, it is compatible with the same electronic race systems as CO_2 dragsters.

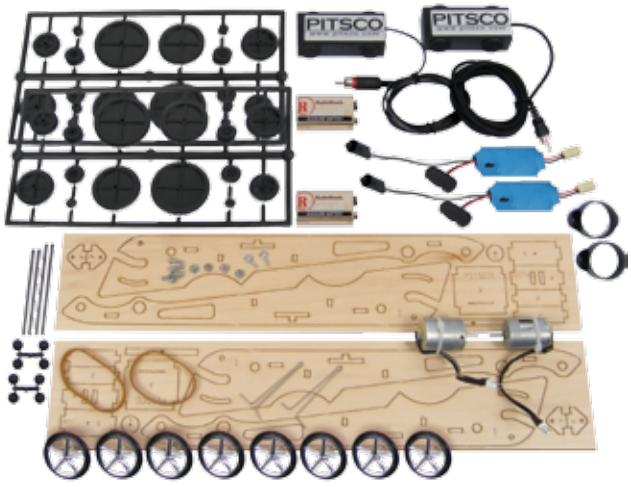


The kit includes everything to build one Shockwave dragster: laser-cut basswood parts, wheels and axles, bushings, gears, a motor, hardware, and a 9 V battery. The Class Pack yields 25 Shockwave dragsters complete with batteries.

The car must be used with the Shockwave Control Module and Starting Blocks from the Starter Package as well as a race system with launch pods. Requires a screwdriver, hobby knife or sandpaper, and white glue, sold separately.

Ages 12+

QX33008 Kit—$24.95
QX33469 25-Pack—$550





Looking for another activity to use with your CO_2 race system and track? The Shockwave electric dragster activity charges students for racing – while they learn about gear ratios! Or use it as an activity for alternative energy!

Best of all, the Shockwave is compatible with Pitsco's electronic race systems and elevated tracks, including:

- Impulse G3
- FasTrak
- Palm Racer
- Impulse GII
- Impulse

The Shockwave is not compatible with the EZ Start Raceway.

SHOCKWAVE ELECTRIC CAR STARTER PACKAGE

A Pitsco Exclusive

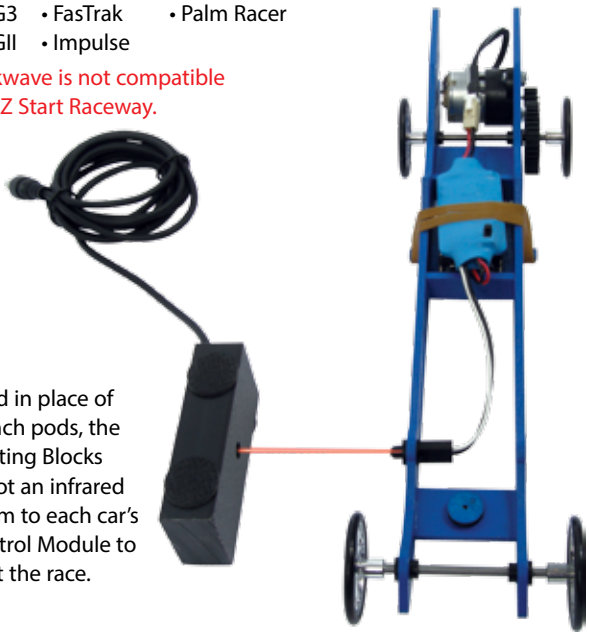
After building the battery-powered cars, students can experiment with different gear ratios to find the one that provides optimum performance. When assembled, these two cars are fitted with the Shockwave Control Modules, launched with the Shockwave Starting Blocks, and raced down the track.

Used in place of launch pods, the Starting Blocks shoot an infrared beam to each car's Control Module to start the race. To use, plug the Starting Blocks into the jacks normally used for launch pods. The race system's trigger device sends the infrared signal from the blocks.

The Shockwave Starter Package assembles everything needed to get racing: two Shockwave Car Kits, two Control Modules, and a set of Starting Blocks. Requires a race system with launch pods.

Ages 12+

QX33009—$159



Used in place of launch pods, the Starting Blocks shoot an infrared beam to each car's Control Module to start the race.

SHOCKWAVE CONTROL MODULE

A Pitsco Exclusive

The Control Module receives the launch signal that sends the Shockwave Car down the track. It also receives the signal to stop the car. Though the two included in the Shockwave Starter Package are all that's needed to race, extras are handy for prepping the next round of cars.



The Module must be used with the Shockwave Car Kit and the Starting Blocks from the Starter Package as well as a race system with launch pods.

QX33068—$39.95

SHOCKWAVE VIDEO

A Pitsco Exclusive

This program makes it easy to use your CO_2 race system for the Shockwave. First, learn to build the Shockwave Car Kit. Then, see how to attach its launch system to your race system for a foolproof race. Along the way, learn about the history of electric cars. Closed-captioned. Time: 18 minutes.

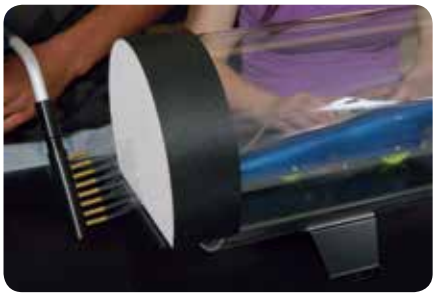


Ages 12+

QX59794 DVD—$24.95

FLO: FLOW VISUALIZATION TUNNEL

A Pitsco Exclusive



See the FLO **in action!** Visit **www.pitsco.com/flo**.

Visually demonstrate aerodynamics concepts to your students with a flow visualization wind tunnel designed specifically for classroom use!

A harmless vapor passes through the clear acrylic wind tunnel, demonstrating the airflow around any object and revealing drag-inducing features. Rotate the test surface to a vertical position to test wing sections, spinning objects, and model airplanes. The Fog Maestro's outlet "rake" provides airflow cross sections. A control box enables you to change angle of attack, rotation speed, or airflow speed.

Includes the Fog Maestro, nontoxic fog solution, model airplane, model car, rotating cylinder, and airfoil section.

QX13277—$1,495



SPHERE HOLDERS

A Pitsco Exclusive



The same Sphere Holder that comes with the FLO: Flow Visualization Tunnel. These are handy when you want to demonstrate different objects for quick comparisons.

QX38713 (pkg of 5)—$27.95

AIRFOIL SERVO MOUNTS

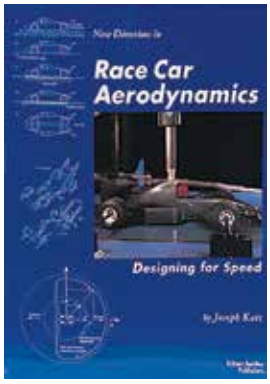
A Pitsco Exclusive



When testing several different airfoils in the FLO: Flow Visualization Tunnel, having extra servo mounts makes the job a lot easier!

QX38714 (pkg of 5)—$7.95

RACE CAR AERODYNAMICS: DESIGNING FOR SPEED



Race Car Aerodynamics is the first book to summarize the secrets of the rapidly developing field of high-speed vehicle design.

With its clear explanations and helpful illustrations, this book is excellent for students and nontechnical readers. Math formulas and physical data are provided for the engineering-minded reader. Includes an overview of the fundamentals of aerodynamics, how aerodynamics wins races, wind tunnel designs, and methods and results. Paperback, 270 pages.

Ages 12+

QX54504—$34.95



FOG MAESTRO

A Pitsco Exclusive

Fog machines are valuable flow-visualization tools, and this handheld version is the best we've created!

It injects a fog stream into a wind tunnel to test the aerodynamics of objects such as drag racers. Fog Maestro is a cleanable unit that can be easily opened to wipe away residue – plus, it operates without generator tubes. Includes the fogger unit and one bottle of fog fluid.

QX25100—$395
QX56805 Fog Solution/Liquid Fog (1 liter)—$26.95
QX34676 Fog Maestro Maintenance Kit—$22.95



ROLL TEST RAMP

A Pitsco Exclusive

This ramp will last year after year! The sturdy Roll Test Ramp is made of coated metal and features side rails and a folding leg for convenient storage. The two lanes are separated with a solid line and allow side-by-side comparisons of two vehicles.

Use it to test the rolling friction of wheels and axles of metric dragsters and other rolling model vehicles. Measures 37-3/8" long x 9-1/2" tall.

QX54530—$99

See the Scout **in action!**
Visit **www.pitsco.com/scout.**



AIRTECH SCOUT WIND TUNNEL

A Pitsco Exclusive

Add a new dimension to your CO_2 dragster program with the affordable Scout, the wind tunnel designed to measure frontal drag on CO_2 dragsters. Look at these features:

- Built-in instrumentation produces accurate, repeatable frontal drag measurements.
- Variable speed from 0 to 40 mph
- Compact size – just 49" long – sets up anywhere
- Accommodates fog injection systems
- Included Scout software depicts the measurements as colorful graphics that can be printed for analysis or saved and replayed.
- Constructed from metal and ABS plastic for durability in the classroom
- Manometer included for air speed measurements

Note: Additional shipping charges apply.

System Requirement: One available serial port.

QX24451—$1,595
QX59108 Manometer Fluid (3/4 oz)—$12.95



WIND TUNNEL TABLE

A Pitsco Exclusive

This movable table on casters is the perfect home for your wind tunnel. Our sturdy table is 33" high. The tabletop measures 24" x 54" and is made from acid-resistant, solid phenolic resin. Table aprons are 2" tall and constructed from 14-gauge steel. End frames are welded, and the corners are fastened with two 3/8-16" flange bolts for a stay-tight fit. Table legs are made of 11-gauge, 1-1/2" square tube steel. Assembly required.

QX58302—$595





All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!



SHIPPING INFO
See policies page at back of catalog.



AIRTECH X-STREAM WIND TUNNEL

A Pitsco Exclusive

Get our top-of-the line X-Stream Wind Tunnel with only the handheld control unit and the manometer. The X-Stream can test wings students have designed and constructed themselves. Remove the polycarbonate window panel in the side of the X-Stream, and insert the pre-mounted wing analyzer, and you are ready to demonstrate and precisely measure lift and drag forces on student-made wings! Requires one available serial port. 6' x 31" x 31".

Three Systems: The Choice Is Yours!

VEHICLE PLATFORM SENSOR SYSTEM



X-STREAM WIND TUNNEL WITH VEHICLE PLATFORM SENSOR

A Pitsco Exclusive

The Vehicle Platform Sensor (VPS) is an exceptional addition to your CO_2 dragster program. When a model vehicle is positioned inside the testing chamber of the X-Stream Wind Tunnel, the VPS simultaneously measures lift forces on front and rear axles and front drag on the vehicle. Data is displayed on the handheld controller. Includes hardware and instructions.

Vehicle Platform Sensor (VPS) system offers several great features:

- Use with CO_2 dragsters and model vehicles
- On-board display for instantaneous feedback
- Simultaneous measurement of front drag and lift on both axles
- Adjustable sensing plates accommodate a wide range of vehicle designs.

QX57895—$4,795

STINGER MOUNT SENSOR SYSTEM

X-STREAM WIND TUNNEL WITH STINGER MOUNT

A Pitsco Exclusive



Measure drag on a variety of objects placed inside the testing chamber of the X-Stream Wind Tunnel including geometric shapes, vehicles, airfoils, bottle rockets, and solid-fuel rockets. The Stinger Mount Sensor also measures lift on wings!

Stinger Mount Sensor System offers several great features:

- Use with CO_2 dragsters (front drag only), rockets, airfoils, and geometric shapes
- On-board display for instantaneous feedback
- Versatile for many science and technology applications

Includes instructions, hardware, and geometric objects. Data is displayed on the handheld controller.

QX57900—$4,995

TOTAL PACKAGE SYSTEM

A Pitsco Exclusive

This system does it all! Get the X-Stream Wind Tunnel with the Vehicle Platform Sensor and Stinger Mount Sensor. Best buy!

QX57905—$5,695
QX59108 Manometer Fluid (3/4 oz)—$12.95

INDIVIDUAL COMPONENTS

A Pitsco Exclusive

The Vehicle Platform Sensor and the Stinger Mount Sensor are also available as separate items. If you choose to include just one of them now with your X-Stream Wind Tunnel, you can upgrade your system later.

QX23800 Vehicle Platform Sensor only—$1,095
QX23810 Stinger Mount Sensor only—$995

FASTRAK ELEVATED RACETRACK

A Pitsco Exclusive

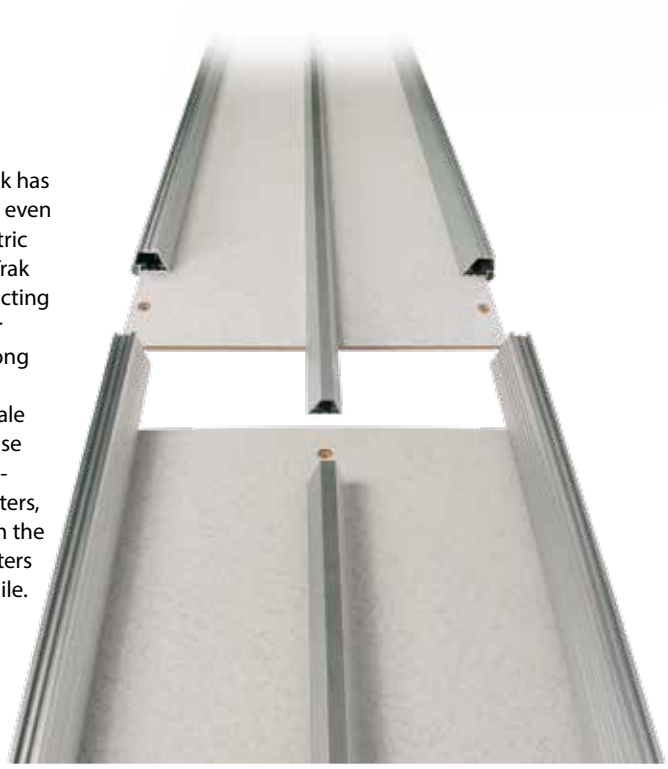
Pitsco's elevated racetrack has been redesigned to provide an even better alternative to racing metric dragsters on the floor. The FasTrak simplifies the process of conducting races and improves viewing for spectators. Our racetrack is strong and durable.

The track simulates to scale a quarter-mile racetrack. Because metric dragsters are about one-twentieth the size of real dragsters, the track's racing distance, from the start to the finish line, is 20 meters – one-twentieth of a quarter mile. This simplifies mathematical comparisons to real race cars.

A staging area behind the start gate is big enough to position four to five cars in each lane. Adequate deceleration distance is provided at the end of the track for cars crossing the finish line.

The FasTrak package includes 11 sections, each 7-1/2 feet long, and 12 legs. The start/finish gate hardware is sold separately. Compatible with Impulse G3 and GII, Pulse Plus, the EZ Start Raceway, F1 in Schools Race System, and the Dual Lane Race Timer.

QX37989—$2,995











The Impulse G3 Race System mounted to the FasTrak Elevated Racetrack

Leg support design provides **four-toe stability.**



All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!

IMPULSE G3 RACE SYSTEM

A Pitsco Exclusive



Get the green light with the Impulse G3 Race System. Redesigned to be more economical, it still delivers excellent performance, stability, and durability to CO_2 dragster and other racing activities. Here's what it brings to the track:

- State-of-the-art electronics
- Easy transition from floor to track
- Durable construction
- Christmas tree lights to signal the launch – these lights have been reprogrammed with a random sequence to maintain a level playing field for students both experienced and new to model racing.

Surface-mounted electronics bring higher quality and consistent performance to the table. The start and finish gates can take a beating with their high-density polyethylene (HDPE) construction. Plus, moving them from the track (sold separately) to the included floor racing setup is as easy as pulling out eight pins. And our launch pods have a vertical range that fits almost any CO_2 car as well as more mass for extra stability.

The Impulse G3 offers versatility with two race modes:

Auto Launch Mode – Launch the cars simultaneously with the press of a single button. Pressing the button activates the Christmas tree lights on the start gate and then launches the cars. As the cars cross the finish line, flashing lights indicate the winner. The start gate displays both race times.

Manual Launch Mode – Students can launch their cars independently by using two remote thumb triggers. The Christmas tree lights direct students as they fire their cars off the line. Again, the winner is indicated with flashing lights as the race times are displayed. In this mode, the start gate also displays both racers' reaction times! Both reaction and race times are accurately displayed to the nearest 0.001 second.

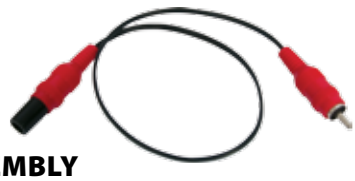

The Impulse G3 Race System on the floor



Impulse G3 Package Contents

- 2 launch pods
- 2 launch triggers (1 red and 1 black)
- Christmas tree start gate
- Finish gate
- Control box
- Power supply (12 V, 3 A)
- Start mat
- Floor anchors
- 2 deceleration towels
- Additional hardware

QX38023—$1,195



RACE SYSTEM DETECTOR ASSEMBLY

The sensors in this assembly detect dragsters as they cross the finish gate of the Impulse G3, Impulse GII, Impulse, Pulse II Dual Timer, and Pulse Plus race systems. Use them as replacements for any of those systems. Colors may vary.

QX17540—$9.95

LAUNCH POD

A Pitsco Exclusive



Designed for the Impulse G3 Race System, this Launch Pod also serves as a replacement for damaged launch pods as well as for updating your old system's launch pods. Features a broader vertical range, so it accommodates almost any CO_2 car – even Formula 1 cars. We added more mass for extra stability and an improved safety mechanism to make this Launch Pod our safest yet. This Launch Pod works only with Pitsco CO_2 race systems.

QX28500—$225





Dual Lane Race Timer on FasTrak

DUAL LANE RACE TIMER

A Pitsco Exclusive

This multipurpose race timer proves ideal for classrooms that have launchers with no built-in timer, such as the Pitsco AP Dragster Launcher, AP Bottle Racer Launcher, and EZ Start Gate. The timer has a two-lane finish gate with digital timers that are kicked into action with a handheld trigger. When the car crosses the finish line, the time is stopped and the winner is indicated.

The timer goes up to 9.999 seconds and will display "DNF" for "did not finish" if a car cannot cross the finish line in fewer than 10 seconds. Can be used on the Pitsco FasTrak or a floor track. Requires standard 120 V wall outlet or 9 V battery, included. Some assembly required.

QX39190—$399

See the Light Speed on page 183 for an outdoor racing option.





SPEED TRACKER

A Pitsco Exclusive

This multipurpose timing system can be invaluable in timing maglev, mousetrap, solar, electric, elastic, gravity, air-powered, and even CO_2-powered vehicles.

The Speed Tracker's polycarbonate pieces fit together to make start and finish gates. The finish gate can be placed up to 80' away from the start gate. The track's sensor beams shine through precut holes in the finish gate to time the vehicles, and the velocities are displayed on the timing box in seconds (0.001 resolution), meters per second, feet per second, kilometers per hour, or miles per hour. Sensor beam heights are adjustable for use with a variety of vehicles.

Includes all necessary wiring, a roll of monofilament line to keep vehicles on track, the polycarbonate start and finish gates, and a timing display box.

Note: This system only times a one-vehicle lane.

QX26634—$450



EZ START RACEWAY

A Pitsco Exclusive

The EZ Start Raceway is designed to make dragster activities easy and affordable. It comes with the EZ Start Gate and EZ Finish Gate, floor anchors, monofilament line, track hardware, detectors, and a power adapter.

The system works on a floor track or the FasTrak elevated racetrack, sold separately. It is made of durable, high-density polyethylene (HDPE) to last for years.

QX33135—$475

EZ START GATE

A Pitsco Exclusive

Race CO_2 dragsters – even with a budget on the brakes.

Start with the EZ Start Gate – a manual start gate designed to make dragster activities easy and affordable. Lining up cars and launching them is a simple operation, and students spot the winners at the finish line. When you can budget for more equipment, add the EZ Finish Gate to quickly and accurately indicate the winner. Or get both – the entire EZ Start Raceway – at the same time.

The EZ Start Gate works on a floor track or the FasTrak Elevated Racetrack, sold separately. It is made of durable, high-density polyethylene (HDPE) to last for years. Comes with floor anchors, monofilament line, and track hardware.

QX33133—$225

EZ FINISH GATE

A Pitsco Exclusive

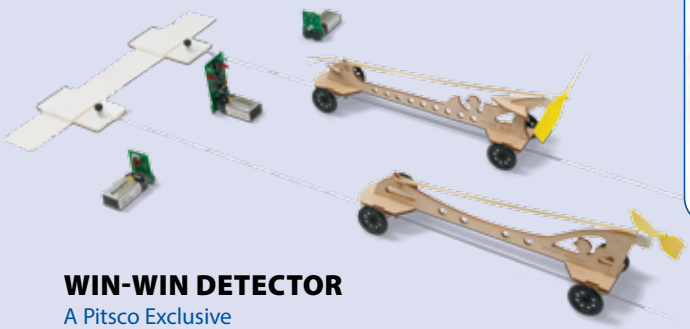
Sensing the first car to finish and signaling the winner with a light, the EZ Finish Gate will clear any question about who finished first.

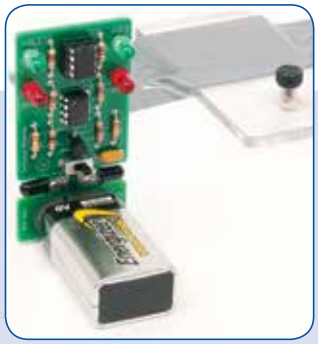
Like the EZ Start Gate, this finish gate is made of durable, high-density polyethylene (HDPE) and works on a floor track or the FasTrak. Comes with detectors and a 12-volt power adapter. Requires the EZ Start Gate, sold separately. **Note:** The EZ Finish Gate can also work with the AP Dragster Launcher, sold separately.

QX33134—$275



See our EZ Build Dragsters on page 70.





WIN-WIN DETECTOR

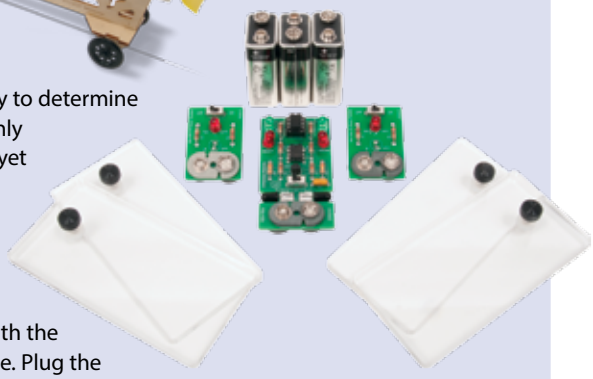
A Pitsco Exclusive

Looking for a simple but effective way to determine winners of races? This detector is small, highly portable, and a piece of cake to set up and yet electronically detects the winning lane.

The Win-Win is ideal for any race where two vehicles run on a line such as CO_2 dragsters, AP Bottle Racers, mousetrap vehicles, propeller cars, and Pinewood Derby cars. First, set up your racing lanes with the acrylic string anchors and monofilament line. Plug the detector and two emitters into the 9 V batteries and, using the batteries as stands, position the detector at the finish line between the two lanes. Finally, position the two emitters on either side of the lane so that they trigger the sensor on the detector. The racing is ready to begin!

The Win-Win Detector can be adjusted to any width or racing lane and doesn't time out. The winning lane is indicated by an LED light blinking 10 times. Comes fully assembled and includes the batteries. Requires duct tape, sold separately.

QX39943—$89





DECELERATION TOWEL

A Pitsco Exclusive

Makes dragster races like a day at the beach!

Use this bold blue towel to stop dragsters at the end of your track. Folded and carefully positioned, this towel provides the best stopping medium we have found. Towel is 24" x 44".

QX18060—$29.95

DRAGSTER GUIDELINE



Use this 50-pound monofilament fishing line as replacement racing line for your Manual Start Raceway. 110 yards.

QX51817—$2.95



COMPETITION CARRIER

A Pitsco Exclusive

Protect your student's investment of time, heart, and hope with our Competition Carrier, a hard-on-the-outside, cushiony-on-the-inside carrying case for one dragster. Made of durable ABS plastic, it features secure snap closures and molded handles for convenient carrying.

Inside the case rests a thick foam cushion scored into 1/4" x 1/4" x 1-1/2" sections. Remove sections to fit the contours of almost any vehicle design. When safely nestled inside, the dragster is covered with a foam pad, adding another layer of protection for a vehicle on its way to a competitive event.

Outside dimensions: 12" H (at the handle) x 14" L x 3-1/3" W. Inside dimensions: 8-1/2" H x 12-3/4" L x 2-3/4" W.

QX25045—$19.95



CHECKERED FLAGS

Keep back the racing fans in your school with these racing flags. The 9" wide x 12" long rectangular flags come on a six-foot strand with 30 flags.

QX53652—$11.95



PRO SURVIVOR STOPWATCH

Pro Survivor Stopwatch has an extra-large display. This 24-hour stopwatch displays hundredths of a second for 30 minutes and then seconds. Also includes alarm and timer (12/24 hour).

QX53682—$20



SPEEDTRAC X PERSONAL RADAR

Think your dragsters are fast? Find out just how fast with the portable SpeedTrac X.

Built for excellent performance and reliability, it features a two-layer PCB board, quality board components, and a state-of-the-art transistor. With 2-1/2" numbers, the digital readout is easy on the eyes. SpeedTrac X's software was engineered to increase its ability to identify and track a target while avoiding the "ghosting" effect that hinders many radar devices. Requires four C batteries, sold separately.

QX59665—$195

SPEEDTRAC X A/C ADAPTER

QX59666—$20



CHECKERED PENNANT

Rope off your racing area with class with these checkered racing pennants. Big 12" x 18" pennant flags feature 2" x 2" black-and-white squares. Strand is 60 feet long with 24 flags.

QX53653—$11.95



30-METER WIND-UP TAPE MEASURE

Safer than standard measuring tapes, the Wind-Up Tape Measure features a sturdy case that rewinds a vinyl tape with a manual rewinder – no spring recoil or metal tape that cuts. Plus, a flexible handle on one side makes it easy to hold. Measures 30 meters (100 feet).

QX34053—$15.95



YELLOW VINYL DUCT TAPE

QX57725 (50 yd x 2 in.)—$18.95



GRAY DUCT TAPE

QX53760 (60 yd x 2 in.)—$7.50



DRAGSTER TROPHY

A Pitsco Exclusive

Award these classy, yet inexpensive trophies to the winners of your dragster competition. Trophies have a marble base, a plastic gold-plated race car ornament, and an engraving plate.

QX53605 (9-1/2")—$10.75
QX53606 (7-1/4")—$10.25
QX53607 (6-1/2")—$9.95



DELUXE TROPHY

A Pitsco Exclusive

Honor your dragster winners' achievements – give them this deluxe trophy. Complete with a marble-like base, metal engraving plate, and ornament, this trophy features a lightweight plastic column and ornament with gold-finish plating.

QX53344 (13-1/4" x 4-1/4" x 3-1/2")—$30



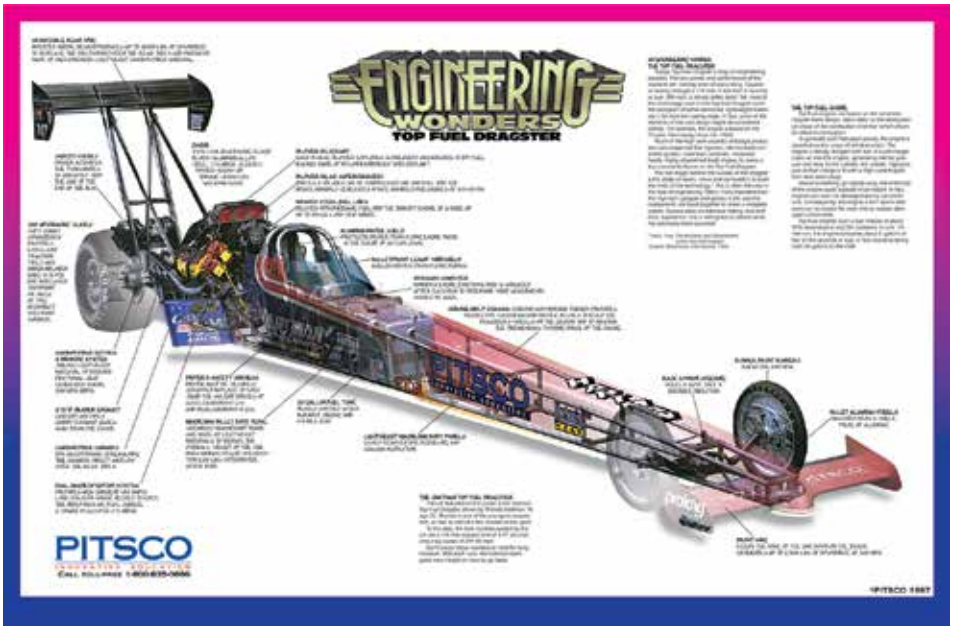
METRIC MEDALS

A Pitsco Exclusive

These beautiful medals are a Pitsco exclusive. Each medallion is approximately 1-9/16" in diameter. High-quality medallion is mounted on a red, white, and blue pin-on ribbon.

Ages 12+

QX53355 Gold—$9.25
QX53346 Silver—$9.25
QX53356 Bronze—$9.25



ENGINEERING WONDERS: TOP FUEL DRAGSTER POSTER

A Pitsco Exclusive

QX54663 (35" x 23")—$15.95



TECHNOLOGY MEDALLION

A Pitsco Exclusive

A great award for excellence in technology classes or competitions. Antique gold finish with neck ribbon. The medallion is 2-3/4" in diameter and includes a plastic storage case.

QX53642—$11.95



F1 IN SCHOOLS RACE SYSTEM

A Pitsco Exclusive

Providing awesome performance, stability, and durability, the F1 in Schools Race System is a complete system for Formula 1 class activities.

The start and finish gates – which easily move from floor to track – are constructed from durable, high-density polyethylene. The start gate also features horizontal F1 start lights; the five center lights start one at a time, from left to right, and the race starts four to seven seconds later. A light on either side lets racers know if they pushed the launch button too soon.

The stable launch pods have a vertical range that fits almost any CO_2 car. This system features both Auto Launch and Manual Launch racing modes.

The system connects to a computer via a USB port and cable. After the system is connected, use the included *Race Management* software to log reaction and finish times.

Race Management software requires Windows XP operating system.

QX34152—$1,595

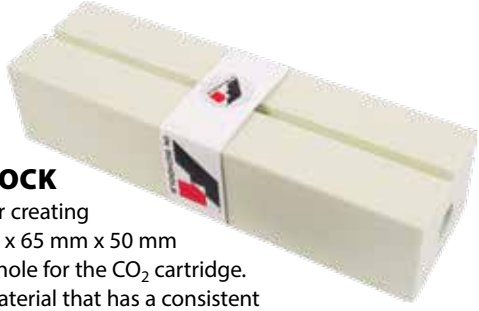


NEW!

F1 COMPOSITE BLOCK

The official blank for creating F1 cars measures 223 mm x 65 mm x 50 mm and contains a predrilled hole for the CO_2 cartridge. It is created with a new material that has a consistent weight and density, and it is more robust and durable than the previously used balsa wood blank.

QX41547—$19.95





F1 BALSA BODY BLANK

A Pitsco Exclusive

Whether you want to practice designing your F1 car or have your own race, balsa body blanks hit the mark. Each blank measures 223 mm x 65 mm x 50 mm and contains a predrilled hole for the CO_2 cartridge.

QX28886—$4.95
10 or more—$4.70 each



F1 BASIC CAR KIT NEW!

If you want to give more of your students the opportunity to design, make, and test F1 cars without registering them as official teams, then the F1 Basic Car Kit is what you need. The kit includes one F1 balsa wood blank and one F1 composite blank. The F1 balsa blank is best used as a rough draft before using the F1 composite blank (the new official F1 car material). The kit also includes four wheels, one CO_2 cartridge, steel axles, sandpaper, screw eyes, and washers. Requires a drill, coping saw, wood rasp or file, finish, and a race system, sold separately.

QX41795—$27.95
10 or more—$25 each

F1 TEACHER'S GUIDES

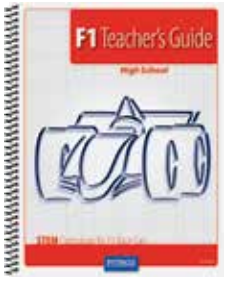
A Pitsco Exclusive

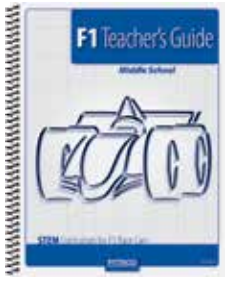
Fuel your students' fire for learning by combining the F1 in Schools Challenge with these curriculum guides.

The Middle School edition features four science and three math lessons that focus on principles such as the scientific method, acceleration, converting a 2-D drawing into a 3-D model, and more. The High School edition includes five science and four math lessons covering reaction time, Newton's three laws of motion, Bernoulli's principle, correlations, surface area, and other key concepts.

Each guide also lists the NSTA, NCTM, and ITEEA standards addressed by each activity.

QX59713 Middle School (77 pages)—$24.95
QX59712 High School (95 pages)—$24.95







AIRBRUSH SET

Achieve a new level of finish quality on your scale models, dragsters, model rockets, and other projects with this Paasche VL series airbrush set. Kit includes a variety of nozzle and needle sizes, extra fluid containers, a wrench, an air hose with couplings, a glass bottle, and other necessary hardware. Packaged for instant hookup to air source.
QX52700—$99.95
QX51729 Airbrush Bottle (1/2 oz)—$4.95

1/6 HP COMPRESSOR

Designed especially for use with an airbrush, this compressor delivers 30 to 40 psi. It does not require oil, which makes it maintenance free. 110 V, 60 Hz, 1.5 amp.
QX59678—$175



HOSE AND COUPLINGS

Six-foot airbrush hose with couplings ideal for use with all Paasche airbrushes. Constructed for durability with multicolored nylon braid over plastic tubing. Complete with airbrush and compressor couplings.
QX51762—$8.95



NO. 1 AIRBRUSH

This Paasche-brand airbrush is great for really nice dragster finishes. May use moist powder or liquid water colors and thinned oil colors. No lacquers or synthetics. Packed with 1/4 oz color cup, wrenches, hanger, and instructions. Single action.
QX51761—$39

SPRAY SYSTEM 1520

This economy spray system is ideal for tight spaces and small budgets. The 15" x 20" work surface is perfect for trapping the spray from adhesives, fixatives, and finishes. Specifications: Weight: 17 lb. Airflow: 112 CFM. Height: 18". Width: 20". Depth: 15". Electrical: 115 V, 15 watts.

Note: The use of an Artograph Spray System does not guarantee an environment 100-percent free from health risks or odors from sprayed materials. Always refer to aerosol or paint manufacturer's caution label or material safety data sheet for correct usage of sprayed materials.

Drop-ship Information: Because drop-ship items are shipped from various warehouses, they may be subject to additional shipping fees. Please allow 2-3 weeks for delivery of drop-ship items.
QX53794—$325





See paints and decals on pages 104-105.



METRIC DRAGSTER GO/NO GO GAUGE

A Pitsco Exclusive

The quick and convenient way to check dragsters for TSA specifications. Use this gauge for measuring minimum and maximum requirements for front and rear wheel widths and diameters; body length, width, and height; and screw eye and axle position. **Note:** Check the TSA Competitive Events CD to verify the current specifications (for details, see the TSA website).

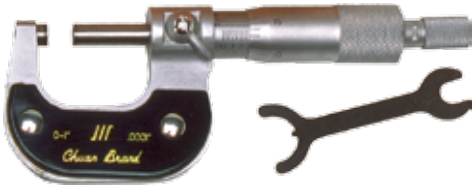
QX33915—$4.95



HIGH-IMPACT PLASTIC DIAL CALIPERS

Large 1-1/2" diameter dials make graduations easy to read. The jaw measures inside and outside and has a depth gauge in the end. Measures up to 6" in 0.01" graduations.

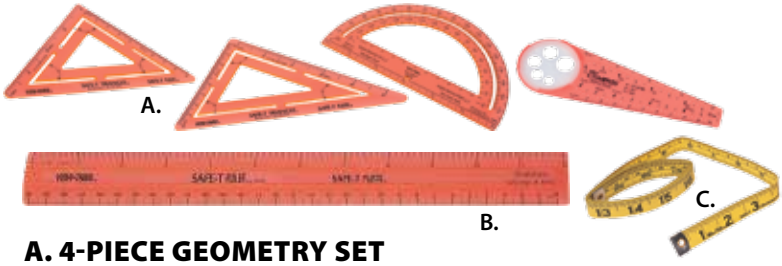
QX51267—$47.95



MICROMETER

Superior quality and accuracy, heat-treated. Beautiful long-life finish.

QX50078—$34



A. 4-PIECE GEOMETRY SET

Ideal for classroom use! These pliable, translucent instruments are ultrasafe. They have no sharp points and are shatter resistant. They feature both English and metric units, so they're ideal for use in math, art, science, vocational, and early learning.

QX56085—$4.95

B. SAFE-T RULER

QX56093—$.75

C. TAPE MEASURE

Fiberglass tape measure is 60" long and 0.63" wide. Calibrated in black on yellow with inches on one side and metric units on the other side.

QX56087—$1



12" CONVERSION RULER

This brushed aluminum ruler features inches divided to 1/16" on one side and metric measurements on the other. Metric conversion tables are printed on the back for length, area, volume, and mass.

QX36543—$4.95

PRECISION MEASUREMENT SET



Whether for the science and technology lab or for the math class, this four-piece set easily tackles the job of fine measurement. Set includes a micrometer, 0-25 x 0.01 mm; a vernier caliper, 150 x 0.05 mm; a knife-edge square; and a steel, 150-millimeter ruler. Includes a durable storage case.

QX31448—$89

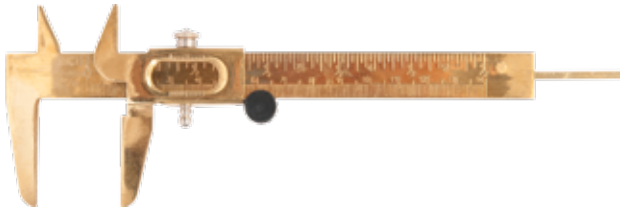
DIGITAL FRACTIONAL CALIPER



This digital caliper can read inside, outside, step, and depth measurements in three different systems of measurement: fractions, inches, and millimeters. Features a high-contrast digital display and a rugged stainless steel construction. Comes with a padded case.

Specifications: Resolution: 0.0005". Accuracy: 0.0001". Repeatability: 0.0005". Operating temperature: 32-104°F. Storage temperature: 14-140°F.

QX35919—$45



CALIPER

Large 1-1/2" diameter dial makes graduations easy to read. The jaw measures inside and outside and has a depth gauge at one end. Durable construction with a tightening screw to hold the caliper in place. Measures up to 6" in 0.01" graduations.

QX58758—$10.95



CJ600 DIGITAL SCALE

Laden with smart features, the CJ600 Digital Scale combines precision weighing with compact, quality construction. The orange backlight and extra-large LED display make it easy to read.

Weigh up to 600 grams in three units: grams (0.1 g), pounds and ounces (0.01 oz), and pennyweight (0.1 dwt). Includes tare and zero functions as well as a handy counting feature. The clear scale cover doubles as a bowl to use on the scale. Operates on three AAA batteries (included).

QX33914—$39.95



OHAUS SCOUT PRO ELECTRONIC BALANCE

This electronic balance is the perfect weight measurement tool for your dragsters or weight-related competitions. Easy to operate, it features a high-contrast LCD display, multiple weighing units, and four application modes. Measures to the nearest 0.1 gram, with a capacity up to 400 grams.

Its raised stainless steel platform means the large display can be viewed from any angle. A sealed panel and molded spill ring make it easy to clean. Change weight units with the touch of a button or use the weigh-below hook for specific gravity determination. Runs on four AA batteries, sold separately, or with the included AC power pack.

QX58759—$260



ESCALI POCKET SCALE

Versatile and small, this pocket scale is extra-sensitive like bigger and more expensive scales. Ideal for the lab or science classroom needing to weigh items for experiments and tests. Weighs up to 500 grams (18 ounces) in 0.1 gram (0.005 ounce) increments and has counting, tare, hold, and auto shut-off features. Uses an included 9 V battery.

QX34505—$31



PROFESSIONAL SCALE

Let this professional-grade laboratory scale take on your weighty work.

With a 125-gram capacity and a resolution of 0.01 grams, the scale also has a removable stainless steel platform for easy cleanup. Includes tare and hold features. Measures in grams, ounces, grains, carats, pennyweights, or troy ounces. Runs on four AA batteries (included).

QX32953—$79



TRIPLE BEAM BALANCE

Find the mass of your dragster, siege machine projectiles, and other objects within 1/10th of a gram. Made of aluminum alloy and stainless steel, this durable yet economical mechanical balance will provide dependable, accurate service. Capacity/readability: 2,610 g x 0.1 g and comes with three weights.

QX38628—$98.95

HAND DRILL

Small, comfortable, easy to use. Enclosed metal gears ensure smooth operation for maximum drilling pressure. Bits sold separately.
QX57020—$16

COPING SAW

For cutting out dragsters by hand. Finest pro quality. Four extra blades.
QX58890—$11.50
10 or more—$11.05 each

SURFORM SHAVER

Works on a pull stroke. Clip-on-type blade.
QX50386—$5.95
10 or more—$5.50 each



HAND TOOL SET

A Pitsco Exclusive

Includes five Hand Drills, five Coping Saws, and five Surform Shavers.
QX26832—$149

Save $18

NEEDLE FILE SET



Great for shaping and smoothing wood, plastic, and metal in hard-to-reach areas; especially good for those nooks and crannies on shell-style and rail dragsters. Six different files can be inserted in the metal handle.

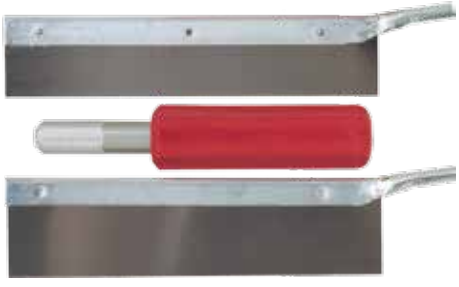
Includes round, half-round, flat, and triangle files.
QX58893—$10.25



DELUXE CARVING CHEST

Number 5 knife handle, six assorted blades in patented holder, five assorted gouges, and four assorted routers. Items come in a handy chest.
QX58892—$20.95

RAZOR SAW SET



This set from Excel gives you two blades in one! The comfortable No. 5 handle connects to each of the two included smooth-cutting blades. A precise set for trimming structure frames.
QX58947—$10.25

DR. ZOON DRAGSTER PRODUCTION: HAND TOOLS VIDEO

A Pitsco Exclusive

Join Dr. Zoon as he demonstrates how to transfer a design to a CO_2 dragster blank and then how to create the dragster using hand tools such as coping saws, wood rasps, planes, and hand drills. Hand tools are a less-expensive – and safer – way to construct projects like dragsters, so let the good doctor show your students how to use them.

Note: The *Dr. Zoon Dragster Production: Hand Tools Video* is Part 2 of a five-part series. Closed-captioned. Time: 18 minutes.

Ages 12+
QX59851 DVD—$24.95



FLAT SURFORM RASP

Metal alloy body with high-impact-resistant, black-molded handle. Ribbed section on front of body permits comfortable two-hand use of tool. Regular-cut, flat blade.
QX50392—$14.95
10 or more—$13.45 each



ROUND SURFORM RASP

Round, regular-cut, hardened-steel blade with a hardwood handle.
QX50387 (5/8" diameter)—$18
10 or more—$16.50 each

POCKET SURFORM PLANE



A handy, one-handed speed-cutting-and-trimming tool. Die-cast, zinc-alloy body. Furnished with fine steel blade.
QX50388 (5-1/2" long)—$9
10 or more—$8.30 each

SANDBLASTER SANDING SPONGE



3M SandBlaster abrasive sponges last three times longer and cut three times faster than conventional sponges of comparable grits. Sponges are coated to resist paint buildup. Choose 80 grit for defect removal, 150 grit for surface smoothing, and 320 grit for final finish sanding. Size: 3-3/4" x 2-5/8" x 1".
QX58211 (#80 grit)—$5
QX58209 (#150 grit)—$5
QX58210 (#320 grit)—$5

SANDING SPONGE



Great for the contours of a dragster! A fine-to-medium grade sanding sponge that produces superior results. Can be reused.
QX57510—$3.50



ROTATING TABLE VISE

With a 360° rotating head, this vise is ideal for holding and positioning raw material for rough cuts or finishing work. Has a 3" opening for table mounting with locking heads for precise positioning.
QX37726—$25.95



PV JR. MINI-VISE

This small vise has hundreds of uses from soldering to painting. With a full range of motion, it tilts, turns, and rotates. The Mini-Vise also features a precision fine/coarse adjusting knob and vertical and horizontal jaw grooves to hold your work.
QX53204—$32



STEEL BARS CLAMP

Made from sturdy steel, this bar clamp features a multi-clutch disc design to keep your projects secure for gluing, drilling, and more. With removable plastic pads on the clamp, you won't scratch or dent surfaces. The clamp has a load capacity of 300 pounds, and it opens 4" with a 2" throat capacity.
QX37476—$16.95



BENCH CLAMP BASE MOUNT

Clamps to the edge of a workbench or table up to 3-7/16" thick. Includes hardware for mounting a base to the clamp and neoprene pads to prevent slipping without excessive tightening of the clamping screw. Use with the PV Jr. Mini-Vise.
QX57634—$59

BLACK & DECKER WORKMATE WM225

Workmate WM225 is a portable project center that holds virtually anything! Constructed of steel, it holds up to 450 pounds, yet it is lightweight and easily folded for storage and transport. Features include four swivel pegs; one-handed clamp handle; floor-protecting rubber feet; and dual height adjustment that enables it to be used as a bench, tool stand, vise, or sawhorse.
QX57532 (30" high)—$125



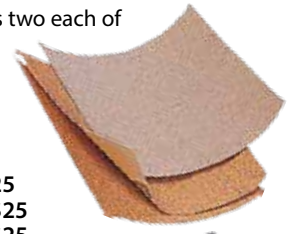


SANDING STICK

This Sanding Stick makes sanding curves and angles on dragsters a smooth task. Sanding surface is 5" long and tapers from 1" to 1/2". The sandpaper wraps around the stick, reducing the need to turn it. Make sandpaper sheets to fit with the included templates or purchase Precut Sandpaper, sold separately.
QX33395—$6.95

PRECUT SANDPAPER FOR SANDING STICK

Shaped to fit the Sanding Stick. Includes two each of 120-, 180-, and 220-grit sheets.
QX33396—$4.95



GARNET PAPER

Perfect for sanding dragsters.
QX12760 (#80 CD, 50 sheets) (9" x 11")—$25
QX35465 (#120 CD, 50 sheets) (9" x 11")—$25
QX35466 (#180 CD, 50 sheets) (9" x 11")—$25



WET/DRY SANDPAPER

For finishing super-smooth surfaces.
QX50746 (#150 grit, 50 sheets) (9" x 11")—$26
QX50747 (#320 grit, 50 sheets) (9" x 11")—$28
QX12762 (#400 grit, 50 sheets) (9" x 11")—$34

X300 SAFETY GLASSES

Finally, safety glasses that make eye protection look cool. These lightweight, anti-scratch glasses offer a sleek design while providing impact strength, optical clarity, and 99.9% UV protection. Meets ANSI Z87.1-2003 and ANSI + High Impact Standards.
QX34189 Amber—$1.95
QX34190 Clear—$1.95
QX34191 Mirrored—$1.95
QX34192 Smoke—$1.95





THE SAND BOX

A Pitsco Exclusive

Sanding projects such as building a CO_2 dragster in a regular classroom are messy affairs – The Sand Box sanding table literally sweeps away the problem. Featuring two quiet suction fans to quickly draw away sanding dust, the table also features aluminum and HDPE construction and is the right size (approximately 18" x 20") for student use in the classroom. It is portable, so classrooms can share the table as needed.

The table absorbs the dust into a standard furnace filter, which is easily changed. Requires standard 120 V wall outlet.

QX34148—$399
QX34226 16 x 20 Filter—$6.50

POWER TOOL SET

A Pitsco Exclusive

Includes one 9" Band Saw, one 10" Drill Press, one set of Drill Bits, and one Mouse Sander/Polisher.

QX26833—$650

$ave $41

9" BAND SAW

A band saw makes quick work of cutting out dragsters, and this model with an 11-3/8" x 11-3/8" table is an ideal choice for the classroom. It mounts easily to a bench or stand and has a removable lockout key to prevent unauthorized use.

Includes band saw with 1/3 hp, 120-volt, 60 Hz motor; 1/4-inch blade; miter gauge; Allen wrench; and instruction manual.

QX23953—$325



16" SCROLL SAW

Excellent for cutting out dragsters! This 16", 120-volt scroll saw cuts wood, plastic, and other materials. Features a 1/6 hp motor, variable blade speed from 400 to 1,600 SPM, cast aluminum table with 45-degree tilt, 5" blade length, and a quick-release blade clamp. Plus, the integrated dust-removal system keeps the cutting area free of dust. Works with pinned or standard blades. Includes the scroll saw, pinned blade, Allen wrench for blade changing, and instructions.

QX57368—$219





10" BENCH DRILL PRESS

If you want to make holes at a uniform angle and depth in wood, metal, or synthetics, a drill press is the tool you absolutely must have.

The 10" Bench Drill Press is bolted or clamped to the top of a bench or stand and is perfect for smaller jobs. It has a single-phase, 1/4 hp, 115-volt, 60 Hz motor; five spindle speeds for drilling into a variety of materials; 1/2-inch chuck for use with most larger drill bits; a table that tilts 45° right and left for accurate angle drilling; and a simple depth-stop adjustment for repetitive drilling operations.

QX28904—$250

DR. ZOON DRAGSTER PRODUCTION: POWER TOOLS VIDEO

A Pitsco Exclusive

Power tools are great and they save time, but they must be used with care. In this program, Dr. Zoon first shows students how to transfer their designs to dragster blanks. Then, he demonstrates how to use each tool – the drill press, scroll saw, belt sander, and rotary tool – to safely build a CO_2 dragster.

Note: The *Dr. Zoon Dragster Production: Power Tools Video* is Part 3 of a five-part series. Closed-captioned. Time: 30 minutes.

Ages 12+

QX59852 DVD—$24.95



MOUSE SANDER/POLISHER

Sand, remove rust, polish, and detail – the Mouse Sander/Polisher does it all! Its interchangeable bases help you squeak in and around tight spaces. The compact design and soft grip makes it easy to control and comfortable to use. A Velcro® system makes paper changes fast and easy. Includes kit box and 14 accessories.

QX57954—$96.95



FINISHING/DETAIL SANDPAPER ASSORTMENT

Five high-quality replacement sandpaper pads for the Mouse Sander/Polisher. Includes one coarse-grit, two medium-grit, and two fine-grit pads.

QX57955—$5.50



DREMEL MULTI ROTARY TOOL

Multiuse, high-speed rotary tool for all your precision cutting, sanding, polishing, grinding, sharpening, and drilling needs! Includes mandrel, coarse 1/2" sanding drum, dressing stone, emery wheel, 120-grit sanding band, and aluminum oxide and silicon carbide grinding stones.
QX57359 (6' cord length)—$77



BELT AND DISK SANDER

This sander does double duty in classrooms and technology labs. Featuring a 1" x 30" belt sander and 5" disk sander, this tool is ideal for grinding, deburring, sharpening, sanding, and buffing wood and metal.

The table tilts to 45 degrees. Plus, the belt platen and idler roller guard are removable for easy contour sanding. Features a 1/4 hp, 3,450 rpm, 110 V single-phase motor.
QX32975—$190



ELECTRIC DRILL

This quality 3/8" drill from Black & Decker features variable speed (0-1,350 rpm) and is reversible.
QX52790—$59.95



DREMEL TWO-SPEED CORDLESS ROTARY TOOL

Perform intricate cutting, sanding, and polishing tasks in hard-to-reach places with this super-handy tool. Two speeds: 5,000 and 10,000 rpm. Package includes rotary tool, battery pack, three-hour battery charger, high-speed cutter, drill bit, wire brush, drum sander, and sander band.
QX52865—$69



LONG DRILL BIT SET

When tackling the construction of a Formula One car or a Custom Cruiser, you'll need this Long Drill Bit Set to drill through the wider car blanks and reach into areas that are difficult to access with standard length drill bits. These 13 bits range in size from 1/16" to 1/4" by 64ths. All bits are 6" long.
QX31869—$19.95



LONG DRILL BITS

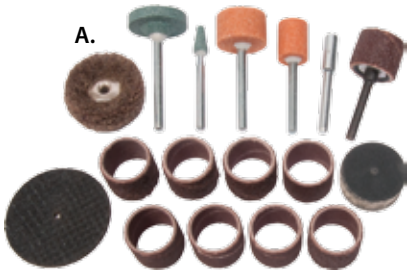
Great for building Formula One or Custom Cruiser cars, these high-speed, straight-shank bits are made of steel. Use the 5/32" bit if you plan to use straw bushings and the 1/4" bit for axle bushings.
QX31929 (5/32")—$4.95
QX31930 (1/4")—$4.95



DRILL BITS

This 13-piece starter set is in a permanent storage container. Sizes: 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 11/64", 3/16", 13/64", 7/32", 15/64", and 1/4".
QX53696—$19.95

A.



B.



C.



ROTARY BIT SETS

Use these bit sets with your Dremel or other rotary tool for cutting, polishing, sanding, cleaning, grinding, and more. Use on wood, metal, and other materials. Great for precision work.
A. QX35772 Sanding and Grinding Bit Set (31 pieces)—$16.95
B. QX35773 General Purpose Bit Set (64 pieces)—$17.95
C. QX35787 Rotary Tool Accessory Set (180 pieces)—$44.95

See airbrush system on page 97.

ACRYLIC PAINT – NONTOXIC



These nontoxic acrylic paints come in a rainbow of colors and dry quickly. They are water soluble and packaged in 1/2-fluid ounce containers. Color is permanent when dry. Use on paper, wood, plastic, and canvas.
QX53375 (pkg of 18)—$18.95
10 pkgs or more—$17.50 each



AUTO AIR ACRYLIC PAINT

Durable, high-quality acrylic paint can be brushed or sprayed on dragster bodies or other non-porous surfaces.
QX58220 White (4 oz)—$6.95
QX58221 Flame Yellow (4 oz)—$6.95
QX58222 Emerald Green (4 oz)—$6.95
QX58223 Process Blue (4 oz)—$6.95
QX58224 Deep Purple (4 oz)—$6.95
QX58225 Flame Red (4 oz)—$6.95
QX58233 Iridescent Candy Apple Red (4 oz)—$8
QX58234 Iridescent Purple (4 oz)—$8
QX58226 Dark Green (4 oz)—$6.95
QX58227 Brite Blue (4 oz)—$6.95
QX58228 Deep Red (4 oz)—$6.95
QX58229 Black (4 oz)—$6.95
QX58230 Pearl Satin Gold (4 oz)—$7.95
QX58231 Pearl Silver (4 oz)—$7.95

FLUORESCENT ACRYLIC PAINT

May be used on wood, plastic, and other surfaces. Dries to a smooth matte finish and may be brushed or airbrushed. Cleans up with soap and water. Six-ounce bottle. Conforms to ASTM D-4236.
QX53414 Bright Green —$9.50
QX53416 Deep Blue—$9.50
QX53411 Bright Orange —$9.50
QX53410 Deep Violet —$9.50
QX53412 Bright Red—$9.50
QX53413 Hot Pink —$9.50
QX53415 Brilliant Yellow—$9.50



TACK CLOTH

Essential for the perfect dragster finish! This strong, rayon/polyester cloth removes dust particles from dragsters before painting and between coats without leaving a sticky residue behind.
QX57695—$2.50





A. B. C. D. E.

A. ALL-PURPOSE SEALER

Use this water-based wood sealer to seal the grain of your balsa or basswood dragster. Sand lightly before applying finish coats. Easy water cleanup for brushes. 8 oz bottle.
QX59507 (8 oz)—$15

B. QUICK-DRYING AEROSOL PRIMER

In a hurry? This primer dries in 12 minutes or less. Use on wood, metal, plaster, paper, plastic, and other surfaces. Can be used inside or outside.
QX59127 (12 oz)—$9.95

C. CLEAR LACQUER SPRAY

Use this high-gloss spray lacquer on small projects such as the metric dragsters. Dries to touch in 20 minutes but requires 24 hours to completely dry.
QX57719 (11 oz)—$7.95

D. AEROSOL GLOSS FINISH

Use this super-gloss clear finish on brush-painted dragsters for a smooth, professional finish.
QX53421 (12 oz)—$6.95
10 or more—$6.25 each

E. AEROSOL CHROME FINISH

Add some shine to CO_2 cars and other projects. This chrome finish dries in 15 minutes or less and can be used on metal, wood, plastic, glass, plaster, and other surfaces. For indoor or outdoor use.
QX59129 (8 oz)—$10



SPRAY ENAMEL PAINT

Spray enamels provide a durable finish that retards rust. Ideal for dragsters.
QX53422 White (11 oz)—$3.50
QX53423 Gloss Black (11 oz)—$3.50
QX53424 Flat Black (11 oz)—$3.50
QX53425 Cherry Red (11 oz)—$3.50
QX53426 Bold Blue (11 oz)—$3.50
QX53427 Forest Green (11 oz)—$3.50
QX53428 Sun Yellow (11 oz)—$3.50
QX53429 Gold Plate (11 oz)—$3.50
QX53430 Chrome (11 oz)—$3.50
10 or more of same color—$3.30 each

SHIPPING INFO
See policies page at back of catalog.

METALLIC ACRYLIC PAINT

Use this paint to give your dragster a flashy metallic finish.
QX53418 Silver (6 oz)—$12.30



PRISMACOLOR METALLIC PEN

Add a touch of class to your dragster with these broad-tipped metallic pens!
QX56654 Gold—$4.95
QX56655 Silver—$4.95





DRAGSTER PAINT STAND

A Pitsco Exclusive

This improved design does a better job of holding your dragster during the painting process. The dragster is suspended by the cartridge hole. After it is on the stand, the dragster can be rotated (by turning the mounting peg) to paint all sides. Special plastic material enables the wet paint to be wiped off the stand. Also makes a great display for finished dragsters!

QX54528—$4.95
10 or more—$4.45 each



PAINTBRUSH ASSORTMENT

144 craft brushes, sizes 1-6.

QX53469—$11.95
10 pkgs or more—$10.75 each

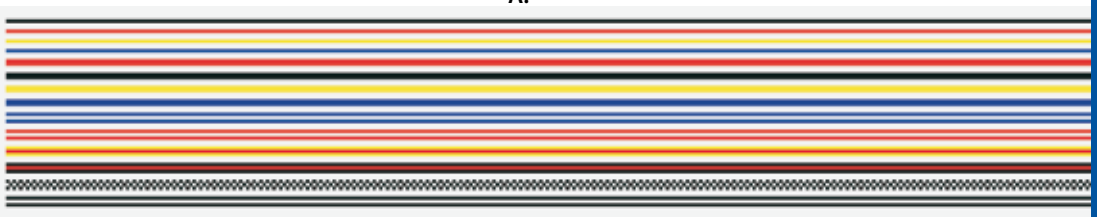
PAINTBRUSHES

Five nylon and natural-bristle paintbrushes in assorted sizes and shapes are designed especially for decorative and craft painting. Suitable for all mediums and ideal for acrylics.

QX58213—$4.95



A.





B.



C.



D.



E.

DECALS

A Pitsco Exclusive

These decals will add unique flavor to scale models, metric dragsters, rockets, model airplanes, and more!

A. QX54540 Pinstripes (4" x 24")—$2.95
B. QX54544 Neat Stuff (6" x 8")—$2.95
C. QX54543 Flags & Flames (6" x 8")—$2.95
D. QX54542 Numerals (6" x 8")—$2.95
E. QX54541 Plane Art (6" x 8")—$2.95



HOBBY MASKING TAPE

Use this special masking tape to mask dragsters, scale models, R/C cars, planes, and model rockets for painting.

QX52752 (6 mm x 18 m)—$6
QX52749 (10 mm x 18 m)—$6

MILITARY DECALS

These race car decals illustrate pride in the US military. Stars, stripes, flags, an eagle, and other military insignia are included on this sheet of mini decals. Sheet size is 2-3/4" x 4".

QX35192—$2.70





B.

A. **C.**



DRAGSTER DECALS

These decals give dragsters a super-realistic look. All are printed on sheets of clear Mylar and are self-sticking.

A. QX53685 Sponsor (6" x 8" sheet)—$4.95
B. QX53687 Flame Decals (3" x 4" sheet)—$2.95
C. QX53686 Drag (6" x 8" sheet)—$4.95

Toolbox Racer



TOOLBOX RACER KIT

A Pitsco Exclusive

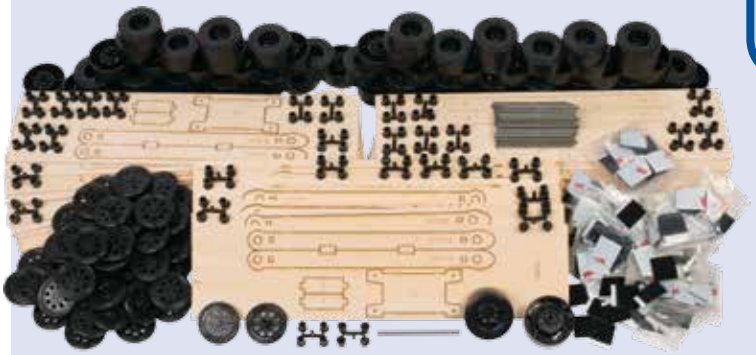
For a fun classroom activity that really measures up, check out the Toolbox Racer Kit.

Powered by the toolbox's favorite occupant – the tape measure – this racer is quick and simple to build. It demonstrates the elastic potential energy of the tape measure's spring and gets students excited about learning! Students can change out the 6' tape measure with a bigger one.

The racing setup is simple – just tape and twine. Includes the laser-cut basswood parts and hardware to build the car body. Requires a tape measure – our 6' tape measure is recommended – duct tape, string, and white glue, all sold separately.

Ages 9+

QX33049—$6.55
QX50394 Tape Measure – Economy (6')—$6.95
10 or more—$6.25 each



TOOLBOX RACER 30-PACK

A Pitsco Exclusive

There's potential energy hidden in tape measures – and the Toolbox Racer taps into it! This pack gathers enough materials for 30 students to build and race this fun racer.

Includes 30 Toolbox Racer Kits. Requires at least two tape measures – our 6' tape measure is recommended – duct tape, twine, and white glue, sold separately.

Ages 9+

QX35675—$150
QX50394 Tape Measure – Economy (6')—$6.95
10 or more—$6.25 each

Visit **www.pitsco.com/toolboxracer**.

You can view a short video about this product online.
Go to **www.pitsco.com/Toolbox_Racer**
and click Watch Video.



TOOLBOX RACER – GETTING STARTED PACKAGE

A Pitsco Exclusive

For an easy-to-build racer that gives a simple demonstration of potential energy, this Toolbox Racer does the trick. It uses the energy in the measuring tape's spring to propel the racer.

Just a few laser-cut parts glue together for a quick build. Includes enough kits and tape measures for 30 cars, twine, and the *Toolbox Racer* video.

- QX53760 Gray Duct Tape
- QX35675 Toolbox Racer 30-Pack
- QX34123 Toolbox Racer Video
- QX51912 Twine
- QX50394 Tape Measure – Economy (30)

QX40563 Toolbox Racer – Getting Started Package—$350

Ages 9+

Requires white glue, sold separately.

TAPE MEASURE – ECONOMY

Lightweight, low-price, shop-use tapes for your students. Feet and inches to 1/16" top edge. 16" center stud markings.

QX50394—$6.95



Please read and follow all teacher tips and safety information provided with this product.



ACTIVITY IDEAS FOR THE TOOLBOX RACER

You can test the Toolbox Racer focusing on a single variable at a time. For instance, race the same car using different tape measures. That can mean different lengths, different weights, or different sizes. When you've decided what test you want to do, ask students to hypothesize the results of changing the chosen variable. Then, do the test. Have students study the results of the tests and ask them why they believe their hypothesis was correct (or incorrect).

Ask students if they can think of any other variables to test. Have them design a test for any single variable they think of. Do the test and discuss the results.



TOOLBOX RACER STARTER PACKAGE

A Pitsco Exclusive

This package provides what you need to build and race two Toolbox Racers – a great way to bring a fun experiment into the classroom. Includes two Toolbox Racer Kits, two tape measures, and one Start Gate. Requires duct tape, twine, and white glue, sold separately.

Ages 9+

QX33099—$29.95



TWINE

Polyester/cotton, roll of 300 feet.

QX51912—$2



GRAY DUCT TAPE

Ideal for holding start and finish gates to the floor.

QX53760—$7.50

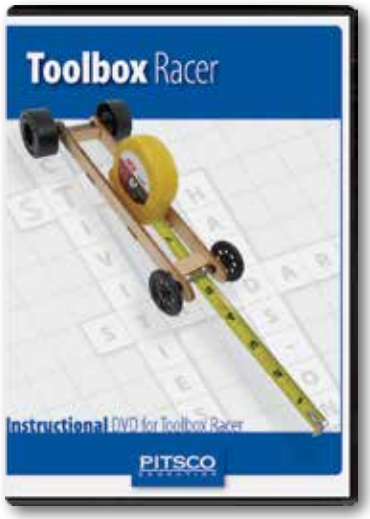
TOOLBOX RACER VIDEO

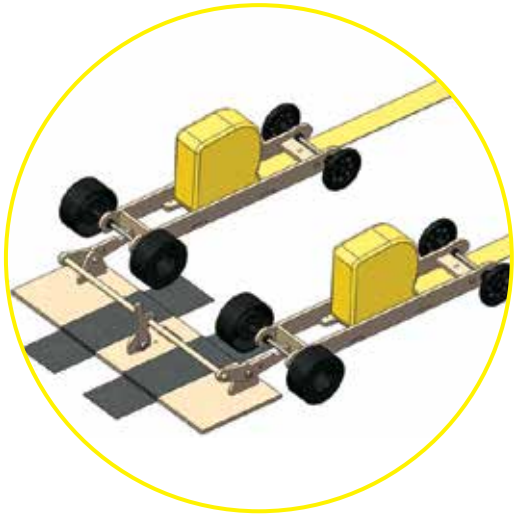
A Pitsco Exclusive

This program demonstrates how to build a Toolbox Racer and its Start Gate and how to set up for a race. As students follow this step-by-step process, they also learn about potential and kinetic energies, calculating kinetic energy, and testing for different variables related to the Toolbox Racer. Closed-captioned. Time: 16 minutes.

Ages 9-14

QX34123 DVD—$24.95





Pine Pro **Dragsters**

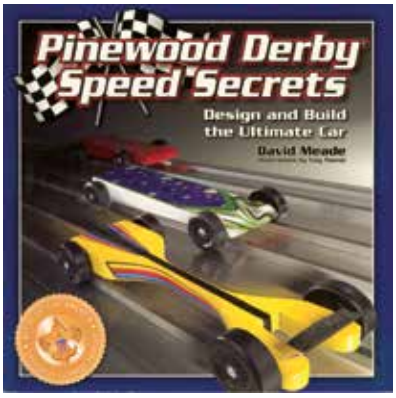


Disclaimer: Not Boy Scout approved.

A rite of spring for more than 50 years, pine car races are cherished by Scouts and other organizations as a fun learning experience.

Long the leader in CO_2 cars, Pitsco is now getting in on the fun and excitement of pine car racing. With our variety of quality body blanks and accessories, you can start your own pine car racing program with ease!

So how do they work? Gravity draws these racers from a raised section of track at the start line, and the resulting momentum makes the car speed to the finish line! Use this classic activity to teach about gravity, momentum, friction, aerodynamics, and other STEM concepts.



PINEWOOD DERBY SPEED SECRETS

Make the fastest gravity-powered racer possible with tips and advice from this book's author, an undefeated derby champion. Covers how to get started in the Pinewood Derby; building the car body, axles, and wheels; and putting it together for a winning derby car. Also includes a gallery of winning cars, car patterns, and more. Paperback, 108 pages.

Ages 9-14

QX34390—$12.95



BLOCK BLANK

QX34520—$3

BLOCK DELUXE KIT

Kit includes blank, wheels, and axles.

Ages 9-14

QX34521—$4.25



STREET ROD BLANK

QX34486—$6.50

STREET ROD DELUXE KIT

Kit includes blank, wheels, and axles.

Ages 9-14

QX34487—$8.75



STOCK CAR BLANK

QX34480—$6.50

STOCK CAR DELUXE KIT

Kit includes blank, wheels, and axles.

Ages 9-14

QX34481—$8.75

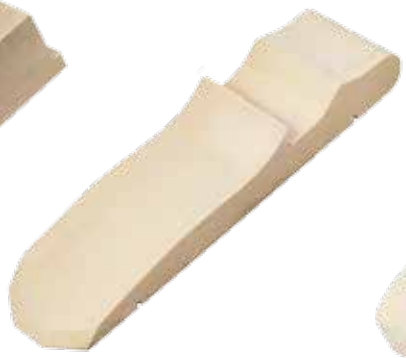


BIG RIG DELUXE KIT

Kit includes blank, wheels, and axles.

Ages 9-14

QX34483—$8.75

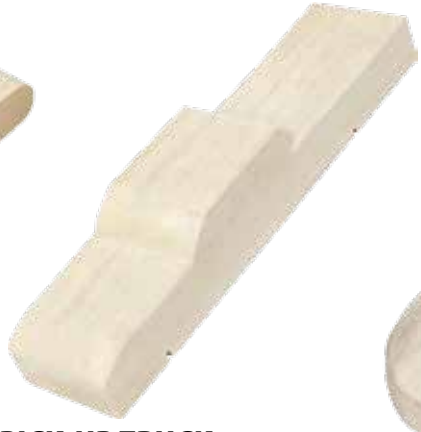


SPORT COUPE DELUXE KIT

Kit includes blank, wheels, and axles.

Ages 9-14

QX34479—$8.75



PICK-UP TRUCK DELUXE KIT

Kit includes blank, wheels, and axles.

Ages 9-14

QX35191—$8.75

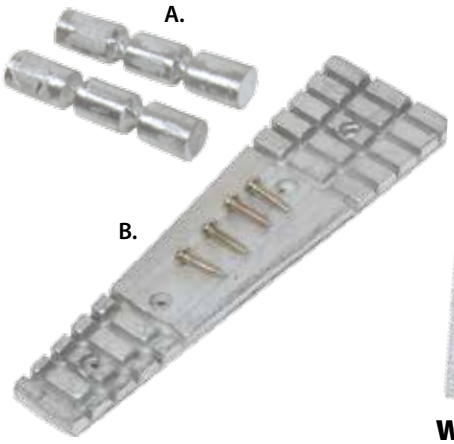


BULLET DELUXE KIT

Kit includes blank, wheels, and axles.

Ages 9-14

QX34485—$8.75



PINE RACER WEIGHTS

Add more heft to your pine racer with these lead-free weights. Three different shapes offer a variety of ways to increase the weight of a given design.
A. QX34492 Cylinder Weight—$3.80
B. QX34493 Wedge Weight—$4.20



WHEEL TUNING KIT

The Wheel Tuning Kit ensures wheel roundness while removing any defects or mold marks. It firmly holds the wheel in a 1/4" or 1/8" casing. Requires a drill or hobby motor tool; instructions included.
QX34474—$3.20



CAR WHEELS

Black, plastic wheels are made in the official Boy Scouts of America style.
QX34469 (1-3/16" diameter) (1/4" width)—$2.75



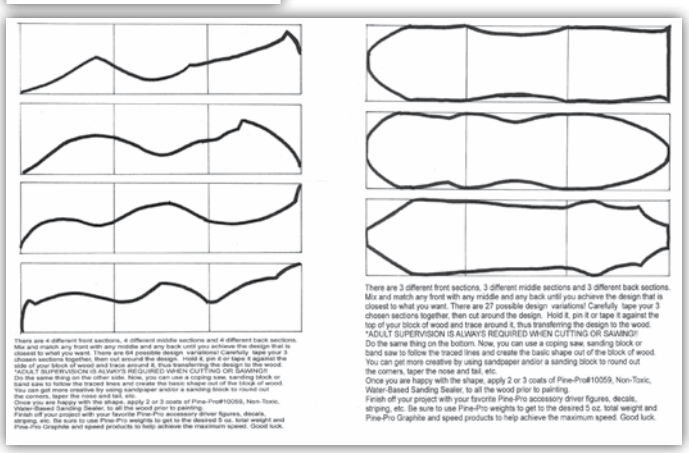
CAR BUMPER SET

Polish the look of your pine racer with these finishing touches. Front and rear bumpers with stanchions add a realistic look – even a spot for a license plate. These metal pieces are lead free and can be painted.
QX34473—$3.80



AXLE TUNING KIT

Polish race car axles like a pro using jeweler's rouge. This reduces friction on gravity-powered and CO_2 race cars.
QX35189—$3



CAR TEMPLATES

Featuring four side views of front, middle, and back sections, these templates should be cut apart and mixed and matched according to your preference. There are 64 design combinations possible! Also includes three top views of front, middle, and back sections for 27 top view combinations from which to choose.
QX34475—$3.50

AXLES

Keep your pine race car spinning with the right axles, which are made to the Boy Scouts of America standard.
QX34471—$1.65





MILITARY DECALS

These race car decals illustrate pride in the US military. Stars, stripes, flags, an eagle, and other military insignia are included on this sheet of mini decals. Sheet size is 2-3/4" x 4".
QX35192—$2.70



FIRE-BREATHING FLAME DECALS

Dozens of flame decals will set your race car ablaze. Includes a range of sizes and shapes in yellow, orange, red, and even blue and green flames.
QX35193—$5.50

Prop Racer



Example of built kit.

PROP RACER SET

A Pitsco Exclusive

Love your Prop Racer System but need more cars without another track? Includes all the parts, hardware, and rubber motors for the racers. Requires white glue such as HD Bond II, sold separately.

Ages 9+

QX33014 (set of 4)—$39.95
QX33015 (set of 28)—$287

PROP RACERS TEACHER'S GUIDE

A Pitsco Exclusive



Rubber motor-powered propeller cars aren't just for the playground – they belong in the STEM classroom as well. Using the Pitsco Prop Racer and Propeller Buggy, this guide helps you explore velocity, aerodynamics, kinetic energy, mechanical energy, and other STEM principles through these easy-to-build racers.

The *Prop Racers Teacher's Guide* contains NCTM, NSTA, ITEEA, and Common Core English standards addressed; teacher and student instructions for a variety of math, science, and technology activities; pretests and posttests with answer keys; resource pages; and a puzzle. Contains separate activities for middle school and high school students.

Equipment and materials needed to complete guide activities include the Pitsco Prop Racer Sets, Propeller Buggy Kits, mechanical or electric winder (optional), incline board (six-foot minimum), digital scale, tape measure, stopwatch, scissors, washers or other weights, eggs, and standard classroom tools and materials. **Note:** This list is for all activities; individual activities don't require all listed materials. Paperback/Spiral-bound, 78 pages.

Ages 12+

QX60106—$24.95

Visit **www.pitsco.com/propracer**.

Please read and follow all teacher tips and safety information provided with this product.



GS

PROP RACER – GETTING STARTED PACKAGE

A Pitsco Exclusive

Being twisted is a good thing for this activity! First, students build a racer from laser-cut parts. Then, they twist the rubber band motor to watch it turn the propeller, making the car fly down the track. This is a great way to start teaching torsion and potential energy.

- QX54595 Rubber Band Winder
- QX33452 Prop Racer Video
- QX33015 Prop Racer Class Pack
- QX31712 Prop Racer System

QX40565 Prop Racer – Getting Started Package—$415

Ages 9+

Requires white glue, sold separately.

PROP RACER VIDEO

A Pitsco Exclusive



Build and race these fun propeller racers with ease – this program takes you from popping out the parts to winding up the rubber band motor to race!

As the program unwinds, it also covers concepts such as torsion, potential energy, and forces that must be overcome by vehicles. Closed-captioned. Time: 20 minutes.

Ages 9-14

QX33452 DVD—$24.95

PROP RACER SYSTEM

A Pitsco Exclusive

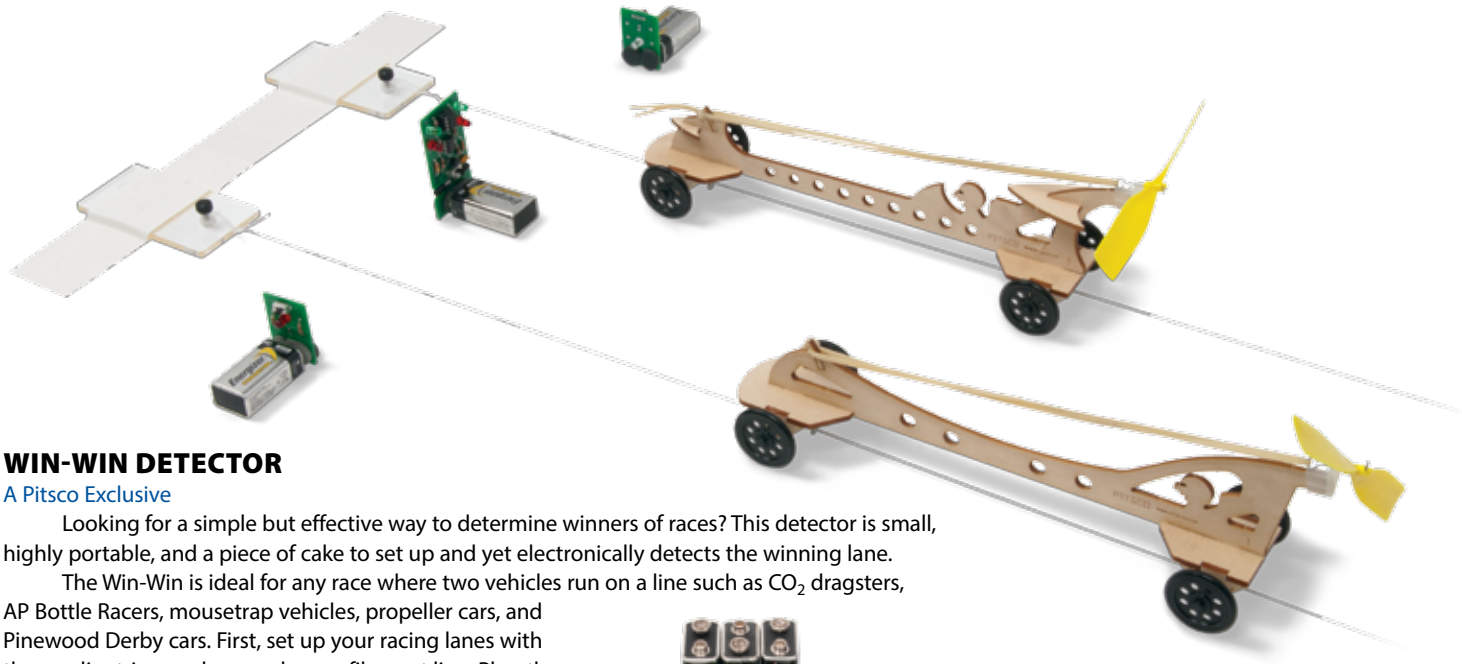
Racing activities with students can be a challenge, but we've met it head-on with a race system featuring easy-to-build cars powered by a rubber band. The Prop Racer System includes four car kits along with everything you need to have an official race!

While students are excited about racing, teachers can teach them how potential and kinetic energies, simple machines, and other subjects affect how well their cars run.

System includes materials needed to build four propeller cars, two guideline assemblies, two deceleration towels, roll of gray duct tape, 5:1 Rubber Band Winder, 21' of contest rubber, 450 yards of monofilament line, winding stand, and two clothespins.

QX31712—$99





WIN-WIN DETECTOR

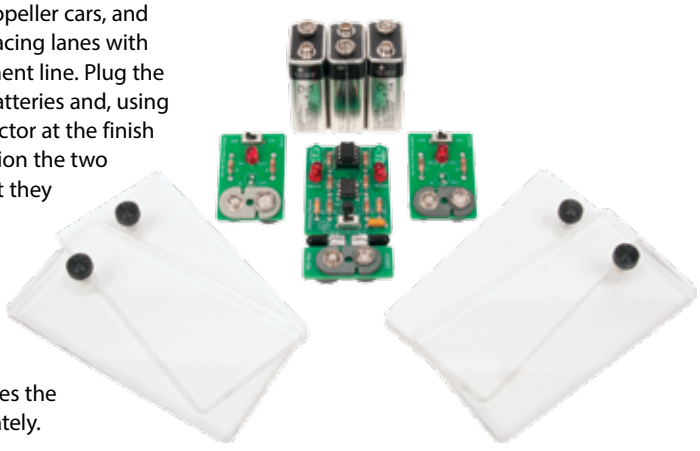
A Pitsco Exclusive

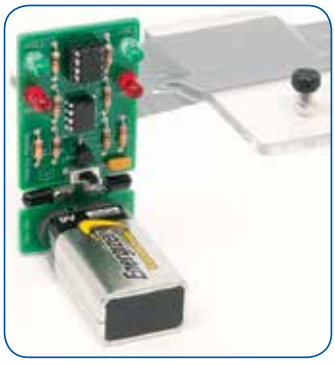
Looking for a simple but effective way to determine winners of races? This detector is small, highly portable, and a piece of cake to set up and yet electronically detects the winning lane.

The Win-Win is ideal for any race where two vehicles run on a line such as CO_2 dragsters, AP Bottle Racers, mousetrap vehicles, propeller cars, and Pinewood Derby cars. First, set up your racing lanes with the acrylic string anchors and monofilament line. Plug the detector and two emitters into the 9 V batteries and, using the batteries as stands, position the detector at the finish line between the two lanes. Finally, position the two emitters on either side of the lane so that they trigger the sensor on the detector. The racing is ready to begin!

The Win-Win Detector can be adjusted to any width or racing lane and doesn't time out. The winning lane is indicated by an LED light blinking 10 times. Comes fully assembled and includes the batteries. Requires duct tape, sold separately.

QX39943—$89

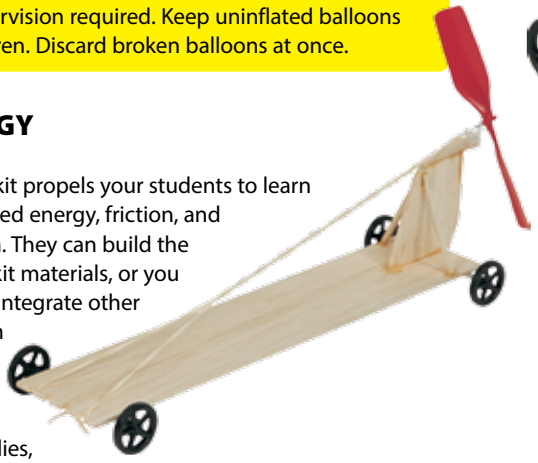




Choking Hazard: Children younger than eight years old can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

PROPELLER BUGGY

A Pitsco Exclusive



This entertaining kit propels your students to learn about air resistance, stored energy, friction, and Newton's laws of motion. They can build the buggies using only the kit materials, or you can encourage them to integrate other materials to see who can design the best buggy!

The 10-pack contains enough balsa wood, propeller assemblies, axles, wheels, straws, and rubber bands to build 10 Propeller Buggies. This is a challenge activity and does not include complete instructions.

Ages 9+

QX29439—$38



PROPELLER BUGGY 50-PACK

A Pitsco Exclusive

Put a new spin on physics principles with the Propeller Buggy Kit.

The 50-pack contains enough materials for 50 buggies. This is a challenge activity and does not include complete instructions. Requires a ruler, wood or hot-melt glue, a hobby knife, transparent tape, and a small square, sold separately.

Ages 9+

QX29440—$165





BALLOON BUGGY

A Pitsco Exclusive

For every action there is an equal and opposite . . . balloon buggy race? You bet!

This kit is inflated with fun and is a great demonstration of Newton's third law of motion. With the kit materials, students build a balloon-powered vehicle. Test them to see who can build the buggy that travels the farthest.

The 10-pack contains enough balsa wood, nozzles, axles, wheels, straws, and balloons to build 10 Balloon Buggies. This is a challenge activity and does not include complete instructions. Requires a ruler, white glue, and a hobby knife, sold separately.

Ages 9+

QX29437—$29.95⚠



BALLOON BUGGY 50-PACK

A Pitsco Exclusive

For every action there is an equal and opposite . . . balloon buggy race? You bet!

This kit is inflated with fun and is a great demonstration of Newton's third law of motion. With the kit materials, students build a balloon-powered vehicle. Test them to see who can build the buggy that travels the farthest!

The 50-pack contains enough balsa wood, nozzles, axles, wheels, straws, and balloons to build 50 Balloon Buggies. This is a challenge activity and does not include complete instructions. Requires a ruler, white glue, and a hobby knife, sold separately.

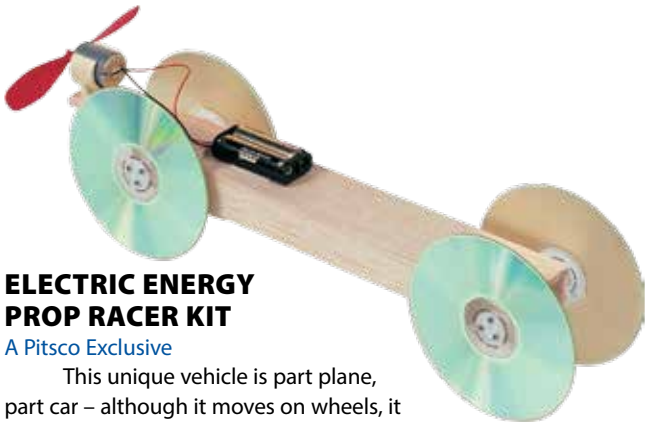
Ages 9+

QX29438—$135⚠

ELECTRIC RUBBER BAND WINDER

This winder for rubber band-powered planes saves you the time-consuming work of twisting the rubber band to fly your plane. The electronic winder has a tracking meter that displays the number of rotations, as well as a comfortable handle with a winding button and strap. Requires two AA batteries, sold separately.

QX58337—$15.95



ELECTRIC ENERGY PROP RACER KIT

A Pitsco Exclusive

This unique vehicle is part plane, part car – although it moves on wheels, it is battery powered and mobilized by a plane propeller. The kit includes CDs for wheels, CD hubs, balsa wood material for the body, a battery holder, and a propeller. Some assembly required. Batteries sold separately.

Ages 9+

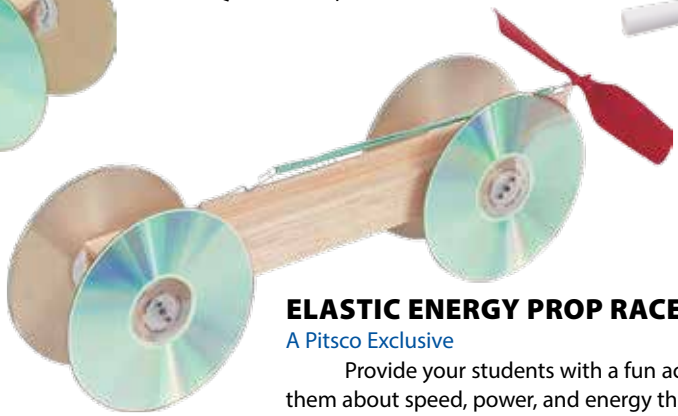
QX25784—$12.95

INDOOR RUBBER BAND MOTOR WINDER

Twist your rubber motors faster with this 15-to-1 winder. Designed for indoor model competitions, this handy device will make easy work of winding your models for peak performance.

QX57441—$32





ELASTIC ENERGY PROP RACER KIT

A Pitsco Exclusive

Provide your students with a fun activity that will teach them about speed, power, and energy through a simple machine. This creative collection of materials enables students to construct their own rubber band-powered prop racer – a vehicle that's a cross between a car and a plane. Includes all necessary materials, including four CDs, CD hubs, a propeller, a rubber band, and a balsa wood vehicle body.

Ages 9+

QX25782—$10.95



ELECTRIC ENERGY PROP RACER 25-PACK

A Pitsco Exclusive

This Electric Energy Prop Racer Class Pack includes enough materials for 25 students, so each student can build his or her very own prop racer. Requires AA batteries, hobby knife, straightedge, soldering iron and solder, drill, glue, double-sided tape, small screwdriver, and transparent tape, sold separately.

Ages 9+

QX25785—$250



ELASTIC ENERGY PROP RACER 25-PACK

A Pitsco Exclusive

Enough materials for 25 students. Includes CDs, CD hubs, rubber bands, propellers, and more. Requires a small screwdriver, transparent tape, drill, white glue, straightedge, knife, and a paper clip, sold separately.

Ages 9+

QX25783—$199

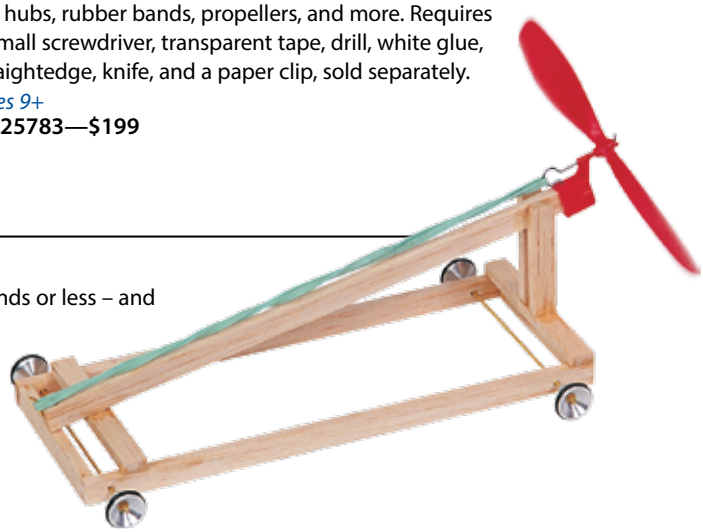
ZEPHYR RUBBER BAND-POWERED RACER

A Pitsco Exclusive

This little racer is the fastest available – it travels five meters in 1.5 seconds or less – and travels a total distance of 15 meters or more. The simple construction of this racer is made even easier with precut and predrilled pieces. All parts come ready to assemble, and four high-tech, low-rotational inertia wheels are included. Features a five-inch propeller and bearing, adjustable steering, replacement rubber bands, and instructions.

Ages 9+

QX58765—$9.95
QX41657 10-Pack—$49.95





THE ENFORCER

A Pitsco Exclusive

Offering top performance and an easy build, the Enforcer is a rubber band-powered car that can be used for distance or speed contests. Based on the MTV Basic Kit chassis, this racer outperforms the original design.

Ages 12+

QX36374—$16.95
QX41658 10-Pack—$124.95



SLING SHOT

This ultra-fast rubber band racer can travel five meters in one second! Engineered to generate a tremendous amount of torque by the stretching of a rubber band, the Sling Shot optimizes the transfer of potential energy into kinetic energy. The design of its ultra-sticky foam wheels provides maximum traction and keeps the Sling Shot from spinning out at the starting line. The result is a clear winner for all speed contests.

Ages 12+

QX59658—$12.95
QX31364 10-Pack—$99.95
QX31365 30-Pack—$290

Note: The Pitsco Win-Win Detector on page 111 works great with all rubber band-powered racers.

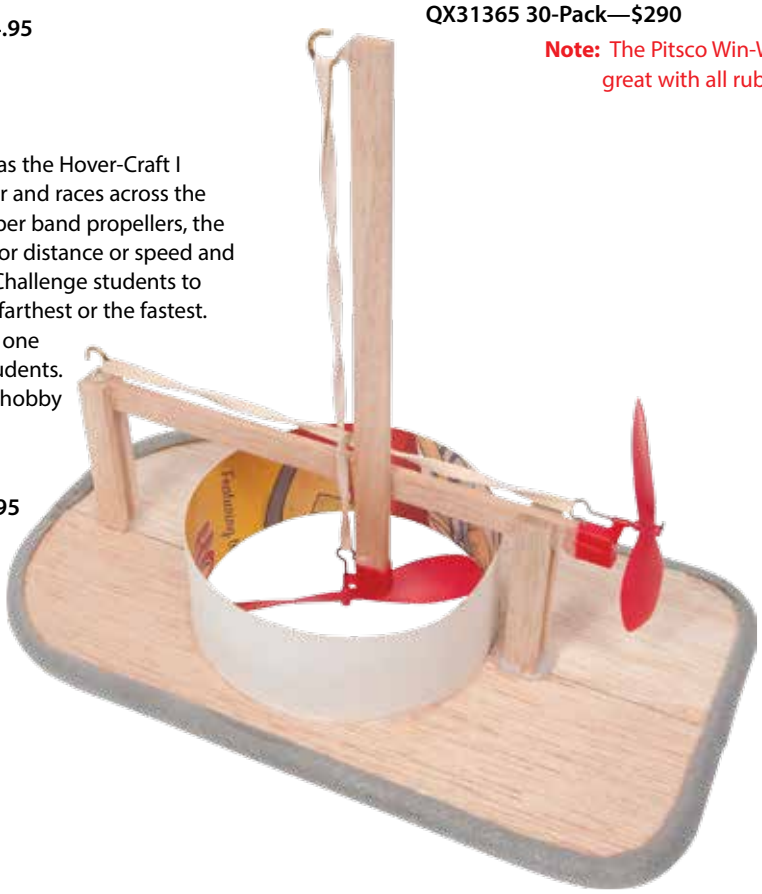
HOVER-CRAFT I

A Pitsco Exclusive

Physics comes alive as the Hover-Craft I levitates on a cushion of air and races across the floor. Powered by two rubber band propellers, the Hover-Craft I can be built for distance or speed and will even work on carpet. Challenge students to make their models go the farthest or the fastest. Assembly time is between one and two hours for most students. Requires white glue and a hobby knife, sold separately.

Ages 12+

QX59661—$12.95
QX31366 10-Pack—$85.95







NEW!

ZOON AIR CAR PACK

A Pitsco Exclusive

There's no better way to teach students to the concepts of force, motion, transfer of energy, and friction than with an inexpensive activity they can do themselves with few tools and relatively little time. The Zoon Air Car introduces students to the basics of car design and performance through the use of straws, paper clips, rubber bands, parts from a die-cut sheet, and detailed instructions.

When students finish building, testing, and modifying their cars, set up a competition to find out which cars are the fastest and help students determine what makes one car better than another.

Serves 30 students.

Ages 12+

QX24614—$49



SPEED TRACKER

A Pitsco Exclusive

This multipurpose timing system can be invaluable in timing maglev, mousetrap, solar, electric, elastic, gravity, air-powered, and even CO_2-powered vehicles.

The Speed Tracker's polycarbonate pieces fit together to make start and finish gates. The finish gate can be placed up to 80' away from the start gate. The track's sensor beams shine through precut holes in the finish gate to time the vehicles, and the velocities are displayed on the timing box in seconds (0.001 resolution), meters per second, feet per second, kilometers per hour, or miles per hour. Sensor beam heights are adjustable for use with a variety of vehicles.

Includes all necessary wiring, a roll of monofilament line to keep vehicles on track, the polycarbonate start and finish gates, and a timing display box.

Note: This system only times a one-vehicle lane.

QX26634—$450

AIR+WATER POWER PLUS

Pneumatic and hydraulic power is made exciting and easy to do with this kit that features snap-together parts. Students can use this to build 30 different models that aren't just powered by air or water – they are run by both to create extra power! Make turbine-driven cars, jet boats, pressurized water guns, and more. Some models are self-contained, which means they can be used indoors.

Includes 176 building pieces and a detailed 60-page color instruction book.

QX39805—$85.95



Fold-N-Roll



FOLD-N-ROLL RACER

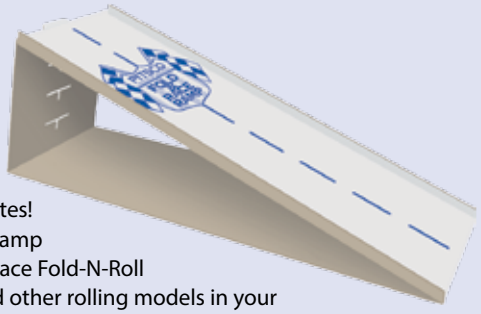
A Pitsco Exclusive

A collection of cool and colorful hot rods that can be cut out and folded into three-dimensional vehicles! Sixteen sweet street machines are printed in color on card-stock pages. Enough wheels and axles are provided to make all 16 models into rolling vehicles. **Note:** The wheels that come with the kit are different from those shown in the photo. Custom and other wheels are available separately.

A great elementary transportation activity!

Ages 9-14

QX54546—$29.95



FOLD & RACE RAMP

A Pitsco Exclusive

Fold it up and start racing within minutes!

The Fold & Race Ramp is designed to test and race Fold-N-Roll Racers, balloon cars, and other rolling models in your classroom. Economical, easy to store, and fun to use.

QX55080—$7.95

Visit www.pitsco.com/foldnroll.



FOLD-N-ROLL – GETTING STARTED PACKAGE

A Pitsco Exclusive

Introducing transportation has never been easier. This Getting Started package includes everything you need to launch your students' program: vehicle templates, axles, wheels, two test ramps, and the *Dr. Zoon Fold-N-Roll Video*.

The Fold-N-Roll – GS Package includes the following products:

- QX54546 Fold-N-Roll Racer (2 kits included in the GS package)
- QX55080 Fold & Race Ramp (2 included in the GS package)
- QX59781 Dr. Zoon Fold-N-Roll Video

QX33517 Fold-N-Roll – Getting Started Package—$79

Ages 9-14

DR. ZOON FOLD-N-ROLL VIDEO

A Pitsco Exclusive



Give your students a "push start" as Dr. Zoon demonstrates the construction of a Fold-N-Roll vehicle. These paper cars are excellent vehicles for teaching students about many scientific principles. Plus, Dr. Zoon adds his own special touch in explaining key concepts, including friction, rolling friction, and potential and kinetic energies. Closed-captioned. Time: 20 minutes.

Ages 9-14

QX59781 DVD—$24.95

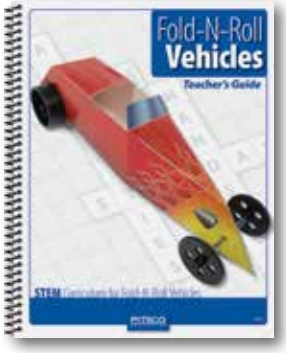
All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!

Standard alignments available via the Standards Navigator at pitsco.com/StandardsNavigator.

Digital downloads available

FOLD-N-ROLL VEHICLES TEACHER'S GUIDE

A Pitsco Exclusive



Paper cars might seem elementary, but by designing, building, and experimenting with fold-and-roll vehicles, students discover keys to momentum, velocity, design, potential energy, material costs, and more. Paperback/Spiral-bound, 97 pages.

Ages 12+

QX32941—$24.95



BALLOON CAR ELEMENTARY STEM ACTIVITY GUIDE



A Pitsco Exclusive

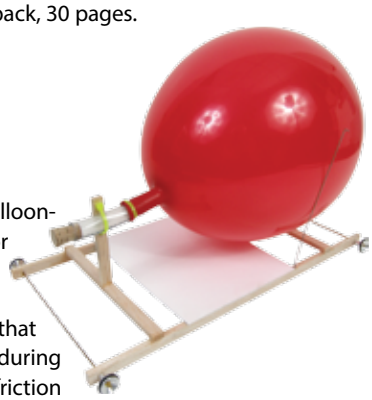
This guide, written for Grades 3-5, helps students grasp a variety of subjects including distance, speed, weight, testing, inquiry, and tons more.

The *Balloon Car Elementary STEM Activity Guide* contains teacher and student instructions for math, science, and engineering activities; assessment questions; resource pages; and student pages. This guide contains two guided inquiry lessons and a culminating engineering challenge for students to apply concepts learned through the inquiry lessons.

Equipment and materials needed to complete guide activities include the Pitsco Balloon Car Explore-A-Pak, ramps, scissors, tape, hole punches, art supplies, washers, tape measures, highlighters, stopwatches, and standard classroom tools and materials. Paperback, 30 pages.

Ages 8-11
QX41526—$4.95

WIND BAG



A Pitsco Exclusive

The Wind Bag is a balloon-powered racer designed for both speed and distance. What makes it unique is a specially designed system that holds the balloon in place during its travel, thereby limiting friction and providing consistent thrust from the balloon. The kit comes with three different-size nozzles that maximize distance, speed, or combined speed and distance.

Ages 9+
QX59659 Kit—$7.95⚠
QX31377 10-Pack—$69.95⚠



BALLOON CAR EXPLORE-A-PAK

A Pitsco Exclusive

Inflate your students' confidence with this fun and challenging balloon car activity. Students build their own balloon-powered vehicles, ranging from the simple to the outrageous!

If desired, the students' cars can be raced against one another in a classroom showdown. The Balloon Car Explore-A-Pak includes balloons, wheels and axles, templates, instructions, and other needed materials for 50 students.

Ages 9+
QX15790—$75⚠
QX54391 Ford Car Template (pkg of 25)—$3.95
QX54392 Chevy Car Template (pkg of 25)—$3.95
QX54393 Dodge Car Template (pkg of 25)—$3.95
QX54394 Tank Car Template (pkg of 25)—$3.95

⚠ **Choking Hazard:** Children younger than eight years old can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

AEROSPACE



*"It's one thing to learn about **rockets** and see pictures in a book, but if you're actually going to make them and change things to see if your design will work better, it's **amazing** and **fun** and you're playing. . . . You can get some data and tie it in with math. That's cool! That's what **Next Generation Science Standards and Common Core** are all about – being able to have those crossovers and see those **connections.**"*

– JP Mathot, Teacher, Irvine, CA

Get students and members organized for success. See page 1.

See related product on page 120!



PRODUCTS:

Who doesn't love rockets? One of Pitsco's staple proprietary products is the Straw Rocket Launcher due to its versatility, ease of use, and just plain fun factor.

Economy Rocket Pack with Engines – page 132
NEW! **Air Control Funnel, Air Stream, Wing Test Stand, and Wing Build Kit** – page 157

ACTIVITIES:

Whether it is data acquisition, measurement, variables, or even quadratics, the learning opportunities are endless with aerospace activities.

NEW! ***Parachutes Elementary STEM Activity Guide*** – page 143
NEW! ***Straw Rocket Elementary STEM Activity Guide*** – page 121
Water Rockets Teacher's Guide – page 124
NEW! ***SpaceShipOne Elementary STEM Activity Guide*** – page 156





CURRICULUM:

Curriculum is offered at all levels K-12, incorporating the engaging hands-on aerospace products and activities.

NEW! **K-2 Elementary STEM Units**
Exploring Flight – page 320
Middle-Level STEM Units
High-Flying Rockets – page 324
High School Engineering Courses
Aerospace Engineering – page 332

SOLUTIONS:

At Pitsco Education, we believe that the ultimate solution is one that engages students and excites them about learning. The integration of Pitsco products, activities, and curriculum into a classroom creates a hands-on learning solution that positively affects learners.

"We know that our future workforce right now is being educated within the school systems in Lenoir County, Greene County, and Pitt County [which have Pitsco Education solutions] and will be attending the community colleges in the area and the colleges within the state. We became very interested in any initiative to improve the technical skills within those school systems and university systems."

– Rick Davis, Site Operations Director, Spirit AeroSystems



Straw **Rockets**



STRAW ROCKET 30-PACK

A Pitsco Exclusive

The Straw Rocket Class Pack helps teach projectile motion, center of gravity, initial velocity, introductory aerodynamics, and more. This pack includes enough Precision Straws, clay, and fin material for 30 students to make four rockets each, which enables them to experiment with different weights, straw lengths, and fin designs.

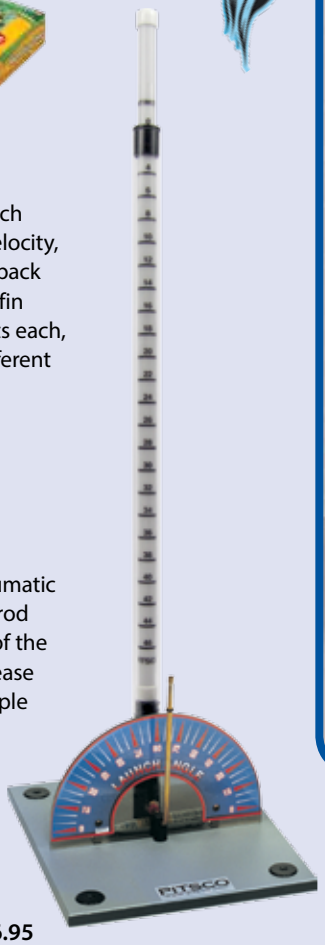
Ages 5+

QX35784—$24.95

STRAW ROCKET LAUNCHER

A Pitsco Exclusive

The Straw Rocket Launcher uses pneumatic force created by releasing a weighted drop rod in the cylinder to launch rockets. The force of the launch can be controlled by varying the release height of the rod. The launcher features simple operation, adjustable trajectory angle with angle gauge, clear tube that displays internal parts, and adjustable launch force. Recommended for use in a large, open indoor area such as a gymnasium.



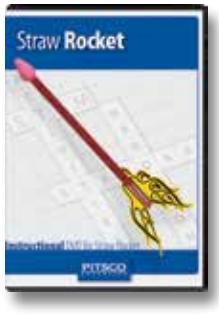
QX20426—$169⚠

QX20360 Replacement Launch Tube—$6.95

Visit **www.pitsco.com/strawrocket**.

STRAW ROCKET VIDEO

A Pitsco Exclusive



Whether you want to show students how to design and launch rockets or see how to maintain the Straw Rocket Launcher, this video covers it all! Includes:

- Rocket design and construction with reminders to consider variables such as rocket length, fin shape, and nose cone size
- Launching your rocket
- Maintaining the launcher
- Activity testing the trajectory angle's effect on the rocket's flight
- Newton's laws of motion and how they apply to the activity
- STEM concepts used in the activity

Closed-captioned. Time: 31 minutes.

Ages 5+

QX59993 DVD—$24.95



STRAW ROCKETS – GETTING STARTED PACKAGE

A Pitsco Exclusive

Building and experimenting with these simple rockets is the perfect way to introduce students to rocketry and several physics principles. Enough materials for 30 students to build four rockets each. The Straw Rocket Launcher and the *Straw Rocket* video are included.

The Straw Rockets – GS Package includes the following products:

- QX35784 Straw Rocket 30-Pack
- QX20426 Straw Rocket Launcher
- QX59993 Straw Rocket Video

QX35783 Straw Rockets – Getting Started Package—$199⚠

Ages 5+

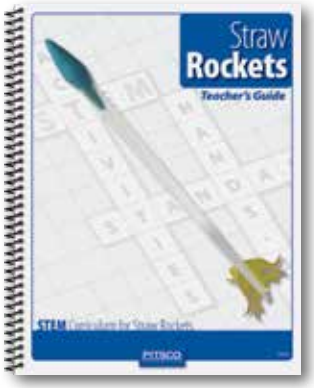
All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!

Standard alignments available via the Standards Navigator at pitsco.com/StandardsNavigator.

Digital downloads available

STRAW ROCKETS TEACHER'S GUIDE

A Pitsco Exclusive



Straw rockets might be an introductory rocket activity, but this guide will help you get a lot of educational mileage out of them! With these fun activities, students grasp a variety of subjects including force and motion, thrust, center of gravity, prediction, measurements, and tons more. Individual activities available for digital download on the website. Paperback/Spiral-bound, 90 pages.

Ages 12+

QX59459—$24.95



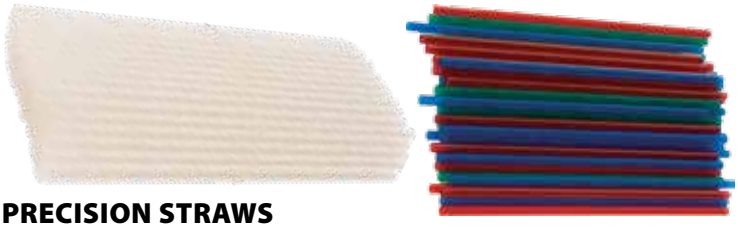
MINI STRAW ROCKET LAUNCHER

A Pitsco Exclusive

Try the straw rocket activity even if your budget and storage space are tiny! This little launcher can propel rockets up to 25 feet. Just put the rocket on the launch tube, pull back the air pressure plunger, and let go – it couldn't be easier!

Also includes a Launch Angle Tool that helps you turn the launch tube to the desired angle. Works with rockets made of Precision Straws or 7/32" diameter drinking straws. No assembly required.

QX38155—$34.95



PRECISION STRAWS

Manufactured to fit perfectly on the Pitsco Straw Rocket Launcher, Precision Straws are used to make straw rockets that will launch every time! They are made from Mylar for durability and can also be glued.

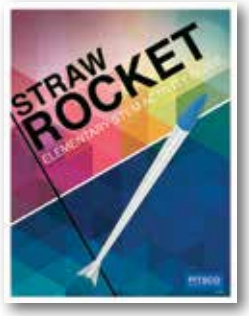
QX35778 Red (pkg of 120)—$12.50
QX35779 Blue (pkg of 120)—$12.50
QX35780 Green (pkg of 120)—$12.50
QX35782 Clear (pkg of 120)—$12.50
QX35781 Variety Pack (pkg of 120)—$12.50



NEW!

STRAW ROCKET ELEMENTARY STEM ACTIVITY GUIDE

A Pitsco Exclusive



Building straw rockets is a great activity for elementary students to complete. This elementary guide is written for Grades 3-5. With these fun activities, students grasp a variety of subjects including Newton's laws, gravity, mass, and more.

The *Straw Rocket Elementary STEM Activity Guide* contains teacher and student instructions for math, science, and engineering activities; assessment questions; resource pages; and student pages. This guide contains two guided inquiry lessons and a culminating engineering challenge for students to apply concepts learned through inquiry lessons. Paperback, 30 pages.

Ages 8-11

QX41525—$4.95



TRANSPARENT TAPE

QX51940—$3



CAPLUGS

If you're tired of messy modeling clay, these flexible vinyl caps make great nose cones for straw rockets and AP Dragsters!

QX34489 (pkg of 100)—$10.25



MODELING CLAY

Great for projectiles and straw rocket nose cones. Each one-pound pack has red, blue, green, and yellow clay. Nontoxic.

QX37660—$3.50

AP Rockets & Gliders

GS



AP ROCKET 30-PACK

A Pitsco Exclusive

Build and launch the 12" rockets for the AP Launcher II without a hitch. This kit provides enough materials to build 30 rockets.

Ages 12+

QX35692—$17.95

AP ROCKET LAUNCHER II

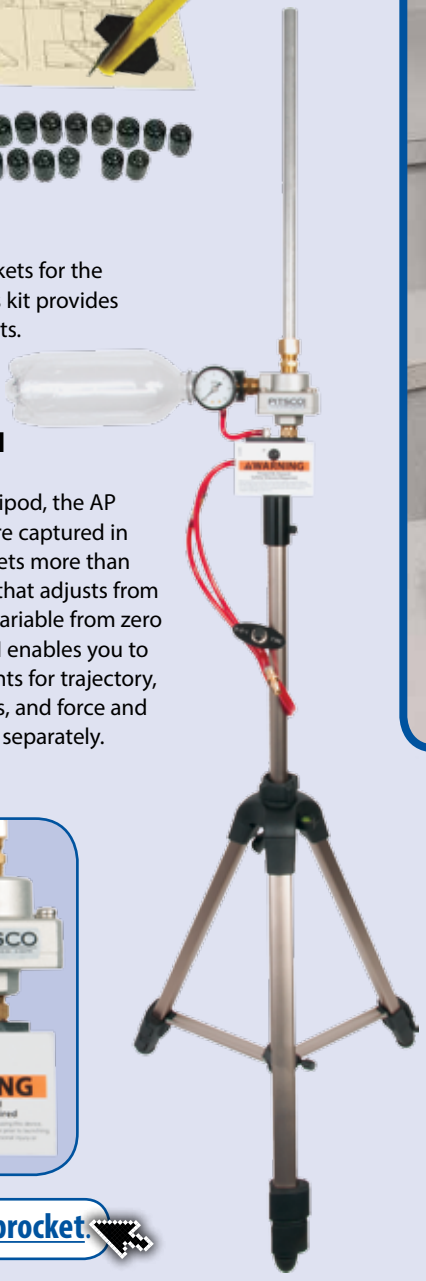
A Pitsco Exclusive

When perched on a sturdy tripod, the AP Rocket Launcher II uses the pressure captured in a plastic bottle to propel tube rockets more than 100 feet. Featuring a launch angle that adjusts from 45 to 90 degrees and air pressure variable from zero to 20 psi, the AP Rocket Launcher II enables you to create math and science experiments for trajectory, velocity, aerodynamics, pneumatics, and force and motion. Requires Hand Pump, sold separately.

Ages 12+

QX40370—$295





Visit www.pitsco.com/aprocket



AP ROCKETS & GLIDERS – GETTING STARTED PACKAGE

A Pitsco Exclusive

First, each student builds and launches a high-flying tube rocket. Then, each student builds a balsa wood glider that rides a rocket into the sky and releases at apogee to glide down on its own. The AP Rockets & Gliders – GS Package includes the following items that can also be ordered individually:

- QX40370 AP Rocket Launcher II
- QX35692 AP Rocket 30-Pack
- QX34455 AP Glider 30-Pack
- QX34678 Glider Launch Stabilizer
- QX34417 Hand Pump
- QX59839 AP Rocket and Glider Video

QX37225 AP Rockets & Gliders – Getting Started Package—$395

Ages 12+

AP ROCKET AND GLIDER VIDEO

A Pitsco Exclusive

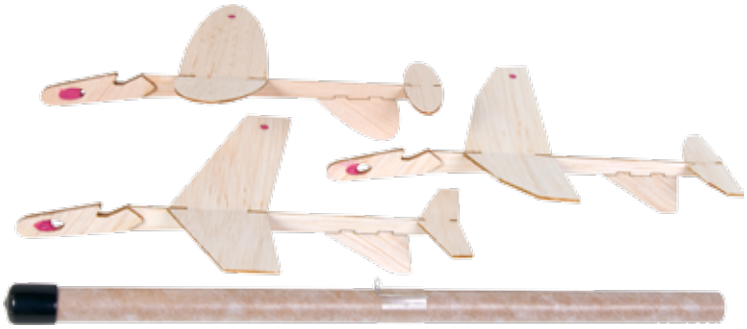
See how to build and launch the AP Rocket and AP Glider Kits step-by-step with this program. Plus, learn the related physics and math concepts and how to use an altimeter to measure the rockets' apogee. Closed-captioned. Time: 27 minutes.

Ages 12+

QX59839 DVD—$24.95



All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!



AP GLIDER

A Pitsco Exclusive

This rocket-glider combo makes great use of the AP Launcher II! Using the AP Rocket Body Tubes with a launch clip, these small gliders ride the rocket straight up until reaching apogee and then separate from the rocket tube and glide down. Kit contains parts for three different gliders and one rocket and a gluing fixture.

Ages 12+

QX34454—$9.95



AP DRIFTER

A Pitsco Exclusive

Much like the AP Rocket, this kit offers a ball for a nose design that brings the rocket back to the ground without damaging it by increasing drag during the rocket's descent.

Launching requires an AP Launcher II and air pump, sold separately. This is a quick and easy-to-build rocket; construction requires a ruler, scissors, T-pin, transparent tape, glue stick, and white glue.

Ages 12+

QX38275—$2.50



AP GLIDER 30-PACK

A Pitsco Exclusive

Materials for 30 AP Gliders – this is the perfect amount for a class to get into the aerospace act! With six rocket tubes, caps, and clips, you can stage up to six launches at a time. Includes one tube of Insta-Cure IC-GEL adhesive and 30 gluing fixtures.

Ages 12+

QX34455—$79.95



AP ROCKET NOSE CONE

A Pitsco Exclusive

QX35690 (pkg of 30)—$4.50



AP ROCKET BODY TUBES

A Pitsco Exclusive

QX35691 (pkg of 30)—$12.50



HAND PUMP

This small hand pump is great for the classroom! This pump moves air on the upward and downward strokes. The swivel head makes it easy to attach to valve stems.

QX34417—$19.95

GLIDER LAUNCH STABILIZER

A Pitsco Exclusive

Simply drop the stabilizer over the AP Launcher II's launch tube and place the rocket and glider on the launcher – the two posts keep the glider's tail steady so you don't have to. Makes it a breeze to launch outdoors.

QX34678—$5.95



FILM CANISTERS

With 25 canisters, the whole class can get started building Alka Seltzer rockets.

QX38577—$16.95



Water **Rockets**

R2K BOTTLE ROCKET KIT

A Pitsco Exclusive



You supply the plastic bottle (20 ounce, 1 liter, or 2 liter), scissors, tape, and a cool-melt glue gun, and we supply everything else your students need to construct a bottle rocket: body tube, transition cones for 20-ounce and 2-liter bottles, fin material, a nose cone, and even sandpaper. Students can design their own graphics. Use a Pitsco launch system to launch the rockets 200 feet or more!

Ages 12+

QX20758—$3.25



R2K WATER ROCKET 30-PACK

A Pitsco Exclusive

Bottle rockets for the whole class!

The R2K Classroom Pack contains materials to make 30 R2K bottle rockets. Have students recycle 20-ounce or 2-liter plastic bottles from home and have cool-melt glue guns, scissors, and tape available for assembly. Bulk packed to save you money. Requires a launcher, sold separately.

Ages 12+

QX35568—$69

Visit **www.pitsco.com/aquaport**.



WATER ROCKETS – GETTING STARTED PACKAGE

A Pitsco Exclusive

The would-be rocket scientist's dream, this package includes everything needed to get your class "out of this world" through bottle rockets: materials for 30 student rockets, a demonstration rocket, and launch equipment.

The Water Rockets – GS Package includes the following products:

- QX35568 R2K Rocket 30-Pack*
- QX38826 AquaPort II Water Rocket Launcher
- QX59323 Deluxe Port Pump II
- QX23039 Stalwart Blaster

QX35563 Water Rockets – Getting Started Package—$355

Ages 12+

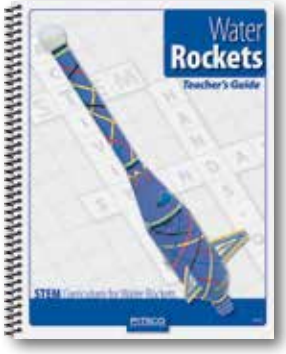
***Students provide a 20-ounce, 1-liter, or 2-liter carbonated-drink bottle.**

Standard alignments available via the Standards Navigator at pitsco.com/StandardsNavigator.

Digital downloads available

WATER ROCKETS TEACHER'S GUIDE

A Pitsco Exclusive



Using the R2K Bottle Rocket Kit, this guide moves beyond simply constructing and launching rockets to helping your students learn about apogee, forces, estimation, basic trigonometry, Newton's laws of motion, and more. Individual activities available for digital download on the website. Paperback/Spiral-bound, 144 pages.

Ages 12+

QX59462—$24.95

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PING-PONG BALL

Great for nose cones!
QX51946—$.55
10 or more—$.50 each
144 or more—$.45 each



ROCKET CONE PEDESTAL

A Pitsco Exclusive

For holding Ping-Pong ball nose cones on body tubes. Fits inside the bottle rocket body tube.
QX14040—$.25
10 or more—$.22 each
100 or more—$.20 each



20-OUNCE PLASTIC BOTTLE

Use this bottle for your rocket's body.
QX10099—$.50
10 or more—$.45 each



THE PUMPER

This device was created to keep your soda fizzy, but it is also extremely handy when building bottle rockets. Pump the bottle before marking fin placement or attaching fins. The air pressure will keep the bottle rigid, making the task much easier.
QX51995—$3.25



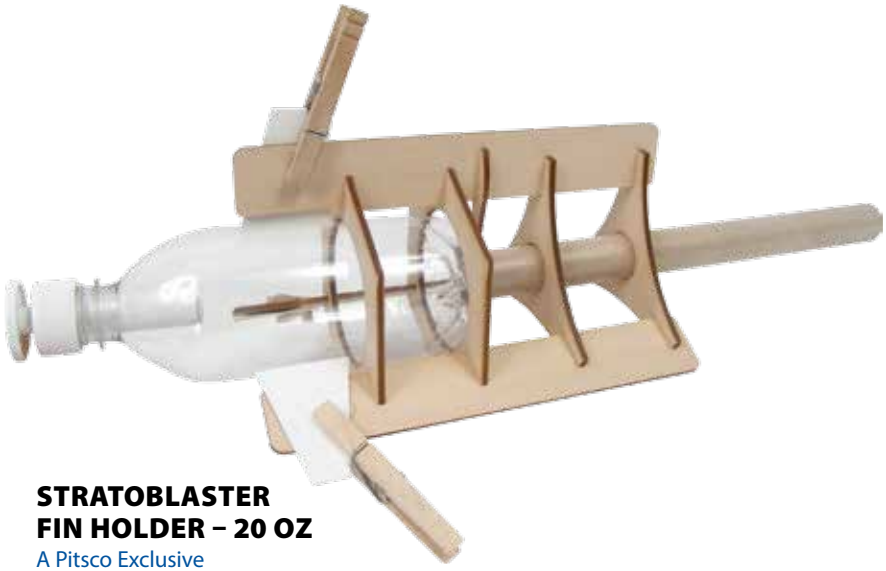
STRATOBLASTER BOTTLE ROCKET KIT

A Pitsco Exclusive

Introduce students to building bottle rockets – and give them a measure of initial success with this proven design. In this kit, a 20-ounce plastic bottle functions as a propellant tank and a Ping-Pong ball works as a nose cone and recovery system. Includes a fold-up fixture for properly aligning the rocket parts. Students design their own graphics.

Ages 12+
QX55746—$8.50
10 or more—$8.10 each
100 or more—$7.70 each
QX13235 with CO_2 Cartridge—$8.50
10 or more—$8.10 each
100 or more—$7.70 each





STRATOBLASTER FIN HOLDER – 20 OZ

A Pitsco Exclusive

Stay on the straight and narrow – at a fraction of the cost! This inexpensive device helps you build the Stratoblaster Bottle Rocket or other 20 oz rockets with precision by keeping the fins and body tube straight as the rocket is glued together. Also works for the Big Oz rocket. Some assembly required with white glue, sold separately.
QX31728—$14.95

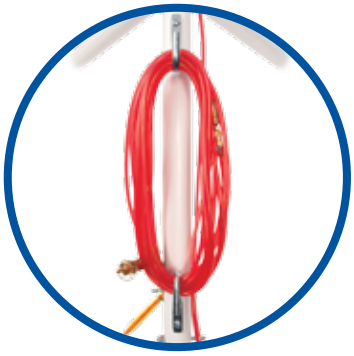


Note: Pump sold separately.

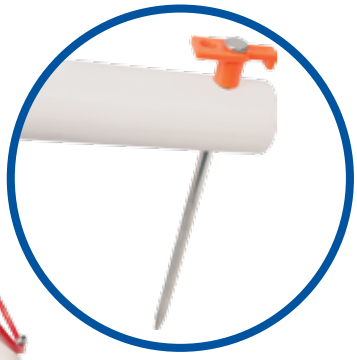
We highly recommend this launcher for Science Olympiad competitions.



Pressure relief valve allows system to be safely depressurized.



Tubing can be wrapped on launcher for easy storage and transport.



Ground stakes included for additional stability.

AQUAPORT II WATER ROCKET LAUNCHER

A Pitsco Exclusive

Water rocketry is one of the most fun and exciting hands-on science activities around. Converting empty plastic soda bottles into high-flying rockets provides a great opportunity for students to discover important scientific principles such as Newton's laws, acceleration, thrust, and inertia.

A second-generation launcher, the AquaPort II was redesigned to be safer than ever and to still offer consistent launching for water rockets of various sizes: 2 liter, 20 ounce, and some 1 liter. Still utilizing the three-finger latch to securely hold the pressurized rocket in place, the launcher also features:

- Sturdy tripod base and release system that provide excellent launchpad stability.
- A launch mechanism pulled by 25' of launch string to keep everyone far away from the launcher.
- An extensive 25' of air tubing – and it has handy brackets on one leg for winding the tubing.
- Stakes to secure the launcher to the ground.

With no engines to buy, you can launch rockets again and again! **Note:** Only recommended for outdoor launches on the ground (not asphalt or concrete). Requires a bicycle pump, sold separately.

QX38826—$225⚠



BOTTLE ROCKET SMORGASBORD

A Pitsco Exclusive

A great pack for advanced bottle rocketeers! Students supply 20-ounce, 1-liter, or 2-liter bottles and use them to construct high-performance bottle rockets.

Smorgasbord contains a cornucopia of materials – transition and nose cone templates, Ping-Pong balls, three types of fin material, body tubes, string, sandpaper, parachute reinforcement rings, and more. Enough to build 25 different rockets. This pack was created so students could design their own rockets, so no instructions are included. We recommend the *Bottle Rockets* book (57057), sold separately.

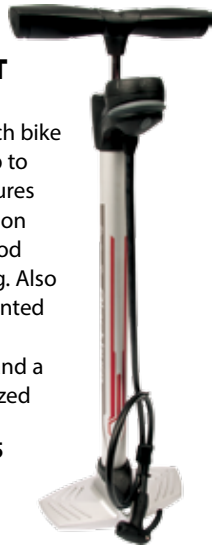
Ages 12+

QX55749—$69

DELUXE PORT PUMP II

This top-notch bike pump will stand up to years of use. It features all-metal construction and a heavy-duty rod that resists bending. Also features a top-mounted pressure gauge, a locking hose end, and a contoured, rubberized handle.

QX59323—$69.95





AIRTOWER 1 TIRE PUMP

For water-bottle and air rockets, this durable pump can't be beat. Features a steel barrel, T-handle with grips, and easy-to-read gauge. Maximum pressure of 140 psi.

QX34344—$32

BOTTLE ROCKET STARTER SET

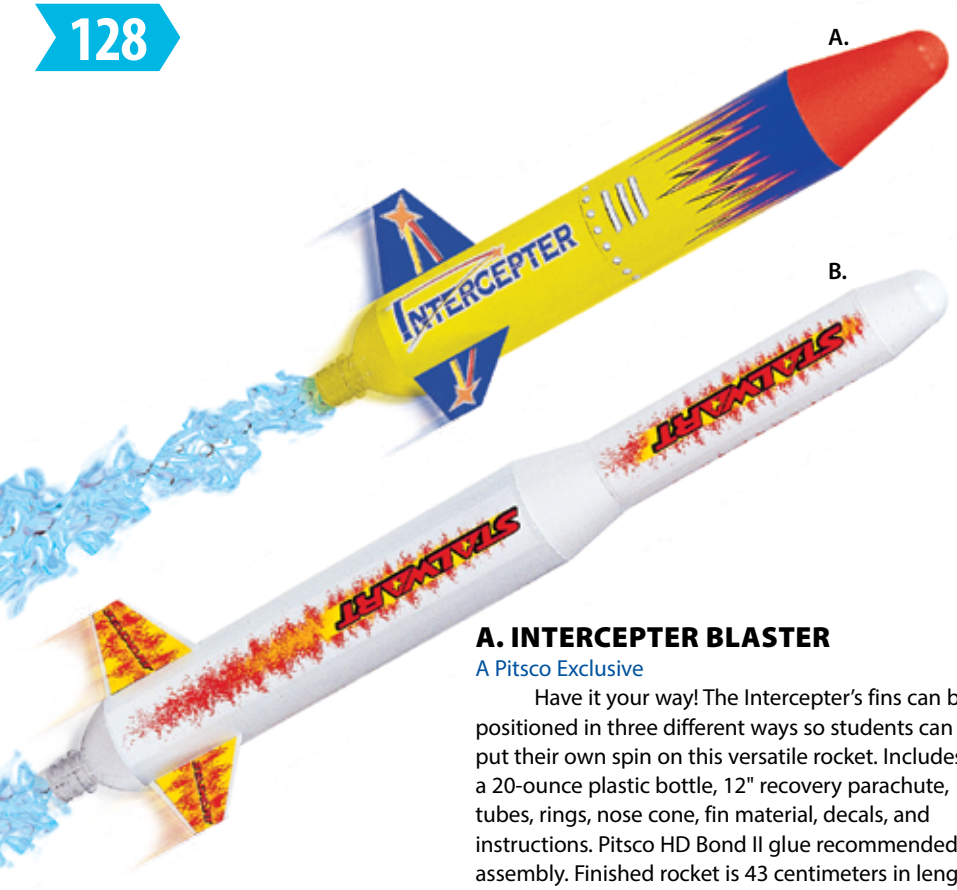
A Pitsco Exclusive

Gathers all the materials needed to get a bottle rocket program off the ground: an AquaPort II launcher, the Deluxe Port Pump II, and the Bottle Rocket Smorgasbord, which contains enough material to build 25 rockets. This set was created so students could design their own rockets, so no instructions are included. We recommend the *Bottle Rockets* book (57057), sold separately.

Ages 12+

QX57650—$285





A. INTERCEPTER BLASTER

A Pitsco Exclusive

Have it your way! The Intercepter's fins can be positioned in three different ways so students can put their own spin on this versatile rocket. Includes a 20-ounce plastic bottle, 12" recovery parachute, tubes, rings, nose cone, fin material, decals, and instructions. Pitsco HD Bond II glue recommended for assembly. Finished rocket is 43 centimeters in length.

Ages 12+

QX23040—$12.95

B. STALWART BLASTER

A Pitsco Exclusive

An imposing and strong rocket, the Stalwart races upward at incredible speed and can dominate the air again and again thanks to the parachute recovery system. Includes all rocket parts: a 20-ounce plastic bottle, a 12" parachute, tubes, rings, a nose cone, fin material, decals, and instructions. Pitsco HD Bond II glue recommended for assembly. Finished rocket is 63 centimeters in length.

Ages 12+

QX23039—$14.95

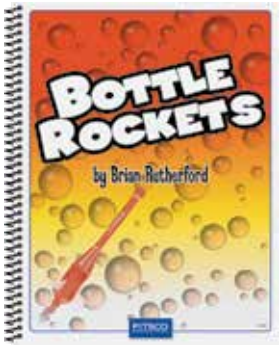
BOTTLE ROCKETS

A Pitsco Exclusive

Few classroom activities will top this one for high interest! This is a great book to introduce the theory of flight, rocket design, and construction of a bottle rocket. Instructions are provided for the R2K Bottle Rocket Kit and for the design of a rocket that will transport a raw egg and return it unbroken. Paperback, 25 pages.

Ages 12+

QX57057—$2.50

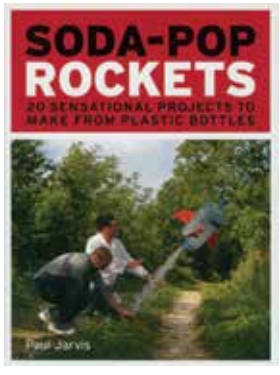


SODA-POP ROCKETS

Done with the basic water rocket experiments and ready for another challenge? This book starts with the basics but moves on to use different materials and advanced designs to propel rockets – and even a toy car – with water bottles. Build rockets using three to five water bottles or a water-cooler bottle and other creative rocket designs. **Caution:** Some experiments might require increased safety measures. Paperback, 113 pages.

Ages 12+

QX35601—$16.95



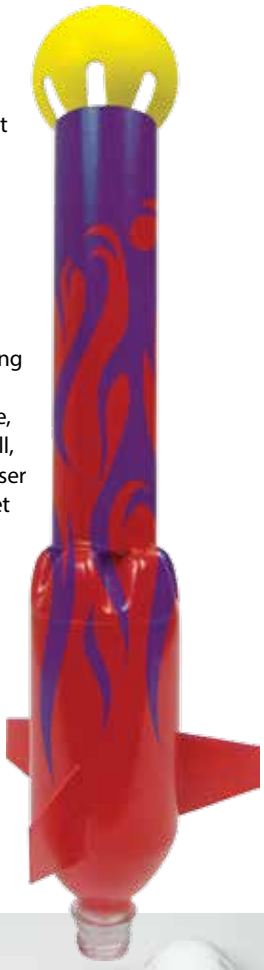
BIG OZ WATER ROCKET KIT

A Pitsco Exclusive

This water rocket might just look bigger than the Stratoblaster, but tucked inside the large tube is the key to its safe return – a 12" parachute. This extra recovery device prevents damage during landing. Includes a 20-ounce plastic bottle, rocket tube, Wiffle® ball, parachute materials, user guide, and other rocket materials.

Ages 12+

QX35219—$7.95







ESTES ALTITRAK ALTITUDE FINDER

If your program involves altitude competition or aerodynamics research, the altitude finder is easy to use and lets you lock onto a rocket's apogee to quickly read the altitude in meters. Comes assembled.

QX50126—$27.95

A. BOTTLE BLOCKS

A Pitsco Exclusive

Use Bottle Blocks in the Big Tube when using 20-ounce bottles for engines to keep the bottle from being thrust through the tube. Bottle Blocks can also be used as positioning rings when using 2-liter bottles. Simply glue the ring on the center of the 2-liter bottle and then glue the Big Tube to the ring.

QX57769 (pkg of 10)—$3.95



B. BIG TUBES FOR WATER ROCKETS

A Pitsco Exclusive

Use these 2-7/8" inside-diameter cardboard tubes to build bottle rockets from scratch!

Each tube is 6-1/2" long and may be joined to make longer tubes (instructions included). Tubes will fit over most 20-ounce plastic bottles (use our Bottle Block for the engine section), or they can be glued to 2-liter bottles.

QX57767 (pkg of 10)—$9.95
10 pkgs or more—$8.95 each

C. TWO-INCH TUBES

A Pitsco Exclusive

Use these two-inch-inside-diameter cardboard tubes for from-scratch bottle rocket construction. Each tube is 8" long and can be joined to make taller rockets! Instructions included.

QX57768 (pkg of 10)—$6.95
10 pkgs or more—$6.25 each

D. BODY TUBE

A Pitsco Exclusive

Extra cardboard tubes for bottle rocket bodies are 11.5" long and have a 1" inside diameter. Use with the Pitsco Plastic Nose Cones and the Spacer Rings.

QX11742—$.95
10 or more—$.90 each
100 or more—$.85 each

E. AND F. BODY TUBES

A Pitsco Exclusive

Heat-welded, strong, smooth, and lightweight. Choose from two sizes. The BT-20 is 18" x 0.710" inside diameter. The BT-50 is 18" x 0.901" inside diameter.

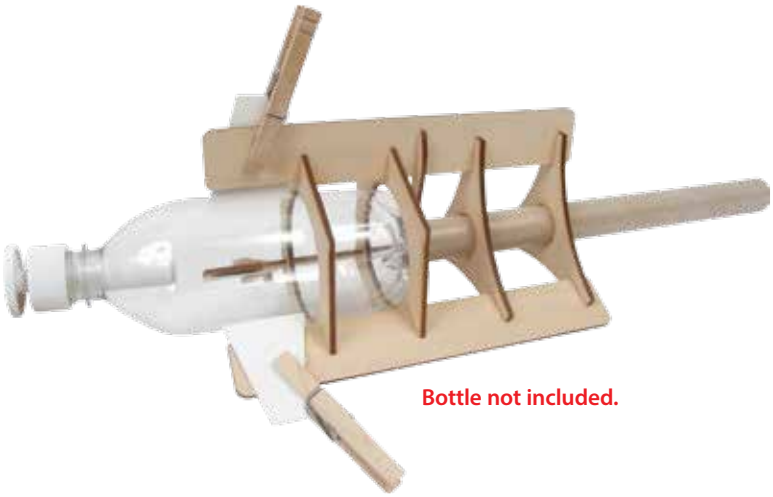
QX50067 BT-20—$1.60
10 or more—$1.45 each
QX50144 BT-50—$1.70
10 or more—$1.55 each

G. BODY TUBE

A Pitsco Exclusive

Heat-welded, strong, smooth, and lightweight. This 12" BT-20 tube has a 0.710" inside diameter. Fits solid-fuel rocket engines.

QX38289—$.95
10 pkgs or more—$.90 each



Bottle not included.

STRATOBLASTER FIN HOLDER – 20 OZ

A Pitsco Exclusive

Stay on the straight and narrow – at a fraction of the cost! This inexpensive device helps you build the Stratoblaster Bottle Rocket or other 20 oz rockets with precision by keeping the fins and body tube straight as the rocket is glued together. Also works for the Big Oz rocket. Some assembly required with white glue, sold separately.

QX31728—$14.95



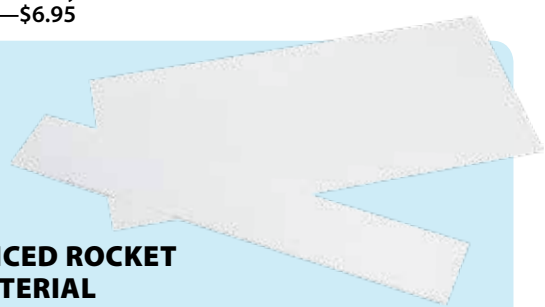
Bottle not included.

R2K ROCKET FIN HOLDER – 2 LITER

A Pitsco Exclusive

This simple device proves indispensable for aligning and attaching fins on the big boys of water-bottle rocketry. Requires assembly.

QX31730—$6.95



ADVANCED ROCKET FIN MATERIAL

A Pitsco Exclusive

This material makes excellent rigid fins yet is easily cut with scissors. Enough for three small fins.

Size: 1-3/4" x 11" x .047"
QX27132 (pkg of 5)—$1.25
10 pkgs or more—$1.15 each
Size: 5" x 10-1/2" x .047"
QX27133 (pkg of 5)—$3.50
10 pkgs or more—$3.25 each

Solid-Fuel **Rockets**

GS



PITSCO SOLID-FUEL ROCKET KIT

A Pitsco Exclusive

With the Pitsco Rocket Kit, students engage in a rewarding, hands-on project. They build the body tube, design and shape the rocket fins, and make the parachute recovery system. When they're finished, they watch their rockets blast toward the stratosphere. *Pitsco Rocket Kit Book* and engine included.

Ages 12+

QX13230—$5.95

SHIPPING INFO

See policies page at back of catalog.



ROCKET POWER 25-PACK

A Pitsco Exclusive

Includes 25 Pitsco Rocket Kits and an Estes Blast-off Flight Pack with a variety of engines.

Ages 12+

QX51384—$199

Visit **www.pitsco.com/pitscorocket.**



SOLID-FUEL ROCKETS – GETTING STARTED PACKAGE

A Pitsco Exclusive

Count down to fun while learning the basics of solid-fuel rocketry. This package pulls together materials for 50 student rockets, a launching system, an altitude finder, five rocket fin holders, and the *Solid-Fuel Rocket* video. Engines and starters will ship USPS ground only. **Note:** If your order contains other items, they will be shipped separately via our normal carrier, ground only.

The Solid-Fuel Rockets – GS Package includes the following products:

- QX54976 Economy Rocket Pack with Engines
- QX54933 LaunchGuard System
- QX50126 Estes Altitrak Altitude Finder
- QX54529 Rocket Fin Holder (5 holders included)
- QX59890 Solid-Fuel Rocket Video

QX23662 Solid-Fuel Rockets – Getting Started Package—$450

Ages 12+

SOLID-FUEL ROCKET VIDEO

A Pitsco Exclusive



Follow along with these step-by-step instructions to build a model solid-fuel rocket while learning the importance of each part. Then, your students learn to launch the rockets with the Pitsco LaunchGuard System!

Along the way, students learn about thrust, apogee, how the rocket engine works, how to use an altimeter, aerospace careers, and the history of rocketry. Closed-captioned. Time: 33 minutes.

Ages 12+

QX59890 DVD—$24.95

All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!

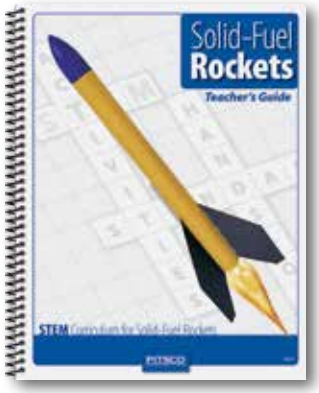
SOLID-FUEL ROCKETS TEACHER'S GUIDE

A Pitsco Exclusive

Exciting and fun, solid-fuel rocket activities launch students to new heights of learning. By building and experimenting with rockets, students learn to calculate average velocity and potential energy, design for maximum velocity at launch or minimum descent velocity, and much more. Paperback/ Spiral-bound, 111 pages.

Ages 12+

QX59612—$24.95





PITSCO ROCKET KIT BOOK

A Pitsco Exclusive

This economical little book is a must-have when building a rocket. The full-color book features a short history of rockets, a materials list, rocket-building instructions, how to use the Pitsco LaunchGuard System, and the National Association of Rocketry's safety code. Paperback, 16 pages.

Ages 12+

QX10007—$2
10 or more—$1.80 each
100 or more—$1.65 each



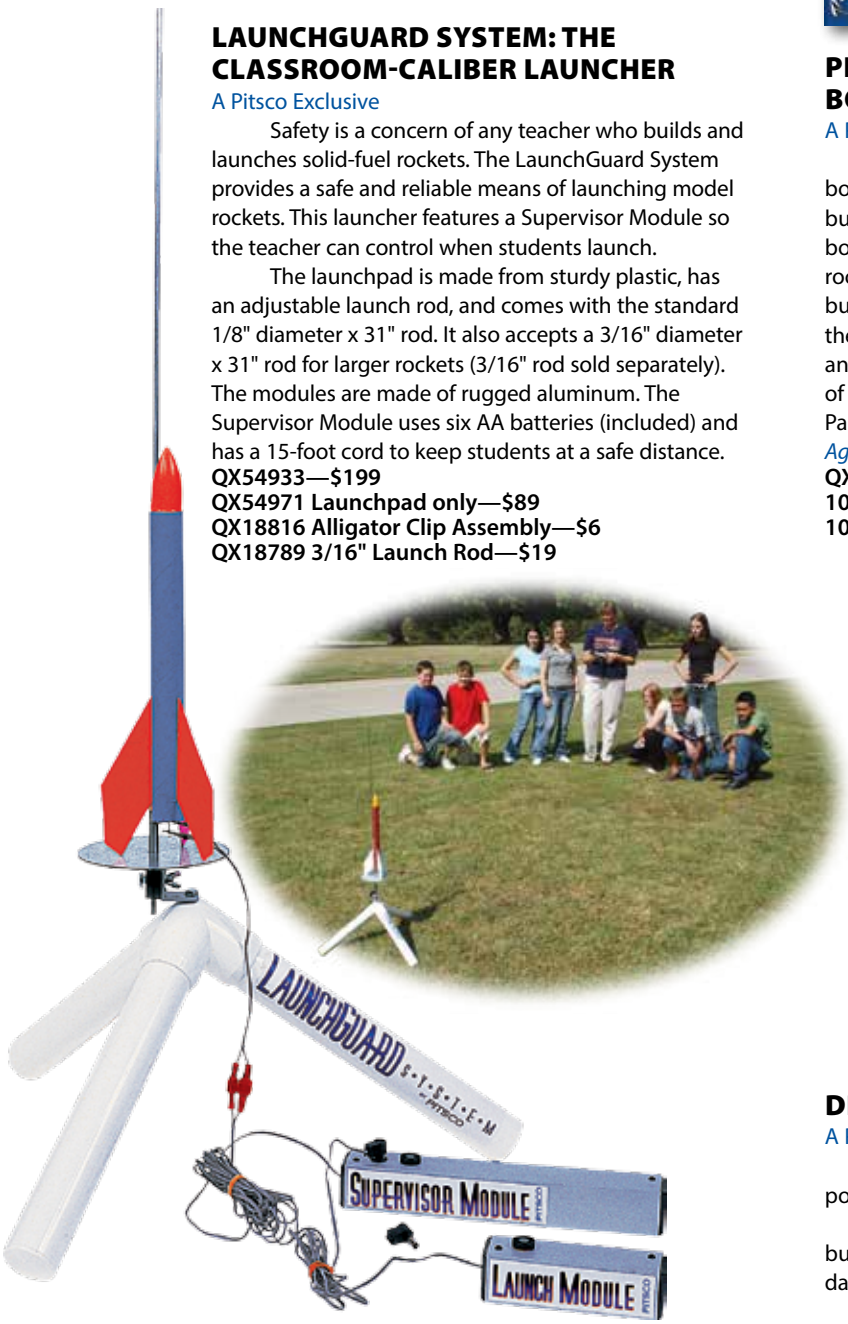
LAUNCHGUARD SYSTEM: THE CLASSROOM-CALIBER LAUNCHER

A Pitsco Exclusive

Safety is a concern of any teacher who builds and launches solid-fuel rockets. The LaunchGuard System provides a safe and reliable means of launching model rockets. This launcher features a Supervisor Module so the teacher can control when students launch.

The launchpad is made from sturdy plastic, has an adjustable launch rod, and comes with the standard 1/8" diameter x 31" rod. It also accepts a 3/16" diameter x 31" rod for larger rockets (3/16" rod sold separately). The modules are made of rugged aluminum. The Supervisor Module uses six AA batteries (included) and has a 15-foot cord to keep students at a safe distance.

QX54933—$199
QX54971 Launchpad only—$89
QX18816 Alligator Clip Assembly—$6
QX18789 3/16" Launch Rod—$19



LAUNCH COMMANDER

A Pitsco Exclusive

Consists of Launch Module, Supervisor Module, and Alligator Clip Assembly. The Launch Commander is compatible with both the Pitsco LaunchGuard launchpad and the Estes Porta-Pad, not included.

QX54972—$110



DR. ZOON ROCKETRY DVD SERIES

A Pitsco Exclusive

Give your students a leg up with the great learning potential of these three programs on one DVD:

Dr. Zoon Straw Rocket Video – In minutes, students can build and launch rockets while learning about center of gravity, data collection, and more.

Dr. Zoon Stratoblaster Video – Construct and launch the Stratoblaster rocket while learning drag, ballast, and more.

Dr. Zoon Pitsco Rocket Video – While covering force, acceleration, and action-reaction, see how to build and launch a solid-fuel rocket. Closed-captioned. Time: 77 minutes.

Ages 12+

QX59701 DVD—$69.95



SHIPPING INFO
See policies page at back of catalog.

ECONOMY ROCKET PACK WITH ENGINES

A Pitsco Exclusive

Provides enough materials to make 50 rockets with a few extra engines and igniters. To save you money, we eliminated the boxes and reduced the amount of reusable items.

Includes enough gummed tape, fin material, nose cones, and other materials for 50 students to build one rocket each. Fifty *Pitsco Rocket Kit Books* and rocket engines included as well! Requires launcher, scissors, ruler, sponge, finish such as paint, and white glue, sold separately.

Engines will be shipped USPS ground only.

Ages 12+

QX54976—$215

QX25662 Economy Rocket Pack without Engines—$115



ESTES ALTITRAK ALTITUDE FINDER

If your program involves altitude competition or aerodynamics research, the altitude finder is easy to use and lets you lock onto a rocket's apogee to quickly read the altitude in meters. Comes assembled.

QX50126—$27.95



ALPHA III LAUNCH SET

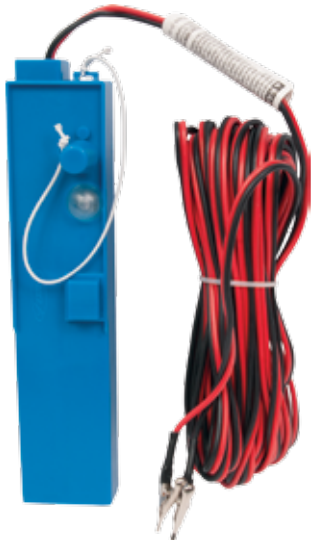
Designed with beginners in mind, this set comes with pre-colored rocket parts and self-stick decals so you're ready for liftoff in minutes.

Using standard rocket engines (sold separately), the Alpha III soars to heights more than 1,100 feet. Whether you're a first-time rocketeer or a longtime flier, the Alpha III is a true classic that should be in your collection.

Launch system includes Electron Beam Launch Controller and Porta-Pad II Launch Pad. Length: 12.3". Diameter: 0.98". Weight: 1.2 oz. Recovery: parachute. Fins: molded plastic. Maximum altitude: 1,150 ft. Recommended engines: A8-3 (first flight), A8-5, B4-4, B6-4, B6-6, C6-5, and C6-7.

Skill Level E2X

QX36378—$28.50



ESTES E-ENGINE REMOTE CONTROL LAUNCHER

The completely assembled, ready-to-use E-Engine Launcher is designed to launch Estes E engine rockets safely from a distance of 30 feet. Can also be used to launch model rockets with A, B, C, and D engines. Requires four AA batteries, sold separately.

QX57977—$37.95

PORTA-PAD

High-strength plastic for a sturdy yet light launchpad with a space-age appearance. Modular construction for ease in disassembly, storage, and reassembly. Standard 1/8" launch rod is included. Tilt adjustment enables compensation for wind. Requires the Electron Beam Launch Controller for launching, sold separately.

QX50143—$27.95





ELECTRON BEAM LAUNCH CONTROLLER

This launcher features a safety key, arming light, and launch button for total launch control. It has 17 feet of launch wire with presoldered alligator clips and is made of durable plastic. Requires four AA alkaline batteries, sold separately. Use only with Estes Igniters.

QX50196—$29.95

Solid-Fuel Rocket Engines

**All rocket engine prices are for a package of three engines, except for those ending in T, which have four engines per package. All engines come with starter and plastic plug.*



1/2A6-2
QX57978—$7.95
10 or more—$7.60 ea



1/2A3-4T*
QX50170—$7.95
10 or more—$7.60 ea



A10-3T*
QX55774—$7.95
10 or more—$7.60 ea



A10-0T*
QX37731—$10
10 or more—$9.65 ea



1/2A3-2T*
QX55773—$7.95
10 or more—$7.60 ea



A3-4T*
QX50178—$7.95
10 or more—$7.60 ea



A8-3
QX50127—$7.95
10 or more—$7.60 ea



B4-2
QX54968—$8.95
10 or more—$8.60 ea



B4-4
QX55775—$8.95
10 or more—$8.60 ea



B6-2
QX55776—$8.95
10 or more—$8.60 ea



B6-4
QX50128—$8.95
10 or more—$8.60 ea



B6-6
QX52051—$8.95
10 or more—$8.60 ea



C6-0
QX50177—$10
10 or more—$9.65 ea



C6-5
QX50129—$9.95
10 or more—$9.60 ea



C6-7
QX52420—$9.95
10 or more—$9.60 ea



C6-3
QX52423—$10
10 or more—$9.65 ea

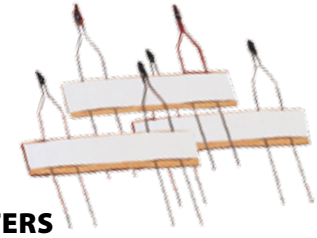
See policies page at back of catalog.





D12-0
QX54967—$15.95
10 or more—$15.45 ea

D12-5
QX41317—$11
10 or more—$10.50 ea



STARTERS

Use to safely ignite rocket engines. Requires 6 or 12 VDC. **Note:** Starters are included with the rocket engines we sell. We recommend extras in case some get lost or fail to ignite the engine.
QX41170 (pkg of 6)—$3
10 pkgs or more—$2.80 each

BLAST-OFF FLIGHT PACK

Features 24 of the most popular Estes rocket engines plus starters and recovery wadding. Includes six each of A8-3, B6-4, C6-3, and C6-5 engines; one package recovery wadding; and 30 starters.

Engines and starters will be shipped ground only. If your order contains additional items, they will be shipped separately via our normal carrier, ground only.

Ages 12+
QX50185—$58



TECH SOLID-FUEL ROCKET

Economically priced, this rocket is a great introduction to rocketry! Students construct body tubes using gummed tape and add fins, nose cone, and other included parts. The rocket may be painted and decaled. Includes one A8-3 engine.

Engines and igniters will ship USPS ground only. If your order contains additional items, they will be shipped separately via our normal carrier, ground only. Length: 15.1". Diameter: 0.976". Weight: 0.987 oz. Recovery: parachute. Fins: card stock. Maximum altitude: 1,000'. Recommended engines: A8-3, 1/2A6-2, B4-4, B4-6, B6-4, B6-6, B6-5, and C6-7.

Skill Level 1

QX55038—$6.75
10 or more—$6.40 each
100 or more—$6.10 each

SHIPPING INFO
See policies page at back of catalog.

TUBE MARKING GUIDE

Tube marking proves easy and simple with the Tube Marking Guide. The ruler is scaled for metric and inch measurements and is used to mark reference lines on Estes rocket body tubes. A pencil holder for marking tube circumference and a fin-gluing jig are molded to the ruler for accurate marking and alignment. Two disks are included for marking the placement of three and four fins.

QX57979—$12



TECH SOLID-FUEL ROCKET WITHOUT ENGINE

QX55082—$6.50
100 or more—$5.90 each



30-METER WIND-UP TAPE MEASURE

Safer than standard measuring tapes, the Wind-Up Tape Measure features a sturdy case that rewinds a vinyl tape with a manual rewinder – no spring recoil or metal tape that cuts. Plus, a flexible handle on one side makes it easy to hold. Measures 30 meters (100 feet).

QX34053—$15.95



ROLATAPE

Rolatape, a top-quality measuring wheel, is ideal for measuring long distances quickly and accurately. Simply extend the handle and roll it along the ground as you walk. For rocketry, use the Rolatape to measure the distance from the launchpad required for the Estes Altitude Finder. It's also a handy tool for teaching the skill of estimating distances too large to be measured with a standard tape measure. Measures in feet.

QX57681—$59



Rocket not included.

ROCKET FIN HOLDER

A Pitsco Exclusive

This handy molded plastic tool holds your rocket fins in place against the body tube for gluing. After the fins are attached, the Rocket Fin Holder can be turned on its side to work as a paint stand. Designed for use with the Pitsco Solid-Fuel Rocket.

QX54529—$2.95



CHUTE WADDING

Use this flameproof wadding to protect your parachute from the hot engine gases when they eject. Enough for 25 rockets (depending on rocket body size).
QX50061—$5
10 or more—$4.80 each



SPACER RINGS

Use to space between homemade body tubes and the BT-20 engine tube. 1" outside diameter.
QX50224 (pkg of 10)—$1.50
10 pkgs or more—$1.35 each



ENGINE BLOCKS

These fiber ring engine blocks are 3/8" long with a 16 mm inner diameter and an 18 mm outer diameter. They are used as a forward engine stop when glued into any BT-20 body tube.
QX50069 (pkg of 3)—$1.50
10 pkgs or more—$1.35 each



ENGINE LOCKS

Metal clips used to secure the engine in the body tube. One required per rocket.
QX50059 (pkg of 10)—$2.65
10 pkgs or more—$2.45 each



ALLIGATOR CLIPS

One-inch Alligator Clips are great for making quick electrical connections. They are a perfect accessory to use with the Ray Catcher Sprint Car Kit. Two-inch clips are used for attaching launchers to the igniters for a good, positive connection.
QX50124 (1" pkg of 10)—$3.50
10 pkgs or more—$3.15 each
QX54665 (2" pkg of 10)—$7.30



COLORED CHUTE WADDING

Flameproof material protects your parachute or streamer from the ejection charge of the rocket engine. 300 pieces in assorted colors.
QX50334—$4.50



SHOCK CORD MATERIAL

Use this elastic line to soften the impact when the parachute ejects. Enough for 648 sixteen-inch cords. This is a great buy for the economy-minded instructor.
QX50145—$29.95



SHROUD LINES

Use this line for attaching the parachute. 400 yards.
QX50161—$3.50



SPONGES

Use these sponges for wetting the gummed tape when students are constructing the rocket tube.
QX57886 (pkg of 4)—$3.75



PLASTIC BODY TUBE MOLD

Use for molding body tubes by using gummed tape. 1" outside diameter, 12" long.
QX11721—$.50
10 or more—$.45 each
100 or more—$.40 each



LAUNCH LUGS

Use on your own rocket designs. Ten per package. Inner diameter: 0.156". Outer diameter: 0.171".
QX50071 (2-3/8" long) (pkg of 10)—$1.75
10 pkgs or more—$1.60 each
QX53663 (8" long) (pkg of 10)—$2.50
10 pkgs or more—$2.25 each



6 V BATTERY

Great for homemade launch systems.
QX50070—$7.95



BT-20 and BT-50



11742
1" x 11.5"



11734
.710" x 2.5"

BODY TUBES

A Pitsco Exclusive

Heat-welded, strong, smooth, and lightweight. The BT-20 comes in two lengths – 12" and 18" – and has a 0.710" inside diameter that fits solid-fuel rocket engines. The BT-50 is 18" long x 0.910" inside diameter and is used for making the outer body tube.
QX50067 BT-20 (18")—$1.60
10 or more—$1.45 each
QX38289 BT-20 (12")—$.95
10 or more—$.90 each
QX50144 BT-50 (18")—$1.70
10 or more—$1.55 each

BODY TUBE

A Pitsco Exclusive

Extra cardboard tubes for bottle rocket bodies are available in two sizes – 11.5" long with a 1" inside diameter and 2.5" long with a 0.710" inside diameter. Use with the Pitsco Plastic Nose Cones and the Spacer Rings.
QX11742—$.95
10 or more—$.90 each
100 or more—$.85 each
QX11734 (2-1/2" long x .710" diameter)—$.25
10 or more—$.20 each



DOWEL ROD

Use this 1" x 12" dowel rod to form your custom body tubes.
QX51816—$.75
10 or more—$.65 each
100 or more—$.60 each



GUMMED TAPE

Use to make any diameter of body tube. 3" wide x 600' long.
QX50060 Brown—$13.95
QX50219 White—$13.95
QX50220 Red—$13.95
QX50221 Blue—$13.95
QX50222 Yellow—$13.95



PLASTIC NOSE CONE

A Pitsco Exclusive

This nose cone fits into the body tube or gummed tape tubes built around one-inch forms. Overall length approximately 2-1/2", bottom mounting base approximately 1" in diameter. Includes one screw eye for attaching shock cord and parachute lines. Colors may vary.

QX13231—$.50
10 or more—$.45 each
100 or more—$.40 each

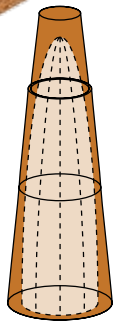


CORKS

Use corks to make nose cones.

Cork	Bottom dia	Top dia	Length
4xxx	5/8"	7/16"	13/16"
8xxx	7/8"	11/16"	1-1/16"
10xxx	1"	3/4"	1-1/4"
12xxx	1-1/8"	7/8"	1-1/4"



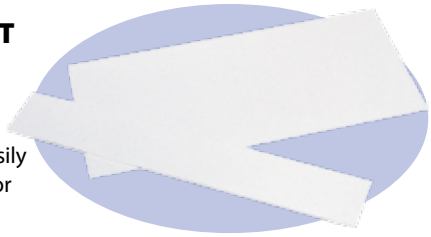


QX53444 4xxx (pkg of 100)—$4.95
10 pkgs or more—$4.50 each
QX50055 8xxx (pkg of 30)—$3.50
10 pkgs or more—$3.15 each
QX50056 10xxx (pkg of 30)—$4.50
10 pkgs or more—$4.05 each
QX50057 12xxx (pkg of 30)—$8
10 pkgs or more—$7.20 each

ADVANCED ROCKET FIN MATERIAL

A Pitsco Exclusive

This material makes excellent rigid fins yet is easily cut with scissors. Enough for three small fins.



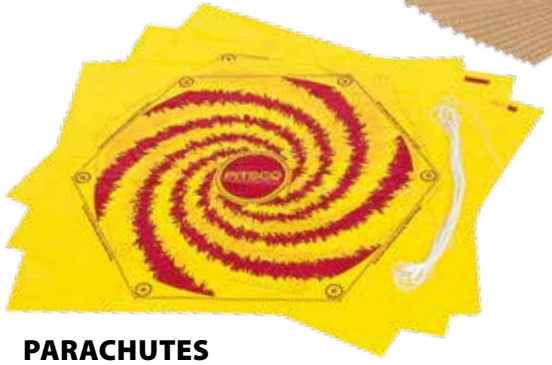
Size: 1-3/4" x 11" x .047"
QX27132 (pkg of 5)—$1.25
10 pkgs or more—$1.15 each
Size: 5" x 10-1/2" x .047"
QX27133 (pkg of 5)—$3.50
10 pkgs or more—$3.25 each

CHIPBOARD FIN MATERIAL

8-1/2" x 11" x 0.022" thick.

QX50181 (pkg of 10)—$.95
10 pkgs or more—$.85 each





PARACHUTES

A Pitsco Exclusive

These 11" parachutes are designed for use with solid-fuel and water-bottle rockets. Requires scissors, sold separately.

QX55751 (pkg of 5)—$4.50
QX55754 (pkg of 30)—$29

HD BOND II

A Pitsco Exclusive

This superior tacky glue has excellent properties for bridge and tower building and many other applications. It dries quickly for a strong, flexible bond. It is nontoxic and nonpenetrating and dries clear.

QX34502 (2 oz)—$2.50
QX34503 (16 oz)—$9.95





INSTA-CURE THIN GLUE

A Pitsco Exclusive

This thin-viscosity cyanoacrylate (CA) adhesive is the best CA for balsa wood. Dries in 1-3 seconds. Joint between members should be tight (no gaps).

QX58923 (1 oz)—$4.95

INSTA-CURE+ GLUE

A Pitsco Exclusive

The consistency of this Insta-Cure+ glue is perfect for filling gaps when constructing balsa wood structures or model airplanes. The cyanoacrylate (CA) adhesive dries in 5-15 seconds.

QX56215 (1 oz)—$4.95

MAXI-CURE GLUE

A Pitsco Exclusive

For filling large gaps between pieces, Maxi-Cure is ideal. This CA adhesive cures in 15-25 seconds.

QX57514 (1 oz)—$5.95

INSTA-SET

A Pitsco Exclusive

Spray Insta-Set on your CA joint for immediate cure of the adhesive. Perfect for all CA glues.

QX57513 (2 oz)—$4.95

UN-CURE

A Pitsco Exclusive

Working with students? Then you will need Un-Cure to safely unglue fingers and other objects accidentally glued together.

Un-Cure can also be used as a spot prewash for clothing with CA spills. Fabric color might be affected. Works on any CA adhesive.

QX57512 (1 oz)—$3.25

FIVE-MINUTE QUIK-CURE EPOXY

A Pitsco Exclusive

The superhero of adhesives, Quik-Cure Epoxy saves the day with a fast and super-strong bond.

This epoxy can be handled in 15 minutes and is at full strength after an hour. Can be applied to typical surfaces as well as polyester resins.

QX32958—$7.95

INSTA-FLEX+ CA GLUE

A Pitsco Exclusive

This thin, flexible glue can be used in many ways, but it specializes in forming CA hinges – the glue itself is flexible enough to bond two moving parts! It also has great shock resistance, so it is ideal for earthquake towers and other structures that must endure movement.

QX32965—$7.50



A



B



C



D

DECALS

A Pitsco Exclusive

These decals will add unique flavor to scale models, metric dragsters, rockets, model airplanes, and more!

A. QX54540 Pinstripes (4" x 24")—$2.95
B. QX54544 Neat Stuff (6" x 8")—$2.95
C. QX54543 Flags & Flames (6" x 8")—$2.95
D. QX54542 Numerals (6" x 8")—$2.95
E. QX54541 Plane Art (6" x 8")—$2.95



E

PAINTBRUSH ASSORTMENT

144 craft brushes, sizes 1-6.

QX53469—$11.95
10 pkgs or more—$10.75 each







See policies page at back of catalog.

SPRAY ENAMEL PAINT

Spray enamels provide a durable finish that retards rust. Ideal for dragsters.

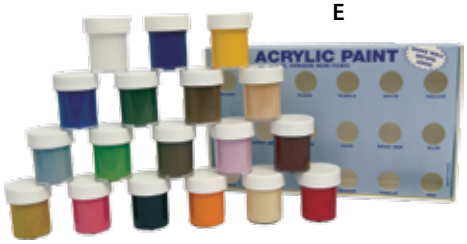
QX53422 White (11 oz)—$3.50
QX53423 Gloss Black (11 oz)—$3.50
QX53424 Flat Black (11 oz)—$3.50
QX53425 Cherry Red (11 oz)—$3.50
QX53426 Bold Blue (11 oz)—$3.50
QX53427 Forest Green (11 oz)—$3.50
QX53428 Sun Yellow (11 oz)—$3.50
QX53429 Gold Plate (11 oz)—$3.50
QX53430 Chrome (11 oz)—$3.50
10 or more of same color—$3.30 each



FLAME DECALS

A clear, 3" x 4" Mylar sheet filled with self-sticking color decals for rockets or dragsters. Eleven decals per sheet.

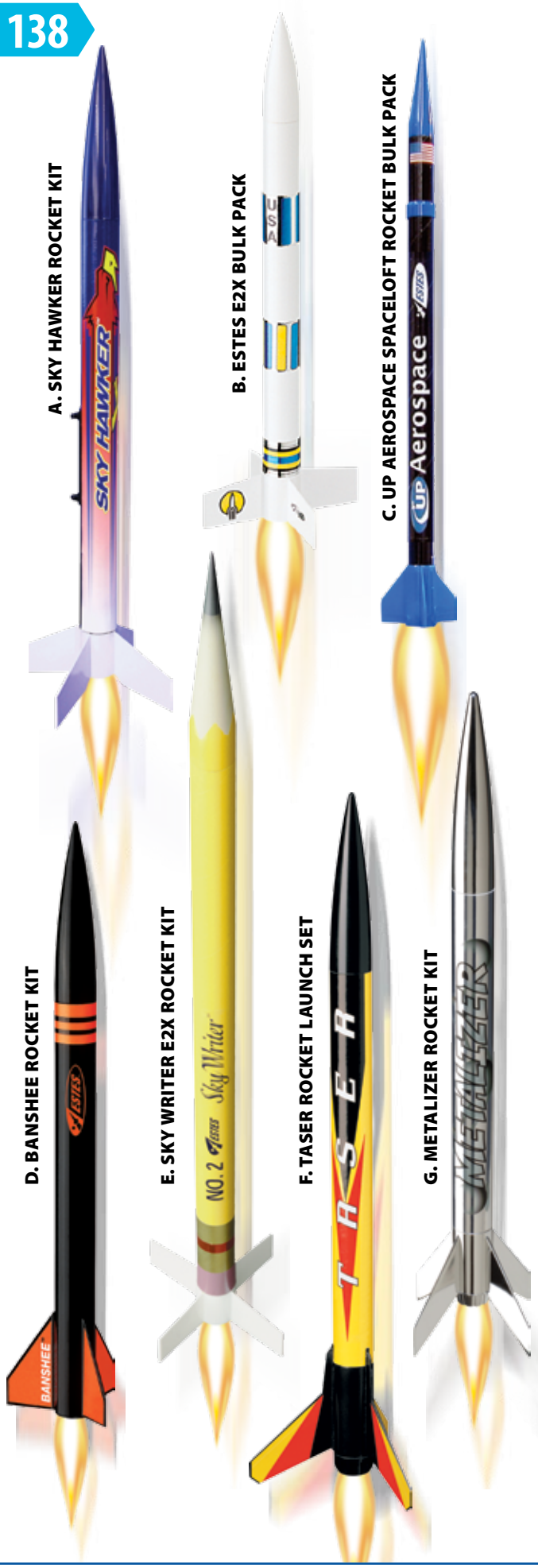
QX53687—$2.95



ACRYLIC PAINT – NONTOXIC

These nontoxic acrylic paints come in a rainbow of colors and dry quickly. They are water soluble and packaged in 1/2-fluid ounce containers. Color is permanent when dry. Use on paper, wood, plastic, and canvas.

QX53375 (pkg of 18)—$18.95
10 pkgs or more—$17.50 each



A. SKY HAWKER ROCKET KIT

Finally, a ready-to-fly rocket that kisses the clouds! The Sky Hawker climbs to amazing heights that will cause a clamor from your students. Length: 16.5". Diameter: 0.98". Weight: 1.48 oz. Recovery: 12" parachute. Fins: molded plastic. Maximum altitude: 1,000'. Recommended engines: A8-3, B4-4, B6-4, C6-5, and C6-7.

Skill Level RTF

QX31864—$13.50

B. ESTES E2X BULK PACK

Get 12 generic rocket kits and a variety of self-sticking decals in the economical E2X Bulk Pack! These rockets are super easy to build. All rockets can be colored with markers or paint or simply left white. Length, diameter, weight, recovery, fins, and maximum altitude will vary. Recommended engines: A8-3, B4-4, and C6-5.

Skill Level E2X

QX52959 (pkg of 12)—$92

C. UP AEROSPACE SPACELOFT ROCKET BULK PACK

Bring a dose of reality into aerospace curriculum. The UP Aerospace SpaceLoft Rocket is a scale model of a real rocket designed to help businesses and researchers launch payloads into space. Includes a lesson guide. Length: 12.5". Diameter: 0.54". Weight: 0.47 oz. Recovery: 12" parachute. Fins: molded plastic. Maximum altitude: 834'. Recommended engines: 1/2A3-2T, 1/2A3-4T, A3-4T, and A10-3T.

Skill Level E2X

QX32447 (pkg of 12)—$56

D. BANSHEE ROCKET KIT

Estes went back into the vault and brought back an old favorite – the Banshee. This is a high-altitude rocket that assembles quickly with no painting required. Requires building tools, engines, and launch supplies, sold separately. Length: 15.6" (39.6 cm). Diameter: 1.1" (28 mm). Weight: 1.6 oz (45.4 g). Recovery: 12" (30.5 cm) parachute. Fins: plastic. Maximum altitude: 1,100' (335 m). Recommended engines: A8-3 (first flight), B4-4, B6-4, C6-5, and C6-7.

Skill Level E2X

QX38720—$13.95

E. SKY WRITER E2X ROCKET KIT

What fun! A model rocket that looks just like a pencil! The Sky Writer takes off from standard launchpad equipment. Length: 26". Diameter: 0.98". Weight: 1.5 oz. Recovery: 12" parachute. Fins: molded plastic. Maximum altitude: 1,100'. Recommended engines: A8-3, B4-4, B6-4, and C6-5.

Skill Level E2X

QX57981—$10

F. TASER ROCKET LAUNCH SET

Prepare to be shocked with the easy-to-assemble Taser. Includes a Taser Rocket, Porta-Pad launchpad, Electron Beam Launcher, guide, and case. Engines, igniters, plugs, wadding, and AA batteries required, sold separately. Recommended engines: A8-3, B4-4, B6-4, B6-6, and C6-7.

Skill Level E2X

QX31865—$23.95

G. METALIZER ROCKET KIT

The Metalizer is so bright, you won't lose sight of it for a second! This silver rocket even features fins and a nose cone with a chrome finish. Length: 22.5". Diameter: 1.35". Weight: 2.4 oz. Recovery: 12" parachute. Fins: molded plastic. Maximum altitude: 760'. Recommended engines: A8-3, B4-4, B6-4, and C6-5.

Skill Level E2X

QX31866—$16

A. FIRESTREAK SST ROCKET KIT

Getting hooked on rocketry is a snap with this rocket! The Firestreak's parts snap together without gluing or painting, yet the rocket can shoot up to 350 feet. Length: 10.2". Diameter: 0.885". Weight: 1.14 oz. Recovery: 12" streamer. Fins: molded plastic. Maximum altitude: 350'. Recommended engines: 1/2A3-2T, A3-4T, and A10-3T.

Skill Level E2X

QX58998 Kit—$9.95
QX34461 (pkg of 24)—$160

B. ALPHA III ROCKET KIT

For more than 30 years, this model has delivered rugged and reliable performance. The Alpha III is easy to build and features a plastic nose cone, body tube, and one-piece fin unit. Length: 12.3". Diameter: 0.98". Weight: 1.2 oz. Recovery: 12" parachute. Fins: molded plastic. Maximum altitude: 1,100'. Recommended engines: A8-3, B4-4, B6-4, B6-6, C6-5, and C6-7.

Skill Level 1

QX50180 Kit—$15.95

C. MONGOOSE ROCKET KIT

Achieve extreme altitude with the Mongoose – the booster engine launches the rocket while the second engine propels the rocket farther. Length: 26.5". Diameter: 1.97". Weight: 2.3 oz. Recovery: parachute. Fins: molded plastic. Maximum altitude: 1,800'. Recommended engines: single stage: A8-3, B4-4, B6-4, and C6-5; two stage: booster stage – B6-0 and C6-0, second stage – B6-6 and C6-7 .

Skill Level 1

QX34463 Kit—$13

D. VIKING SOLID-FUEL ROCKET

Great as a first- or second-time model! The Viking can be built with three, four, or five die-cut fiber fins – your choice. Includes self-adhesive decals. Length: 12.1". Diameter: 0.74". Weight: 0.6 oz. Recovery: streamer. Fins: die-cut card stock. Maximum altitude: 1,470'. Recommended engines: A8-3, B4-4, B6-4, C6-5, and C6-7.

Skill Level 1

QX52039 Kit—$8.95
QX52038 (pkg of 12)—$55.50

E. SWIFT ROCKET KIT

The Swift Rocket might be smaller than average, but it zips through the sky with the same energy. Features balsa wood fins, nose cone, self-adhesive decals, and a lightweight tumble recovery. Length: 4.5". Diameter: 0.54". Weight: 0.094 oz. Recovery: featherweight. Fins: die-cut balsa wood. Maximum altitude: 750'. Recommended engines: 1/4A3-3T, 1/2A3-4T, A3-4T, and A10-3T.

Skill Level 1

QX58772—$6.50

F. WIZARD SOLID-FUEL ROCKET

No magic wand needed for this Wizard! This high-performance rocket is an easy-to-build kit featuring self-adhesive decals and a bright streamer. Length: 12". Diameter: 0.74". Weight: 0.8 oz. Recovery: streamer. Fins: die-cut balsa wood. Maximum altitude: 1,500'. Recommended engines: 1/2A6-2, A8-3, B4-4, B6-4, B6-6, C6-5, and C6-7.

Skill Level 1

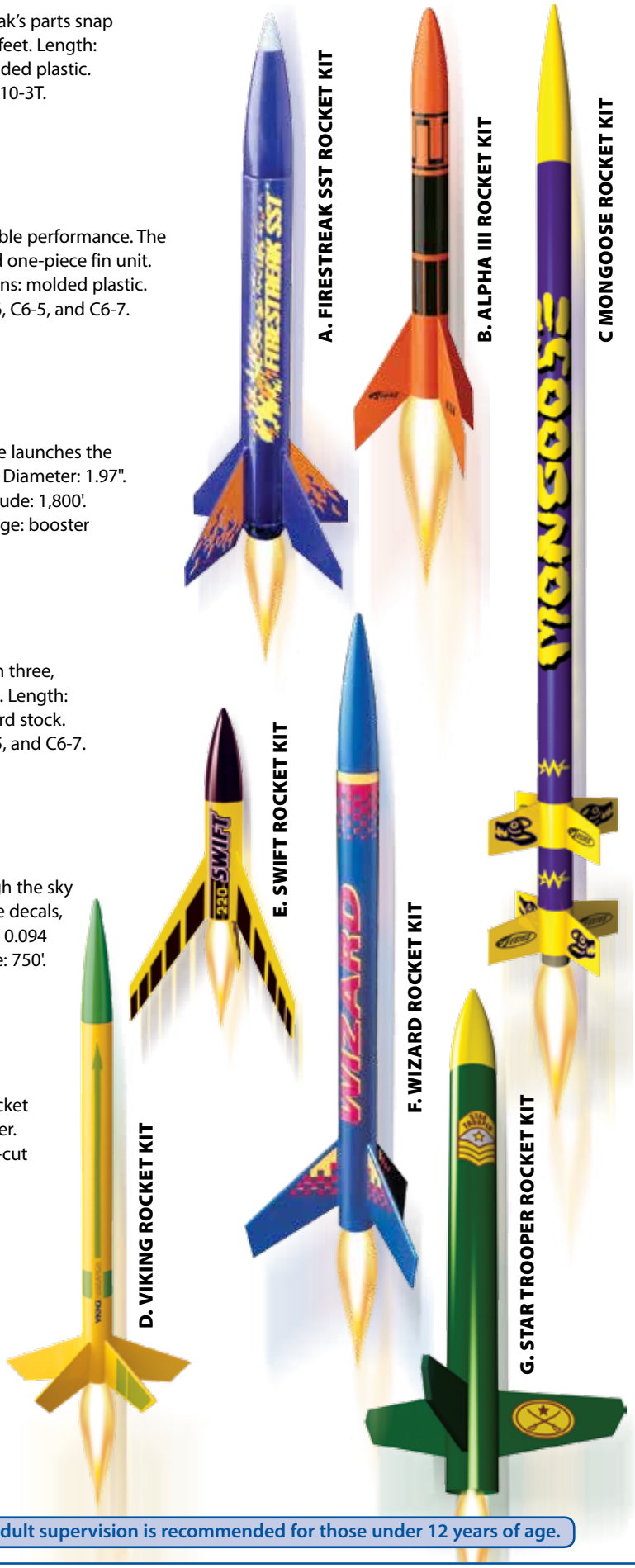
QX50136 Kit—$9.95
QX52036 (pkg of 12)—$68

G. STAR TROOPER ROCKET KIT

Part of the Estes Classic Series, the Star Trooper has returned to impress. And don't let its small size fool you – it will cruise the galaxy in style. Length: 7.4". Diameter: 0.54". Weight: 0.3 oz. Recovery: streamer. Fins: laser-cut balsa wood. Maximum altitude: 900'. Recommended engines: 1/2A3-4T (first flight), A10-3T, and A3-4T .

Skill Level 1

QX37728—$6.95



Estes model rocketry is recommended for ages 10 years and up. Adult supervision is recommended for those under 12 years of age.



A. ALPHA SOLID-FUEL ROCKET

For decades, the Alpha has delivered rugged and reliable performance. It's easy to build with balsa wood and cardboard construction. Length: 12.3". Diameter: 0.98". Weight: 0.8 oz. Recovery: 12" parachute. Fins: laser-cut balsa wood. Maximum altitude: 1,000'. Recommended engines: 1/2A6-2, A8-3, B4-4, B6-4, B6-6, C6-5, and C6-7.

Skill Level 1

QX50137 Kit—$12.50
QX52037 (pkg of 12)—$90

B. BABY BERTHA BETA ROCKET KIT

Baby Bertha is a miniature version of Big Bertha, but its performance is anything but infantile. The Baby can reach a maximum altitude of 575 feet and returns on a parachute recovery system. Length: 12.75". Diameter: 1.64". Weight: 2.1 oz. Recovery: parachute. Fins: laser-cut balsa wood. Maximum altitude: 575'. Recommended engines: A8-3, B4-4, B6-4, and C6-5.

Skill Level 1

QX58283—$9.95

C. BIG BERTHA ROCKET KIT

For many decades, Big Bertha has been the first big rocket for many modelers! Slow, realistic liftoffs make this rocket a true classic! Length: 24". Diameter: 1.64". Weight: 2.2 oz. Recovery: 18" parachute. Fins: laser-cut balsa wood. Maximum altitude: 500'. Recommended engines: B6-2, B4-2, B4-4, B6-4, and C6-5.

Skill Level 1

QX57426—$19.95

D. SUPER NEON XL ROCKET KIT

Featuring a multi-tube fin design, this giant delivers excellent flight stability and a unique look. Length: 37.75". Diameter: 1.64". Weight: 7 oz. Recovery: 24" parachute. Fins: laser-cut balsa wood. Maximum altitude: 1,000'. Recommended engines: D or E.

Skill Level 1

QX34467—$25.95

E. YANKEE ROCKET KIT

This doodle dandy can reach up to 1,400 feet! The Yankee features a patriotic color scheme of red, white, and blue. Recommended engines: A8-3, B4-4, B6-4, B6-6, C6-5, and C6-7.

Skill Level 1

QX50163—$9.50

F. RICOCHET ROCKET KIT

Easy to build, the Ricochet can fly more than 1,000 feet in the sky and can be flown repeatedly. Requires building tools, finishing supplies, engines, and launch supplies, sold separately. Length: 22" (558.8 mm). Diameter: 0.98" (24.89 mm). Weight: 1.45 oz (41 g). Recovery: 12" parachute. Fins: laser-cut balsa wood. Maximum altitude: 1,125'. Recommended engines: A8-3, B6-4, and C6-5.

Skill Level 1

QX38721—$18.50

G. HI-FLIER ROCKET KIT

The Hi-Flier is a high-altitude flying machine that soars more than 1,600 feet. Red with black tip and tail, this rocket is recovered by a bright orange streamer. Length: 12". Diameter: 0.74". Weight: 0.82 oz. Recovery: streamer. Fins: laser-cut balsa wood. Maximum altitude: 1,690'. Recommended engines: 1/2A6-2, A8-3, B4-4, B6-4, B6-6, C6-5, and C6-7.

Skill Level 1

QX58360 Kit—$7.50

A. BULL PUP 12D ROCKET KIT

A sport scale of the USAF AGM 12D Bull Pup Air-to-Ground Missile! Features authentic color decals and precision plastic parts. Length: 15.6". Diameter: 1.33". Weight: 1.8 oz. Recovery: 12" parachute. Fins: laser-cut balsa wood. Maximum altitude: 675'. Recommended engines: A8-3, B4-4, B6-4, and C6-5.

Skill Level 2

QX55590—$16.50

B. MAGICIAN ROCKET KIT

No tricks up anyone's sleeve here, just a super high-performance model rocket. The Magician can reach soaring heights and features a clear payload section as an added bonus!

Requires Estes Maxi™ Launch Rod and Estes Porta-Pad® E and, for E engines, the E™ Launch Controller, sold separately. Length: 33.5". Diameter: 1.33". Weight: 3.5 oz. Recovery: parachute. Fins: laser-cut balsa wood. Maximum altitude: 1,600'. Recommended engines: D12-5 (first flight) and E9-6.

Skill Level 3

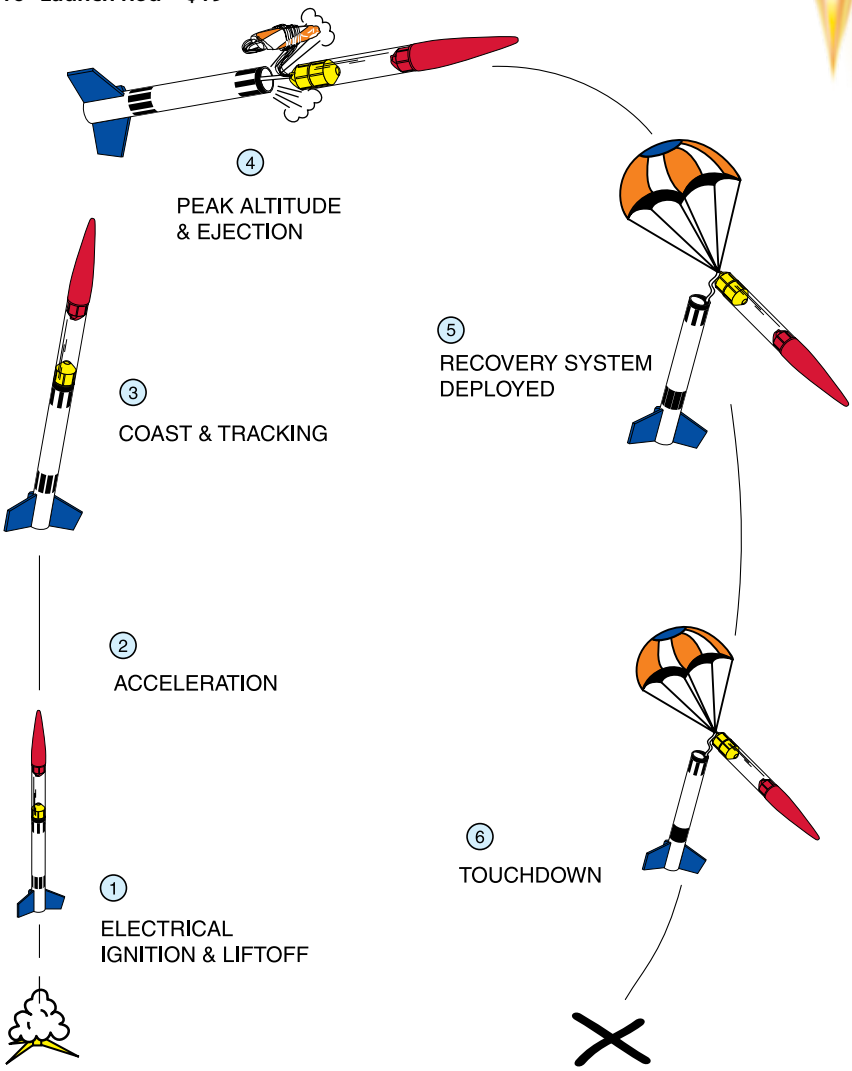
QX37730—$23.95

C. EGGSCALIBER ROCKET KIT

The EggsCaliber features a see-through capsule to hold an egg and dual parachutes to bring the rocket and egg gently back to earth. Have a contest to see how high the rocket can be launched without breaking the egg! Requires a 3/16" Estes Maxi Rod, sold separately. Length: 20.25". Diameter: 1.35". Weight: 2.6 oz (without egg). Recovery: 12" parachute and 18" parachute. Fins: laser-cut balsa wood. Maximum altitude: 610'. Recommended engines: with egg: B6-2, C6-3, C11-3, D12-3, and E9-4; without egg: B4-2, B6-2, C6-5, D12-5, and E9-6.

Skill Level 2

QX59588 Kit—$17.95
QX18789 3/16" Launch Rod—$19





Estes model rocketry is recommended for ages 10 years and up. Adult supervision is recommended for those under 12 years of age.

Parachutes

GS



CHUTEPAK II

A Pitsco Exclusive



Pitsco's ChutePak II contains materials for students to explore the principles governing the design and use of parachutes. 100 sheets of tissue paper, glue sticks, and all other necessary materials are included for 30 students. Requires scissors, sold separately.

Ages 9+

QX23735—$45



RIP CORD PARACHUTE DROP

A Pitsco Exclusive

Get the drop on parachute activities – the Rip Cord makes it easy to test student-built parachutes without repeated trips up a ladder!

Mount the Rip Cord from a gym ceiling, suspended ceiling, basketball hoop rim, or a 13' stand (sold separately). Attach the parachute and pull the string until it reaches the bumper where it is automatically released! Assembly required; includes 100 feet of twine.

QX32863—$29.95⚠

QX32894 Rip Cord Stand (13')—$165

Visit **www.pitsco.com/parachutes**.

PARACHUTES – GETTING STARTED PACKAGE

A Pitsco Exclusive

Build and deploy parachutes with a variety of payloads and watch the excitement. This Getting Started package includes materials for 30 student parachutes and the *Dr. Zoon Parachutes Video*.

The Parachutes – GS Package includes the following products:

- QX23735 ChutePak II
- QX32863 Rip Cord Parachute Drop
- QX59784 Dr. Zoon Parachutes Video

QX23659 Parachutes – Getting Started Package—$89

Ages 9+

DR. ZOON PARACHUTES VIDEO

A Pitsco Exclusive



Watch as Dr. Zoon constructs a parachute from tissue paper and tests its performance. Plus, he'll explain some of the connected principles. Use this or similar designs for parachutes on bottle rockets to help them stay in the air as long as possible! Closed-captioned. Time: 17 minutes.

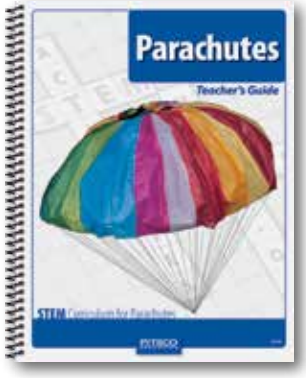
Ages 9+

QX59784 DVD—$24.95

All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!

PARACHUTES TEACHER'S GUIDE

A Pitsco Exclusive



Parachuting has both a fun and functional side. This guide pulls the rip cord of possibilities by showing you and your students how to build and test parachutes to learn about acceleration, speed, velocity, load, gravity, area, and a bundle of calculations. Paperback/Spiral-bound, 106 pages.

Ages 12+

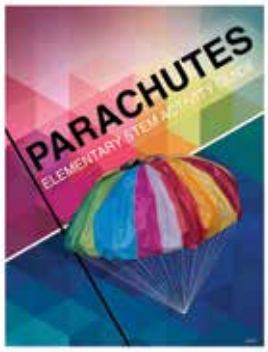
QX59730—$24.95



NEW!

PARACHUTES ELEMENTARY STEM ACTIVITY GUIDE

A Pitsco Exclusive



Written for Grades 3-5, this guide helps students grasp a variety of subjects including testing variables, rate of descent, gravity, Newton's laws, and design.

The *Parachutes Elementary STEM Activity Guide* contains NGSS, CCELA, and CCSSM standards addressed; teacher and student instructions for math, science, and engineering activities; assessment questions; and student pages. This guide contains two guided inquiry lessons and a culminating engineering challenge where students apply concepts learned in their inquiry lessons.

Equipment and materials needed to complete guide activities include the Pitsco Parachutes – Getting Started Package or Try This: Parachute Kit, tape, scissors, glue, string, rulers, paper clips, modeling clay, stopwatches, tape measures, labels, washers, and standard classroom tools and materials. **Note:** This list is for all activities; individual activities don't require all listed materials. Paperback, 20 pages.

Ages 8-11

QX41855—$4.95

TRY THIS: PARACHUTE KIT

A Pitsco Exclusive



Pitsco's parachute activity has gone mini! For a fast aerospace activity, try this mini parachute to give students an understanding of load, gravity, and more in no time. Requires scissors, glue stick, and modeling clay, sold separately.

Pitsco's Try This kits are designed as quick and easy activities that show some of the basic concepts of larger projects. This kit should take 20 minutes or less to construct.

Ages 9+

QX40310—$1.50



GLUE STIC

Use this all-purpose glue stick for all your classroom projects!

QX51913—$1
10 or more—$.90 each
100 or more—$.85 each



TWINE

Polyester/cotton, roll of 300 feet.

QX51912—$2



TISSUE PAPER

Balloon, kite, and parachute tissue paper in assorted colors.

QX51934 (pkg of 100)—$12.95
QX53749 (pkg of 480)—$69



KITE STRING

This handy polyester string comes prespooled on a plastic handle shaped for your hand. Just take it out, attach it to a kite, and start flying! 200 feet per pkg.

QX56759—$1.60



MODELING CLAY

Great for projectiles and straw rocket nose cones. Each one-pound pack has red, blue, green, and yellow clay. Nontoxic.

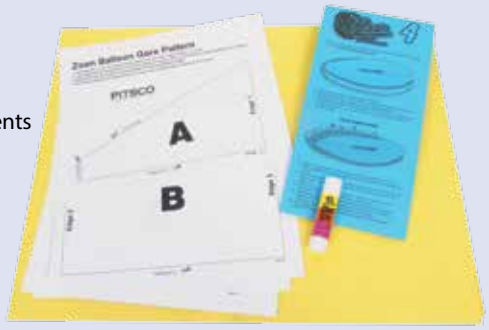
QX37660—$3.50

Hot-Air Balloons

GS

ZOON HOT-AIR BALLOON KIT

A Pitsco Exclusive



Introduce students to the principles of lighter-than-air flight as well as to the concepts of temperature, density, and buoyancy with the Hot-Air Balloon Kit. Each kit provides everything needed to make a hot-air balloon two feet in diameter. Includes instructions, balloon construction paper, a glue stick, and a balloon gore pattern.

Ages 12+

QX29609—$6.95

ZOON BALLOON 10-PACK

A Pitsco Exclusive



The same materials as in the Zoon Hot-Air Balloon Kit, just more of them – enough for 10 students to each make their own Zoon Hot-Air Balloon. The class pack includes:

- 10 Zoon Balloon instructions
- 10 glue sticks
- Zoon Balloon template
- Assorted-color tissue paper
- 100 paper clips

Requires launching equipment, scissors, and tape, sold separately.

Ages 12+

QX35565—$36.95

ZOON BALLOON 30-PACK

A Pitsco Exclusive



The same materials as in the Zoon Hot-Air Balloon Kit, just more of them – enough for 30 students to each make their own Zoon Hot-Air Balloon. The class pack includes:

- 30 Zoon Balloon instructions
- 30 glue sticks
- Zoon Balloon template
- Assorted color tissue paper
- 100 paper clips

Requires launching equipment, scissors, and tape, sold separately.

Ages 12+

QX35564—$99

Visit **www.pitsco.com/inflationstation.**

All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!



HOT-AIR BALLOONS – GETTING STARTED PACKAGE

A Pitsco Exclusive

This Getting Started package has everything needed to get your class started in hot-air balloons, including materials for 30 students to each build their own hot-air balloon, launching equipment, and the *Hot-Air Balloon* video.

The Hot-Air Balloons – GS Package includes the following products:

- QX35564 Zoon Balloon 30-Pack
- QX36094 The Inflation Station – Hot-Air Balloon Launcher
- QX59897 Hot-Air Balloon Video
- QX57744 Adventures in Lighter-Than-Air Flight

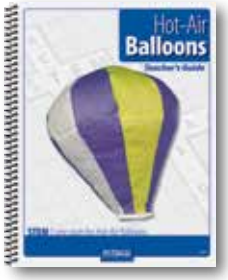
QX35566 Hot-Air Balloons – Getting Started Package—$515

Ages 12+

Standard alignments available via the Standards Navigator at pitsco.com/StandardsNavigator.

Digital downloads available

HOT-AIR BALLOONS TEACHER'S GUIDE



A Pitsco Exclusive

Give your classroom curriculum a lift with the *Hot-Air Balloons Teacher's Guide*. Students learn to calculate surface area and volume; to analyze flights; and to discover how lift, drag, buoyancy, and temperature affect hot-air balloon flight. Individual activities available for digital download on the website. Paperback/Spiral-bound, 94 pages.

Ages 12+

QX59614—$24.95



HOT-AIR BALLOON VIDEO

A Pitsco Exclusive

Hot-air balloons make great physics experiments – and now it's easier than ever to succeed with this activity! This video leads students through the process of cutting and gluing the gores to construct their own Zoon Balloon. Then, they learn to inspect their balloons and keep them in top shape for launch. Following this, students do a test launch with an indoor launcher, followed by the outdoor launch with a propane launcher.

The program also provides activities for analyzing balloon flight, understanding the physics of hot-air balloons, and varying balloon volume. Closed-captioned. Time: 25 minutes.

Ages 12+

QX59897 DVD—$24.95



INDOOR BALLOON TESTER

A Pitsco Exclusive

Before the big launch outside, wouldn't it be nice to test student balloons in the confines of your school?

This innovative launcher will test-fly hot-air balloons indoors safely and effectively. Because the unit runs on electricity, you don't have to worry about fumes. **Note:** For outdoor launches, we recommend the Pitsco Inflation Station Launcher.

QX13263—$99



THE INFLATION STATION – HOT-AIR BALLOON LAUNCHER

A Pitsco Exclusive

This hot-air balloon launcher was designed for the safest and easiest launch possible. It features a cool-to-the-touch chimney and a grill to block access to the flame. The inflation guides make it a breeze to hold the balloon in place while filling.

The Inflation Station launches balloons ranging in size from two to nine feet. Also includes propane cylinder base, attached torch kit and self-igniter, *Adventures in Lighter-Than-Air Flight* book, and instructions.

QX36094—$425

Note: Propane canister sold separately.

GORE PATTERN



A Pitsco Exclusive

Use this as a template to make hot-air balloons in your classroom! Pattern is 56" long and 10" wide at its widest point and is made of heavy, glossy paper. Make individual gore patterns for students and have them cut 10 gores from balloon paper to make balloons. Two sheets of balloon paper will yield two balloon gores.

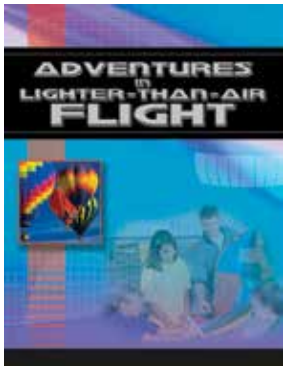
QX15774—$4.95

PROPANE CANISTER FOR BALLOON LAUNCHER

QX52100 (approximately 8" tall, 16.4 ounces)—$5.50⚠

SHIPPING INFO
See policies page at back of catalog.

ADVENTURES IN LIGHTER-THAN-AIR FLIGHT



A Pitsco Exclusive

A colorful journey through the history and science of lighter-than-air flight!

Learn about Archimedes' principle, the density and lift of gases, atmospheric pressure, how airships and balloons fly, and much more. Includes science activities, discussion questions, and instructions for building six-foot and nine-foot hot-air balloons from tissue paper. Paperback, 15 pages.

Ages 12+

QX57744—$4.95
10 or more—$4.45 each

MICRO IR THERMOMETER



Using infrared, this thermometer can read temperatures of hot-air balloon surfaces. And it's small enough to fit into the palm of your hand. Noncontact temperature reading from -34 to 446 degrees Fahrenheit. 3 V battery included.

QX31913—$45

KaZoon **Kites**

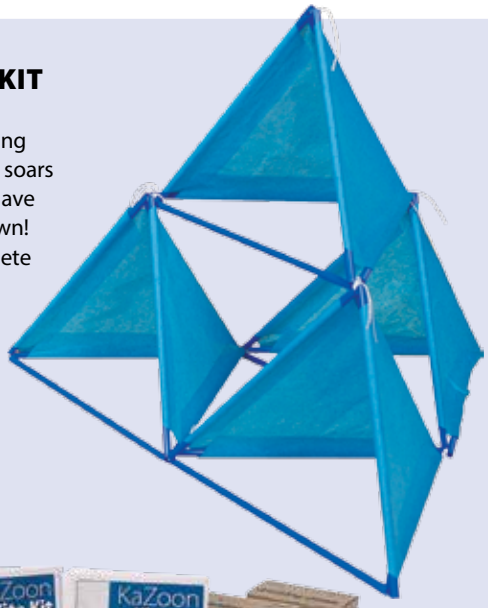
KAZOON KITE KIT

A Pitsco Exclusive

Assemble a flying tetrahedron kite that soars so easily you might have trouble getting it down! This kit comes complete with step-by-step instructions and the needed materials.

Ages 9+

QX56772—$6.95





KAZOON KITE 30-PACK

A Pitsco Exclusive

Go fly a tetrahedron kite – or 30. With this pack, complete with enough materials for 30 kites, discovering the principles of flight has never been easier.

Ages 9+

QX23626—$99

Visit **www.pitsco.com/kites**.



KAZOON KITES – GETTING STARTED PACKAGE

A Pitsco Exclusive

"Project on a string" usually indicates an inexpensive activity, and this is no exception. This package includes materials for 30 tetrahedron kites and the *Dr. Zoon KaZoon Kite Video*.

The KaZoon Kites – GS Package includes the following products:

- QX23626 KaZoon Kite 30-Pack
- QX59747 Dr. Zoon KaZoon Kite Video

QX23613 KaZoon Kites – Getting Started Package—$105

Ages 9+

DR. ZOON KAZOON KITE VIDEO

A Pitsco Exclusive

Watch as Dr. Zoon builds a tetrahedron kite using items contained in the KaZoon Kite Kit, sold separately. By following step-by-step instructions, students learn how to construct kites for maximum success aloft and are exposed to math and science principles in the process. Closed-captioned. Time: 38 minutes.

Ages 9+

QX59747 DVD—$24.95



All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!

KAZOON KITES TEACHER'S GUIDE

A Pitsco Exclusive

You don't have to play with lightning to learn from kites! This guide shows how to construct a tetrahedron kite and use it to demonstrate many important principles: lift, area and volume, density, forming and testing a hypothesis, tetrahedral and polyhedral design, and more. Paperback/Spiral-bound, 96 pages.

Ages 12+

QX59461—$24.95



10-CELL KAZOON KITE

A Pitsco Exclusive

Take tetrahedron kites to the next level – the 10-Cell KaZoon Kite is six cells bigger than the KaZoon Kite. It provides connections to the geometry principles of area, surface area, and volume.

Includes tissue, straws, and string for one kite as well as a template and instructions.

Ages 9+

QX35141—$4.95







10-CELL KAZOON KITE 30-PACK

A Pitsco Exclusive

This big tetrahedron kite comes in a pack big enough for all your students to get into the geometry and aerospace principles the activity explores. Includes materials for thirty 10-cell kites.

Requires scissors and glue sticks, sold separately.

Ages 9+

QX36314—$86.95

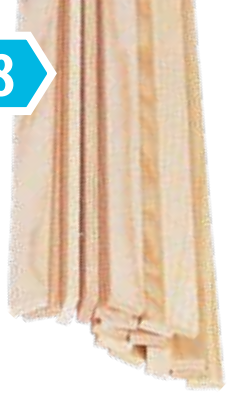




KITE STRING

This handy polyester string comes prespooled on a plastic handle shaped for your hand. Just take it out, attach it to a kite, and start flying!

QX56759—$1.60







SPRUCE STRIPS

Made from the finest Sitka spruce, these strips are perfect for model airplane spars where strength is essential. Can also be used in kite building and many other types of structural design. 1/8" x 3/8" x 36".
QX57460 (pkg of 18)—$20.50

LEFTY/RIGHTY SCISSORS

These quality scissors work for both left- and right-handed students.
QX12518 (6-1/2" long)—$4.95

LUSTER TISSUE PAPER

Few craft materials are as easy to work with or provide as many different options as tissue paper. The colorful paper in this pack comes in seven iridescent shades.
QX58626 (20" x 30") (pkg of 14)—$8.50



TRANSPARENT TAPE

QX51940—$3



Recommended for balloon construction.

GLUE STIC

QX51913—$1
10 or more—$.90 each
100 or more—$.85 each



TISSUE PAPER

Balloon, kite, and parachute tissue paper in assorted colors.
QX51934 (pkg of 100)—$12.95
QX53749 (pkg of 480)—$69

HD BOND II

A Pitsco Exclusive

This superior tacky glue has excellent properties for bridge and tower building and many other applications. It dries quickly for a strong, flexible bond. It is nontoxic and nonpenetrating and dries clear.
QX34502 (2 oz)—$2.50
QX34503 (16 oz)—$9.95





COOL-MELT GLUE GUN

The low temperature of this glue gun (about 140°F) is ideal for bottle rocket and general craft construction. Uses low-temp glue for plastic bottles. Will not melt plastic material. Glue slugs sold separately.
QX52064—$17.95

OVAL GLUE SLUGS

QX52061 (pkg of 30)—$4.25
10 pkgs or more—$3.95 each



COOL TOOL CORDLESS GLUE GUN

Smaller than many glue guns, this cordless cool-melt glue gun is ideal for small hands. Metal tip is surrounded by rubber material for less exposure to the metal tip. Uses four AA batteries and glue sticks, sold separately.
QX34428—$13.95
QX34429 Cool Glue Sticks (pkg of 15)—$3.50



PORTABLE WIND METER

Take the guesswork out of rocket launches, kite-flying sessions, hot-air balloon launches, glider competitions, or any other activity where the velocity of the wind is a factor. This handy unit measures the wind velocity with dual ranges (2-10 and 4-66 mph).

QX15557—$22.95

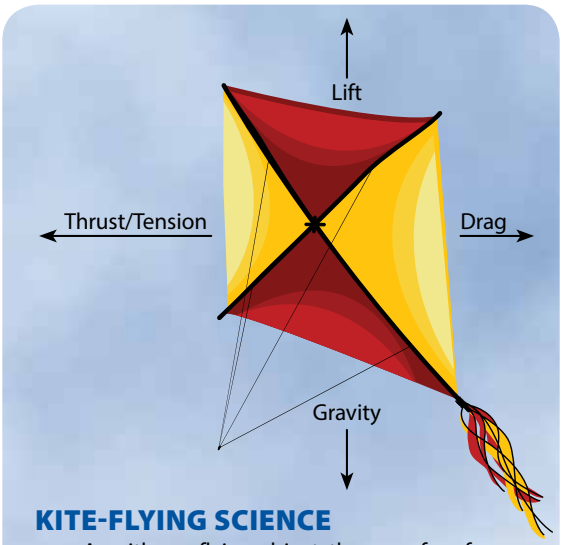


SKYJÖOL KITE CLASS PACK

The SkyJöol offers a more complex design than a basic kite but rewards students with higher performance. The SkyJöol is a high-flying eddy kite featuring rip-resistant kite sails and hardwood sticks. Includes a teacher's manual and instructions for eight students.

Ages 9+

QX57451 (pkg of 8)—$38



KITE-FLYING SCIENCE

As with any flying object, there are four forces acting on a kite while it is in flight: lift, drag, gravity, and thrust.

Because kites don't have a jet engine attached, thrust for kites comes from the wind blowing against them. The kite is kept from blowing off into the sunset by the attached string. The string is kept tight (tension) to keep the kite in the air under various wind conditions.

Gravity continually works on kites, pulling them toward the ground. The kite, acting as an airfoil in the wind, is pushed upward by a force called lift. When gravity and lift are equal, the kite stays at a constant height.

The wind, however, rarely stays at the same rate and direction – so the kite might bob up and down or left and right in response to the wind. This movement can be controlled, in part, by the kite's tail. The tail increases the drag on the kite and keeps it pointed into the wind, much like a weathervane.

For a kite to stay in the air, these forces must be constantly equalized. If the wind lets up, then gravity might overcome the lift of the kite. If the wind gets too circular, the tail might drive the kite into the ground.



KESTREL POCKET WIND METER

The Kestrel Pocket Wind Meter features a large LCD window that is easily read and offers three modes: wind speed, average wind speed, and maximum wind speed. An ultralight anodized aluminum impeller yields high accuracy (within three percent) and a low start-up speed. Includes a lanyard and a hard case that easily snaps on and off. One CR2032 button-type cell battery included.

QX54910—$109



25 KITES THAT FLY

More than seven decades of folks have taken flight with the help of this classic kite book. Don't let the book's age fool you – it is adrift with fun and fascinating kites. From those that look like an elephant or a butterfly to the sophisticated triangular box kite with wings to the windmill kite, there are kites for everyone's taste. Construction and flying tips included. Paperback, 110 pages.

Ages 12+

QX31908—$16



KITE STRING

This handy polyester string comes prespooled on a plastic handle shaped for your hand. Just take it out, attach it to a kite, and start flying! 200 feet per pkg.

QX56759—$1.60



SHROUD LINES

Use this line for attaching the parachute. 400 yards.

QX50161—$3.50

Foam Wing **Gliders**

GS



FOAM WING GLIDER PACK

A Pitsco Exclusive

Use this pack with the Pitsco Wing Cutter to make foam gliders! Student-designed wings are cut on the Wing Cutter and attached to balsa wood fuselages. Rear fin and horizontal stabilizer are also constructed of balsa wood. Includes polystyrene foam and balsa wood for 25 gliders, glue, sandpaper, graph paper for design drawings, template material, instructions, clay for balancing, and two sheets of Pitsco decals.

Ages 12+

QX54601—$110



WING TESTER

A Pitsco Exclusive

Let students visualize aerodynamic forces with the Pitsco Wing Tester. Design and build an airfoil and then analyze its lift and drag with the Wing Tester. Simply clip the airfoil into the bracket, balance it with the brass counterweight, and turn on the fan! Weight can be added to determine the efficiency of the airfoil. **Note:** Foam wing not included.

QX22297—$695

Visit **www.pitsco.com/foamwingglider**.

All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!



FOAM WING GLIDERS – GETTING STARTED PACKAGE

A Pitsco Exclusive

Excitement reaches new heights in your classroom when students design and craft their own gliders that can really fly. Included are a wing tester, wing cutter, *Dr. Zoon Foam Wing Glider Video*, and materials for 25 student gliders.

The Foam Wing Gliders – GS Package includes the following products:

- QX54601 Foam Wing Glider Pack
- QX22297 Wing Tester
- QX17080 Foam Wing Cutter
- QX34271 Dr. Zoon Foam Wing Glider Video

QX23656 Foam Wing Gliders – Getting Started Package—$1,195

Ages 12+

DR. ZOON FOAM WING GLIDER VIDEO

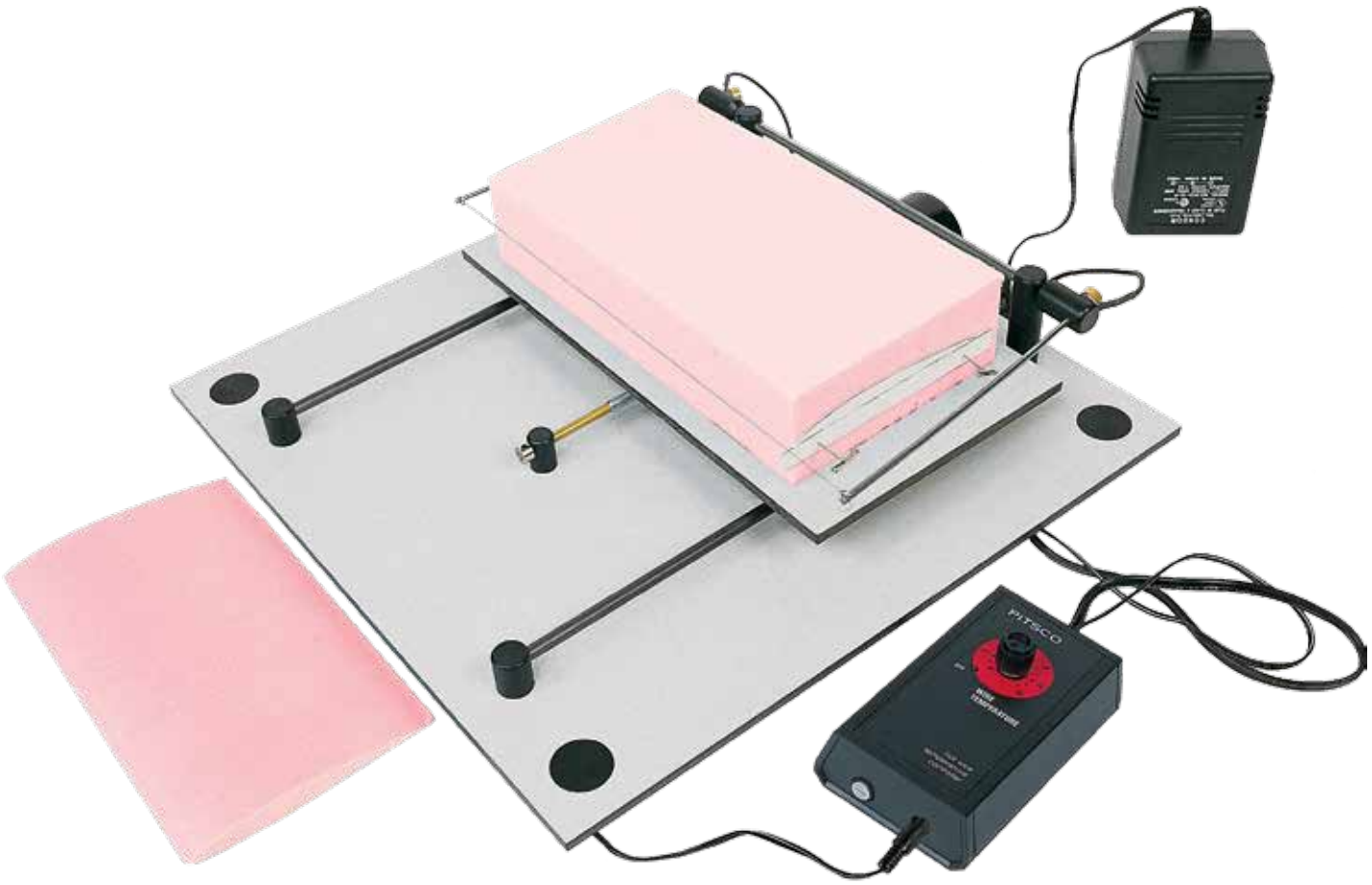
A Pitsco Exclusive

Join Dr. Zoon in designing and constructing a foam wing glider. You design the wing, cut it out, and test-fly it to see how it performs. You are next in line for takeoff! Closed-captioned. Time: 20 minutes.

Ages 12+

QX34271 DVD—$24.95





FOAM WING CUTTER

A Pitsco Exclusive

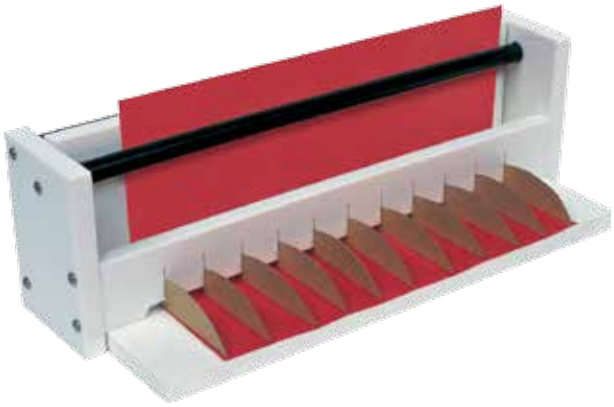
Use the Wing Cutter to make precision airfoil sections for model gliders and airplanes. You design the airfoil template, and the Wing Cutter does the rest!

First, make a card-stock template using your airfoil design. Affix the template to the edge of the polystyrene foam. Place the foam on the motorized platform and turn on the machine. The platform moves the foam through the cutting wire, shaping the foam to the template. Wing sections can be up to 11-1/4" wide.

The Wing Cutter is made of a durable, laminated phenolic material. Wire temperature can be adjusted to accommodate various types of foam. Package includes Wing Cutter, control box, power supply, extra cutting wire, and instructions. Replacement Nichrome Wire sold separately.

QX17080—$550
QX53654 Nichrome Wire (32 gauge)—$5

Note: Only 32-gauge wire will work with the Pitsco Foam Wing Cutter.



WING CADDY

A Pitsco Exclusive

An indispensable tool that securely holds airfoil ribs in place while students glue them to a construction paper wing. The Wing Caddy is easily cleaned when students get a little wild with the glue. Simply wipe the polypropylene surface with a damp rag, and it is ready for the next wing.

QX57246—$65

FOAM POLYSTYRENE SHEET

This dense, yet lightweight, expanded polystyrene foam is much sturdier than white Styrofoam. It's great for wings, prototypes, vehicle bodies, intricate shapes, and more. Available in 1" and 2" thicknesses. Sheets are 11.5" x 23.5". When purchased in a package of 10, a sheet of template material is included. Colors vary.

QX54613 (1")—$3.25
QX54614 (2")—$7.50
QX54679 (1", pkg of 10)—$33
QX54680 (2", pkg of 10)—$69



SCOTCH DOUBLE SIDED TRANSPARENT TAPE

Avoid the sticky messes of trying to fold over your piece of tape to make a loop. With this 1/2" wide double-sided tape, you can just tear off a piece and know both sides will adhere to surfaces.

QX58774—$2.95





AIRCRAFT STRUCTURES PACK

A Pitsco Exclusive

Ailerons, *elevators*, *empennage*, *rudder* – all are terms pertaining to aircraft, but could your students explain their functions? Students will gain insight into aircraft flight as they design and test airfoils. The construction of their own control-line flying model airplanes will enhance their understanding of airplane structures.

Includes balsa wood, adhesives, and all other materials needed for 25 students to design and fly model airplanes. Also comes with the *Aircraft Structures* book.

Ages 12+

QX52727—$199

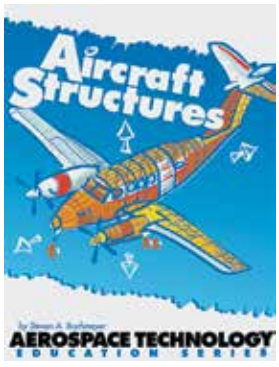


EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT AIRFOILS! VIDEO

This video is meant for modelers and users of airfoils, not for designers. It explains what airfoils are, what makes them work, what factors affect them, how they differ in structure and performance, and how to choose the right airfoil for competition. Time: 60 minutes.

Ages 15+

QX33887 DVD—$36



AIRCRAFT STRUCTURES

A Pitsco Exclusive

The names, functions, and design aspects of many parts of an airplane are covered. Students construct an airfoil, a line-control flying model, and a flying model of an airplane as they learn the concepts of lift, drag, thrust, and centripetal and centrifugal forces. Paperback, 54 pages.

Ages 12+

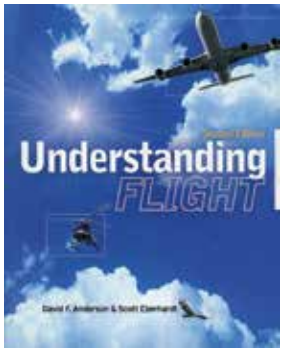
QX51977—$4.95

UNDERSTANDING FLIGHT

Understanding Flight bypasses common misconceptions and half-truths to give your students an understanding of what gets a plane up in the sky and keeps it there. Students will learn the whys and hows of wing shape, stability and control, propulsion systems, flight testing, high-speed flight, and more. Also includes helicopter-flight fundamentals and aircraft structures. Paperback, 293 pages.

Ages 15+

QX35602—$34.95



NEW!

AERONAUTICAL STEM UNIT

A Pitsco Exclusive



Take learners from ground zero to unlimited heights! Created for upper-elementary students, the *Aeronautical STEM Unit* provides both content and hands-on experiences regarding the basics of flight, including:

- Cross-curricular lessons – language arts, history, science, technology, engineering, and mathematics.
- Teacher's guide – activity procedures, student work pages, assessment rubrics, reading connections, demonstrations, SMART Board connections, scope and sequence road map, and more!
- Curriculum and all tools, equipment, reference matter, and storage for 24 students.
- Nine discrete lessons, 21 unique activities, and five weeks of curriculum.
- Professional development options are available. Call for more information.

Ages 9+

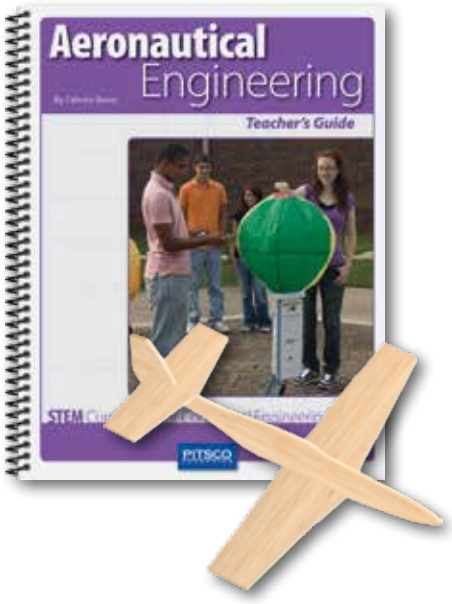
QX41842—$1,495

AERONAUTICAL ENGINEERING TEACHER'S GUIDE

A Pitsco Exclusive

The lure of flight is a great hook to get many students interested in and involved with engineering. In this guide, hands-on activities set that hook through contextual learning opportunities where students experience the underpinnings of aeronautics through STEM concepts.

QX33091—$39.95



See more Engineering Teacher's Guides on pages 294-295.



ZINGARANG

This is a version of the aerodynamic wonder from Down Under that is safe to use indoors! Soft rubber environment-friendly foam will not harm furniture, walls, or people. The Zingarang requires no special throwing skills and can be tuned for the desired size of flight circle.

Ages 9+

QX52951—$3.50



WRIGHT BAT KIT

Now you can experience a replica of the Wright brothers' first flying toy with this kit, a model that can fly up to 30 feet in the air. Built from plastic pieces and a large rubber band, this kit takes only a few minutes to snap together. The Wright Bat Kit requires no cutting or gluing and has a durable construction that works indoors or outdoors. Simply wind it up and set it loose to discover what those early inventors of flight experienced when they were young.

Ages 9+

QX58815—$6.95



ARROWCOPTER

This cool toy harnesses the principles of aerodynamics to soar upward as high as 300 feet and then hovers gracefully back to Earth. Each kit includes an Arrowcopter and a rubber band launcher. Launch Arrowcopter into a thermal, or rising current of warm air, and it could stay aloft for several minutes! For outdoor use only.

Ages 12+

QX54984—$3.95



AEROBIE ORBITER

The Aerobie Orbiter is the amazing returning triangle – the super boomerang! It is "the new game of catch." Constructed of durable plastic, each leg of this contemporary triangle design is approximately 11" long.

Ages 5+

QX51118—$9.50



EASY SPIN KIT

This kit is an easy, inexpensive way to teach your students the basics of flight. The two-piece assembly takes just a few seconds and requires only a cup of water for construction. Simply twist in your hands and watch the flyer take off!

Ages 5+

QX58814—$2.45



AEROBIE FLYING RING

An investigation into the ultimate flying mini-machine. The record flight for the farthest flight by any hand-launched object is 1,257 feet. It was set in 1986 with the Aerobie Flying Ring, which was invented by Stanford engineer Alan Adler.

Ages 5+

QX52111 (10" diameter)—$6.95

Balsa **Gliders**

GS



FLIGHTPAK POWER PACK

A Pitsco Exclusive

This FlightPak, in conjunction with included *Metric Glider* book, guides students through principles of flight, glider design, and construction of hand-launched balsa wood gliders. All materials necessary for students' designing, prototyping, building, and testing are provided. Includes enough materials for 30 students.

Ages 12+

QX35633—$114



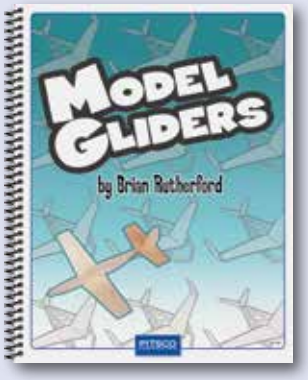
MODEL GLIDERS

A Pitsco Exclusive

Learn the basics of flight and then put your knowledge to work making gliders that really soar! Includes plans with instructions and photographs for two gliders and detailed information on how to trim a glider for long flights. Paperback/Spiral-bound, 37 pages.

Ages 9-14

QX58186—$4.95
10 or more—$4.45 each



Visit **www.pitsco.com/gliders**.

BALSA GLIDERS – GETTING STARTED PACKAGE

A Pitsco Exclusive

This Getting Started package has enough materials for a classroom of 30 students, including our *Metric Glider* book; the *Dr. Zoon Balsa Glider Video*; and a FlightPak complete with materials for designing, prototyping, building, and testing gliders.

The Balsa Gliders – GS Package includes the following products:

- QX35633 FlightPak Power Pack
- QX59749 Dr. Zoon Balsa Glider Video

QX35622 Balsa Gliders – Getting Started Package—$125

Ages 12+

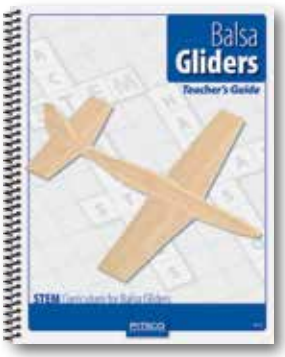
BALSA GLIDERS TEACHER'S GUIDE

A Pitsco Exclusive

Birds fly and glide effortlessly; it takes a little more effort and understanding for humans to accomplish flight. Balsa glider activities are a great way for students to understand lift, center of gravity, the four forces of flight, glide angles, and the design of aircraft – not exactly birdbrained topics! Paperback/Spiral-bound, 91 pages.

Ages 12+

QX59616—$24.95



DR. ZOON BALSA GLIDER VIDEO

A Pitsco Exclusive

Get the step-by-step details of balsa wood glider construction in this video that features the Pitsco FlightPak. Closed-captioned. Time: 20 minutes.

Ages 12+

QX59749 DVD—$24.95







TSA Flight Competition

TECH GLIDER SYSTEM CLASS PACK

This class pack contains enough material for 24 students to build the Tech Glider. Includes light-density balsa wood wing blanks, hard-density fuselage blanks, shark's tooth stock, clay, B-sized metric graph paper, and designer outlines for each student to follow. A 40-page teacher's manual is also included.

Skill Level 1

QX57467—$78

TECH GLIDER CONSUMABLES PACK

Includes replacement balsa wood blanks, graph paper, and instructions for 24 students.

Skill Level 1

QX57468—$60

TECH GLIDER CATAPULT

Hand launch your glider with the Tech Glider Catapult – includes the rubber strip that is used for launching gliders.

Skill Level 1

QX57466—$21.95



FLIP GLIDER

Use this model for Grades 6 and higher. This is a good follow-up for the Delta Dart modelers. Indoor or outdoor use. Solid balsa wood wings are carved to airfoil shape by the students. Good for demonstrations of aerodynamics. Wingspan: 12-1/2".

Skill Level 1

QX50189 (pkg of 35)—$90
10 pkgs or more—$81 each



STAR GLIDER KIT

This simple balsa wood glider is easy to build and flies great! Balsa wood material is die cut, so you just carefully punch it out and glue the pieces together. Glider wingspan is 8" and length is 6".

Skill Level 1

QX54496 (pkg of 35 double kits)—$51







SPACESHIPONE FOAMIE GLIDER

A Pitsco Exclusive

Bring aerospace history into the classroom with this fun foam flyer. *SpaceShipOne* won the XPRIZE for being the first ship to achieve a private space flight. Now, your students can easily build a foam glider version of the trailblazing vehicle.

Comes with two decal options: the ship during the first private space flight or during the second and third flights.

Each kit comes with a foam parts sheet and fuselage, a decal sheet, and two nose weight clips. The user guide includes history of *SpaceShipOne* and the XPRIZE as well as assembly instructions. No tools required.

Ages 9-14

QX38916—$7.95

NEW!

SPACESHIPONE ELEMENTARY STEM ACTIVITY GUIDE

A Pitsco Exclusive



Written for Grades 3-5, this guide helps students grasp a variety of subjects including airfoils, air pressure, gravity, thrust, drag, lift, forces, and aircraft design.

The *SpaceShipOne Elementary STEM Activity Guide* contains NGSS, CCELA, and CCSSM standards addressed; teacher and student instructions for math, science, and engineering activities; assessment questions; and student pages. This guide contains two guided inquiry lessons and a culminating engineering challenge where students apply concepts learned in their inquiry lessons.

Equipment and materials needed to complete guide activities include the Pitsco *SpaceShipOne* Foamie Glider, scissors, rulers, paper, art supplies, paper clips, tape measure, balloons, tape, umbrellas, balls, and standard classroom tools and materials. **Note:** This list is for all activities; individual activities don't require all listed materials. Paperback, 22 pages.

Ages 8-11

QX41805—$4.95

WHITEWINGS: 30-PLANE COMPETITION KIT

Challenge students to a high-flying glider contest using this Whitewings Competition Kit. Fine-tuning by adding curvature to the wings teaches them about the science of flight. Includes 30 precut balsa wood and paper airplanes, 30 instruction sheets, two instructor's manuals, Target game, and a Wright Flyer model.

Ages 9+

QX55564—$59

ELECTRIC PLANE LAUNCHER

Electric launching beats hand launching any day! With its spinning motors and plastic discs, this device catapults paper airplanes up to 30 mph – it proves invaluable for testing the performance of different paper plane designs and paper stock. Requires two AA batteries, sold separately.

Ages 9+

QX37304—$14.95





FOLDING WING BALSA GLIDER

A great kit for the student just starting in balsa wood gliders – simple and economical.

Ages 9+

QX50364 (12")—$3.95







NEW!

WING BUILD KIT

A Pitsco Exclusive

The Wing Build Kit is an innovative method for students to design and to construct their own airfoils. Cut out an airfoil design and construct a wing for testing. The Wing Build Kit is best when used with the Wing Test Stand and Air Control Funnel for a more constant air stream and measurable results.

Ages 12+

QX41726—$9.95







NEW!

WING TEST STAND

A Pitsco Exclusive

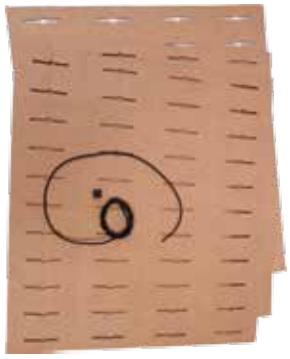
The Wing Test Stand provides an efficient and low-cost mechanism to test the aerodynamic lift of an airfoil at various angles of attack. Attach an airfoil to the stand in front of a fan, adjust the angle, and read the digital output. It's simple and effective. The Wing Test Stand is even better when used with the Air Control Funnel so your fan for testing becomes a laminar airflow source.

Ages 12+

QX41725—$79.95







AIR STREAM NEW!

A Pitsco Exclusive

Sometimes, an ordinary box fan isn't enough to efficiently test wind turbines. The airflow created by a fan isn't always consistent. The Air Stream helps alleviate that problem. An add-on created to attach to a 20-inch box fan, the Air Stream converts an ordinary box fan into a large laminar airflow source for use with wind turbines and other large structures. With cardboard and cool-melt glue, students can easily create a 20-inch grid that attaches to the average box fan. Included are cardboard for construction and an elastic cord and elastic cord lock for attaching to a box fan. The Air Stream is great to use with the Wind Turbine Experimenter's Kit, WinDynamo III, and more.

Ages 12+

QX41723—$12.95







AIR CONTROL FUNNEL NEW!

A Pitsco Exclusive

An add-on created to attach to a 20-inch box fan, the Air Control Funnel turns an ordinary box fan into a concentrated laminar airflow source for testing airfoils and the aerodynamics of other geometric solid objects. Students use cardboard and cool-melt glue to construct a grid and funnel that easily attaches to the average box fan. Included are cardboard for construction and an elastic cord and elastic cord lock for attaching the funnel to a box fan. The Air Control Funnel is great to use with the Wing Build Kit and Wing Test Stand.

Ages 12+

QX41724—$19.95

Model **Airplanes**



DELTA DART MODEL AIRPLANE 35-PACK

Use this rubber band-powered model airplane for Grades 6 and up. Pylon-mounted, paper-covered wings give stable flight. Indoor or outdoor use. Wingspan of 11-1/2".

Pack includes enough materials to build 35 model airplanes.

Ages 12+

QX50187—$69

Visit **www.pitsco.com/airplanes**.



MODEL AIRPLANES – GETTING STARTED PACKAGE

A Pitsco Exclusive

Introduce aviation with rubber band-powered paper planes, and watch class interest soar! This Getting Started package includes materials for 35 students to build and fly their own Delta Dart. Comes with the *Dr. Zoon Delta Dart Video*.

The Model Airplanes – GS Package includes the following products:

- QX50187 Delta Dart Model Airplane 35-Pack
- QX56215 Insta-Cure+ Glue (5 one-ounce bottles included)
- QX58337 Electric Rubber Band Winder
- QX59750 Dr. Zoon Delta Dart Video

QX23658 Model Airplanes – Getting Started Package—$120

Ages 12+

Standard alignments available via the Standards Navigator at pitsco.com/StandardsNavigator.

Digital downloads available

MODEL AIRPLANES TEACHER'S GUIDE

A Pitsco Exclusive



Need an angle of attack to teach students science and technology concepts? Just don your aviator glasses and have them build the Pitsco Sky Eagle model airplane powered by rubber bands. Then, this guide's activities will help them understand forms of energy, aerodynamic forces, initial velocity, how to design to achieve specific kinds of performance, and more. Individual activities available for digital download on the website. Paperback/Spiral-bound, 115 pages.

Ages 12+

QX59729—$24.95

All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!

DR. ZOON DELTA DART VIDEO

A Pitsco Exclusive

Join Dr. Zoon as he builds a Delta Dart model plane, talks about some of the aeronautic principles involved, and gives some pointers on the construction process. This is one high-flying video!

QX59750—$24.95





DELTA DART MODEL AIRPLANE KIT

Use this rubber band-powered model airplane for Grades 6 and up. Pylon-mounted, paper-covered wings give stable flight. Indoor or outdoor use. Wingspan of 11-1/2".

Pack includes enough materials to build 35 model airplanes.

Ages 12+
QX57453—$7.50
QX50187 35-Pack—$69

DELTA DART RUBBER BANDS

QX50317 (pkg of 30)—$6.95

SUPER DELTA DART

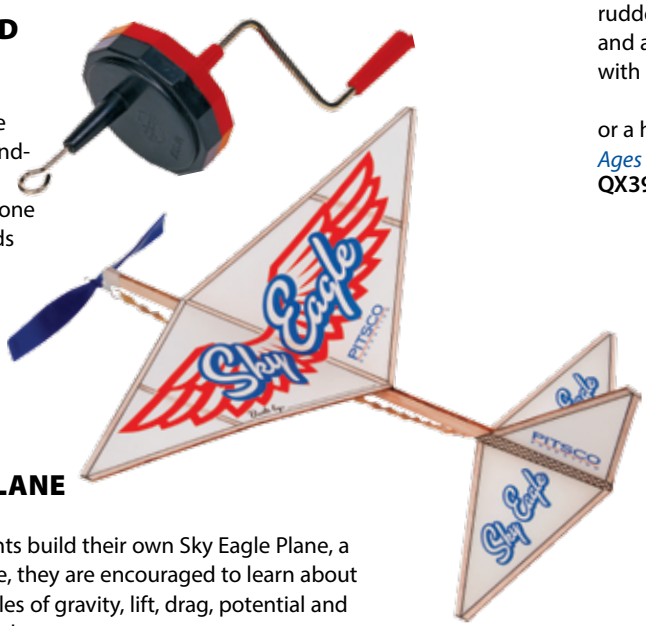
This rubber band-powered flying model is a larger version of the Delta Dart (wingspan is 21"). It features a balsa wood frame and paper-covered wings, and it can be flown indoors and outdoors. Requires a hobby knife, scissors, and white glue.

Ages 12+
QX52859 (pkg of 24)—$76

RUBBER BAND WINDER

A great little tool that saves time winding rubber band-powered airplane propellers. Five-to-one winding ratio. Winds clockwise only.

QX54595—$8.50



SKY EAGLE PLANE

A Pitsco Exclusive

When students build their own Sky Eagle Plane, a rubber motor plane, they are encouraged to learn about the science principles of gravity, lift, drag, potential and kinetic energies, and more.

After students construct the balsa wood frame, cover it with the printed paper cover, and add the motor and propeller, it's time for some classroom fun. Wind it up and let it fly outside or in the gymnasium. Students can experiment with the tabs and number of motor winds to learn how different variables affect the flight.

Requires foam board or cardboard, tape, pins, glue stick, white or CA glue, and a hobby knife, sold separately.

Ages 12+
QX38964—$6.50
10 or more—$6 each



Note: Makes only one plane – your choice from four designs.

BFF BALSA FOAM FLYER

A Pitsco Exclusive

Combine the simplicity of a foam glider with the power of a rubber motor-powered model airplane in this easy-to-build kit. Select one of four wing patterns; cut the desired wing, tail, and rudder out of the foam; adhere them to a balsa wood motor stick; and attach the propeller and rubber motor. The foam can be colored with markers so each student can create his or her own unique look.

No glue needed – just requires transparent tape and scissors or a hobby knife, sold separately.

Ages 12+
QX39388—$5.95



BLUEBIRD FLAPPING WING MODEL KIT

Unlike most model planes that glide, the Bluebird actually flaps its wings and looks like a bird!

This ornithopter model makes a great activity for working up to the Science Olympiad flying bird event. The kit features interlocking wooden parts to make it easier for beginners to build while still challenging enough for most students.

Using the included rubber motor, Bluebird flies for a half minute. Wingspan: 16". Weight: .25 ounce.

Ages 12+
QX38065—$12

Other rubber band winders on page 164

Raven



RAVEN

A Pitsco Exclusive

Impressive flight performance makes the Raven a blast to build and fly. This outdoor rubber band-powered model airplane climbs briskly (up to 200 feet!) in a graceful circular pattern and then glides to a gentle landing. Features balsa wood construction and a large 16-1/2" wingspan. Building instructions plus flying tips are included. Requires white glue, fine sandpaper, tissue paper, hobby knife, ruler, scissors, and straight pin, sold separately.

Ages 12+

QX55748—$9.95
10 or more—$9.45 each

Visit **www.pitsco.com/raven**.



RAVEN – GETTING STARTED PACKAGE

A Pitsco Exclusive

Your students will be amazed at how high and how far these airplanes can go! This Getting Started package includes enough materials for 30 students to build their very own Raven rubber band-powered model airplane. It comes with a teacher demonstration plane, a rubber band motor winder, and the *Dr. Zoon Raven Video*.

The Raven – GS Package includes the following products:

- QX55748 Raven (30 kits included)
- QX55755 Raven Teacher Demo Kit
- QX58337 Electric Rubber Band Winder
- QX59789 Dr. Zoon Raven Video

QX35777 Raven – Getting Started Package—$349

Ages 12+

DR. ZOON RAVEN VIDEO

A Pitsco Exclusive

Nevermore will students not know how to construct the Raven, a rubber band-powered balsa wood airplane! Along with construction steps and tips, Dr. Zoon provides some uplifting explanations of the principles involved in flight including action-reaction, lift, and potential and kinetic energy. Closed-captioned. Time: 25 minutes.

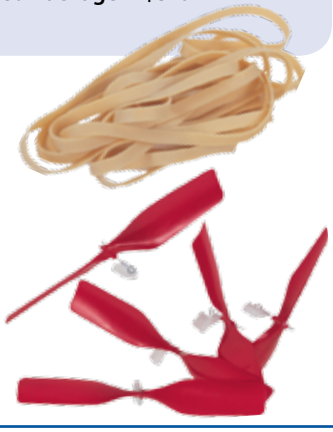
Ages 12+

QX59789 DVD—$24.95



RAVEN RUBBER BANDS

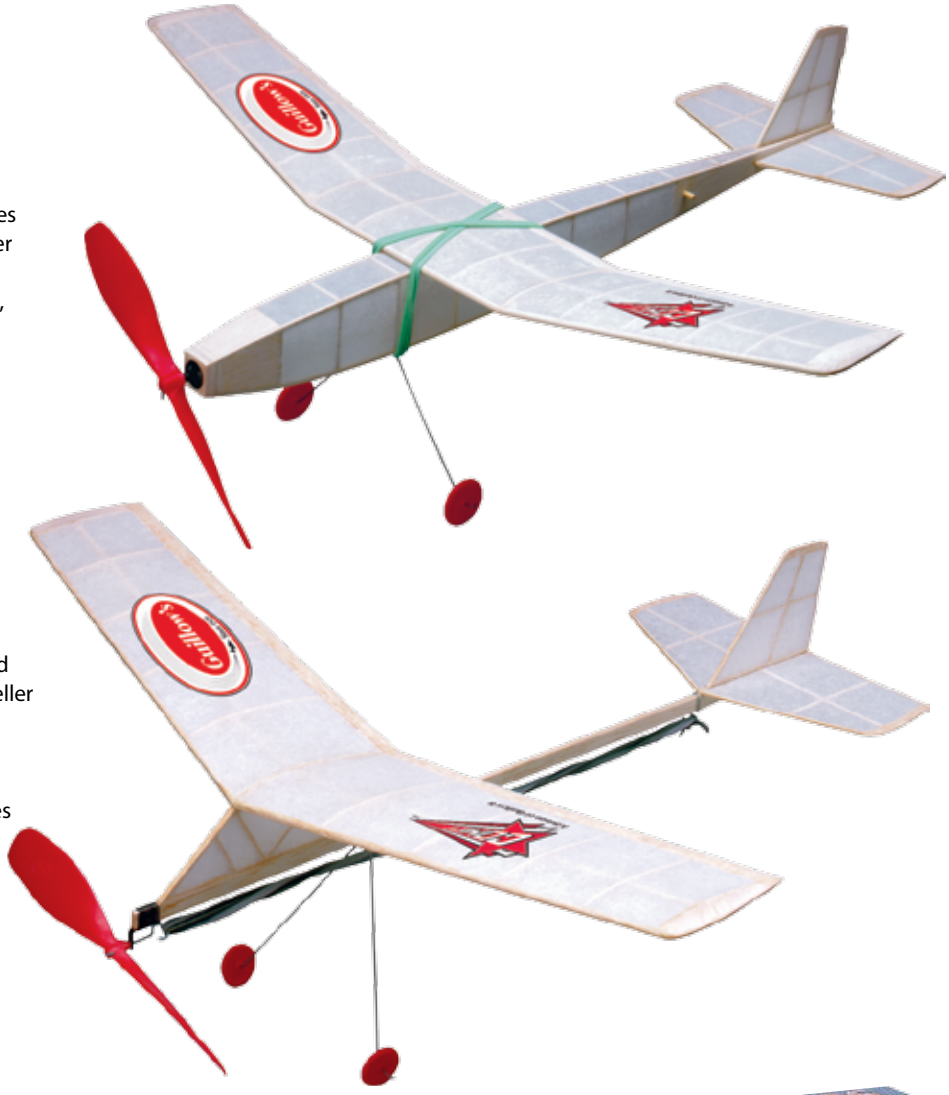
QX57030 (pkg of 5)—$3.95



RAVEN PROPELLERS

QX57031 (pkg of 5)—$6.95

All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!



FLY-BOY KIT

Take command of your flights with this high-level model with a realistic body. The Fly-Boy features a three-sided frame fuselage, propeller with a rubber motor, and landing gear. Can soar for more than 175 feet! Construction requires building board, pins, waxed paper, hobby knife, and small paintbrush, sold separately. Requires approximately 8 hours of assembly time.

Ages 14+

QX38635—$16.50

CLOUD BUSTER KIT

For those who have built a basic glider or propeller plane, here's the next step – launching and landing with this balsa wood plane that has a propeller and landing gear. The Cloud Buster can fly more than 175 feet and is guaranteed to fly. Construction requires building board, pins, waxed paper, hobby knife, and small paintbrush, sold separately. Requires approximately 6 hours to assemble.

Ages 14+

QX38634—$13.50







SIMPLE FLYING MODELS

This build-by-number simple flying model is excellent for group model building. The kit contains balsa wood, paper, rubber band, prop, and instructions to build an attractive model with good flying capability.

Ages 9+

QX50139 Cessna 180—$10.95
QX50142 Piper Super Cub—$10.95
QX50141 Lancer—$10.95
10 or more of one style—$10.25 each

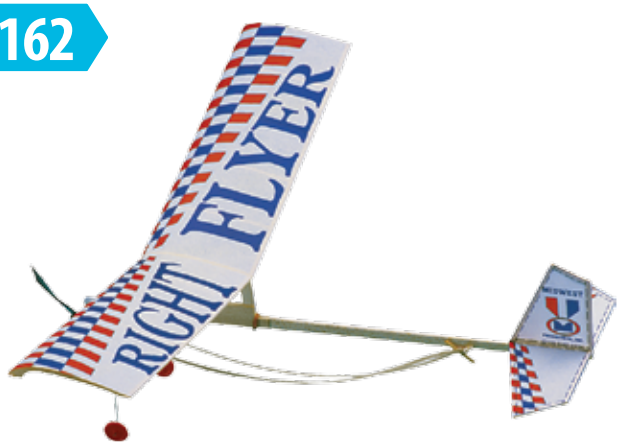


SKY RYDERS POWER PROPS AIRPLANE KIT

What could be better than an airplane kit that doesn't require glue, tools, or winding? The Sky Ryders Power Props Kit includes colorful, lightweight supplies for three of the most popular Sky Ryders airplanes, as well as an automatic winder. These durable planes fly more than 300 feet and can be assembled in minutes. Great for competition and fun!

Ages 9+

QX58336—$20



RIGHT FLYER

An exciting rubber band-powered glider from the makers of the Delta Dart! Features an airfoil-shaped wing built with balsa wood ribs and covered with a special paper. The Right Flyer is easy to assemble and flies great! After assembly, the plane can be placed on the ground to take off on its own. **Note:** Must be launched from a smooth surface – do not launch from grass, gravel, or deep carpet.

Ages 12+
QX54697 (pkg of 8)—$49
QX54596 (pkg of 24)—$112



SHOEBOX R.O.G. PLANE

It's called Shoebox R.O.G. because it "rises off the ground" on its own! The Shoebox R.O.G. can fly for 40 seconds in a gym and also flies outdoors. Features easy construction, sturdy and lightweight balsa wood design, and complete instructions. Wings can be easily adjusted for flying success.

Ages 12+
QX54311 (pkg of 8)—$40



F-15 EAGLE BALSA MODEL DISPLAY KIT

Build this exciting 1:40 scale model of the United States' legendary air superiority jet fighter. Display the breathtaking 18-5/8" long model with its intricate balsa wood frame exposed, or cover it with a lifelike tissue paper skin. Wingspan is 12-3/4". Complete, illustrated step-by-step instructions included.

Ages 12+
QX55623—$39.95



STRATO STREAK

Rubber band-powered balsa wood glider.

Ages 9+
QX50365—$3.50



FLYING MACHINE

Rubber band-powered balsa wood glider.

Ages 9+
QX50366—$4.95



GIANT WRIGHT FLYER KIT

Bring the Wright brothers' historic 1903 flight into the classroom with this large, detailed model of their famous plane. Easy to build, this rubber-powered plane features a twin propeller motor and has a length and wingspan nearly 20 inches long. Includes detailed instructions and a high-speed winder.

Ages 12+
QX36616—$38

FLO: FLOW VISUALIZATION TUNNEL

A Pitsco Exclusive

Visually demonstrate aerodynamics concepts to your students with a flow visualization wind tunnel designed specifically for classroom use!

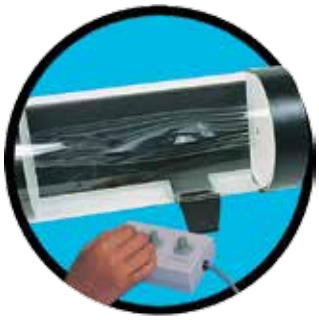
A harmless vapor passes through the clear acrylic wind tunnel, demonstrating the airflow around any object and revealing drag-inducing features. Rotate the test surface to a vertical position to test wing sections, spinning objects, and model airplanes. The Fog Maestro's outlet "rake" provides airflow cross sections. A control box enables you to change angle of attack, rotation speed, or airflow speed.

Includes the Fog Maestro, nontoxic fog solution, model airplane, model car, rotating cylinder, and airfoil section.

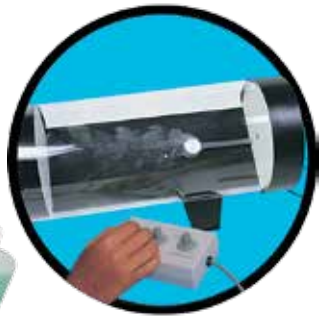
QX13277—$1,495



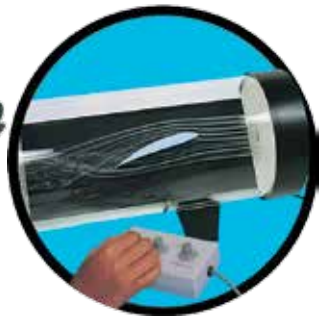
See it **in action!**
Visit **www.pitsco.com/flo.**



MODEL AIRPLANES



SPINNING OBJECTS



WING SECTIONS





FOG MAESTRO

A Pitsco Exclusive

Fog machines are valuable flow-visualization tools, and this handheld version is the best we've created!

It injects a fog stream into a wind tunnel to test the aerodynamics of objects such as drag racers. Fog Maestro is a cleanable unit that can be easily opened to wipe away residue – plus, it operates without generator tubes. Includes the fogger unit and one bottle of fog fluid.

QX25100—$395
QX56805 Fog Solution/Liquid Fog (1 liter)—$26.95



SPHERE HOLDERS

The same Sphere Holder that comes with the FLO: Flow Visualization Tunnel. These are handy when you want to demonstrate different objects for quick comparisons.

QX38713 (pkg of 5)—$27.95



AIRFOIL SERVO MOUNTS

When testing several different airfoils in the FLO: Flow Visualization Tunnel, having extra servo mounts makes the job a lot easier!

QX38714 (pkg of 5)—$7.95

RUBBER BAND MOTORS



Fit R.O.G. and Right Flyer planes.
QX55065 (pkg of 30)—$9.50

CONTEST RUBBER BANDS



The wider the rubber band, the heavier it will be – but more energy is able to be stored and transmitted to the propeller. Experiment with these to find the best rubber band motor for your model airplane!
QX57683 (1/16" x 48')—$8
QX57684 (3/32" x 48')—$9
QX57682 (1/8" x 48')—$10.50



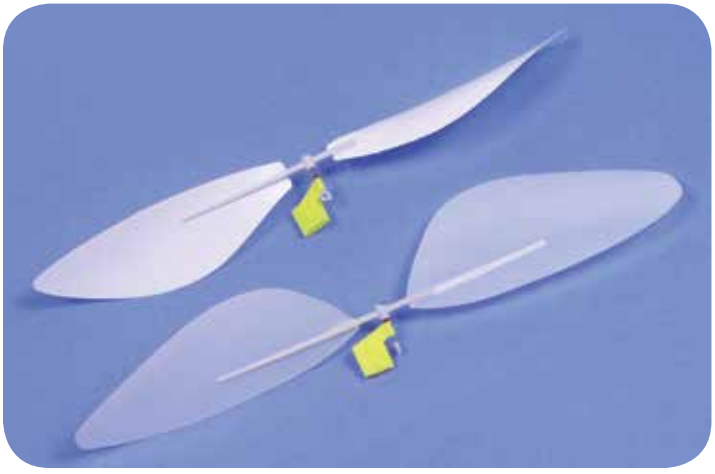
6" PROPELLER ASSEMBLY

This six-inch propeller assembly includes plastic propellers, propeller adapters, and eyelet hooks to securely hold string or a rubber band. Everything you need for the nose of your model airplane!

This propeller can be used with the following planes:

- Shoebox R.O.G. Plane
- Right Flyer
- Delta Dart

QX15715 (pkg of 35)—$14



INDOOR COMPETITION PROPELLER ASSEMBLY

Increase your flight times with these ultralight propellers featuring a low-friction propeller shaft assembly that includes a bead. Great for Science Olympiad or TSA competitors. Will spin slowly while providing the necessary thrust.

Cutting propellers to the desired legal length is a piece of cake!
QX59305 (9" long)—$9
QX59306 (9.5" long)—$9



RUBBER BAND WINDER

A great little tool that saves time winding rubber band-powered airplane propellers. Five-to-one winding ratio. Winds clockwise only.
QX54595—$8.50



INDOOR RUBBER BAND MOTOR WINDER

Twist your rubber motors faster with this 15-to-1 winder. Designed for indoor model competitions, this handy device will make easy work of winding your models for peak performance.
QX57441—$32





ELECTRIC RUBBER BAND WINDER

This winder for rubber band-powered planes saves you the time-consuming work of twisting the rubber band to fly your plane. The electronic winder has a tracking meter that displays the number of rotations, as well as a comfortable handle with a winding button and strap. Requires two AA batteries, sold separately.
QX58337—$15.95



INSTA-CURE THIN GLUE

A Pitsco Exclusive

This thin-viscosity cyanoacrylate (CA) adhesive is the best CA for balsa wood. Dries in 1-3 seconds. Joint between members should be tight (no gaps).

QX58923 (1 oz)—$4.95

INSTA-CURE+ GLUE

A Pitsco Exclusive

The consistency of this Insta-Cure+ glue is perfect for filling gaps when constructing balsa wood structures or model airplanes. The cyanoacrylate (CA) adhesive dries in 5-15 seconds.

QX56215 (1 oz)—$4.95

MAXI-CURE GLUE

A Pitsco Exclusive

For filling large gaps between pieces, Maxi-Cure is ideal. This CA adhesive cures in 15-25 seconds.

QX57514 (1 oz)—$5.95

INSTA-SET

A Pitsco Exclusive

Spray Insta-Set on your CA joint for immediate cure of the adhesive. Perfect for all CA glues.

QX57513 (2 oz)—$4.95

UN-CURE

A Pitsco Exclusive

Working with students? Then you will need Un-Cure to safely unglue fingers and other objects accidentally glued together.

Un-Cure can also be used as a spot prewash for clothing with CA spills. Fabric color may be affected. Works on any CA adhesive.

QX57512 (1 oz)—$3.25

SUPER-GOLD+ CA GLUE

A Pitsco Exclusive

Save your foam and your senses! Super-Gold+ glue is an odorless cyanoacrylate glue that won't dissolve foam – ideal for foam wing gliders and other foam projects.

QX32963—$7.50



INSTA-CURE THIN APPLICATOR BOTTLE

Enables students to apply a very fine line of solvent. Holds approximately two ounces. Long, needlelike point is handy for getting to hard-to-reach places.

QX50591—$2.95
10 or more—$2.65 each

HD BOND II

A Pitsco Exclusive

This superior tacky glue has excellent properties for bridge and tower building and many other applications. It dries quickly for a strong, flexible bond. It is nontoxic and nonpenetrating and dries clear.

QX34502 (2 oz)—$2.50
QX34503 (16 oz)—$9.95



FIVE-MINUTE QUIK-CURE EPOXY

A Pitsco Exclusive

The superhero of adhesives, Quik-Cure Epoxy saves the day with a fast and super-strong bond.

This epoxy can be handled in 15 minutes and is at full strength after an hour. Can be applied to typical surfaces as well as polyester resins.

QX32958—$7.95





BALSA WOOD SHEETS

Use these balsa wood sheets for various glider and construction projects. Balsa wood is very lightweight and easy to cut and shape.

QX54656 (1/32" x 3" x 24") (10 pieces)—$4
QX54655 (1/16" x 1/16" x 24") (50 pieces)—$6.95
QX58538 (1/16" x 1/8" x 24") (20 pieces)—$5.95
QX51892 (1/16" x 3" x 36") (20 pieces)—$24
QX51730 (3/32" x 3/32" x 24") (50 pieces)—$7.95
QX59630 (3/32" x 2" x 24") (20 pieces)—$22
QX51743 (1/8" x 1/8" x 24") (50 pieces)—$9.50
QX58540 (1/8" x 1/4" x 24") (20 pieces)—$6.95
QX57790 (1/8" x 3/8" x 24") (25 pieces)—$13.95

BALSA WOOD DENSITY STRIPS

Microcut, density-graded balsa strips in bundles of 100. Choose the density that matches the mass and strength you need for bridge building or airplane structures.

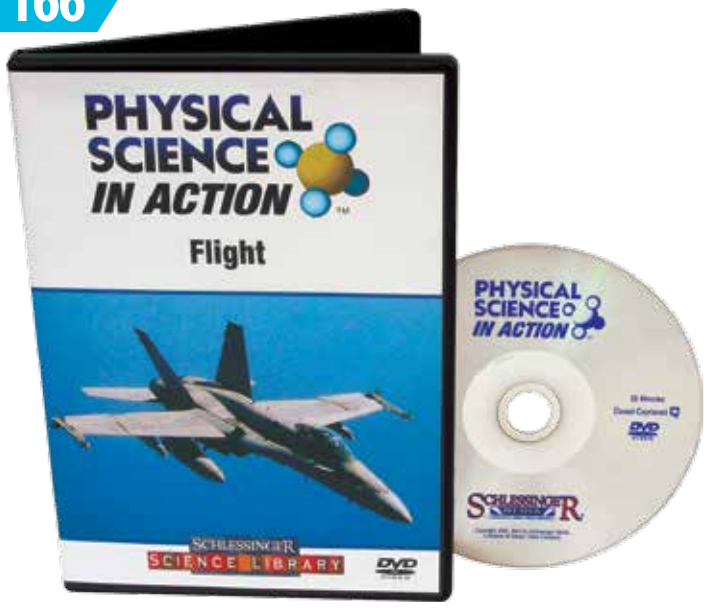
QX57470 Medium (pkg of 100)—$29.95
QX57469 Heavy (pkg of 100)—$29.95



AIRCRAFT-GRADE BIRCH PLYWOOD

A popular wood for all types of woodworking projects, these birch plywood sheets take paint and varnish well and produce an outstanding finished piece. Requires a saw for cutting.

QX57464 (1/8" x 12" x 24")—$12

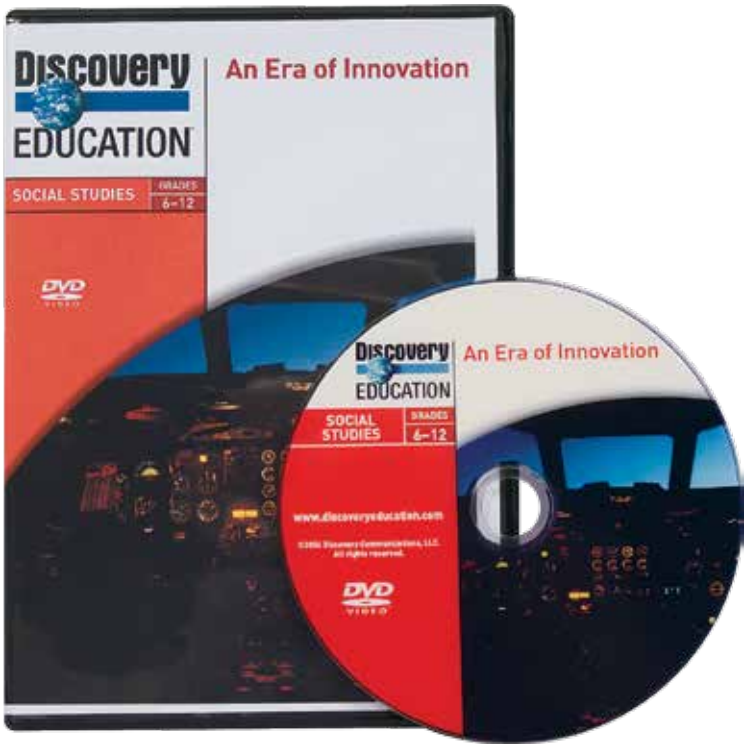


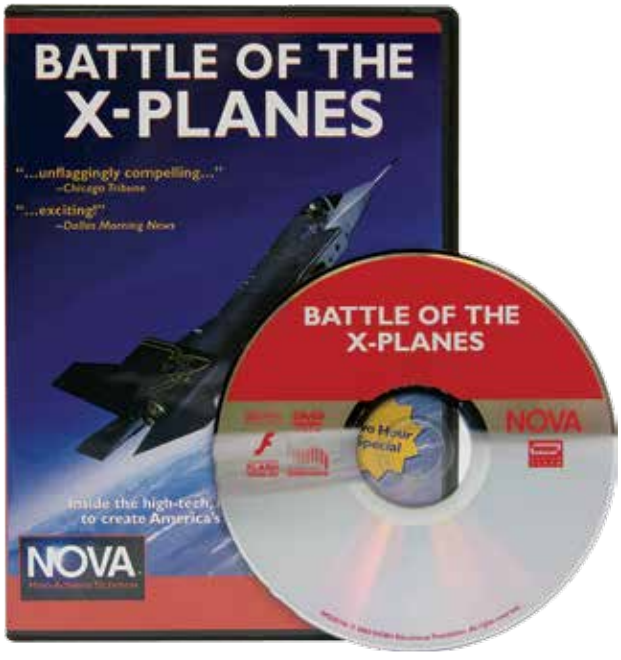
PHYSICAL SCIENCE IN ACTION: FLIGHT VIDEO

Embark on a fun-filled journey and learn about lift, gravity, thrust, drag, air pressure, and the key ideas put forth by Daniel Bernoulli. Meet important people in aviation history and view real-life demonstrations of important concepts. Includes a hands-on activity that kids can do themselves. Closed-captioned. Time: 23 minutes.

Ages 9-14

QX59184 DVD—$39.95



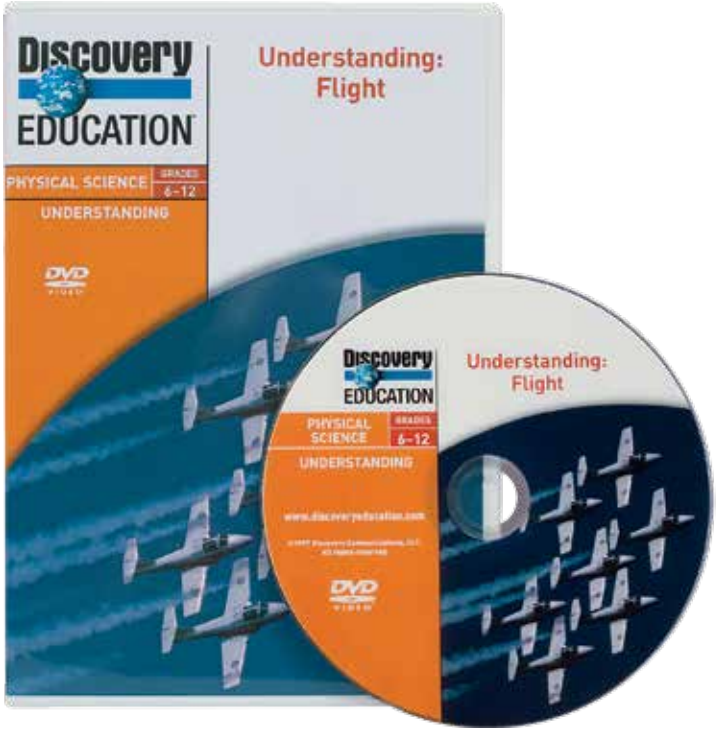


BATTLE OF THE X-PLANES VIDEO

Climb into the cockpit to watch this high-stakes battle between Boeing and Lockheed Martin for a contract to build the most capable and versatile fighter plane ever created. Go inside the backrooms of these giant companies as they race to create a single aircraft that is stealthy, affordable, and adaptable to the widening needs of the military. Gives students a lesson behind the business of aerospace. Closed-captioned. Time: 120 minutes.

Ages 9-14

QX35096 DVD—$19.95



SCIENCE OF FLIGHT: THE SPIRIT OF INNOVATION VIDEO SET

How do airplanes fly? To answer that question, start with *Understanding: Flight* – in which actor John Travolta, author Tom Clancy, airplane designers, and others explain the four principles of flight and why they love flying. Then, get a bird's-eye view of the history of flight in *An Era of Innovation*, which includes everything from a re-creation of Charles Lindbergh's flight across the Atlantic to Chuck Yeager breaking the sound barrier. Finally, learn what is in store in the future of flight. Time: 106 minutes total.

Ages 12+

QX33358 DVD—$99.95



PRO RUDDER PEDALS

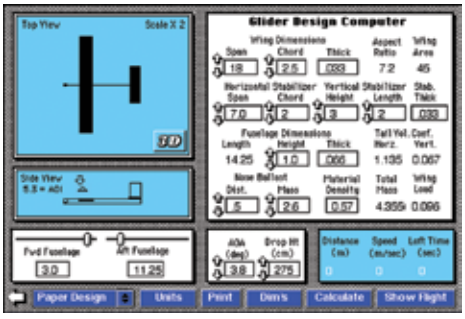
Pro Rudder Pedals features a forward/backward slide motion for real simulation flying. A heel/toe pivot movement of each pedal provides differential toe braking as well as gas and brake control for racing simulators. Includes a seven-foot cable, a three-year warranty, and a USB interface. Compatible with Windows 95, 98, 2000, Me, and DOS (not Windows XP).

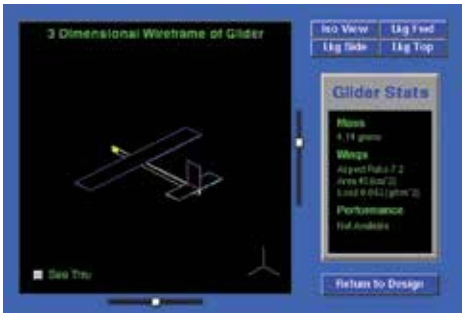
QX57517—$169

FLIGHT SIM YOKE USB

Flight Sim features 19 button functions, including gear switch, flap switch, eight-way hat switch, 2 two-way rocker switches, and four push buttons and precision trim controls. It's easy to set up. Compatible with Windows 98, ME, 2000, XP, Vista, 7, 8, iMac, or Mac OSX with USB port. Includes a seven-foot cable. Compatible with Pro Rudder Pedals, sold separately.

QX57519—$175



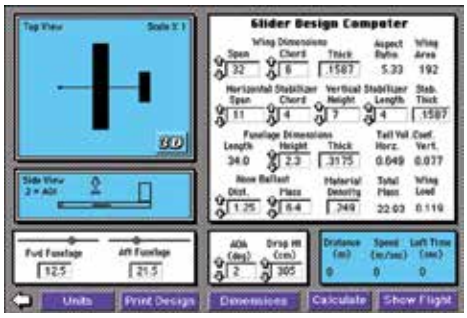


GLIDERS BY DESIGN SOFTWARE

Harness the power of your computer to create impressive, easy-to-assemble gliders. With *Gliders by Design*, you can design and evaluate hand-thrown balsa wood, poster board, or foam gliders on a computer or turn gliders into powered aircraft by adding a propeller and rubber band motor. **Minimum System requirements: Windows:** NT/2000/XP/Win7, 4X CD-ROM drive, 50 Mhz processor. **Macintosh:** PowerPC/Intel Processor, OSX.3 and on, 4X CD-ROM drive.

Ages 12+

QX58036 WIN/Mac CD-ROM—$44.95





INTRODUCTION TO AIRPLANE DESIGN SOFTWARE

This program uses simulations and hands-on testing to teach the principles of science, aerodynamics, theory, and design. Students design, analyze, and fly a glider on the computer. The software's built-in test functions evaluate their aircraft for both performance and problems. Lessons and lab plans are included on the CD.

Minimum System Requirements: Windows: NT/2000/XP/Vista/Win7, 20-25 MB RAM, 100 Mhz processor. **Macintosh:** OS X, 15 MB available RAM, Power PC/Intel Processor.

Ages 12+

QX57655—$137













X-PLANE 10 FLIGHT SIMULATOR SOFTWARE

One of the most powerful flight simulators for personal computers, *X-Plane 10* offers a realistic flight model that is not a game but an engineering tool that predicts the flying qualities of aircraft with incredible accuracy.

X-Plane includes more than 30 aircraft from the space shuttle to the B-2 bomber (and more than 1,400 other aircraft models can be downloaded online).

Minimum System Requirements: 2.5 GHz Dual Core, 4 GB RAM, video card with at least 1 GB VRAM, DVD-ROM.

QX38282 DVD-ROM—$135

Aerospace Resources

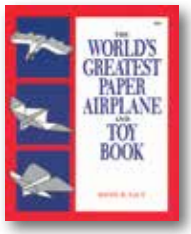
Books



101 OUTER SPACE PROJECTS FOR THE EVIL GENIUS
QX34403—$24.95



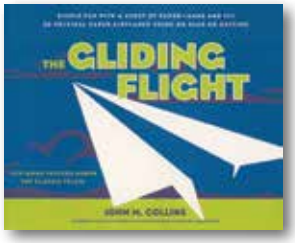
BEST EVER PAPER AIRPLANES
QX33411—$7.95



THE WORLD'S GREATEST PAPER AIRPLANE AND TOY BOOK
QX51093—$13.95



FANTASTIC FLIGHT
QX31576—$16.95

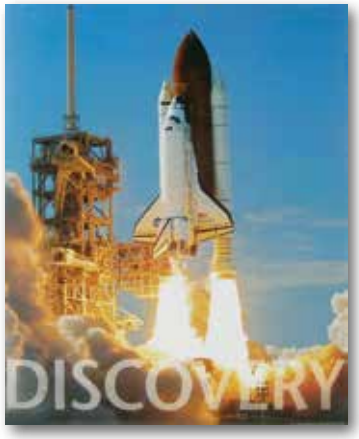


THE GLIDING FLIGHT
QX59508—$16.95

Posters



APOLLO SATURN 1B POSTER
QX58737 (20" x 27")—$15



DISCOVERY TAKEOFF POSTER
QX58714 (16" x 20")—$6



INTERNATIONAL SPACE STATION POSTER
QX57950 (16" x 24")—$6



THE PLANETS POSTER SERIES AND RESOURCE ACTIVITY GUIDE FOR TEACHERS
QX55612 (11" x 17")—$32.95



WRIGHT BROTHERS POSTER
QX32967 (18" x 24")—$14.95



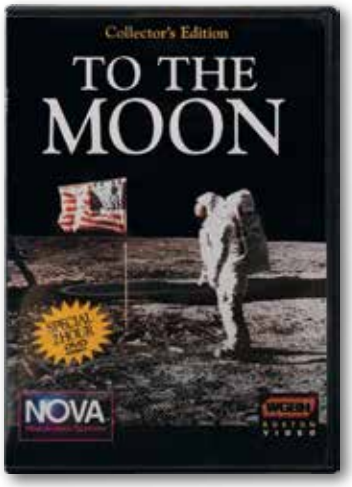
THE SOLAR SYSTEM POSTER
QX58442 (27" x 38")—$16



LUNAR MODULE SALUTE POSTER
QX58718 (16" x 20")—$6

For detailed descriptions of these **useful resources,** visit **www.pitsco.com/aerospace**.

Videos

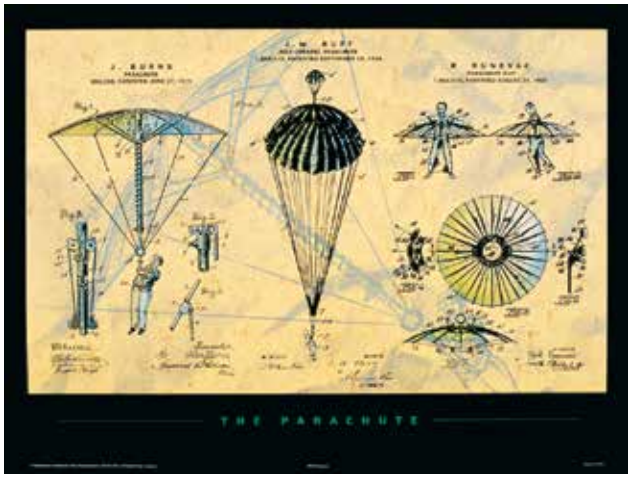


TO THE MOON VIDEO
QX58459—$19.95



Desk Art

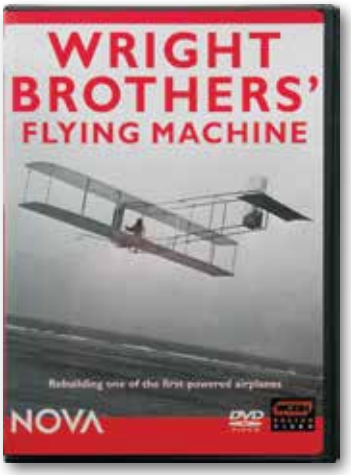
SPACE SHUTTLE KINETIC ART
QX55638—$9.95



THE PARACHUTE POSTER

Take a peek into the archives of the US Patent Office with this poster that reproduces patent-winning diagrams of three twentieth-century parachute designers. Depicted are John Burns' "umbrella" parachute, J. W. Ruff's self-opening parachute, and Paul Bunevac's parachute suit.

QX57619 (18" x 24")—$18



WRIGHT BROTHERS' FLYING MACHINE VIDEO
QX58881—$19.95



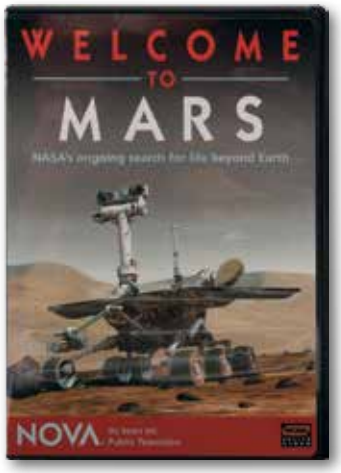
ROCKETS VIDEO
QX31343—$69.95



APOLLO 13: TO THE EDGE AND BACK VIDEO
QX59231—$19.95



LIFTOFF INTO SPACE VIDEO
QX59520—$69.95



WELCOME TO MARS VIDEO
QX59575—$19.95



UNDERSTANDING: FLIGHT VIDEO
QX33354—$49.95

SUSTAINABLE ENERGY

*"I was teaching a lesson on solar energy, and a student just didn't understand or believe that things can run off **energy** from the Sun. So, I ordered the **SunEzoon** Kit, and I had the student construct one. He was absolutely **speechless** when he took it outside in the Sun and saw it move."*

– LaTesa Parker, Teacher, Susie B. Atkinson Elementary, Griffin, GA



Order Harvey's new book, "The HOT Plan." See Page 1.

See related product on page 186!



PRODUCTS:

Solar, wind, water, and more . . . Sustainable energy products provide hands-on opportunities to investigate the fundamentals of renewable energy.

NEW!
Ray Catcher Sprint Deluxe Solar Vehicle Kit – page 176
Light Speed – page 183
Blade Engineering Pack – page 188

ACTIVITIES:

Looking for a hands-on activity to connect real-world issues to math and science concepts? Look to the sustainable energy teacher's guides.

Solar Vehicles Teacher's Guide – page 177
Wind Energy Teacher's Guide – page 186
Maglev Vehicles Teacher's Guide – page 193





CURRICULUM:

As environmental consciousness grows, students need classroom experiences to foster interest and provide hands-on application of the content. Pitsco's green curriculum provides this experience.

Middle-Level STEM Units
Green Future – page 323
Green Machines – page 324
High School Engineering Courses
Green Engineering – page 335

SOLUTIONS:

At Pitsco Education, we believe that the ultimate solution is one that engages students and excites them about learning. The integration of Pitsco products, activities, and curriculum into a classroom creates a hands-on learning solution that positively affects learners.

"The [Pitsco] lab has really come a long way. It makes my life and my job much easier. . . . I love it. I have taught 32 years and could retire if I wanted to. I like coming to work every day. It is never boring. The kids are always getting turned on to something new that they didn't know before."

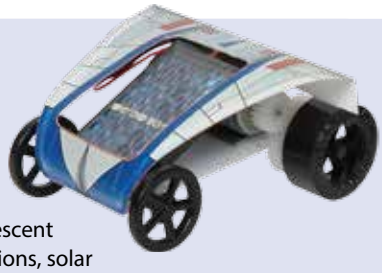
– Gary Blair, Galaxy Middle School, Deltona, FL



SunEzoon Cars



SUNEZOON SOLAR CAR KIT



A Pitsco Exclusive

The easy-to-build SunEzoon Solar Car works outdoors in full sunlight or indoors under a bright incandescent light. Each kit contains instructions, solar panel with alligator clamps, motor, wheels, steel axles, gear font, chassis parts, and a cut-and-fold cover.

Ages 9+

QX28574—$14.95

SUNEZOON SOLAR CAR 10-PACK



A Pitsco Exclusive

The class pack includes enough materials to build 10 SunEzoon Cars. Construction requires scissors and hobby knife or sandpaper, sold separately.

Ages 9+

QX35625—$125

SUNEZOON SOLAR CAR 30-PACK



A Pitsco Exclusive

The class pack includes enough materials to build 30 SunEzoon Cars. Construction requires scissors and hobby knife or sandpaper, sold separately.

Ages 9+

QX35624—$360

Visit www.pitsco.com/sunezoon.

SUNEZOON CARS – GETTING STARTED PACKAGE

A Pitsco Exclusive

Featuring the easy-to-assemble SunEzoon solar car, this Getting Started package includes the *Dr. Zoon SunEzoon Video* and enough materials for students to build 30 solar cars.

The SunEzoon Cars – GS Package includes the following products:

- QX35624 SunEzoon Solar Car 30-Pack
- QX59751 Dr. Zoon SunEzoon Video

QX35694 SunEzoon Cars – Getting Started Package—$370

Ages 9+

Standard alignments available via the Standards Navigator at pitsco.com/StandardsNavigator.

Digital downloads available

DR. ZOON SUNEZOON VIDEO



A Pitsco Exclusive

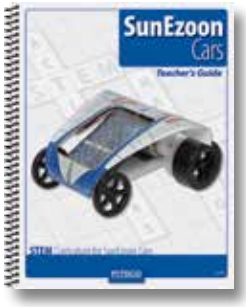
Work along with Dr. Zoon as he builds the SunEzoon solar car. While demonstrating the step-by-step building instructions, he illuminates the scientific principles involved: photovoltaics, gears, energy, and alternative energy.

The SunEzoon Solar Car Kit and the *Dr. Zoon SunEzoon Video* are the perfect combination for introducing students to the world of solar power. Closed-captioned. Time: 14 minutes.

Ages 9+

QX59751 DVD—$24.95

SUNEZOON CARS TEACHER'S GUIDE



A Pitsco Exclusive

Pitsco's SunEzoon Car might be easy to build, but this guide exposes it as the perfect tool for learning various math, science, and engineering subjects. This comprehensive guide sheds light on drive and pinion gears, slope, coordinate graphing, speed, velocity, acceleration, and more. Individual activities available for digital download on the website. Paperback/Spiral-bound, 121 pages.

Ages 12+

QX59465—$24.95







MOTOR 280

A great little motor/generator for small electric vehicles or solar racers. This is the motor specified by the Junior Solar Sprint Competition! Operating voltage: 1.5-3 VDC at 330 mA.

QX54428—$1.75 each
10 or more—$1.60 each
QX37502 280 Motor Mount—$1.95

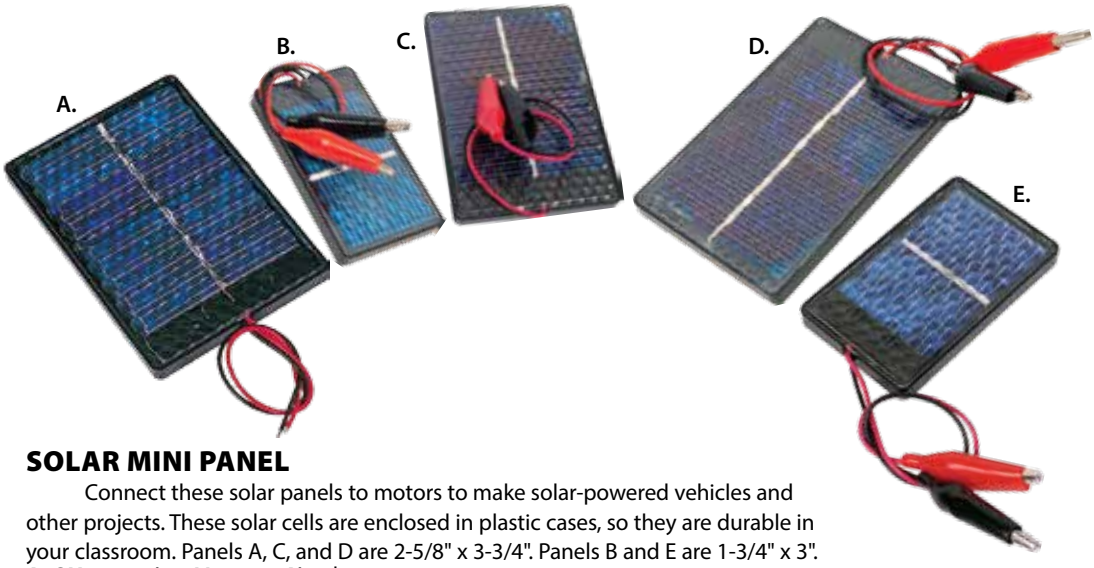


GEAR FONT

A Pitsco Exclusive

Get your motor running! These 16 plastic gears come in an easy punch-out frame and range in size from 1/2" to 2". Redesigned with accurate gear-tooth geometry for a smoother, more fluid fit, these gears can be used on most Pitsco products requiring a gear.

QX25300—$5
10 pkgs or more—$4.50 each
100 pkgs or more—$4.25 each



SOLAR MINI PANEL

Connect these solar panels to motors to make solar-powered vehicles and other projects. These solar cells are enclosed in plastic cases, so they are durable in your classroom. Panels A, C, and D are 2-5/8" x 3-3/4". Panels B and E are 1-3/4" x 3".

A. QX56871 (0.5 V, 800 mA)—$4.95
10 or more—$4.45 each
B. QX56870 (1.0 V, 200 mA)—$3.95
10 or more—$3.65 each
C. QX56851 (1.0 V, 400 mA)—$5.95
10 or more—$5.45 each
D. QX56852 (2.0 V, 200 mA)—$5.95
10 or more—$5.45 each
E. QX59043 (0.45 V, 400 mA)
with alligator clips—$3.95

All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!

SunZoon Lite

GS



SUNZOON LITE SOLAR CAR KIT

A Pitsco Exclusive

Bigger isn't always better – give this little solar car a bright, sunny day, and it can really move! The SunZoon Lite is a perfect kit for solar car beginners.

Use the basswood chassis as is or cut it in a desired shape; the chassis can be painted any color desired. Includes the chassis, solar panel, Motor 280, gear font, front and back wheels, spacer material, adhesive tabs, and a template. No soldering required.

Ages 12+

QX28576—$11.95



SUNZOON LITE SOLAR CAR 10-PACK

A Pitsco Exclusive

Everything needed to build 10 SunZoon Lite solar cars. Just add students! Construction requires hobby knife, scissors, ruler, and optional hand cutting tools and finish, sold separately.

Ages 12+

QX35627—$110



SUNZOON LITE SOLAR CAR 30-PACK

A Pitsco Exclusive

Everything needed to build 30 SunZoon Lite solar cars. Just add students! Construction requires hobby knife, scissors, ruler, and optional hand cutting tools and finish, sold separately.

Ages 12+

QX35626—$239

Visit **www.pitsco.com/sunzoonlite**.

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SUNZOON LITE – GETTING STARTED PACKAGE

A Pitsco Exclusive

Try this low-calorie approach to solar energy! This package has enough materials for 30 students to build a SunZoon Lite solar car, plus it has the *SunZoon Lite* video.

The SunZoon Lite – GS Package includes the following products:

- QX35626 SunZoon Lite 30-Pack
- QX33088 SunZoon Lite Video

QX35635 SunZoon Lite – Getting Started Package—$249

Ages 12+

SUNZOON LITE VIDEO

A Pitsco Exclusive

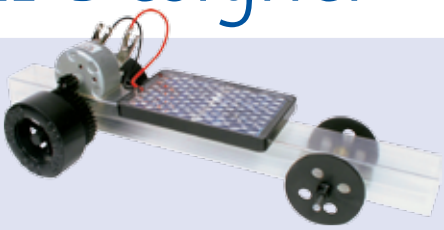
The SunZoon Lite is a superlight build when you have a visual, step-by-step guide. This program provides just that: instructions that are clear and easy to follow. As students build their own personalized SunZoon Lite, they learn about the development of solar energy and how it works. Closed-captioned. Time: 14 minutes.

Ages 12+

QX33088 DVD—$24.95



Solar Designer



SOLAR DESIGNER CAR KIT

A Pitsco Exclusive

Students make a solar-powered car that will travel under bright sunlight using the supplied parts and instructions. Other project ideas are suggested. Kit contains the following: solar panel (.45 V, 400 mA) 1-3/4" x 2-15/16", DC motor, plastic body tube, Pitsco plastic gear font, two axles, four Pitsco wheels, four 1/8" brass washers, and instruction guide.

Ages 12+

QX50073—$11.95
10 or more—$10.75 each



SOLAR DESIGNER 25-PACK

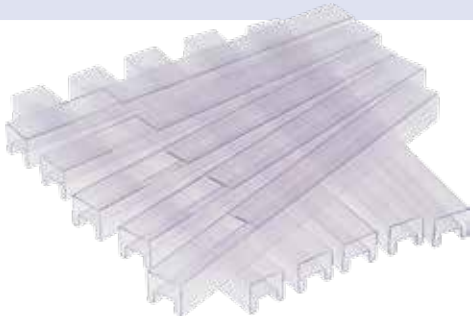
A Pitsco Exclusive

The Solar Designer 25-Pack is based on the popular Pitsco Solar Designer Kit and includes everything needed to design and build 25 solar vehicles. The Solar Designer 25-Pack presents a unique, hands-on activity for teaching students the concepts of solar vehicles and alternative energy. Students can follow the included instructions or venture out with their own design, using a variety of gear drives and innovative ideas to get the most out of the solar panel and the DC motor. Requires a drill with a 9/64" bit, a ruler, and a hobby knife or sandpaper, sold separately.

Ages 12+

QX51417—$265

Visit **www.pitsco.com/solardesigner**.



SOLAR ENGINEERING BODY TUBES

A Pitsco Exclusive

These are great for reusing your Solar Designer Kit. Plastic body tube is identical to the one in the Solar Designer Kit.

QX50225 (pkg of 10)—$11.50



SOLAR DESIGNER – GETTING STARTED PACKAGE

A Pitsco Exclusive

Harness the unlimited energy of the Sun to power a solar car! This Getting Started package includes everything you need to introduce your students to this alternative fuel. Includes a solar car book, the *Solar Designer* video, and materials for 25 student vehicles.

The Solar Designer – GS Package includes the following products:

- QX51417 Solar Designer 25-Pack
- QX32564 Solar Designer Video

QX23661 Solar Designer – Getting Started Package—$269

Ages 12+

SOLAR DESIGNER VIDEO

A Pitsco Exclusive



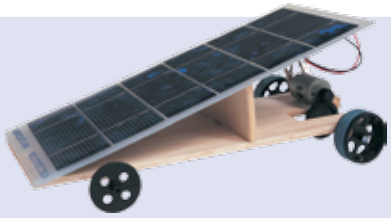
Illuminate the process of building a Solar Designer Car one ray at a time!

This program guides students in building the Solar Designer kit so they are outside racing this solar-powered car in no time. A great activity for introducing the Sun as an alternative energy. Closed-captioned. Time: 15 minutes.

Ages 12+

QX32564 DVD—$24.95

Solar **Vehicles**



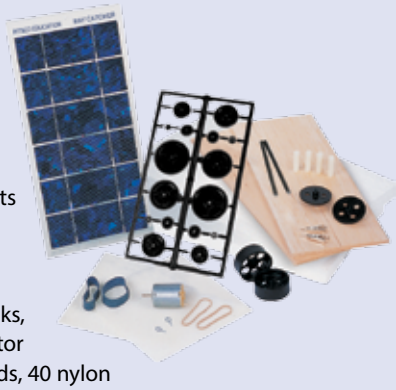
RAY CATCHER SPRINT DELUXE SOLAR KIT

A Pitsco Exclusive

All the materials needed to build a complete solar car for the Junior Solar Sprint competition! The kit contains the required solar panel and electric motor plus the needed balsa wood, wheels, gears, and hardware.

Ages 12+

QX21211—$49.95



RAY CATCHER SPRINT DELUXE 10-PACK

A Pitsco Exclusive

The 10-Pack contains the needed materials for 10 students (or 20 students working in teams of two). Includes two Ray Catcher Solar Panels, 10 Motors 280, 10 solar panel blanks, 20 balsa wood sheets, 24 alligator clips, 40 wheels, 40 rubber bands, 40 nylon spacers, 20 steel axles, 10 plastic gear fonts, 10 two-cell AA battery holders, and assembly and competition instructions.

Requires soldering iron and solder, hobby knife, cool-melt gun and glue, needle-nose pliers, and a ruler, all sold separately.

Ages 12+

QX35562—$160



RAY CATCHER SPRINT DELUXE 30-PACK

A Pitsco Exclusive

When students are building that winning solar car, this pack includes the needed materials for 30 students! Includes six Ray Catcher Solar Panels, 30 Motors 280, 30 solar panel blanks, 60 balsa wood sheets, 72 alligator clips, 120 wheels, 120 rubber bands, 40 nylon spacers, 60 steel axles, 30 plastic gear fonts, 60 screw eyes, 30 two-cell AA battery holders, and assembly and competition instructions.

Requires soldering iron and solder, hobby knife, cool-melt gun and glue, needle-nose pliers, and a ruler, all sold separately.

Ages 12+

QX35561—$450

Visit **www.pitsco.com/raycatcher**.



SOLAR VEHICLES – GETTING STARTED PACKAGE

A Pitsco Exclusive

Saving energy in transportation is at the top of the list these days. This package provides materials for 30 students to design, build, and test their own solar cars, including six Ray Catcher Solar Panels that students share.

The Solar Vehicles – GS Package includes the following products:

- QX35561 Ray Catcher Sprint Deluxe 30-Pack
- QX58606 Dry Powder Graphite Lube (2 tubes included)
- QX32914 Ray Catcher Video

QX35567 Solar Vehicles – Getting Started Package—$470

Ages 12+

RAY CATCHER VIDEO

A Pitsco Exclusive

The *Ray Catcher* video steps your students through the building of this superfast solar car, which is designed for the Junior Solar Sprint contest.

Along the way, students will learn applicable science concepts such as photovoltaics, gears, friction, and more. Closed-captioned. Time: 24 minutes.

Ages 12+

QX32914 DVD—$24.95



Standard alignments available via the Standards Navigator at pitsco.com/StandardsNavigator.



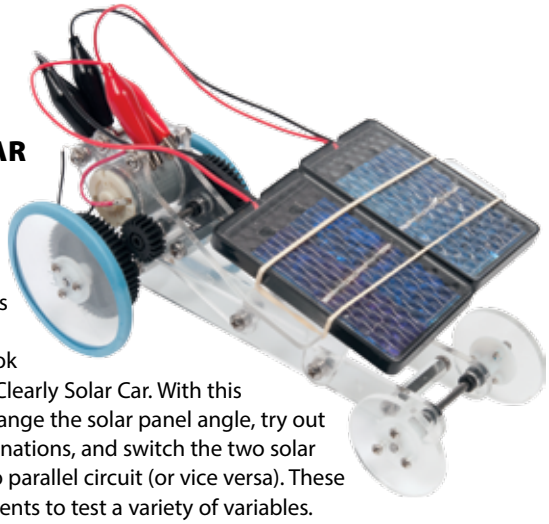
RAY CATCHER CONSUMABLE PACKS

A Pitsco Exclusive

Reuse your Ray Catcher panels without a hassle – these consumable packs give you everything needed to build more of the fast and fun solar cars without rebuying the panels. **Note:** Each car requires a Ray Catcher Solar Panel, sold separately.

Ages 12+

QX35570 10-Pack—$145
QX35569 30-Pack—$315



CLEARLY SOLAR CAR KIT

A Pitsco Exclusive

Looking for something different with model solar cars – more than a build-and-run activity? Look no further than the Clearly Solar Car. With this solar car, you can change the solar panel angle, try out different gear combinations, and switch the two solar panels from series to parallel circuit (or vice versa). These features enable students to test a variety of variables.

Kit requires assembly with small and medium Phillips screwdrivers, small pliers, sandpaper, and transparent tape or cool-melt gun and glue.

QX38157—$36.95



SOLAR-POWERED TROLLEY CAR

For a clear solar car that you don't have to assemble, try this one. Though it comes already built, the solar panel can be tilted to get the most solar power possible, and it features terminals for voltage measurement and a switch that enables you to change modes: battery driven, charging, solar-cell driven, and off. The solar panel not only can run the car but also can recharge the included battery. Includes operation instructions and suggested activities.

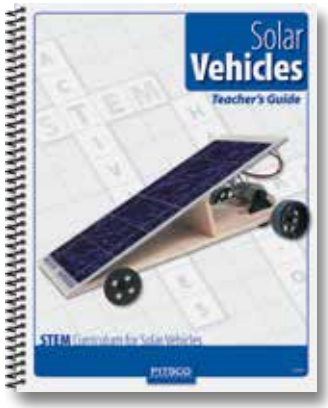
Ages 12+

QX39804—$24.50

Digital downloads available

SOLAR VEHICLES TEACHER'S GUIDE

A Pitsco Exclusive



Use the Sun to power cars *and* your students' minds! With this guide focusing on solar cars, cruise through activities delving into photovoltaics, energy and power, ratios, data graphing, and much more. Individual activities available for digital download on the website. Paperback/Spiral-bound, 93 pages.

Ages 12+

QX59464—$24.95

See Light Speed race system on page 183.

RAY CATCHER SOLAR PANEL

A Pitsco Exclusive



The official solar panel of the Junior Solar Sprint competition, the Ray Catcher measures 267 mm x 127 mm x 3 mm (thick). It is built of lightweight, yet superstrong, high-impact fiberglass laminate and is weather resistant. The panel weighs 126 grams and has an output of 2.9 volts at 1.1 amps. Includes 8" color-coded lead wires.

QX37942—$36
10 or more—$33 each
100 or more—$30 each

RAY CATCHER SPRINT KIT

A Pitsco Exclusive



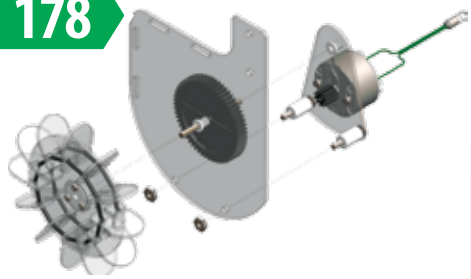
Featuring the Ray Catcher Solar Panel (10.5" L x 5.0" W x 0.08" thick), this solar car kit contains all the official parts and meets the minimum specifications required by the Junior Solar Sprint competition. It includes the solar panel, the official electric motor, and a pair of small alligator clips for easy hookup. Chassis, wheels, and transmission are not included in this kit.

Ages 12+

QX21210—$39
QX54665 Alligator Clips (pkg of 10)—$7.30

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myDAQ MyTemp on page 274



H_2O TURBINE KIT

A Pitsco Exclusive

Put this water wheel under a stream of water to light a bulb so students can see the energy generated by hydropower – this is a good warm-up activity for teaching renewable energy, Newton's third law, rotational energy, and more. Water turbine kit includes laser-cut acrylic pieces, Motor 500, gears, and hardware to construct the 9-3/4" x 3-3/4" x 2-1/4" generator. Can also be used with a voltmeter, sold separately.

Ages 12+

QX35771—$22.95
QX36387 10-Pack—$220



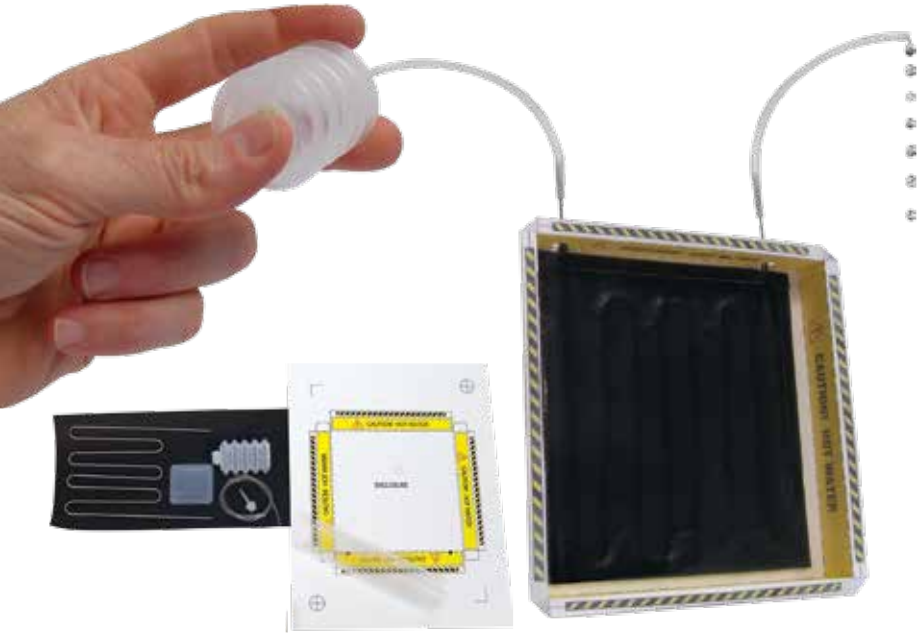


SUNPOWER HOUSE

Help students visualize the effect of solar energy on a home with this cute model solar home. Experimenting with the various materials will help expand students' understanding of energy costs. The 11" x 11" x 8" model comes with a water storage container, thermometer, reflector, insulation panel, and a teacher's guide with activities in basic science, solar energy, and energy conservation. Requires infrared lamp and reflector for indoor experiments (not included).

Ages 9-14

QX36199—$70



SOLAR H_2O HEATER KIT

A Pitsco Exclusive

Teach students about a solar application other than cooking and cars – this miniature solar water heater shows how solar energy can reduce gas or electricity use in homes. This kit makes it easy to build a model solar water heater measuring approximately 7" x 5" x 3/4". Kit includes materials for the water heater and a squeeze bottle for the water. **Caution:** Water can get very hot.

Ages 12+

QX35556—$4.95
QX36312 10-Pack—$47

SOLAR H_2O HEATER 30-PACK

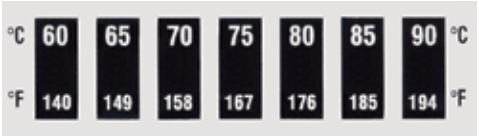
A Pitsco Exclusive

This pack provides enough materials for an entire class of 30 students to build and learn about another solar technology: the solar water heater. Includes the materials to build the water heaters and squeeze bottles to move the water.

Requires scissors and glue sticks, sold separately. **Caution:** Water can get very hot.

Ages 12+

QX36313—$140



REVERSIBLE TEMPERATURE STRIP: 60/90°

Ideal for use in the Pitsco Solar Oven Kit and other temperature-sensitive activities, this reversible temperature strip does the job. Self-adhesive, nontoxic, and reads in both Fahrenheit and Celsius. Reads between 140° and 194° Fahrenheit (60° to 90° Celsius).

QX35860—$1.95

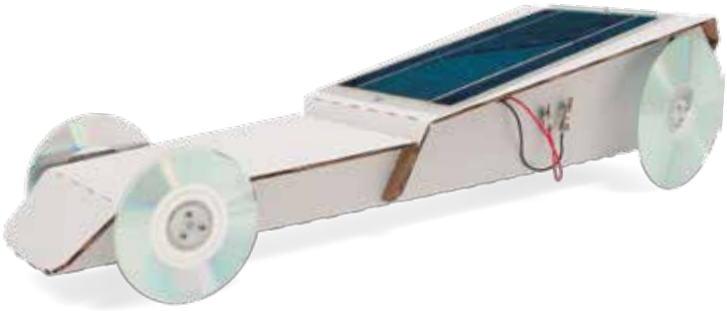


CLASSROOM THERMOMETER

Track temperature variations in experiments – or just in the classroom – with this affordable thermometer. Reads temperatures from 0 to 230 degrees Fahrenheit or -20 to 110 degrees Celsius. Glass thermometer mounted on stainless steel.

QX59405—$1.75

Visit www.pitsco.com/solaroven.



SUN RAY CAR KIT

A Pitsco Exclusive

The classic Ray Catcher gets a reboot with this cool cardboard body that students can customize with paint or decals. Plus, this design enables students to change gear combinations, making it perfect to test different gear ratios.

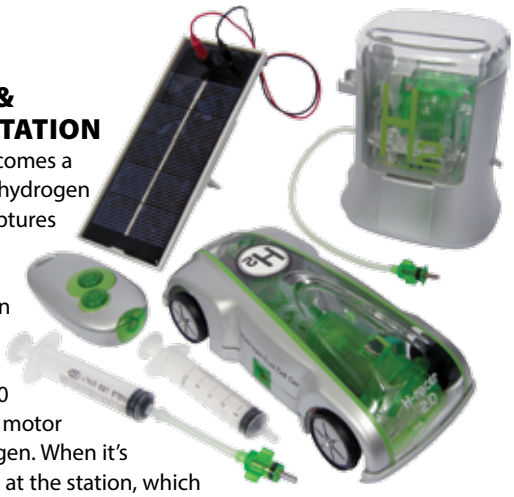


This solar car is easy to build as it doesn't need any cutting or gluing – the clever cardboard body folds together securely. Includes everything you need to make one solar car: a Ray Catcher solar panel, car body, CD wheels, axles, and other necessary hardware. No soldering required.

Ages 12+

QX39937—$44.95

H-RACER 2.0 & HYDROGEN STATION



Finally, here comes a remote-controlled hydrogen fuel cell car that captures the futuristic vision of being able to pull into a hydrogen fueling station and fill up. The award-winning H-Racer 2.0 features an electric motor that runs on hydrogen. When it's empty, refill the car at the station, which can be operated by batteries or solar panel.

Includes hydrogen fuel cell car parts, hydrogen station, solar cell, remote control, education manual, and an experiment guide. Assembly required.

Ages 12+

QX35186—$120

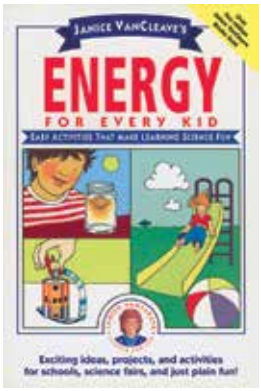
ENERGY FOR EVERY KID

How does color relate to temperature? How do plants recycle? These questions are just a few answered in *Energy for Every Kid.*

The book covers 25 energy concepts such as potential and kinetic energies, mechanical waves, heat transfer, solar energy, and more. Each section begins by explaining the concept in simple language. Then, students work through exercises and fun activities. Paperback, 221 pages.

Ages 9-14

QX31572—$13.95



RENEWABLE ENERGY EDUCATION SET

Help students visualize and apply green energy principles with this set. With this modular kit, your students can learn about several types of sustainable energy and how they can work together to create a complete renewable energy system. Set includes a wind turbine kit with adjustable blade pitch, solar photovoltaic panel, electrolyzer, PEM fuel cell, hydrogen storage system, and guide.

Ages 12+

QX35187—$235



HYDRO-WIND EDUCATION KIT

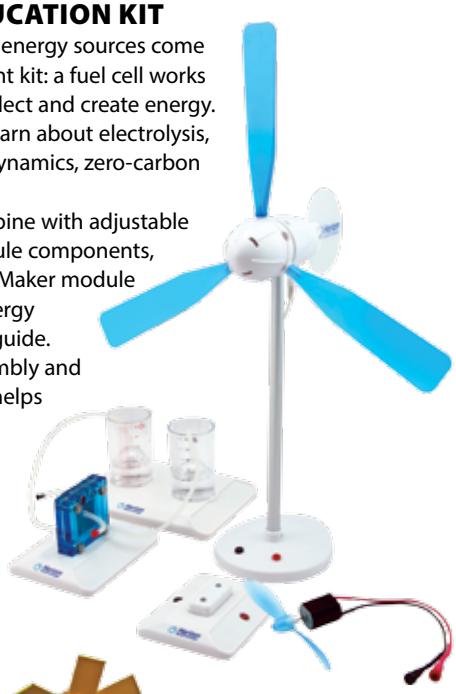
Two of the cleanest energy sources come together in this experiment kit: a fuel cell works with a wind turbine to collect and create energy. In the process, students learn about electrolysis, sustainability, drag, aerodynamics, zero-carbon fuel, and more.

Includes a wind turbine with adjustable blade pitch, fuel cell module components, LED voltmeter and Music Maker module for demonstrating the energy created, and experiment guide.

The simplified assembly and operation of this turbine helps streamline experiments. It enables students to focus on the science behind the turbine instead of a complicated setup.

Ages 12+

QX35185—$199



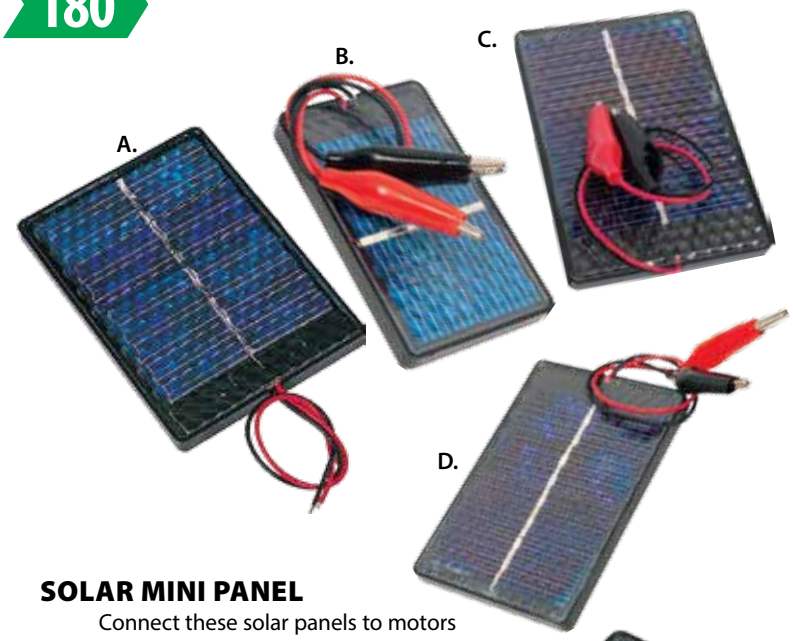
ENERGY CONVERSION KIT

This kit helps teach about the types of energy taken in and released with different devices: a windmill, electric motor, solar panel, LED lamp, buzzer, and hand generator. Comes with a battery holder, connection cords, and detailed instructions. Requires two AA batteries, sold separately.

Ages 9+

QX37160—$65

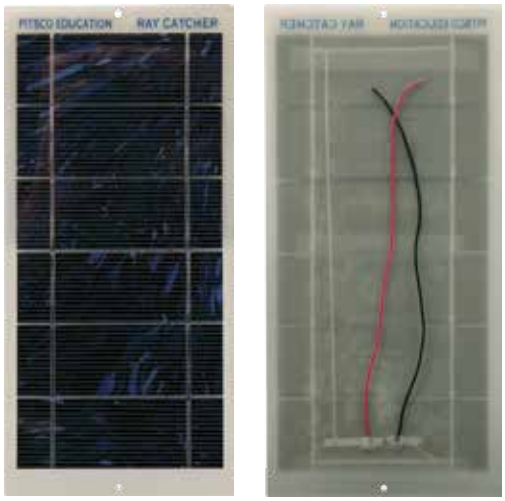




SOLAR MINI PANEL

Connect these solar panels to motors to make solar-powered vehicles and other projects. These solar cells are enclosed in plastic cases, so they are durable in your classroom. Panels A, C, and D are 2-5/8" x 3-3/4". Panels B and E are 1-3/4" x 3".

A. QX56871 (0.5 V, 800 mA)—$4.95
10 or more—$4.45 each
B. QX56870 (1.0 V, 200 mA)—$3.95
10 or more—$3.65 each
C. QX56851 (1.0 V, 400 mA)—$5.95
10 or more—$5.45 each
D. QX56852 (2.0 V, 200 mA)—$5.95
10 or more—$5.45 each
E. QX59043 (0.45 V, 400 mA)
with alligator clips—$3.95



Top View **Bottom View**

RAY CATCHER SOLAR PANEL

A Pitsco Exclusive

The official solar panel of the Junior Solar Sprint competition, the Ray Catcher measures 267 mm x 127 mm x 3 mm (thick). It is built of lightweight, yet superstrong, high-impact fiberglass laminate and is weather resistant. The panel weighs 126 grams and has an output of 2.9 volts at 1.1 amps. Includes 8" color-coded lead wires.

QX37942—$36
10 or more—$33 each
100 or more—$30 each

EXTREME SOLAR PANEL

This 6" x 6" glass-plated solar panel is suitable for applications that demand high voltage output. The panel has been rated for 7.0 V load with a current output of 100-120 mA.

QX35623—$10.95





6-IN-1 EDUCATIONAL SOLAR KIT

Mix fun in the Sun with learning about solar energy. With this kit, students enjoy creating fun toys that run on a solar panel with a 75 mA output. The 21 snap-together parts can be combined to build one of six possible models: a car, walking dog, air boat, windmill, and two different planes. This kit is a great way to start teaching your students about renewable energy. Requires a light source such as the Sun or a floodlight.

Ages 9-14

QX35794—$19.95



FOOT-CANDLE LIGHT METER

Used by everyone from cinematographers to horticulturists, the foot-candle proves an important unit for measuring the intensity of light. But light intensity is also an essential part of utilizing solar energy.

Now, the easy-to-use meter enables you to measure foot-candles in your lab or classroom. This meter features a large-digit LCD (3-1/2"), two ranges (200 and 2,000), and precision photo-diode sensor. Requires one 9 V battery, which is included.

QX31369—$99



NEW!

SOLAR CLOTH

This thin-film solar panel is made of CIGS material, which is very flexible. It performs 14 percent solar energy transformation efficiency, which is much higher than that of other thin-film solar panels.

In addition to its high efficiency, this solar panel is built on an ultra-thin back sheet, which can be rolled 360 degrees. It is packaged with special ETFE film, which is durable and has high light transmittance.

QX41905—$21.95



SOLAR WHEELS

A Pitsco Exclusive

Smooth wheels with very low rolling resistance. 1-1/8" diameter with O-ring "tire."
QX13340 (pkg of 100)—$25
10 pkgs or more—$22.50 each



WIDE RUBBER BANDS

Approximately 1/2" width x 2" length.
QX56136 (pkg of 50)—$1.95



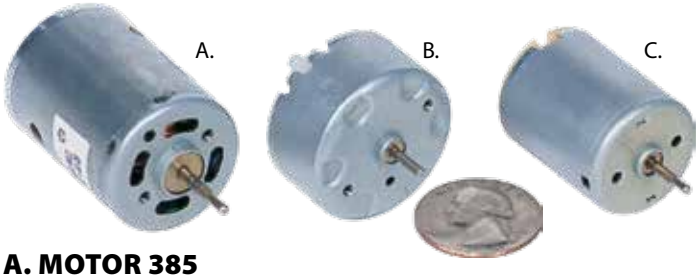
SCREW EYES

Use to attach your solar vehicle to guide wire. Available with a 5/8" shaft or a 3/4" shaft.
QX58537 5/8" (pkg of 100)—$12.95
QX50058 3/4" (pkg of 100)—$5.50



ALLIGATOR CLIPS

One-inch Alligator Clips are great for making quick electrical connections. They are a perfect accessory to use with the Ray Catcher Sprint Car Kit. Two-inch clips are used for attaching launchers to the igniters for a good, positive connection.
QX54665 (pkg of 10)—$7.30



A. MOTOR 385

A heavy-duty motor/generator with carbon brushes. It is an excellent choice for robotics design, model racing cars, R/C vehicles, or any other high-torque, low-power consumption applications. 6-24 VDC, 1,300 mA. No-load speed 14,300 rpm, stall torque 7.71 oz-in.
QX50076—$4.50 each
10 or more—$4.05 each



385 MOTOR MOUNT

QX37503—$1.50

B. MOTOR 500

Use this motor/generator with our Pitsco plastic gears. Smooth-running motor with very low starting friction. Operating range: 1.5-6 VDC, 150 mA. Shaft diameter: 2 mm. Operating range of 1.5 to 6 volts. **Note:** This is the motor used in Pitsco's Wind Gen kit.
QX50075—$1.95 each
10 or more—$1.75 each



500 MOTOR MOUNT

QX37504—$1.50

C. MOTOR 280

A great little motor/generator for small electric vehicles or solar racers. This is the motor specified by the Junior Solar Sprint competition! Operating voltage: 1.5-3 VDC at 330 mA.
QX54428—$1.75 each
10 or more—$1.60 each



280 MOTOR MOUNT

QX37502—$1.95



STYRENE MIRROR – SILVER SHEETS

Create small parabolic surfaces perfect for small projects. Or use to reflect extra light to a solar cell – a great way to get extra power to solar vehicles! Styrene sheets are flexible. Four 7.6" x 11" sheets per pack.
QX59133—$34.95



SOLAR ENGINEERING BODY TUBES

A Pitsco Exclusive

These are great for reusing your Solar Designer Kit. Plastic body tube is identical to the one in the Solar Designer Kit.
QX50225 (pkg of 10)—$11.50



GEAR FONT

A Pitsco Exclusive

Get your motor running! These 16 plastic gears come in an easy punch-out frame and range in size from 1/2" to 2". Redesigned with accurate gear-tooth geometry for a smoother, more fluid fit, these gears can be used on most Pitsco products requiring a gear to turn a servo, wheel, or motor.
QX25300—$5
10 pkgs or more—$4.50 each
100 pkgs or more—$4.25 each



BUSHINGS

When used as bushings on our small motor shafts (Pitsco 50075, 50076, and 54428), these small plastic tubes enable you to attach any gear with a 1/8" hole directly onto the motor. Works great with the Pitsco Gear Font (25300) and our other gear packages.
QX57063 (1/4" long; 1/8" inside diameter) (pkg of 10)—$1.95



MINI LAMP WITH LEADS

A two-volt, 60 mA bulb is pre-soldered to 6" electrical leads for a variety of projects such as those using solar cells and DC motors. This also works well as a replacement for the lamp and leads for the H_2O Turbine, Wind Gen, and other kits.
QX30990—$2.50



Der Wiener Roaster



Banty Roaster

DER WIENER ROASTER

A Pitsco Exclusive

Demonstrate the practical use of solar energy with Der Wiener Roaster, our solar hot dog cooker.

Simply place two foil-wrapped hot dogs in the heat-absorbing metal tube and the solar cooker's reflective, parabolic surface will gather the Sun's rays for a tasty treat. The surface can be positioned to catch the most solar rays possible.

The unit is made of durable, high-density polyethylene and features a shield over the metal tube for added insulation and safety. The unit has a collector surface area of more than 250 square inches. Size: 14.5" wide x 22" high.

QX28570—$295

BANTY ROASTER

A Pitsco Exclusive

Cousin to our Der Wiener Roaster, the Banty Roaster solar cooker is smaller but demonstrates the same practical use of solar energy – and it's easier on the wallet.

Using its parabolic surface, the cooker redirects the Sun's rays to roast precooked cocktail sausages wrapped in foil and placed in the cooking tube. Within minutes, students get a tasty example of solar energy.

Dimensions are 8" wide and 12" tall, and it has a collector surface area of 95 square inches. Cooking tube inside diameter is 11/16". Includes tinted acrylic pieces, styrene parabolic surface, hardware, and user guide.

QX32877—$75

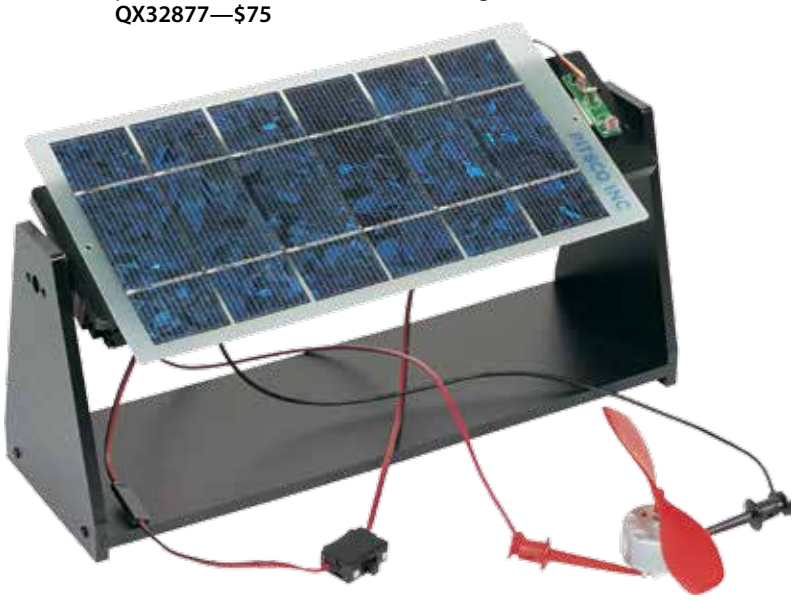
SUN TRACKER

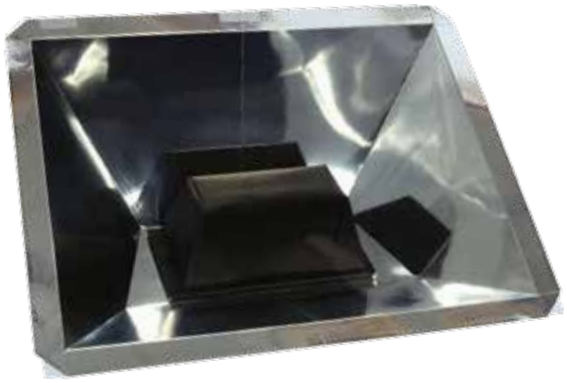
A Pitsco Exclusive

Just like the big solar tracking systems used in commercial applications, the Sun Tracker will stalk the Sun across the sky for optimum power gathering. Aligned north and south, the tracker has two sensors that keep the solar panel angled at the Sun. Comes with a motor and propeller to demonstrate the energy being gathered by the panel. The motor board is pre-soldered. Includes our Ray Catcher Solar Panel.

Ages 12+

QX28457—$215





SOLAR OVEN KIT

A Pitsco Exclusive

This affordable kit is a great way to get students thinking of everyday applications for solar energy. Use this solar oven to demonstrate heat gain, heat loss, and the second law of thermodynamics. Students can toast up s'mores, nachos, and other small treats with the 13-1/4" x 10-1/2" x 6" oven. **Caution:** Oven might not get hot enough to safely cook products containing egg.

Packs include enough material to build 10 or 30 Solar Ovens.

Ages 12+

QX35546—$7.95

QX36310 10-Pack—$74.95

SOLAR OVEN 30-PACK

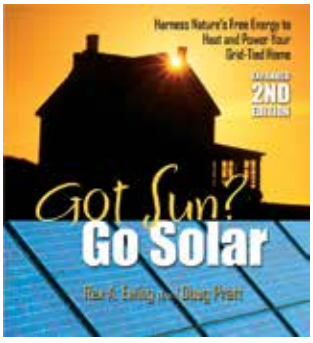
A Pitsco Exclusive

Enough materials for 30 students to build and use their own Solar Oven. Great for demonstrating heat gain, heat loss, and thermodynamics.

Requires scissors or hobby knife, glue sticks, and transparent tape, sold separately. **Caution:** Oven might not get hot enough to safely cook products containing egg.

Ages 12+

QX36311—$220



GOT SUN? GO SOLAR 2ND EDITION

A down-to-earth guide, *Got Sun? Go Solar* shows how solar and wind energy can reduce or eliminate dependence on the grid – and how technology has made these sources cheaper and more attractive than ever.

Covers the advantages of renewable energy, regulations, choosing a system that fits your home, financial assistance available, and more. Paperback, 192 pages.

Ages 12+

QX31909—$24



LIGHT SPEED NEW!

A Pitsco Exclusive

Lace up your shoes and put on your sunglasses – it's time to race . . . solar cars, that is. Although not limited to outdoor racing, Pitsco's Light Speed is a two-lane speed-tracking system with specially designed sensor modules that enable you to get your solar race on. In addition to solar car races, it can also be used for electric, mousetrap, propeller, or any other cars that race on a string.

With start and finish lines, a timing module, an LCD display, a 12 VDC power pack, two deceleration towels, and cable to connect it all, you have everything you need to set up this racing system to a maximum length of 80 feet.

Whether the Sun is shining bright or storm clouds are forming overhead, the race can proceed as scheduled. The Light Speed timing system has you covered indoors and out.

Includes a battery-powered option (eight AA batteries, sold separately) that provides a three-hour run.

QX41929—$499





ROBOTIKITS AERIAL CABLE CAR KIT

Solar energy gives this aerial cable car a lift – watch as it travels from one end of the cable to the other. This kit provides technical building experience for students as they see how gears and solar energy work to move this car. No soldering necessary.

Ages 12+

QX34401—$17.95



KYOCERA BLUE EAGLE SOLAR CAR KIT

This easy-to-build solar car demonstrates the principles of solar vehicles. The 4.5" molded plastic body assembles in minutes. The single rear wheel can be turned to make the Blue Eagle follow a circular path. Includes motor and solar cell.

Ages 9+

QX52742—$24



ROBOTIKITS SONIC F1 KIT

This F1 car takes sunshine, not gasoline. Features a sporty design to attract students' attention – and its performance will keep their attention. This solar car kit builds easily and needs just a cutter; no soldering necessary.

Ages 12-14

QX34399—$15.95



ROBOTIKITS MINI SOLAR RACING CAR KIT

Sporting surprising speed, this miniature solar car can really kick it into high gear just by using sunlight. With fewer than a dozen parts that snap together, this is a simple kit for students to put together. No soldering or tools required. Approximately 2.25" long when built.

Ages 12+

QX33406—$12

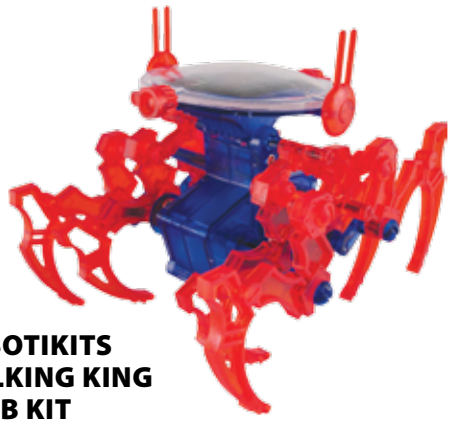


TOYOTA RARA X SOLAR CAR KIT

This small snap-together solar car model from Tamiya's Solar Miniature Series features a 0.5-volt, 300 mA solar panel and provides your students with a quick, easy, hands-on introduction to solar power. Simple diagrams aid assembly, and a brief text on the car package explains the function of a solar cell and how to operate the car.

Ages 9+

QX56974—$26



ROBOTIKITS WALKING KING CRAB KIT

You'll enjoy this little crab – even without the butter! Just 3.5" long when built, this kit uses a tiny solar panel to power the robotic crab's eight-legged shuffle. Includes high-density plastic parts, pre-soldered motor, necessary hardware, and instructions.

Ages 12+

QX33404—$12.95

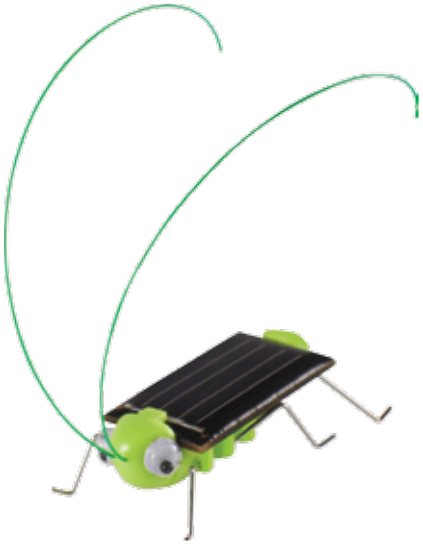


ROBOTIKITS HAPPY HOPPING FROG KIT

Kiss this frog with sunshine and watch it go! Powered by a small solar panel, this robotic frog comically jiggles its eyes as it happily jumps about. With simple, no-tools-needed assembly, this kit quickly and easily demonstrates alternative energy principles. Approximately 2.5" long.

Ages 12+

QX33407—$12.95



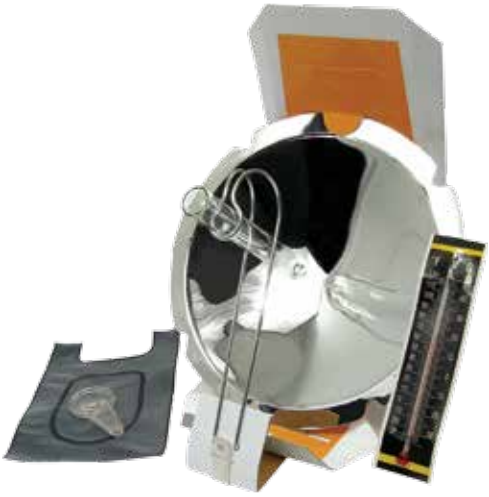
ROBITIKITS FRIGHTENED GRASSHOPPER KIT

This little guy really does the jitterbug – its eyes, legs, and antennae jiggle and wiggle the grasshopper right across the surface in an amusing dance. Almost 2" long, this Frightened Grasshopper Kit snaps together with fewer than 10 parts, including a tiny solar panel. No soldering required.

Ages 12+

QX33403—$12

Adult supervision is recommended.



SOLAR ENERGY KIT

If you are tired of solar kits that only do one thing, this little kit is for you! With just 10 kit parts and basic household items, the included instructions guide students through 25 different activities.

Ages 9+

QX33416—$12

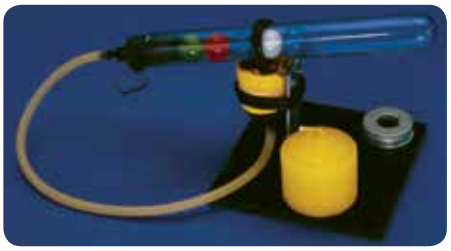
LOW-TEMPERATURE DIFFERENCE STIRLING ENGINE

A favorite of engineers and techies, the Stirling engine is an external combustion engine that runs by turning heat energy into mechanical work in a thermodynamic cycle. It can convert heat from hot water (or ice water) in a room-temperature setting to run the engine. This attractive model runs at 150 rpm with a cup of hot water but will run backward on a cold surface.

Ages 9+

QX37157—$99.95





SIMPLIFIED STIRLING ENGINE

A cost-effective way to demonstrate the power of Robert Stirling's hot-air engine. After completing a simple assembly, you and your students can study how the mechanism works. Then, use the included information and discussion topics to learn more about this quiet, efficient, and flexible engine.

Ages 12+

QX31417—$26



POWER HOUSE: GREEN ESSENTIAL EDITION KIT

Help your class explore many energy and green-living concepts with a model that puts it into context for everyday living.

First, construct the Power House. Then, explore alternative energy and sustainable living as students carry out dozens of possible experiments and build energy models. They will discover green construction materials, passive solar design, the water cycle, photovoltaics, wind turbines, and more. This edition also features a greenhouse!

Includes a 64-page color manual that details 30 experiments and 10 projects.

Ages 12+

QX37732—$94.95



SNAP CIRCUITS GREEN ALTERNATIVE ENERGY KIT

With the flexibility and ease of Snap Circuits but with a green angle, this set helps students explore electricity and forms of alternative energy.

From connecting and working hand cranks and windmills to solar light clocks and energy converters, the included full-color guide offers 129 projects. The set has a green energy manual and more than 40 pieces.

Ages 12+

QX36214—$64

Eco-Wind Gen



ECO-WIND GENERATOR II

A Pitsco Exclusive

Constructed of sturdy card-stock parts, this remodeled wind generator is easier to build than ever and requires no glue! This is an economical choice if you want everyone in the class to build and have one so students can see the power of the wind up close!

The kit comes with die-cut parts, adhesive dots, motor mount, and the Motor 500 with wires and a lightbulb. Requires a high-velocity fan (or wind) and scissors, sold separately.

Ages 9+

QX39896—$7.95



ECO-WIND GENERATOR II 10-PACK

A Pitsco Exclusive

This pack has enough materials for 10 students to each build and take home an Eco-Wind Gen II, an easily built student wind generator that uses wind to power a small lightbulb. Requires a fan (or wind), hobby knife, and scissors, sold separately.

Ages 9+

QX40731—$74.95

ECO-WIND GENERATOR II 30-PACK

A Pitsco Exclusive

Bring wind energy understanding to an entire class with this 30-pack of the Eco-Wind Gen II, an affordable model wind generator. Requires a fan (or wind), hobby knife, and scissors, sold separately.

Ages 9+

QX40732—$220

Visit www.pitsco.com/ecowindgen.



ECO-WIND GEN – GETTING STARTED PACKAGE

A Pitsco Exclusive

The need for alternative energies has never been more apparent than now. An affordable, hands-on way to teach wind energy concepts, this Getting Started package includes materials for 30 students to build model wind generators. Plus, it includes the WinDynamo III for classroom demonstrations and the *Eco-Wind Gen* video.

The Eco-Wind Generator – GS Package includes the following products:

- QX40732 Eco-Wind Generator II 30-Pack
- QX39826 WinDynamo III Wind Generator
- QX59898 Eco-Wind Gen Video

QX36309 Eco-Wind Gen – Getting Started Package—$499

Ages 9+

Standard alignments available via the Standards Navigator at pitsco.com/StandardsNavigator.

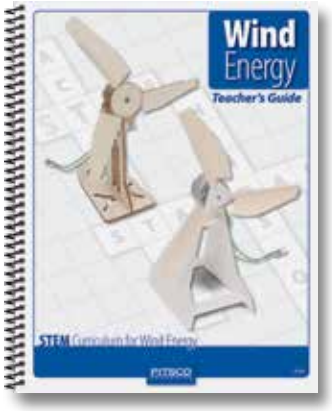
WIND ENERGY TEACHER'S GUIDE

A Pitsco Exclusive

Using the WinDynamo II with the Eco-Wind Generator Kit or the Wind Gen Kit, this guide provides a close-up look at wind energy. It details hands-on activities to teach students how to measure wind speed, calculate rpm, determine optimum pitch angles, create a wind farm producing a specified voltage, and more. Paperback/Spiral-bound, 99 pages.

Ages 12+

QX32942—$24.95



ECO-WIND GEN VIDEO

A Pitsco Exclusive



Wind energy comes to life for students with this video's insight to the science and technology of wind generators. See how to build a model wind generator and understand how the model – and a full-size wind generator – works.

This video leads students through the construction and operation of an Eco-Wind Generator and provides a scaling activity using the completed model; STEM connections; a Make the Connection section discussing wind energy, rotational energy, and how the generator creates electricity; and more. Closed-captioned. Time: 25 minutes.

Ages 9+

QX59898 DVD—$24.95

Wind Gen

WIND GEN KIT

A Pitsco Exclusive

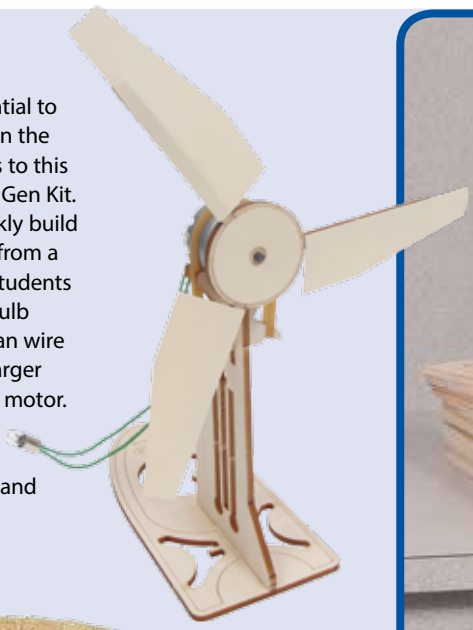
Wind energy has the potential to supply all the electricity needed in the United States. Introduce students to this renewable energy with the Wind Gen Kit.

With this kit, students quickly build a windmill that catches a breeze from a fan and converts it into energy. Students see this energy when it lights a bulb attached to the motor. Or, they can wire several mills together to power larger devices such as a radio or a small motor.

Features a motor with a pre-soldered bulb and laser-cut parts that fit together for a clean and easy build.

Ages 12+

QX32197—$12.95







WIND GEN 25-PACK

A Pitsco Exclusive

Includes enough parts, materials, and instructions for 25 students. Requires white glue, glue stick, scissors, and a high-velocity fan, sold separately.

Ages 12+

QX32470—$310

Visit www.pitsco.com/windgen.

WIND ENERGY – GETTING STARTED PACKAGE

A Pitsco Exclusive

The need for alternative energies has never been more apparent than now. Get students thinking about wind energy concepts through this hands-on activity. The Getting Started package has enough materials for 25 student wind generators and has a WinDynamo III for teacher demonstrations or advanced student explorations.

The Wind Energy – GS Package includes the following products:

- QX32470 Wind Gen 25-Pack
- QX39826 WinDynamo III Wind Generator
- QX32913 Wind Gen Video

QX23616 Wind Energy – Getting Started Package—$575

Ages 12+

THREE-SPEED HIGH-VELOCITY FAN

This 14" electric table fan provides enough wind power to operate the WinDynamo III, WinDynamo II, Wind Gen Kit, or Eco-Wind Generator.

QX40385—$49.95



All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!

WIND GEN VIDEO

A Pitsco Exclusive

Putting together the Wind Gen Kit is a breeze when you have this video guiding the way.

Just follow these clear steps to build our laser-cut wind generator kit, and your students will be experimenting in no time! And along the way, they learn about the importance of wind energy and its amazing potential. Closed-captioned. Time: 12 minutes.

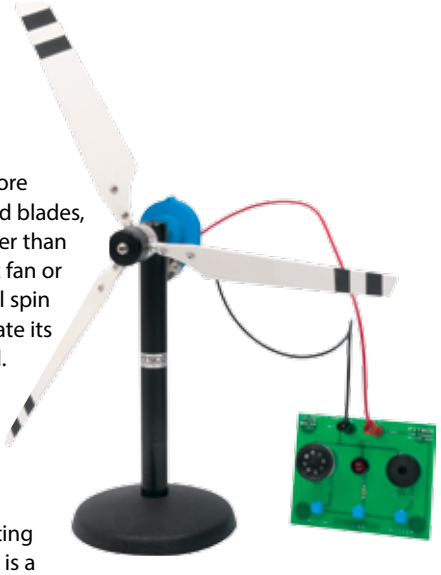
Ages 12+

QX32913 DVD—$24.95



WINDYNAMO III WIND GENERATOR

A Pitsco Exclusive



Redesigned with a more efficient gearbox, motor, and blades, the WinDynamo works better than ever. With any standard box fan or a good wind, the blades will spin easily so you can demonstrate its power on the activity board.

Pitsco's wind turbine shows students how alternative energy is created by harnessing the wind produced by a fan or the wind. Experimenting with different blade pitches is a breeze with the front adjustment knob that moves all three blades simultaneously. The WinDynamo III features a stackable banana connector for adding a voltage meter.

Comes with an activity board for demonstrating how to convert electricity into light, sound, and mechanical energy. Some of the activities included with the WinDynamo III require the use of a multimeter, sold separately. Requires a screwdriver and a 20" box fan, 14" table fan, or real wind, not included.

QX39826—$295



Box fan not included.

AIR STREAM NEW!

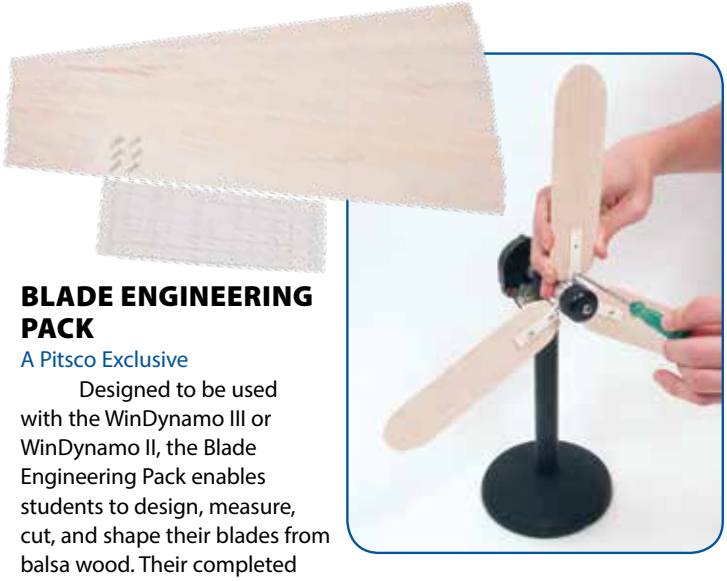
A Pitsco Exclusive



Sometimes, an ordinary box fan isn't enough to efficiently test wind turbines. The airflow created by a fan isn't always consistent. The Air Stream helps alleviate that problem. An add-on created to attach to a 20-inch box fan, the Air Stream converts an ordinary box fan into a large laminar airflow source for use with wind turbines and other large structures. With cardboard and cool-melt glue, students can easily create a 20-inch grid that attaches to the average box fan. Included are cardboard for construction and an elastic cord and elastic cord lock for attaching to a box fan. The Air Stream is great to use with the Wind Turbine Experimenter's Kit, WinDynamo III, and more.

Ages 12+

QX41723—$12.95

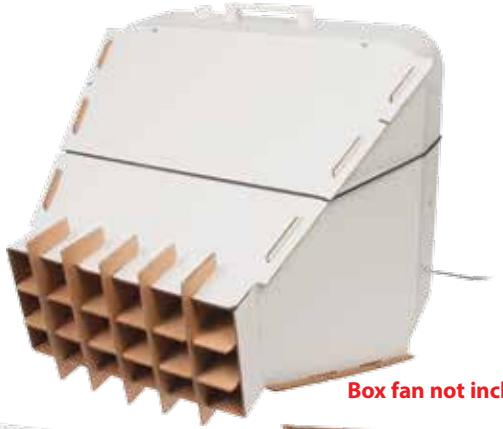


BLADE ENGINEERING PACK

A Pitsco Exclusive

Designed to be used with the WinDynamo III or WinDynamo II, the Blade Engineering Pack enables students to design, measure, cut, and shape their blades from balsa wood. Their completed blades can be tested at various pitch angles on the WinDynamo II or III. Requires glue, hobby knife, sandpaper, Phillips screwdriver, ruler, ballpoint pen, and WinDynamo III Wind Generator, sold separately.

QX40348—$19.95



Box fan not included.

AIR CONTROL FUNNEL NEW!

A Pitsco Exclusive

An add-on created to attach to a 20-inch box fan, the Air Control Funnel turns an ordinary box fan into a concentrated laminar airflow source for testing airfoils and the aerodynamics of other geometric solid objects. Students use cardboard and cool-melt glue to construct a grid and funnel that easily attaches to the average box fan. Included are cardboard for construction and an elastic cord and elastic cord lock for attaching the funnel to a box fan. The Air Control Funnel is great to use with the Wing Build Kit and Wing Test Stand.

Ages 12+

QX41724—$19.95





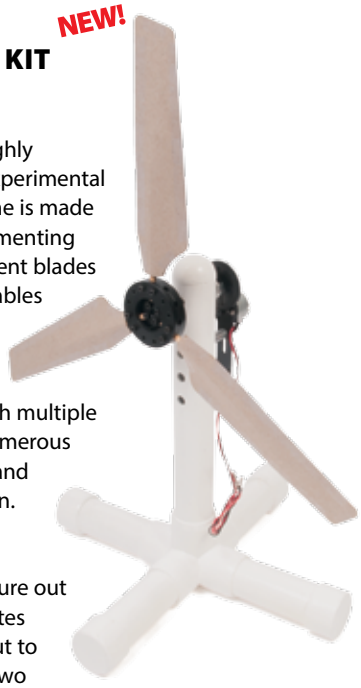


Box fan and Air Stream not included.

WIND TURBINE EXPERIMENTER'S KIT NEW!

A Pitsco Exclusive

The Wind Turbine Experimenter's Kit is a highly expansive set for large experimental freedom. The wind turbine is made from PVC pipe for experimenting and analyzing with different blades and configurations. It enables you to create and test blade designs as well as various numbers of blades. The kit comes with multiple pieces of PVC pipe for numerous heights for your turbine and blade diameter circulation. Six different gear ratios are possible and can be experimented with to figure out which configuration creates the greatest power output to the included voltmeter. Two different blade materials are included along with three blade patterns.



Ages 12+

QX41727—$175

SAVONIUS ROTOR

A Pitsco Exclusive

The Savonius Rotor is a low-rpm, high-torque, vertical-axis wind generator that harnesses wind – no matter what direction it's blowing! Plus, this design features laser-cut wood pieces, precut slots, and alignment marks to ensure proper placement of all parts.

Great for curricula on electricity, alternative energy, or environmental science, the Savonius Rotor is perfect for both teacher demonstrations and student construction activities. Rotor dimensions: 12-1/4" x 5-1/4". Requires soldering.



Ages 12+

QX30132—$29.95



WIND TURBINE BLADE KIT NEW!

A Pitsco Exclusive

Create your own wind turbine blades with the Wind Turbine Blade Kit! The kit is meant to be used with the Wind Turbine Experimenter's Kit so the created blades can be thoroughly tested. Included within are three different blade designs, six dowel rods, two materials to create the blades, and angle gauges. Use the designs inside or have students make their own to see what will work best with their wind turbine. After the blades are created, attach them to a wind turbine and set the angle with the angle gauge. With the Wind Turbine Blade Kit, the experimental possibilities of a wind turbine are greatly expanded.

Ages 12+

QX41728—$9.95

QX42037 Wind Turbine Blade Class Pack (serves 24 students)—$205



LOOPWING WIND POWER GENERATOR SET

With its clear plastic cover, Loopwing lets students see how a wind turbine works. Even in a light breeze, the rotor wings spin to provide power to charge a capacitor, which generates enough electricity to run a motorized car on top of the unit. Two types of gears can be selected to generate higher amounts of power depending on wind speed. Loopwing's stand has a built-in weight to keep it steady on a flat surface and features a grip so it can be operated as a handheld device.

Ages 12+

QX34409—$65



WINDMILL GENERATOR

This windmill generator is a great demonstration tool – it's easy to assemble and uses a water bottle for a base. When wind or a fan blows the blades, the motor creates energy to light up the LED inside the bottle. Includes instruction and explanation sheet.

Ages 12+

QX35188—$12.95



SAVONIUS WIND TURBINE V3

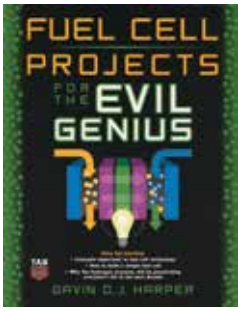
This precut vertical axis wind turbine is easy to assemble so you can focus on demonstrating how this unusual-looking turbine works to convert wind into energy.

Features an injection-molded base, precut plastic wind blades, and rare earth magnets. The built-in LED shows you that the wind turbine is working – or connect it to a multimeter, sold separately. Built model measures 204 mm x 145 mm x 145 mm.

Ages 12+

QX39700—$52

FUEL CELL PROJECTS FOR THE EVIL GENIUS

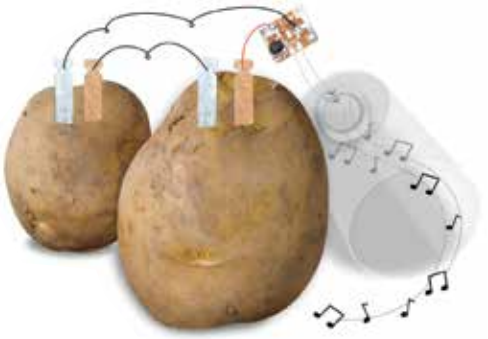


Starting with the history and physical properties of hydrogen, this book quickly delves into what evil geniuses do best – wild and cool experiments. Explored here are acid-metal reactions, water electrolysis, mini fuel cells, hydrogen-fueled iPods, and 40 more projects. Paperback, 196 pages.

Ages 15+

QX34452—$24.95

ENVIRO BATTERY KIT

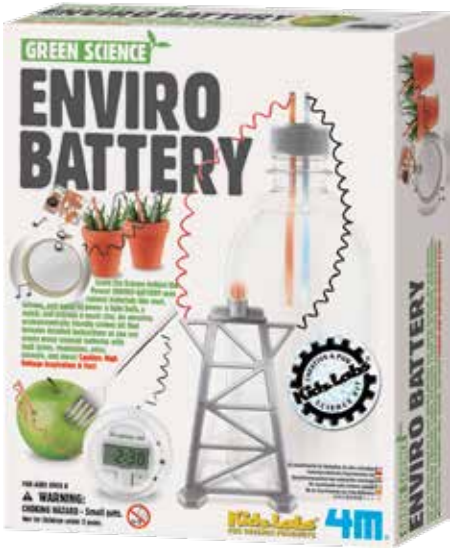


Who knew that potatoes, salt water, and mud could create usable energy? Your students will be amazed at how these items light a bulb or run a sound buzzer. Comes with an experiment guide for making a coin battery, a fork battery, a potato buzz wire game, and more.

Kit also includes 3 zinc and copper plates; connection wires; 3 plastic cups; light tower; LED lamp and sound chip, each with a connection wire; experiment record sheet; and adhesive tape.

Ages 9-14

QX35610—$12.95



CLEAN WATER SCIENCE KIT

Clean water is one of our most basic necessities. Learn the science of cleaning and reusing dirty water by conducting water purification experiments. Build a water filtration and desalination plant right in the classroom, disinfect water with solar power, and more with this kit.

Includes 4 filter sections and plugs; round filter base; 3 bags each of active carbon, sand, and gravel; 3 filters; funnel-shaped collector; 2 plastic cups; soft wax; fishing line; transparent tube; 2 transparent caps; silver reflector card; metal washers; and instruction guide.

Ages 9-14

QX35609—$12.95



KILL A WATT

Help students grasp the amount of energy used by everyday appliances with the handy Kill A Watt. Designed to help homeowners lower electricity bills, it can also be used when teaching about energy consumption and conservation. Simply plug the appliance into the Kill A Watt and it will measure the energy used by the kilowatt-hour.

The device features a large LCD display that shows volts, amps, watts, and hertz. It can even calculate the cost of electricity by day, week, month, or year.

QX36506—$29.95





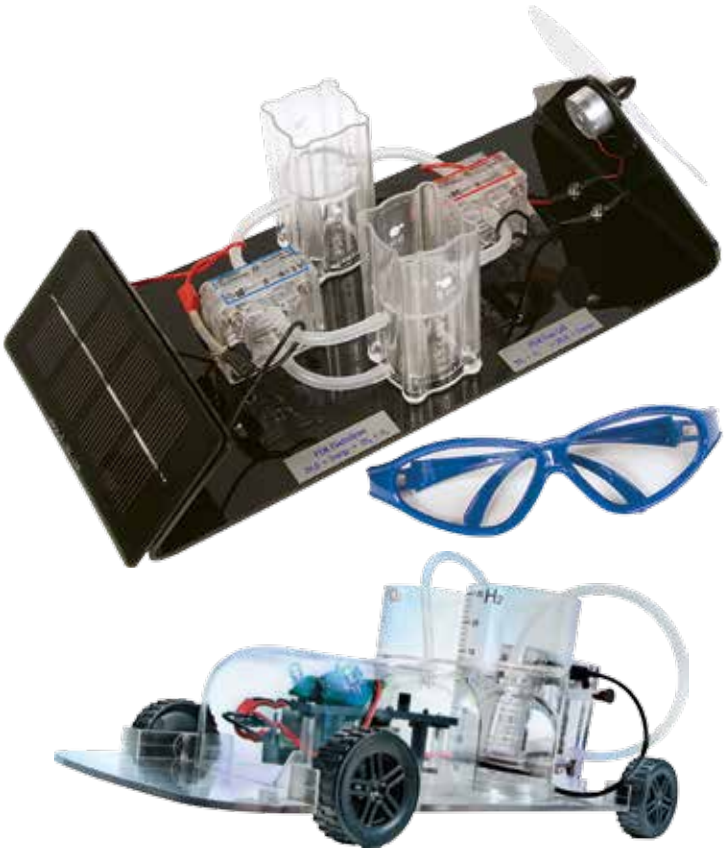
WATTS UP? PRO

Which uses more electricity: a hair dryer or a stereo? Now you can find out with the Watts Up? Pro, an electrical watt meter that instantly calculates the energy use of any appliance. It also has memory and the ability to download its data to a PC.

Simply plug any 120-volt AC device into Watts Up? Pro. The wattage being used is instantaneously displayed on the meter and stored in memory. One thousand data points are stored, starting with a sampling rate resolution of one minute. The sample rate resolution increases over time so years of usage can be accurately recorded. The included serial cable and software program allow the data to be quickly downloaded to a PC for creating usage charts. Data can also be exported in comma-delimited format to a spreadsheet for analysis and comparisons.

Watts Up? Pro displays and stores 16 key measurements: cost, wattage, cumulative power, time, voltage, current, monthly average cost, maximum and minimum voltage, maximum and minimum current, maximum and minimum wattage, power factor, duty cycle, and power cycle.

QX58279—$175



INTELLIGENT FUEL CELL CAR LAB

This smart little car makes its own fuel from water and automatically turns when it hits a barrier. But that's not all. Through guided, hands-on activities, it helps students understand how fuel cell technology works. Lab includes a reversible fuel cell, car chassis, motor, hydrogen and oxygen storage, electric power supply to perform electrolysis, fuel cell experiment guide, and user manual.

Ages 12+

QX59629—$149

FUEL CELL SYSTEM DEMONSTRATOR

The Fuel Cell Demonstrator is a complete solar hydrogen system that enables students to conduct fuel cell experiments in the classroom.

On one side of the device is a solar module and proton exchange membrane (PEM) electrolyser that uses the solar power to produce hydrogen and oxygen. On the other side is a fuel cell that "burns" the hydrogen and some oxygen to yield electricity to run a fan.

Includes a 120-page textbook, *Fuel Cell Technology*, that explains the underlying principles of fuel cells and includes experiments and student worksheets.

Ages 12+

QX34322—$350



SALT WATER FUEL CELL CAR

Students will love building and running this sleek auto that runs on salt water! After you activate the fuel cell module with salt water, a magnesium metal sheet (three sheets included) can operate the car for approximately five to seven hours. To park the vehicle, just take out the fuel cell module, rinse with tap water, and dry.

Ages 12+

QX37301—$15.95

FUEL CELL CAR MAGNESIUM PACK

After 15 or so hours of use, you'll need more magnesium to refuel the Salt Water Fuel Cell Car. This pack includes five magnesium sheets, an air cathode, and a piece of nonwoven fabric.

QX37411—$5.50



FUEL CELL 10 CAR KIT

A redesign of the Fuel Cell Car and Experiment Kit, this hydrogen-powered car introduces students to electrolysis, solar cells, and fuel cells.

After building the model, pour in distilled water (not included) and watch it separate into hydrogen and oxygen, forming a gas that powers the vehicle across the floor. Using the included instructions, students learn how the reversible fuel cell works and creates usable energy.

Includes a digital multimeter and a 64-page manual with seven labs and worksheets.

Ages 12+

QX36560—$179.95



FUEL CELL X7 KIT

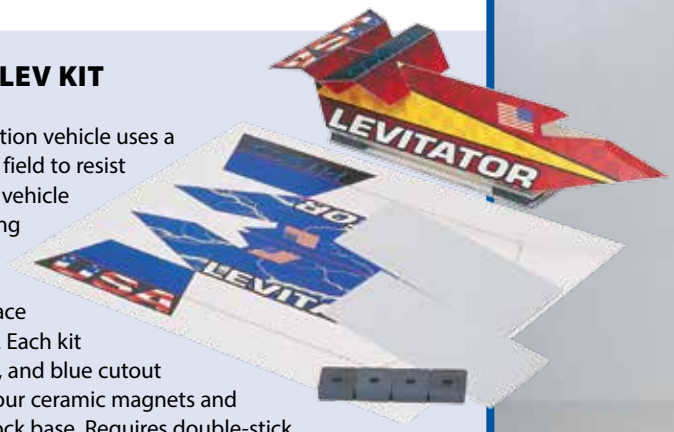
Geared toward younger students, this kit focuses on the building and designing of the fuel cell car. Featuring a reversible fuel cell, this kit enables students to work hands on with the car while learning about energy transformations, current, voltage, resistance, and more. Includes a 16-page manual.

Ages 12+

QX36559—$119.95

Maglev **Vehicles**

GS



LEVITATOR MAGLEV KIT

A Pitsco Exclusive

A magnetic levitation vehicle uses a strong electromagnetic field to resist gravity and to keep the vehicle floating without touching the ground. With this kit, students build their own vehicle and race down the Maglev Track. Each kit contains two red, white, and blue cutout car designs, as well as four ceramic magnets and a tough, precut card-stock base. Requires double-stick tape and scissors, sold separately. **Note:** The Levitator cannot be electrified; it can only be used on gravity tracks.

Ages 9+

QX26223—$3.95⚠

LEVITATOR MAGLEV 10-PACK

A Pitsco Exclusive

Provides enough material for 10 students to build Levitator Maglev vehicles. Requires scissors and transparent double-stick tape, sold separately. Includes:

- 40 sheets of precut card stock
- 10 "fold and float" paper bodies
- 40 ceramic block magnets
- Instructions

Note: The Levitator cannot be electrified; it can only be used on gravity tracks.

Ages 9+

QX35631—$21.95⚠



LEVITATOR MAGLEV 30-PACK

A Pitsco Exclusive

Provides enough material for 30 students. Requires scissors and transparent and double-stick tape, sold separately. **Note:** The Levitator cannot be electrified; it can only be used on gravity tracks.

Ages 9+

QX35632—$55⚠

Visit **www.pitsco.com/levitator**



MAGLEV VEHICLES – GETTING STARTED PACKAGE

A Pitsco Exclusive

Everyone in the class has a shot at levitation with our Maglev Vehicles – GS Package. The pack has enough materials for 30 students to build Levitator Maglev vehicles, including 30 car templates, 30 precut card-stock bases, 100 ceramic magnets, a Maglev Track, and a *Dr. Zoon Maglev Video*.

The Maglev Vehicles – GS Package includes the following products:

- QX35632 Levitator Maglev 30-Pack
- QX37516 Maglev II Track
- QX59748 Dr. Zoon Maglev Video

QX35621 Maglev Vehicles – Getting Started Package—$225⚠

Ages 9+

DR. ZOON MAGLEV VIDEO

A Pitsco Exclusive

With magnetic levitation, objects can be levitated, or held floating in midair, by the force of magnetism. In this video, Dr. Zoon illustrates some of the scientific principles behind magnetic levitation, and he goes step-by-step through the process of building and testing a maglev vehicle. Closed-captioned. Time: 15 minutes.

Ages 9+

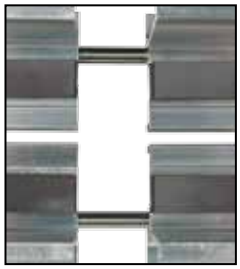
QX59748 DVD—$24.95



WARNING: This product contains (a) small magnet(s). Swallowed magnets can stick together across intestines, causing serious infections and death. Seek immediate medical attention if magnet(s) are swallowed or inhaled.



Top view of track



Track section connection pins



Track end view



MAGLEV II TRACK

A Pitsco Exclusive

Pitsco's redesigned Maglev II Track gives you two options: **regular** or **electrifying**!

The track still offers magnetic levitation that can be powered by gravity or a battery-operated maglev vehicle. But now it also enables you to apply an electric current to the track to power a vehicle – just like a real maglev train.

Just attach a positive lead to one side of the track and a negative lead to the other and turn on DC power and away your maglev vehicle goes. This also gives you control of the vehicle's speed by adjusting the power level.

Constructed of sturdy aluminum, the two 4' track sections combine to create an 8' track. Requires some assembly. You can apply an electric current to the Maglev II Track using the Maglev E Track Power Supply (37797), sold separately. We do **not** recommend any other DC power source.

QX37516—$160

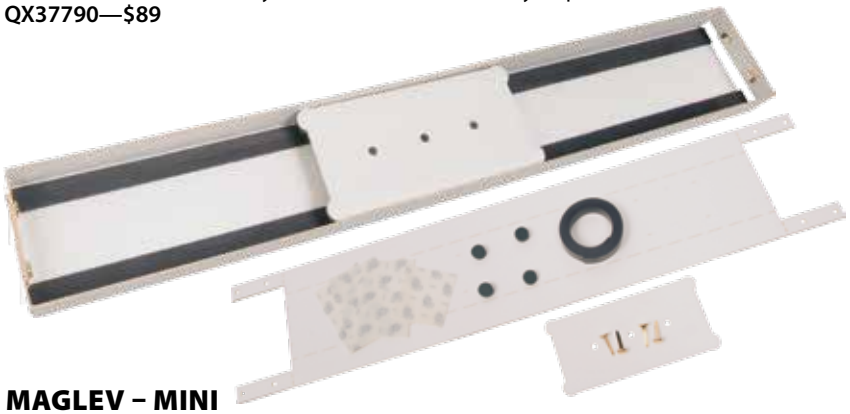


4' SECTION OF MAGLEV TRACK

A Pitsco Exclusive

To create an extra-long track, add these 4' sections onto the Maglev II Track. Constructed of sturdy aluminum; some assembly required.

QX37790—$89



MAGLEV – MINI

A Pitsco Exclusive

Magnetic levitation comes down to Earth – and the desktop – with this small and affordable maglev track and car. Students can assemble the track and run the included basic car – or use other gravity-operated vehicles such as the Levitator Maglev Kit or Mag Sailer that also work on the Maglev II Track.

Constructed of sturdy Britefold paperboard that is die cut, the track is 18" long and 2-9/16" wide. Metal brads and glue dots make an easy assembly of the track and car, so no cutting is required.

QX39946—$12.95⚠



MAGLEV E VEHICLE KIT

A Pitsco Exclusive

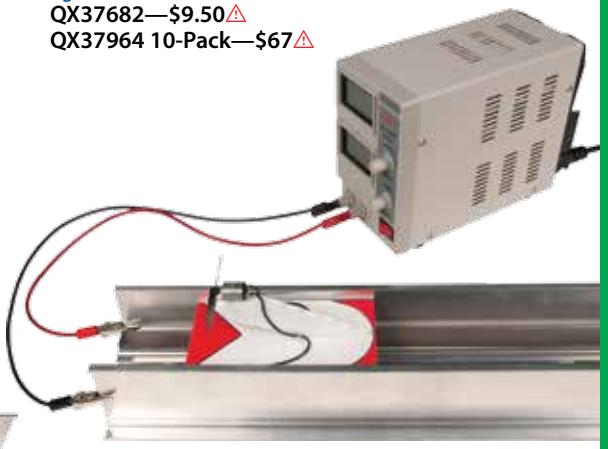
This fun maglev vehicle zips down the track powered by the DC power supply that runs its propeller. Easy to build, the vehicle demonstrates the way electrically charged maglev trains work.

No soldering required. Includes magnets, chassis plates, motor with propeller and leads, and adhesive tabs.

Ages 9+

QX37682—$9.50⚠

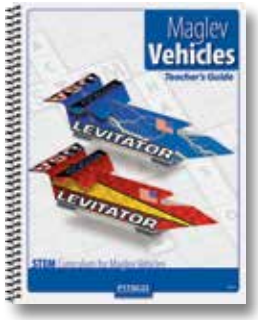
QX37964 10-Pack—$67⚠



MAGLEV E TRACK POWER SUPPLY

These leads and power supply are ideal choices to power the Maglev II Track. The digital DC power supply features adjustable output voltage ranging from 0 to 18 V with an output current of 0 to 3 A. The display is backlit for easy reading. The positive and negative leads are 36" long and have alligator clip ends for ease of use. **Note:** Model may vary slightly.

QX37797—$165



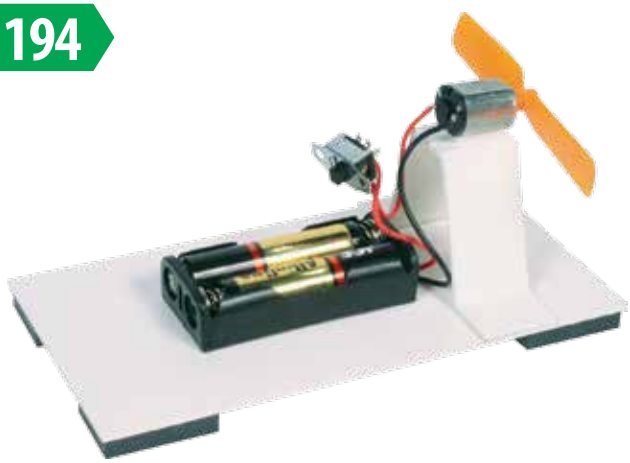
MAGLEV VEHICLES TEACHER'S GUIDE

A Pitsco Exclusive

Students will find this guide's activities attractive – even when they discover just how repulsive they are! Using the repulsive force of like magnetic poles, maglev vehicles are an amazing mode of transportation that encourages understanding of magnetic repulsion, friction, propulsion systems, equations, analyzing and graphing data, and more. Paperback/Spiral-bound, 97 pages.

Ages 12+

QX59613—$24.95



WARP DRIVE LEVITATOR MAGLEV KIT

A Pitsco Exclusive

Warp speed isn't just for science fiction – it characterizes the speed of Pitsco's Warp Drive Levitator. A motor drives the propeller of the maglev prop racer. Place it on the Pitsco Maglev Track, switch it on, and watch it fly!

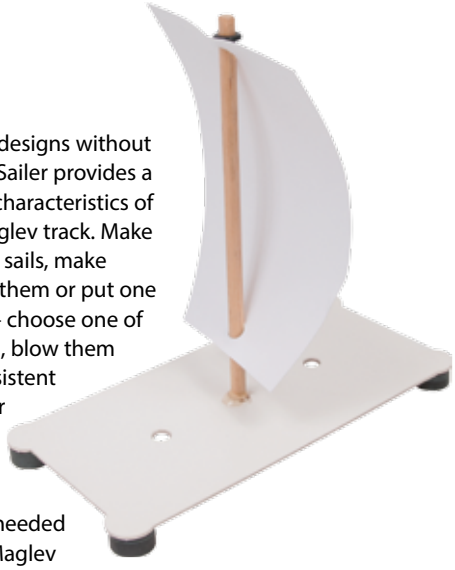
The kit includes everything needed to build one Warp Drive Levitator: magnets, body base cards, on/off switch, motor, propeller, adhesive tabs, battery holder, and instructions with a template. Requires two AAA batteries, sold separately.

Ages 12+

QX28459—$14.95⚠

MAG SAILER KIT

A Pitsco Exclusive



Test out different sail designs without going near water! The Mag Sailer provides a way to design and test the characteristics of sails while utilizing your maglev track. Make this vehicle with one or two sails, make different sail shapes, center them or put one or two at the front or back – choose one of many variables to test. Then, blow them down the track using a consistent source such as a small fan or hair dryer.

Includes magnets, chassis, two dowels, self-adhesive tabs, and O-rings needed for one sail car. Requires a Maglev Track or Maglev II Track, fan or hair dryer, HD Bond II, hole punch, sail material (copy or construction paper), and scissors, sold separately.

Note: The Mag Sailer cannot be electrified; it can only be used on gravity tracks.

QX38158—$3.95⚠
10 pkgs or more—$3.65 each

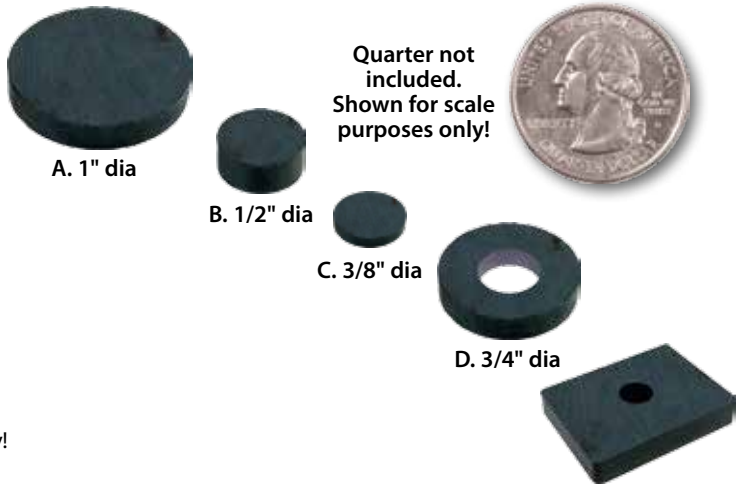


NEODYMIUM MAGNETS

These extremely strong Neodymium Magnets have a shiny magnetic appearance and are great for applications such as microphone assemblies, servo motors, DC motors, computer rigid disc drives, printers, and speakers.

QX58804 (0.47" dia x 0.11" thick) (pkg of 6)—$5.95⚠
QX58805 (0.7" dia x 0.11" thick) (pkg of 3)—$5.50⚠
QX58809 (0.375" OD x 0.125" ID x 0.06" thick)—$1.95⚠
QX58810 (0.745 OD x 0.450 ID x 0.1" thick)—$3.50⚠

WARNING: This product contains (a) small magnet(s). Swallowed magnets can stick together across intestines, causing serious infections and death. Seek immediate medical attention if magnet(s) are swallowed or inhaled.



CERAMIC DISC MAGNETS

These ceramic disc magnetic buttons are useful for exploring magnetic properties, building motors, and building speakers.

QX53441 A. Magnet (1" dia x 1/8" thick) (pkg of 6)—$1.50⚠
10 pkgs or more—$1.35 each
QX53440 B. Magnet (1/2" dia x 3/16" thick) (pkg of 10)—$1.20⚠
10 pkgs or more—$1.10 each
QX58806 C. Magnet (3/8" dia x 1/8" thick) (pkg of 15)—$.95⚠

CERAMIC RING MAGNETS

These round, ceramic magnets have a strong magnetic pull and are great for experiments and inventions.

QX58962 D. Magnet (3/4" dia x 1/8" thick) (pkg of 6)—$1.25⚠

RECTANGULAR CERAMIC MAGNETS

Use these versatile ceramic magnets for many projects. Great for maglev vehicles.

QX55305 E. Magnet (3/4" W x 1" L x 1/4" H) (pkg of 100)—$19.95⚠

SUPER GRIP MAGNETIC STRIP



This strip has the north and south polarity on opposite sides, which makes it useful for levitation demonstrations. It is also useful for many different projects and applications dealing with physics and transportation. 5' x 1/2", 1/4" thick.

QX53695—$9.95

NEODYMIUM SUPER MAGNETS



Neodymium magnets are the strongest magnets known to man – definitely strong enough to hold the axles of your magnetic mousetrap vehicle. Each magnet measures 1/4" x 1/4" and is nickel plated with the poles on the flat ends.

Caution: Always keep magnets away from computer equipment, 3.5" disks, credit cards, and windup watches. Magnets might be harmful if swallowed.

QX25042 (pkg of 10)—$9.95⚠

See video clip online.





EDDY CURRENT PROPULSION SYSTEM

A Pitsco Exclusive

Do electromagnetic propulsion systems and braking systems like those used on roller coasters interest your students? If so, give them a close-up look at what makes it possible: eddy currents. The magnetic track connects to the battery to create an eddy current that will roll a metal tube down it.

Some assembly needed. Requires a 6 V lantern battery, sold separately. **Caution:** No other power source should be used.

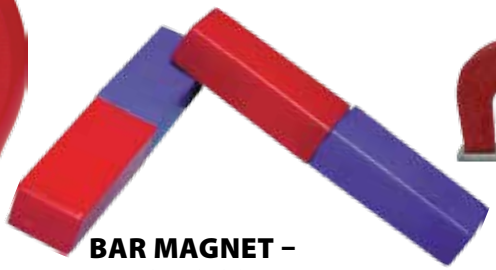
QX39520—$24.95⚠
QX50070 6 V Battery—$7.95



PLASTIC-COATED HORSESHOE MAGNET

This 8" plastic-coated magnet is ideal for young students. Lifts up to 4 pounds.

QX39729—$7⚠



BAR MAGNET – PLASTIC COVERED

These plastic-covered Bar Magnets are colored red and blue to make it easy to demonstrate magnetic attraction and repulsion. Includes one pair of magnets.

QX31889—$7.95⚠



MAGNET SET

A great set of alnico magnets for teaching the basics of magnetism! Includes two 80 mm bar magnets with the north pole marked by a dot and one 25 mm and one 35 mm horseshoe magnet. Each comes with a metal keeper.

QX33420—$34.95⚠



MAGNETIC POLE IDENTIFIER

This handy tool for identifying the polarity of a magnet is ideal when putting together a Maglev II Track, maglev vehicle, and other magnetic activities.

QX38223—$1.95



MAGNETS & MAGNETISM

Your class will enjoy exploring the captivating world of magnetism. The students will learn about the nature of magnets, classify magnetic and nonmagnetic materials, discover how objects can be magnetized and demagnetized, and understand the differences between a permanent and a temporary magnet. By plotting actual magnetic fields, they will also explore how compasses react to magnetism. The class will also bridge the world between magnetism and electricity as they create an electromagnet, investigate the effects of magnetic forces on electric currents, and identify applications of electromagnetism.

Ages 12+

QX57583—$139⚠



ECONOMY MAGNET SET

Magnets are in use all around us, and the Economy Magnet Set makes learning about magnets an *attractive* and inexpensive option. Includes a steel horseshoe magnet, two ceramic bar magnets, three ceramic doughnut magnets, four metal squares (one each of iron, copper, aluminum, and zinc), two magnetic compasses, a lodestone, a pack of iron filings, and an activity guide with 17 experiments.

Ages 12+

QX59384—$26⚠



MAGIC LEVITATION WAND NEW!

Teach your students the basics of static electricity in a way they'll never forget – with magic. Use this handheld Van de Graaff generator to levitate, shape, and move the included tinsel.

Ages 5+

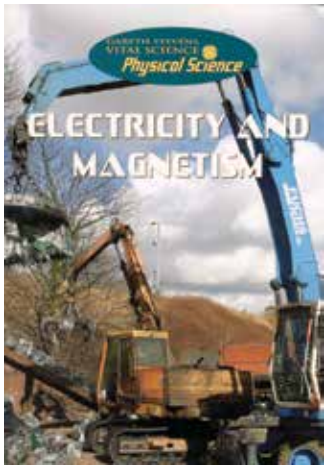
QX41926—$19.95



MAGNETIC FIELD DEMONSTRATOR

This is a simple tool to show students the magnetic field around a magnet. Just touch a magnet to this transparent case filled with iron filings and see the filings line up with the magnetic field. Dimensions: 90 mm x 65 mm x 6 mm.

QX59389—$2



ELECTRICITY AND MAGNETISM

First explaining electricity and magnetism individually, this volume then explores what happens when they are combined. From bullet trains and electric guitars to lightning and animal navigation, this dynamic duo affects much of the world. Paperback, 48 pages.

Ages 9-14

QX34406—$11.95



FLOATING MAGNETS SET

Attraction and repulsion – with magnets, that is – are easy to see with this kit. Now with a stand to replace the standard pencil, you'll have both hands free for the demonstration. Comes with six brightly colored magnetic rings, the plastic stand, and a storage box. Magnets are in plastic cases to reduce breakage.

Ages 9+

QX59385—$4.95⚠

WARNING: This product contains (a) small magnet(s). Swallowed magnets can stick together across intestines, causing serious infections and death. Seek immediate medical attention if magnet(s) are swallowed or inhaled.







Ideal for Your Classroom

- Student sized
- Economical
- Fascinating demonstration of static electricity
- Create sparks up to 1/2" long
- Includes adjustable spark gap electrode

Demonstrate:

- Transfer and storage of electrical charges
- Grounding of electrical charges
- Ionization of inert gases within a sealed glass tube (for instance, a fluorescent tube)
- Increased voltage from increased charge
- Capacitance

VAN DE GRAAFF GENERATOR

A Pitsco Exclusive

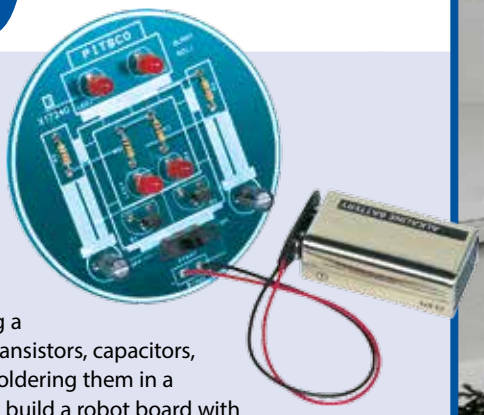
Spark a passion for experimenting with static electricity with this fun generator. Pitsco's version of the classic generator uses a hand crank to move the belt, creating a charge that is transferred to the terminal and the silver dome on top. You can attach a string with tape and watch the ends rise from the ball or watch the ball throw off paper rings or circles or experiment in many other ways with it!

Requires assembly with a Phillips screwdriver, small wrench or pliers, and scissors. Assembled generator stands 10" tall.

Ages 14+

QX39340—$49

Blinky



BLINKY ROBOT

A Pitsco Exclusive

Students place electronic components and learn soldering skills with this hands-on circuit board kit. By placing a variety of components – transistors, capacitors, LEDs, and resistors – and soldering them in a functional circuit, students build a robot board with intermittently flashing LEDs. All components, including the circuit board, are included along with step-by-step instructions.

Ages 12+

QX24443—$8.95
10 or more—$7.95 each



BLINKY 30-PACK

A Pitsco Exclusive

Includes enough materials for 30 students to build their own functioning electronic circuit board. With the Blinky Robot Class Pack, an entire class can acquire a basic understanding of soldering and circuit boards – knowledge that is fundamental to more advanced programs in robotics and electronics. Requires 9 V battery and diagonal pliers, sold separately.

Ages 12+

QX35598—$165

9 V BATTERY



Alkaline batteries for your various projects. These batteries withstand prolonged current drains and last up to three times longer than ordinary dry cells.

QX51050—$2.25
10 or more—$2.05 each

Visit **www.pitsco.com/blinky**.



BLINKY – GETTING STARTED PACKAGE

A Pitsco Exclusive

Soldering skills are a must for building the electronic circuits that are integral to today's technology. This Getting Started package includes everything you need to introduce 30 students to this basic skill: 30 robot boards, 15 soldering pencils, 15 soldering iron holders, and the *Dr. Zoon Learning to Solder Video*.

The Blinky – GS Package includes the following products:

- QX35598 Blinky 30-Pack
- QX31381 Soldering Pencil (15 irons included)
- QX12501 Soldering Pencil Holder (15 holders included)
- QX59782 Dr. Zoon Learning to Solder Video

QX35620 Blinky – Getting Started Package—$595

Ages 12+

DR. ZOON LEARNING TO SOLDER VIDEO



A Pitsco Exclusive

Use this video to introduce your students to soldering techniques for electronic circuits. Electronics is integrated into nearly every aspect of today's technology, and basic soldering skills are one of the first requirements of assembling many electronic circuits. In this video, Dr. Zoon demonstrates basic soldering skills by assembling the Pitsco Blinky Robot Kit. Closed-captioned. Time: 19 minutes.

Ages 12+

QX59782 DVD—$24.95



PV JR. MINI-VISE

This small vise has hundreds of uses from soldering to painting. With a full range of motion, it tilts, turns, and rotates. The Mini-Vise also features a precision fine/coarse adjusting knob and vertical and horizontal jaw grooves to hold your work.
QX53204—$32



PROJECT HOLDER

This holder works in any position and helps students produce neater work. Excellent for positioning bridge pieces.
QX58895—$11.75





X300 SAFETY GLASSES

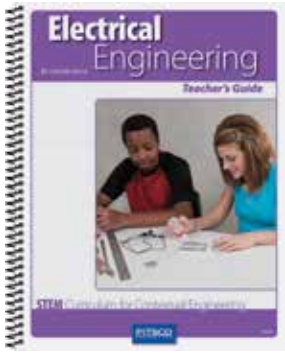
Finally, safety glasses that make eye protection look cool. These lightweight, anti-scratch glasses offer a sleek design while providing impact strength, optical clarity, and 99.9% UV protection. Meets ANSI Z87.1-2003 and ANSI + High Impact Standards.
QX34189 Amber—$1.95
QX34190 Clear—$1.95
QX34191 Mirrored—$1.95
QX34192 Smoke—$1.95



WELLER SOLDERING STATION

The Weller is an innovative and powerful, electronically controlled soldering station that is ideal for continuous production soldering or occasional use. Features include a heater and sensor design that allows for quick heat up and recovery, a cordless temperature lockout, tip temperature calibration, automatic shutoff after 99 minutes of inactivity, variable temperature from 350° to 850°, digital electronic control system, grounded soldering tip, microsize iron for fine soldering, antistatic design, and zero power switching. ESD safe.
QX57614—$199

ELECTRICAL ENGINEERING TEACHER'S GUIDE



A Pitsco Exclusive

Electrical engineering is a diverse field with more than 750,000 people working in it. Spark students' interest in this practical career through the hands-on projects in this guide. Through several activities and challenges, students learn about switches, series and parallel circuits, Ohm's law, schematics, breadboarding, soldering, and more. Paperback/Spiral-bound, 72 pages.
Ages 12+
QX59903—$39.95

SOLDERING PENCIL



With a shorter barrel, this Soldering Iron makes a great fit for smaller hands. Reaching up to 750°F, it also features a heat- and impact-resistant handle, stainless steel barrel, and 1/8" nickel-plated tip that can be replaced. For safety, the Soldering Iron has an indicator light to signal when the iron is on. Comes with an iron support stand and instructions. UL approved.
QX31381—$18.95

SOLDERING PENCIL HOLDER

QX12501—$10 each





SOLDER

Rosin core solder appropriate for typical electronic kits and products. Lead free. Diameter: 0.8 mm.
QX33538—$4.95



ELECTROLIGHT BATTERY

A Pitsco Exclusive

Demonstrate the basic principles of a battery – as well as some chemistry – with the ElectroLight Battery that you and your students build from a kit! When the kit is constructed, the salt solution in the battery tray chemically reacts with the metals to move electrons from one cell to another. When the LED is placed into this electron flow, it lights!

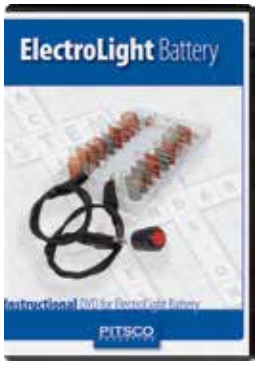
Kit includes paper clips, solution bottle, red and black alligator clips with leads, large LED, three strips of copper, three strips of zinc, three salt packets, battery tray, and instructions.

Ages 12+

QX32220 Kit—$29.95
QX33465 ElectroLight Battery 10-Pack—$265
QX32222 Replacement Copper Strips (pkg of 3)—$8.50
QX32221 Replacement Zinc Strips (pkg of 3)—$2.95

ELECTROLIGHT BATTERY VIDEO

A Pitsco Exclusive

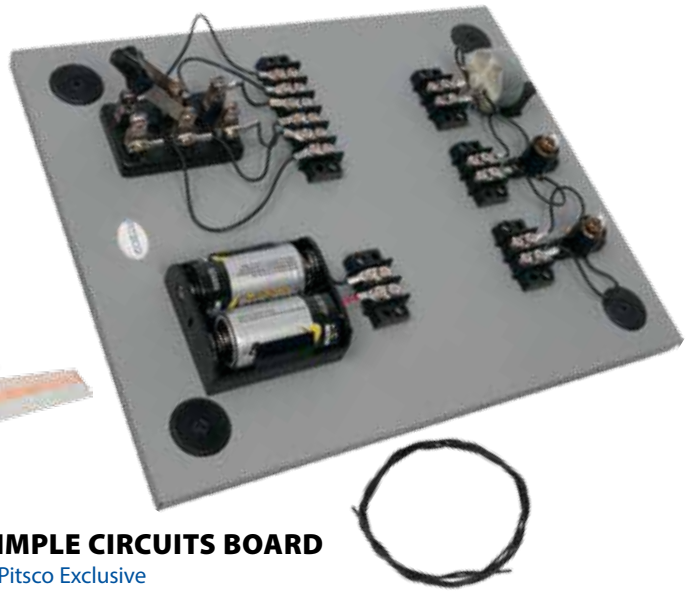


Using a simple salt solution, see how to make a battery that creates an electron flow to light an LED. This program shows you how while explaining the science behind it all. Finally, learn how to do several experiments with the ElectroLight Battery, including testing different variables such as salt water strength and whether substances other than salt water will light the LED. Closed-captioned. Time: 9 minutes.

Ages 12+

QX33451 DVD—$24.95





SIMPLE CIRCUITS BOARD

A Pitsco Exclusive

Students learn the basics of simple series and parallel circuits with this hands-on activity board. Comes with a double-pole, double-throw switch; DC motor; two lights; and a DC power supply (includes two C batteries).

Components are connected with screw/clamp-type connectors and included jumper wires.

Ages 12+

QX54535—$169



INVESTIGATING ELECTRICITY

Conduct hands-on investigations into the properties of electricity – currents, open and closed circuits, series and parallel circuits, and static electricity – with the Investigating Electricity lab. Test students' knowledge by having them classify materials as either conductors or insulators of electricity.

Ages 12+

QX57586—$139

STUDENT ELECTRICITY ASSORTMENT

This convenient, economical package of materials gives students a kick start for investigating electricity concepts. The assortment includes 6 round plastic bulb holders; 3 knife switches; 6 battery holders with Fahnestock clips; 10 Fahnestock clips; 1 wire stripper; three 18" wires with alligator clips, assorted colors; three 18" wires with banana clips, assorted colors; 100 feet of insulated copper wire, 22 gauge; and ten 1.5 V bulbs.

Ages 12+

QX34435—$39



TRONIX LAB 1: FUNDAMENTAL CONCEPTS OF ELECTRONICS

With an increasingly electronic world, students who understand how electronics work will have an edge in their career and life. Tronix Lab 1 starts them on the journey to learn the basics of circuits, resistors, potentiometers, and diodes as well as voltage, resistance, current, and more as they create fun projects such as a burglar alarm, a police siren, and a Morse code machine.

Includes a well-illustrated manual with 40 lessons, more than 50 electronics components, a solderless circuit board, and a 9 V battery. No soldering required.

Ages 12+

QX39588—$39.95



TRONIX LAB 2: BASIC DIGITAL CONCEPTS LAB

After Tronix 1, continue to build your students' knowledge with this lab that focuses on digital concepts such as logic gates, integrated circuits, binary counter circuits, digital readouts, touch-activated switches, flip flops, and more.

Includes an illustrated lab manual with 35 lessons, more than 100 electronics components, a seven-segment display, potentiometer, a solderless circuit board, and a 9 V battery. No soldering required.

Ages 12+

QX39610—$59.95

33 IN 1 DELUXE ELECTRONIC EXPLORATION KIT

Students just touching their toes into electronics will be going in no time with this breadboarding kit.

Requiring no soldering or previous experience, the 33 in 1 Deluxe Electronic Exploration Kit delivers 11 self-led instructional circuits, which includes introductions to Ohm's law, electromagnet circuitry, motor circuitry, and other helpful concepts. Plus, an additional 22 activities provide a parts list, schematic, and parts placement drawing to test students' newfound electrical abilities.

Requires a 9 V battery, sold separately.

Ages 12+

QX39362—$49.95





TRONIX LAB 3: OSCILLATORS AND AMPLIFIERS LAB

Complete students' introduction to electronics with an understanding of oscillators and amplifiers – key to television and radio transmissions, computer and quartz clocks, and video game audio. This lab is broken down into five in-depth lessons: Vacuum Tubes and Transistors, Transistors as Amplifiers, Audio Amplifying Systems, Transistors in Oscillators, and Oscillator Applications.

Includes an illustrated lab manual, more than 25 electronics components, battery snap, push button, potentiometer, speaker, crystal mic, solderless circuit board, and a 9 V battery. No soldering required.

Ages 12+

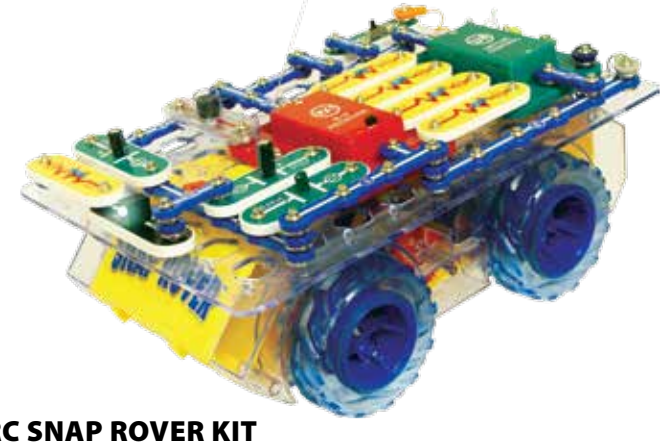
QX39611—$49.95

ENERGY STICK NEW!

Teach your students the difference between insulators and conductors. Use the Energy Stick to turn your body into a human conductor of electricity!

QX41925—$9.95



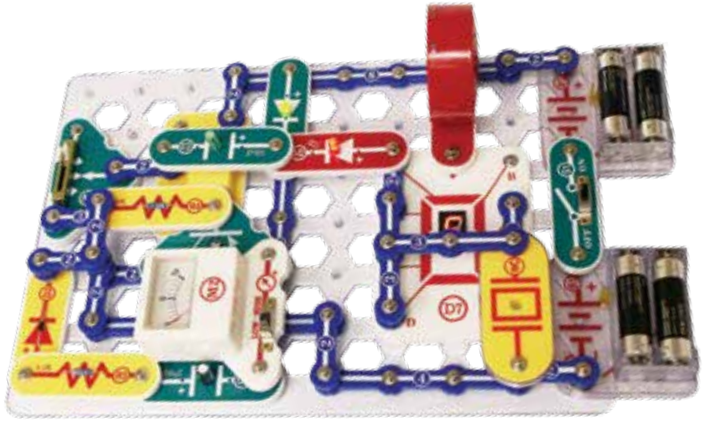


RC SNAP ROVER KIT

Using colorful Snap Circuits parts, students build the brain of a remote-controlled rover and attach it to a prebuilt rover body. The rover can go forward, backward, left, and right. Includes the remote control and an instruction manual with 22 additional projects.

Ages 12+

QX34423—$74.95

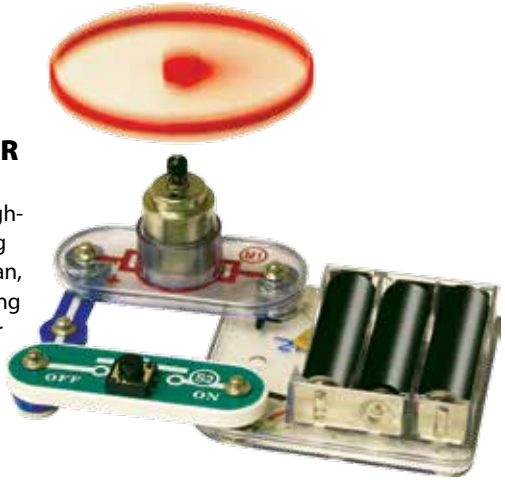


SNAP CIRCUITS PRO KIT

The ultimate Snap Circuits set, Snap Circuits Pro delivers more than 75 parts and three books totaling 511 projects! From sound effects and motion detectors to radios and oscillators, students can explore motors, electrical circuits, sensors, electromagnetism, and much more.

Ages 12+

QX34426—$89.95



ROBOTIKITS FLYING SAUCER KIT

Have some high-flying fun by creating a flying saucer or a fan, a psychedelic spinning pattern, or two other projects with this entertaining set.

Ages 9+

QX34418—$14.95



SNAP CIRCUITS 300 KIT

A step up from Snap Circuits Jr., this set includes more than 60 parts and project books with 305 projects. Students learn circuitry as they build an electronic cicada, automatic street lamp, lie detector, saltwater detector, music amplifier, and so much more.

Ages 9+

QX34425—$59.95



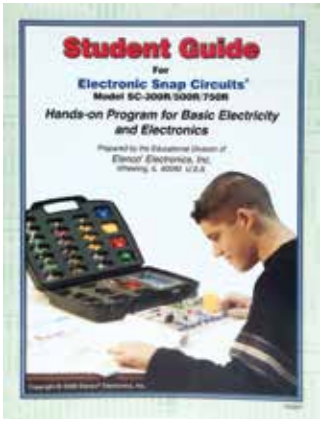
SNAP CIRCUITS JR. KIT

This colorful set introduces young students to circuitry with more than 30 parts that just snap together. Included project book illustrates 101 fun and easy projects – from a flying saucer to a reflection detector.

Ages 12+

QX34424—$29.95

STUDENT GUIDE FOR ELECTRONIC SNAP CIRCUITS



Get more out of your Snap Circuits sets with this updated student guide. Following this full-color guide, students work through eight chapters for all Snap Circuits sets: "Basic Components & Circuits," "Motors & Electricity," "Resistance," "Capacitors," "Transistors," "Oscillators & Electronic Sound," "Integrated Circuits," and "Electromagnetism & Radio." This revised guide also features Part II, with three chapters for the Pro Educational and Extreme Educational sets, and Part III, with three chapters for the Extreme set only. Paperback, 137 pages.

Ages 9+

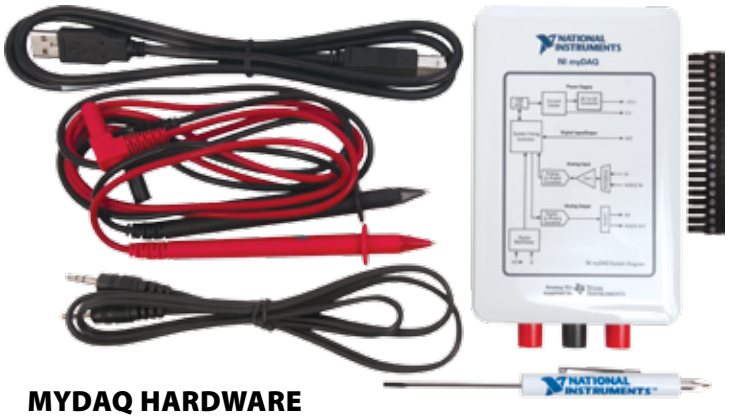
QX34421—$9.95

TEACHER GUIDE FOR ELECTRONIC SNAP CIRCUITS

The teacher's companion to the student guide, this book summarizes what students learn in each chapter and offers reproducible quizzes for each chapter, answer keys, instructions for making your own circuit drawings, and more. Paperback, 30 pages.

Ages 9+

QX34422—$4.95



MYDAQ HARDWARE

Give students an authentic engineering experience without the price tag of professional equipment. This compact white box replaces eight common instruments: an oscilloscope, digital multimeter, digital reader, digital writer, Bode analyzer, arbitrary waveform generator, function generator, and dynamic signal analyzer.

Powered by connecting to a computer via the USB port, myDAQ can be used with hundreds of sensors and controls – even homemade ones! It also works with NI LabVIEW™ software, a graphical programming environment used by engineers and scientists. An iPod can be attached to the myDAQ as a source of audio frequencies for LabVIEW to display.

Includes one NI myDAQ, test leads, USB cable, audio cable, pluggable screw terminal block, small screwdriver, and a 30-day trial version of LabVIEW for Education.

QX37967—$249

MINI MULTIMETER



Mini doesn't always mean mousy – this little multimeter is loaded with features. With a large 2,000-count digital display, this Mini Multimeter measures AC/DC voltage to 600 V, can lock the reading in the display, and can take thermocouple temperature measurements to 1,400 degrees F. Includes 9 V battery, test leads, and a Type K thermocouple probe.

QX31912—$23.95

12-VOLT POWER SUPPLY



It operates most devices requiring 12 to 14 volts DC. Also a good choice for workbench power supply. Features push-to-reset circuit breaker, on/off switch, LED-on indicator, and heavy-duty finned heat sink for cool operation. Rated 2.5 amps continuous. UL-listed AC.

QX15555—$59.95

MULTIMETER EX320



The digital way of finding out what you want to know with high accuracy and easy reading! This Multiview Series Digital Multimeter features an adjustable viewing angle with a 2,000-count LCD display. Gives accurate readings within 0.5 percent and has data hold, relative functions, and auto power off. Measurement options include AC/DC voltage and current, resistance, diode, continuity, and transistor. Comes with a protective holster, 9 V battery, instructions, and two test leads.

QX35386—$59

MINI ANALOG MULTIMETER



This multimeter has an easy-to-read analog display for your electrical needs. Measures AC/DC voltage, DC current, resistance, and decibel. The multimeter has a five percent full-scale accuracy, has battery test on 9 V and 1.5 V batteries, and is complete with a protective holster, test leads, a 1.5 V AA battery, and instructions.

QX58369—$22

MULTIMETER AND IR THERMOMETER



This autoranging digital multimeter teams up with a built-in infrared thermometer. Featuring a large, backlit display plus audible and visual input alerts, this multimeter has nine functions plus auto power off and data-hold features. The noncontact thermometer uses a laser to measure unsafe or out-of-reach objects. Comes with built-in stand/hanger, test leads, and 9 V battery.

QX32932—$175





KNIFE SWITCH

Ready to pull a switch? Try our Knife Switch – it is a single pole, single switch with terminals. Dimensions: 3.75" x 1.5" x 1.5". And for adding freestanding terminals to make other connections outside of the switch, check out these Fahnestock Clips.

QX59395—$1.50
QX59397 Fahnestock Clips (pkg of 10)—$2

LAMP SOCKET AND BULBS



Trying to teach some electricity concepts to your students? Sock it to them with this Lamp Socket! Features a plastic base, brass screw-type receptacles, and two terminals.

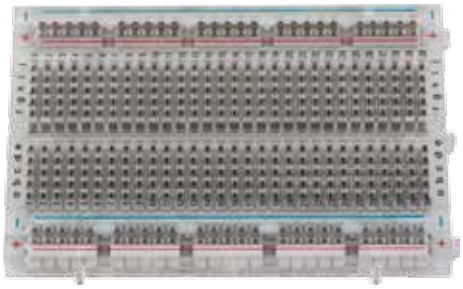
QX59391—$1
QX59392 1.5 V Bulb (pkg of 10)—$2.95
QX59393 2.5 V Bulb (pkg of 10)—$3
QX59394 3.8 V Bulb (pkg of 10)—$3.50



HANDHELD GENERATOR

See the transformation of mechanical to electrical energy with this hand-cranked generator with a clear casing for easy viewing. Capable of producing 6.3 volts and a 700 mA current, turning the crank lights a bulb. Comes with the generator, 14" leads with accessory lead plug, and an extra lamp.

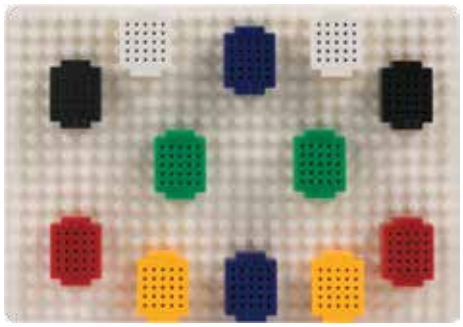
QX38627—$14.95



CLEAR BREADBOARD NEW!

This is a half size breadboard, good for small projects. It's 8.2 cm x 5.3 cm with a standard double-strip in the middle and two power rails on both sides. You can pull the power rails off easily to make the breadboard as thin as 3.5 cm and stick it onto an Arduino protoshield. Cut these in half with a saw to create two tiny breadboards or snap these breadboards together either way to make longer and/or wider breadboards.

QX41907—$11.95



TINY BREADBOARD KIT NEW!

Breadboard or toy? Both! You can insert these boards anywhere on its base board to build your circuit, not subject to limitation of traditional breadboard. In addition, six distinctly different colors makes the circuit more clear.

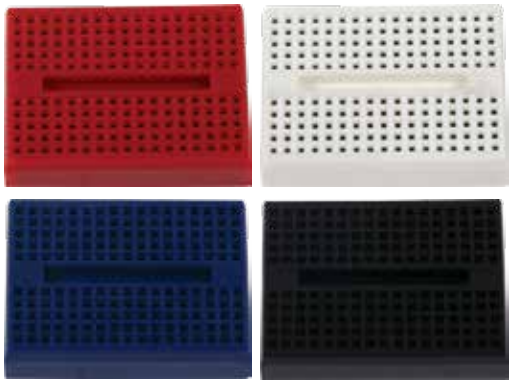
QX41906—$16.95

MINI BREADBOARDS NEW!

This is a very useful mini breadboard with 170 tie points. Available in red, white, blue, and black. These mini breadboards include self-adhesive backing and are the perfect design for small projects.

Ages

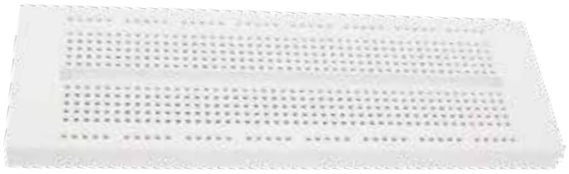
QX41908 Mini Breadboard Red—$6.50
QX41909 Mini Breadboard White—$6.50
QX41910 Mini Breadboard Blue—$6.50
QX41911 Mini Breadboard Black—$6.50

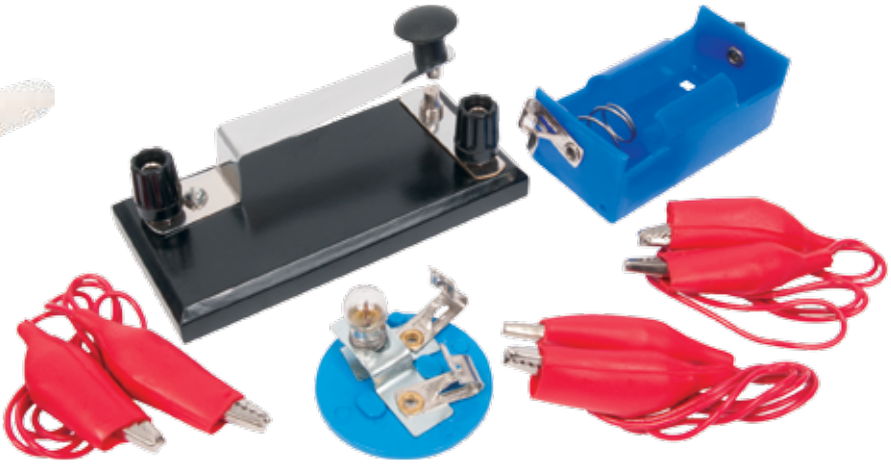


LARGE SOLDERLESS CIRCUIT BREADBOARD

For building various types of circuits. The large board measures 2" x 6" and has 10 x 47 pin positions.

QX11830—$25





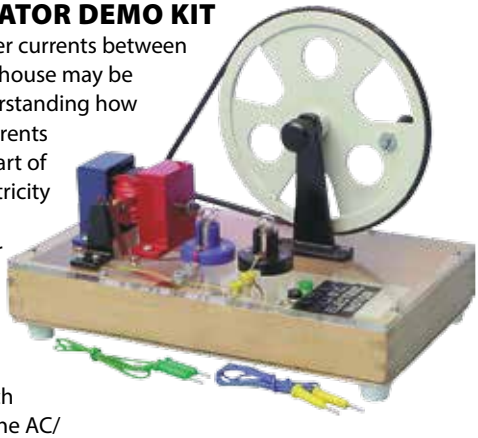
MORSE CODE EXPERIMENT KIT

More than 150 years before we all carried cell phones, Morse code enabled people to communicate over long distances by using electrical currents. This kit uses a lightbulb to signal dots and dashes so students will see the currents. Requires a D battery, sold separately.

Ages 12+

QX37161—$9

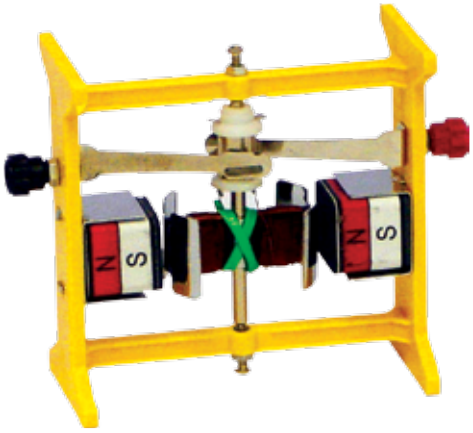
AC/DC GENERATOR DEMO KIT



The battle over currents between Edison and Westinghouse may be long over, but understanding how both AC and DC currents work is still a vital part of understanding electricity and how we use it. This hand generator demonstrates how each current is produced.

With banana plugs to easily switch between currents, the AC/DC Generator Demo Kit also features a clear base for easy viewing of the connections. Includes an activity guide.

QX59396—$39.95

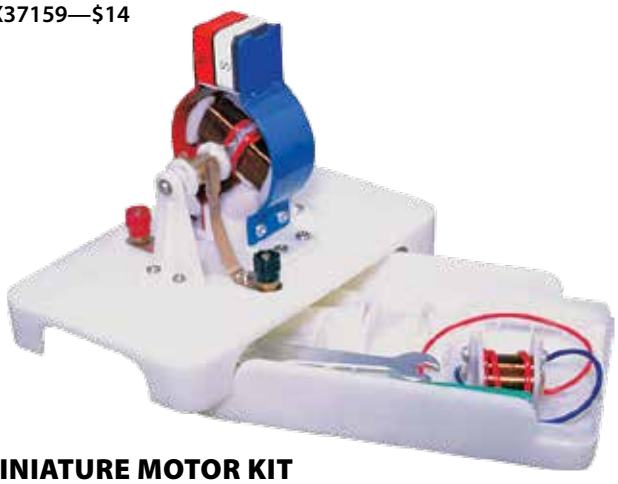


DEMONSTRATION DC MOTOR

Give your students a close-up view of electromagnetic forces at work with this DC motor kit. It also demonstrates the conversion of electrical energy into mechanical. Comes assembled with the tools for adjustments. Includes a case, instructions, and an activity. Requires batteries or power supply with a maximum of 6 V, sold separately.

Ages 12+

QX37159—$14



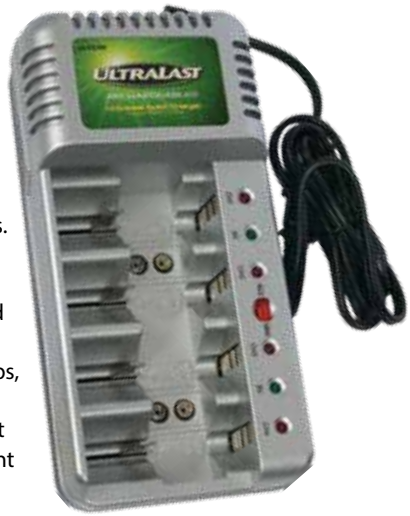
MINIATURE MOTOR KIT

Understanding how motors work lays a solid foundation for understanding generators and numerous electrical devices. Now, this self-contained and simple kit makes demonstrating permanent and electromagnetic motors an easy operation to run.

The included guide discusses electromagnetism, DC motors, generators, electricity facts, and assembly instructions.

Ages 12+

QX31418—$12



UNIVERSAL QUICK BATTERY CHARGER

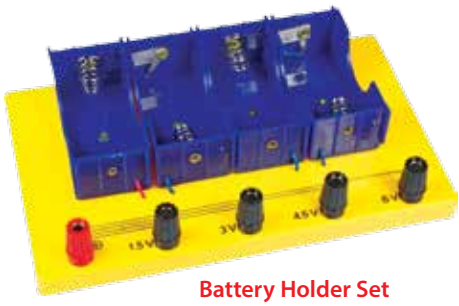
Protect your classroom budget with this charger that brings new life to old batteries. Plug it into a standard A/C wall outlet and recharge AA, AAA, C, D, 9 V NiMH, and nicad batteries. Batteries can be charge individually or in groups, and different-sized batteries can be charged together. Most batteries charge in four to eight hours.

QX12514—$42

Rechargeable Batteries

QX12515 AA Rechargeable Battery (pkg of 2)—$8
QX12516 C Rechargeable Battery (pkg of 2)—$14.95
QX12517 9 V Rechargeable Battery—$12.95





Battery Holder Set

BATTERY HOLDERS

Use these battery holders for a variety of projects.

QX56262 One AA Battery Holder—$1.50
10 or more—$1.35 each
QX59609 Two AA Battery Holder—$1.20
10 or more—$1.10 each
QX32969 Two AA Battery Holder with Cover and Switch—$1.50
QX56263 Three AA Battery Holder—$2.75
10 or more—$2.50 each
QX32970 Three AA Battery Holder with Cover and Switch—$1.75
QX55023 Four AA Battery Holder—$1.90
10 or more—$1.70 each
QX32971 Four AA Battery Holder with Cover and Switch—$1.95

BATTERY HOLDER SET

With space for up to four D batteries (not included), this economical battery holder comes with five color-coded binding posts for easy and safe connections to hook-up cords (not included). These connections provide outlets for 1.5 V, 3 V, 4.5 V, or 6 V supply voltages. Comes assembled.

Ages 9+

QX37156—$12.95

BATTERIES



QX51048 D Batteries (pkg of 2)—$2.95
QX51049 C Batteries (pkg of 2)—$2.50
QX51046 AA Batteries (pkg of 2)—$1.95
QX51047 AAA Batteries (pkg of 2)—$1.95
QX51050 9 V Battery (pkg of 1)—$2.25

Note: Not rechargeable

ELECTRIC PAINT PEN



Making circuits and attaching small electrical components has never been easier – just paint them on! This handy Electric Paint is an electrically conductive paint that can be used as both a liquid wire and a conductive adhesive.

Nontoxic and solvent free, Electric Paint is great for helping students learn about circuitry and for prototyping. The paint dries quickly at room temperature and can be removed with soap and water. It works with electrical components, PCBs, microcontrollers (Arduino, Raspberry Pi, MaKey MaKey, LilyPad, FLORA), conductive thread, and more!

The Electric Paint Pen is 10 ml and makes for easy drawing.

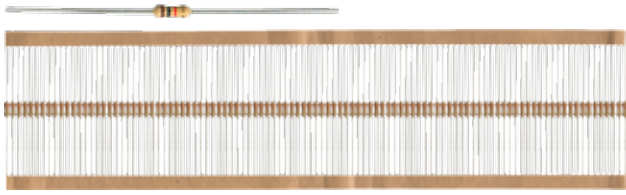
QX39925—$13.95



LED LAMPS

1-1/2 volts, 25 mA, T1-3/4 size.

QX52691 Yellow (pkg of 10)—$3.95
QX52689 Green (pkg of 10)—$4.95
QX59494 Red (pkg of 10)—$3.95



RESISTOR PACKS

Resistors are a basic component of electronic circuits. Choose between 10K, 100K, or 330K ohm. All are carbon film, 1/4 watt with 5% tolerance and are sold in packages of 100.

QX32625 (10K ohm) (pkg of 100)—$2.95
QX36118 (330K ohm) (pkg of 100)—$4.95

A. DIAGONAL CUTTING PLIERS

Stanley drop-forged, tempered-steel pliers have precision-machined cutting edges for true cuts on most types of wire. Designed to provide maximum leverage and maintain sharpness. Rust-resistant protective finish. Bonded vinyl grips. 5" long.

QX53706—$14

B. LONG-NOSE PLIERS

Tempered alloy steel for electronics. Side cutting feature cuts most types of wire. Vinyl grips. 5" long.

QX53707—$7.75

C. WIRE STRIPPER

This versatile tool handles wire sizes 10 through 20 AW6. Cuts and strips wire right down to the conductor. Vinyl grips. 6" long.

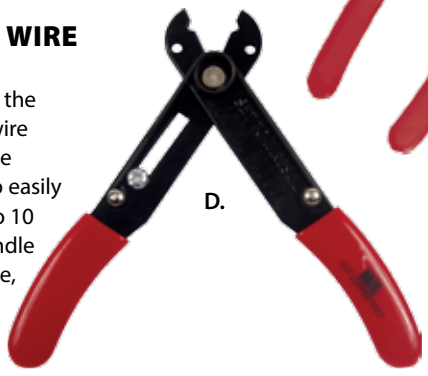
QX50052—$19.95 each



D. QUICK STRIP WIRE STRIPPER, 4"

Never again cut the wire when stripping wire insulation – this 4" wire stripper is designed to easily trim copper wire up to 10 gauge. Cushioned handle provides a comfortable, nonslip grip.

QX33422—$4.25



18-GAUGE STRANDED WIRE

One hundred feet of insulated wire.

QX12741—$21.95

SOLID WIRE

This wire is for general electrical use. It is 20-gauge wire and it is 80 feet long.

QX12764—$6.50





SOLDERLESS JUMPER WIRE KIT

Use this kit with a breadboard to quickly and easily make connections between electronic components. Includes 140 color-coded insulated jumper wires (10 pieces each of 14 different lengths). Each wire is prestripped and preformed.

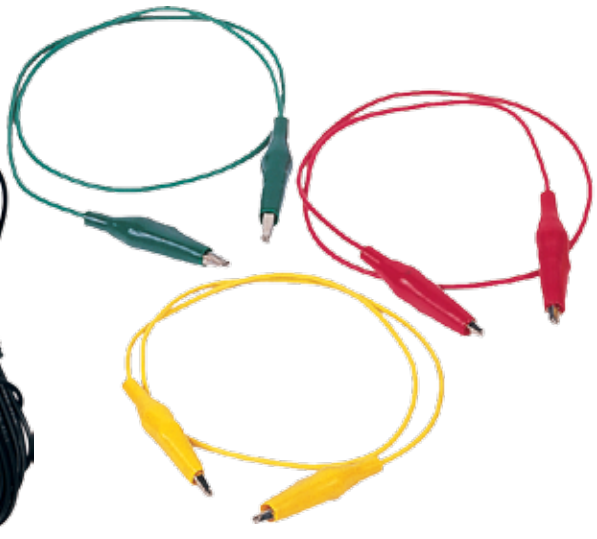
QX36182—$10.95



ELECTRICAL WIRE

For general circuit connections. Insulated, 22 gauge, 10-foot length.

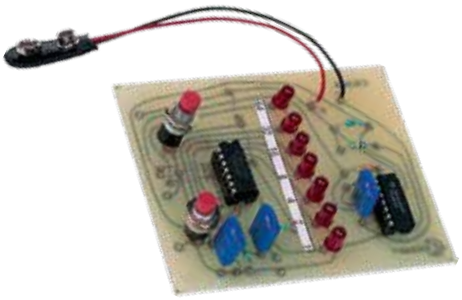
QX56142 Red—$1.75
QX36099 Black—$2.85
QX36100 Assorted—$6.50



TEST LEADS

Use these handy test leads for a variety of projects. Alligator-clip ends ensure positive connections. 14" long, five assorted colors.

QX56197 (pkg of 10)—$8.25

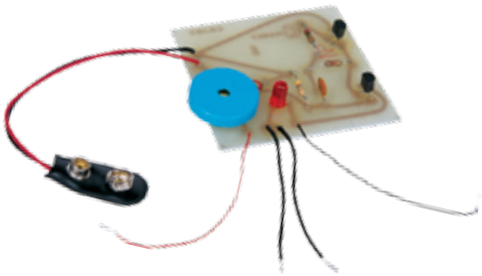


BINARY COUNTER KIT

This kit provides an easy-to-understand display of the binary number. It counts in binary numbers up to 127 and displays them with red LEDs. An LED turned on is a 1 and turned off is a 0. The counter increases by one number each time the button is pushed. Features seven red LEDs, count button, clear button, and two IC circuits. Use it alone or connected to the Decimal Display Kit (51078) to display the decimal equivalent. Complete with all parts, PC board, and instructions. Board size: 3.6" x 3".

Ages 12+

QX51077—$19

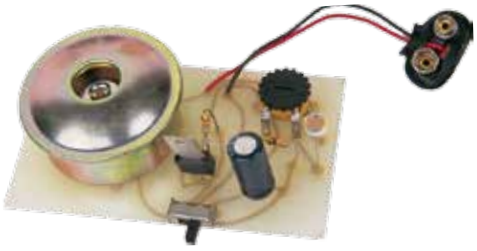


CONTINUITY TESTER KIT

This handy kit is a must for anyone working with electronic circuits. It traces circuit paths for continuity, checks for broken wires and shorted contacts, and more. Uses a small piezoelectric speaker that emits a pleasant tone and features a bright red LED visual indicator. Operates from one 9 V battery, sold separately. Complete with all parts, PC board, and instructions. Size of circuit board: 2-1/4" square.

Ages 12+

QX51079—$5.50

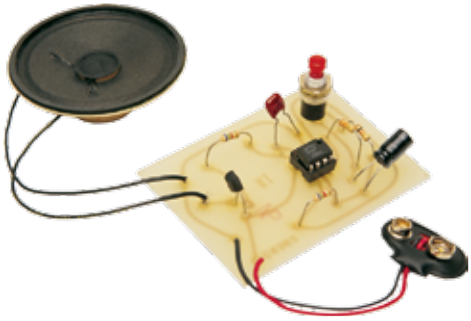


SECRET ALARM KIT

This is the perfect device to scare someone who opens your desk or file cabinet. Uses sensitive circuitry to respond to light. The alarm will not sound as long as it is kept in the dark. Operates using a 9 V battery, sold separately.

Ages 12+

QX51072—$9.95

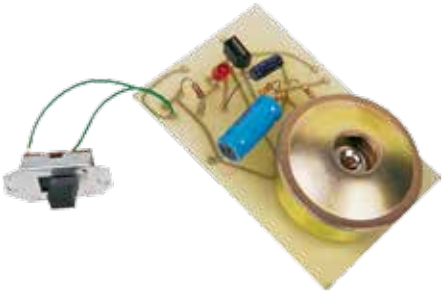


MANUAL SIREN KIT

This kit produces a wavering wail of a police siren as a push button is pressed and released. It's small in size but produces a loud tone from a small speaker. It features transistor and IC circuitry. Complete with all parts, PC board, and instructions. Operates using a 9 V battery, sold separately.

Ages 12+

QX51070—$9.95



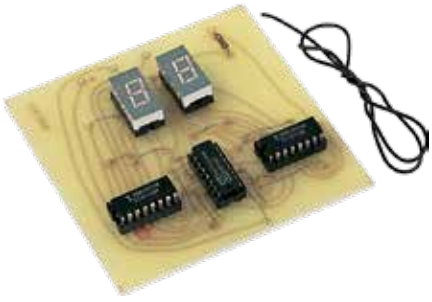
BURGLAR ALARM KIT

Universal-type burglar alarm kit that features a board-mounted horn and a red LED on indicator.

Can be used with normally closed or normally opened switches, allowing for a variety of applications. Operates on a 6 VDC battery, sold separately. Board size: 3-1/2" x 2-1/2".

Ages 12+

QX51071—$9.95



DECIMAL DISPLAY KIT

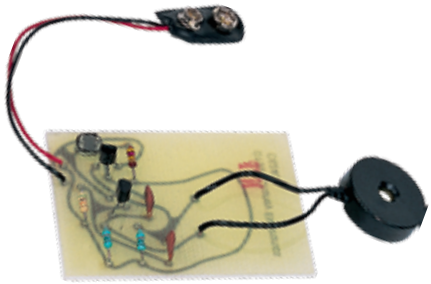
Counting and displaying decimal numbers from 0 to 99, this kit's primary function is to be connected to the Binary Counter Kit (51077).

Can also be used in conjunction with other kits to provide a "next number to be served" display, people counter, event counter, and so on. Features IC circuitry and two bright red seven-segment LED displays.

Requires a 9 V battery, sold separately. Comes with parts, PC board, and instructions. Board is 3" x 3.25".

Ages 12+

QX51078—$22



INSANITY ALARM KIT

Set this in an inconspicuous place with light shining on it, and it remains silent. When the light is turned off, the alarm emits a high-pitched screech. When someone turns the light on to look for the culprit, the alarm goes silent again. Requires 9 V battery, sold separately. Comes with parts, PC board, and instructions. Board is 2.9" x 1.8".

Ages 12+

QX51066—$7.25

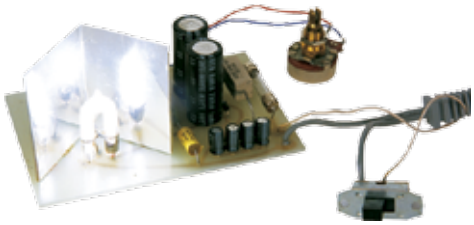


TOUCH-SENSITIVE COIN-TOSSER DECISION-MAKER KIT

Uses three transistors and two LED circuits to make decisions or replace coin tossing. Features one red and one green LED that flash at a high frequency when the sensor wires are touched. When you stop touching the sensor, your decision is shown by the LED that remains on. Has control to adjust the odds. Operates using a 9 V battery, sold separately. Complete with all parts, PC board, and instructions. Size of board: 1.6" x 2.2".

Ages 12+

QX51067—$5.50



HIGH-POWER STROBE LIGHT KIT

This kit uses a xenon strobe tube to emit brilliant flashes of light. The frequency of flashes is determined by setting the potentiometer knob. Students can learn about electronics by assembling this kit (soldering required). Plugs into an AC outlet. **Note:** Capacitors are used, so students must exercise caution.

Ages 12+

QX54867—$25.95

Sustainable Energy Resources

For detailed descriptions of these **useful resources,**
visit **www.pitsco.com/energy**.

Books

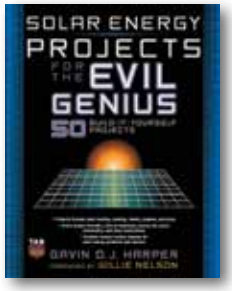


THE GREEN ENGINEER: ENGINEERING CAREERS TO SAVE THE EARTH BOOK

"Green engineering looks to the future and also corrects the past." These opening words highlight the purpose of green engineering, but the book goes on to show how all disciplines of engineering – civil, electrical, chemical, software, and others – can be a part of creating a healthier, more sustainable world.

Input and interviews with engineers give students a look at the real world of engineering. Chapters cover power and energy engineering, transportation, green construction, natural resources engineering, biomimicry, and more. Paperback, 142 pages.

Ages 12+
QX39608—$19.95



SOLAR ENERGY PROJECTS FOR THE EVIL GENIUS

Renewable energy is much more intriguing for students when it does more than run a lightbulb. This volume of the Evil Genius series will grab their attention, teaching them to make a solar-powered ice maker, marshmallow melter, "death ray," and many other projects. Paperback, 196 pages.

Ages 15+
QX34402—$24.95

NEW!



MAKE: GETTING STARTED WITH SENSORS

If you incorporate *Arduino* or Raspberry Pi into your project, you can build much more sophisticated projects that can react in interesting ways and even connect to the Internet. This book teaches the basic electronic circuits to read and react to a sensor, how to use *Arduino* to develop sensor systems, and how to build sensor projects with the Linux-powered Raspberry Pi. Paperback, 125 pages.

Ages 12+
QX41918—$16.95

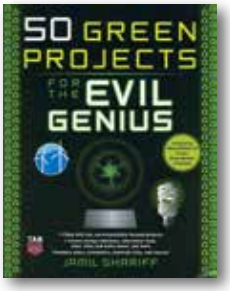
NEW!



MAKE: SENSORS

Make: Sensors is the definitive introduction and guide to the sometimes tricky world of using sensors to monitor the physical world. With dozens of projects and experiments for you to build, this book shows you how to build sensor projects with both *Arduino* and Raspberry Pi. Paperback, 377 pages.

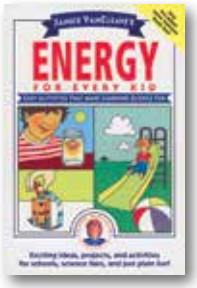
Ages 12+
QX41919—$27.95



50 GREEN PROJECTS FOR THE EVIL GENIUS

Using easy-to-find parts and tools, this do-it-yourself guide offers a wide variety of environmentally focused projects you can accomplish on your own. Topics covered include transportation; alternative fuels; solar, wind, and hydro power; home insulation; construction; and more. Paperback, 208 pages.

Ages 12+
QX34942—$27

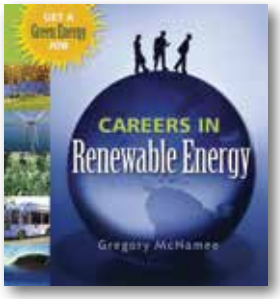


ENERGY FOR EVERY KID

How does color relate to temperature? How do plants recycle? These questions are just a few answered in *Energy for Every Kid.*

The book covers 25 energy concepts such as potential and kinetic energy, mechanical waves, heat transfer, solar energy, and more. Each section begins by explaining the concept in simple language. Paperback, 221 pages.

Ages 9-14
QX31572—$13.95



CAREERS IN RENEWABLE ENERGY

Whether you love engineering, mathematics, biology, computers, construction, and other areas, there is a green job to match. Also includes an appendix with 50 schools to consider, Internet resources, state energy offices, and more. Paperback, 190 pages.

Ages 12+
QX34404—$20



BUILDING GREEN

The latest edition of this best seller literally shows you green construction techniques with more than 1,200 photographs showing step-by-step instructions. Paperback, 616 pages.

Ages 12+
QX36445—$35

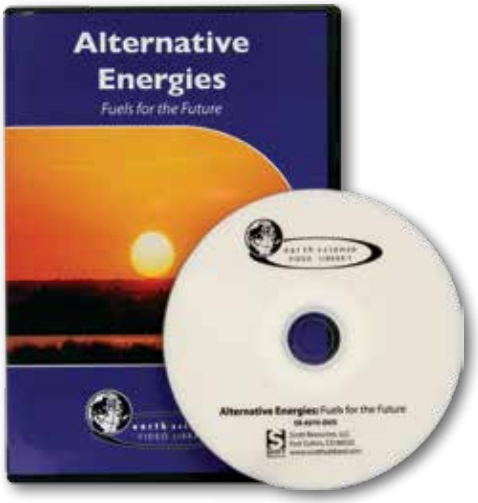
Videos



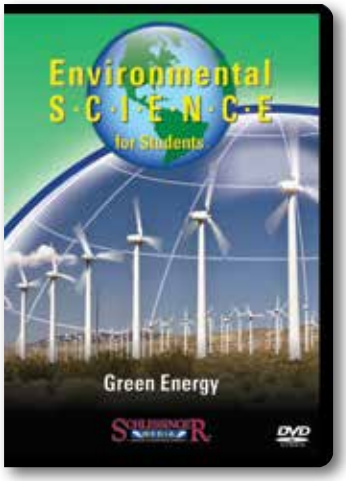
MODERN MARVELS: POWER PLANTS VIDEO
QX32848—$29



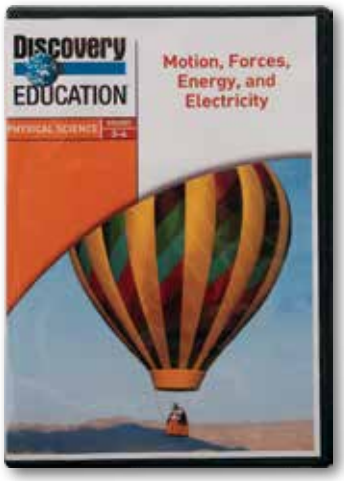
ENERGY RESOURCES: USE & CONSERVATION VIDEO
QX31872—$39.95



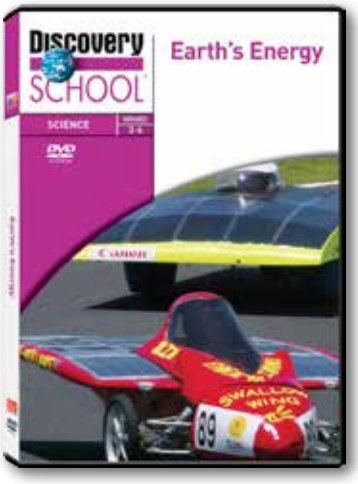
ALTERNATIVE ENERGIES: FUELS FOR THE FUTURE VIDEO
QX35101—$79.55



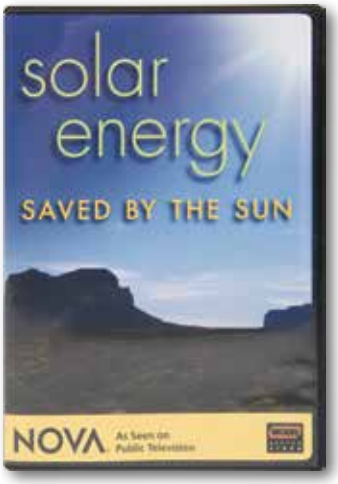
ENVIRONMENTAL SCIENCE FOR STUDENTS: GREEN ENERGY VIDEO
QX34939—$40



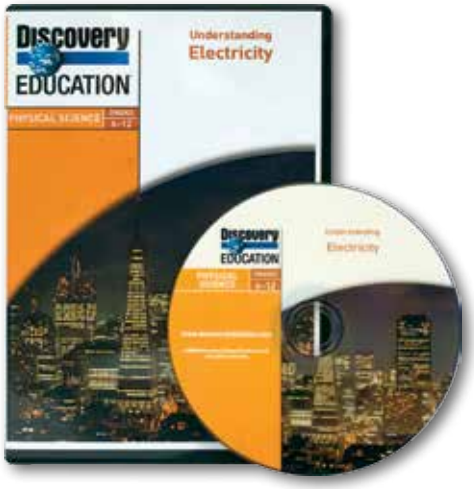
MOTION, FORCES, ENERGY, AND ELECTRICITY VIDEO
QX31347—$69.95



EARTH'S ENERGY VIDEO
QX59523—$69.95



SOLAR ENERGY: SAVED BY THE SUN VIDEO
QX34432—$19.95



UNDERSTANDING: ELECTRICITY VIDEO
QX59410—$69.95

STRUCTURES



*"I am a firm believer in **hands-on learning**! Building bridges is the best way to understand the **forces** that are **applied**."*

– Teresa Barton, Teacher, PikeView High School, Princeton, WV

Hot ideas and a system for how to lead teams and organizations. Order Harvey's new book! See page 1.

See related product on page 221!



PRODUCTS:

Hands-on learning doesn't get more hands on than this. We have everything you need to design, build, and test the strength of structures, large or small.

NEW! **Builder's Board** – page 217
EQ^5 Tremor Table – page 221
Balsa Wood and Basswood Packs – page 230
True Scale House Framing Kit – page 226

ACTIVITIES:

With structures activities and teacher's guides, learners dive deep into engineering principles and learn about environmental factors that affect all structures.

NEW! ***Large Structures Elementary STEM Activity Guide*** – page 213
Toothpick Bridges Teacher's Guide – page 214
Balsa Bridges Teacher's Guide – page 216





CURRICULUM:

In today's classroom, flexibility is key. K-2 and Middle-Level STEM Units were created to be easy to set up and adaptable.

NEW! **K-2 Elementary STEM Units**
Exploring Structures in Literature – page 319
Middle-Level STEM Units
Basic Structures – page 322
High School Engineering Courses
Civil Engineering – page 333

SOLUTIONS:

At Pitsco Education, we believe that the ultimate solution is one that engages students and excites them about learning. The integration of Pitsco products, activities, and curriculum into a classroom creates a hands-on learning solution that positively affects learners.

"I can always depend on Pitsco's quality products and excellent customer service so that I can give my students the educational tools that they need to be successful in the future."

– Darrin Bridges, Mooresville Graded School District, Mooresville, NC



Straw **Structures**

GS

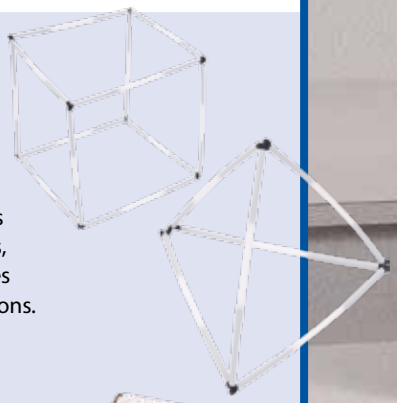
GEOSOLIDS

A Pitsco Exclusive

Using simple materials, students build three-dimensional models of five geosolids, or regular polyhedra: tetrahedron, cube, octahedron, dodecahedron, and icosahedron. Activities have students note the number of vertices, edges, and faces of each structure. Includes 100 straws and pipe cleaners and instructions.

Ages 9+

QX35231—$9.95



GEOSOLIDS 30-PACK

A Pitsco Exclusive

Enough materials to use the Geosolids Kit activity in an entire classroom. Students learn to build five three-dimensional models of geosolids, or regular polyhedra: tetrahedron, cube, octahedron, dodecahedron, and icosahedron. Includes straws, pipe cleaners, and teacher and student instructions.

Ages 9+

QX36315—$129.50





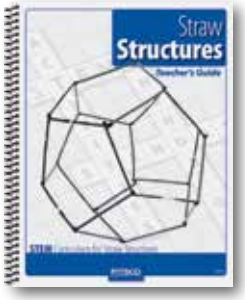
Visit **www.pitsco.com/strawstructures.**

Standard alignments available via the Standards Navigator at pitsco.com/StandardsNavigator.

Digital downloads available

STRAW STRUCTURES TEACHER'S GUIDE

A Pitsco Exclusive



Structures made with straws and pipe cleaners might look simple, but they offer a range of learning. Geometric figures and their strengths, ratios, structural designs, and static forces are some of the subjects this guide will help you and your students to really soak up!

The *Straw Structures Teacher's Guide* contains NSTA, NCTM, and ITEEA standards addressed; teacher and student instructions for a variety of math, science, and engineering activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students.

Equipment and materials needed to complete guide activities include the Pitsco Straw Structures – Getting Started Package, scissors, spring scale, hanging weights, tape measure, ruler, grid paper, stopwatch, straws with 1/8-inch inside diameter, several hundred pipe cleaners, and standard classroom tools and materials. **Note:** This list is for all activities; individual activities don't require all listed materials. Paperback/Spiral-bound, 95 pages.

Ages 12+

QX59728—$24.95

STRAW STRUCTURES – GETTING STARTED PACKAGE

A Pitsco Exclusive

Structures start taking shape with this Getting Started package. Students explore structures and geometric shapes with instruction from Dr. Zoon and the Polyhedra Poster. This package provides materials for 30 students.

The Straw Structures – GS Package includes the following products:

- QX33890 Plastic Straws (pkg of 500) (5 packages included)
- QX54853 Pipe Cleaners (pkg of 100) (9 packages included)
- QX58497 Polyhedra Poster
- QX59703 Dr. Zoon Straw Structures Video

QX35757 Straw Structures – Getting Started Package—$95

Ages 9+

DR. ZOON STRAW STRUCTURES VIDEO

A Pitsco Exclusive



Join Dr. Zoon as he explains some basic principles of how structures work. To illustrate these principles, he uses straws and pipe cleaners to build a variety of structures including many geometric solids. Along with the demonstrations, he shows students how to build their own straw structures. Closed-captioned. Time: 24 minutes.

Ages 9+

QX59703 DVD—$24.95

TRY THIS: STRAW STRUCTURE KIT



A Pitsco Exclusive

Help students understand basic three-dimensional shapes by constructing their own cubes and tetrahedrons! This kit includes the needed straws, pipe cleaners, and instructions for a student to build the shapes in no time. No tools required.

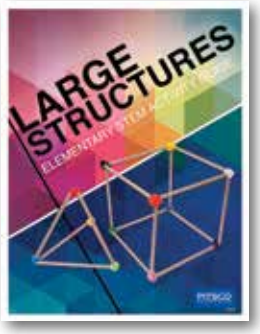
Pitsco's Try This kits are designed as quick and easy activities that show some of the basic concepts of larger projects. This kit should take 20 minutes or less to construct.

Ages 9+

QX40308—$1.50

NEW!

LARGE STRUCTURES ELEMENTARY STEM ACTIVITY GUIDE



A Pitsco Exclusive

Written for Grades K-2, this guide helps students grasp a variety of subjects including geometry, solid figures, plane shapes, attributes, and more.

The *Large Structures Elementary STEM Activity Guide* contains teacher and student instructions for math, science, and engineering activities; assessment questions; resource pages; and student pages. This guide contains two guided inquiry lessons and a culminating engineering challenge for students to apply concepts learned through the inquiry lessons.

Equipment and materials needed to complete guide activities include Large Structures Package, paper, and standard classroom tools and materials. Paperback, 22 pages.

Ages 5-8

QX41524—$4.95



LARGE STRUCTURES PACKAGE

A Pitsco Exclusive

Younger students can learn about basic structures but might not be able to handle the materials of the Straw Structures Getting Started Package. The giant, fuzzy, and colorful pipe cleaners in this pack are not only fun to use but also easy to handle for small hands. A class of students can each learn to make two basic shapes and then combine materials to create bigger, more complex structures.

Comes with 120 large assorted-color pipe cleaners, 180 AP Rocket Body Tubes (12" long, 0.518" ID, 0.544" OD), and instructions for building a cube and tetrahedron.

Ages 5+

QX38598—$69.95

DR. ZOON STRUCTURES VIDEO SERIES



For beginners of straw, toothpick, or balsa wood structure activities, the *Dr. Zoon Straw Structures Video* and *Dr. Zoon Toothpick Bridges Video* build students' understanding of structures, design, and geometric shapes. For more advanced coverage of these concepts, as well as forces and construction techniques, we've included the *Dr. Zoon Bridge Building Video* and *Dr. Zoon Tower Building Video*. All programs cover construction, tips, and explanation of concepts. Closed-captioned. Time: 125 minutes.

Ages 9+

QX59711 DVD—$69.95

POLYHEDRA POSTER



A Pitsco Exclusive

Do your students need a little help in the area of geometric shapes? Strengthen their skills with this colorful polyhedra poster. Displays the vertices, edges, and faces of 18 different polyhedrons, including the five regular polyhedrons.

Ages 9+

QX58497 (18" x 28")—$9.95

PLASTIC STRAWS

For use as axle bushings or for straw structures.

QX33890 White (1/8" diameter x 5-3/4" length) (pkg of 500)—$11.95
10 pkgs or more—$11.05 each
QX56856 White (1/4" diameter x 10" length) (pkg of 500)—$12
QX23733 Clear (1/4" diameter x 7-3/4" length) (pkg of 250)—$2.95
QX23734 White/red stripe (1/4" diameter x 7-3/4" length) (pkg of 250)—$2.50

ART STRAWS FOR STRUCTURES

Unwaxed straws are 16 inches in length. Use for bridge and tower building and architectural models. Straws make lightweight but strong and durable projects.

QX52843 (4 mm diameter x 16" long) (box of 1,800)—$49.95

PIPE CLEANERS



For structures, attach straws together easily with pipe cleaners. Colors may vary.

QX54853 (pkg of 100)—$3

Toothpick **Bridges**



MASTERPIECE TOOTHPICK BRIDGES CLASS PACK

A Pitsco Exclusive

Your upper-elementary students will impress themselves and you after finishing one of the elaborate bridges from Masterpiece Toothpick Bridges. Give them everything they need to accomplish the construction with this class pack. Includes a pint of colored Structures Glue, 30 two-ounce glue bottles, waxed paper, and 25,000 toothpicks!

Ages 12+

QX35689—$65

Visit **www.pitsco.com/toothpickbridges**.



TOOTHPICK BRIDGES – GETTING STARTED PACKAGE

A Pitsco Exclusive

Building bridges comes down to size for your students with this activity. Using toothpicks and glue, students build and then test a bridge model. Along the way, they learn about the strength of shapes and forces.

This package includes the Toothpick Bridge Tester, *Dr. Zoon Toothpick Bridges Video*, and enough materials and glue for 30 bridges.

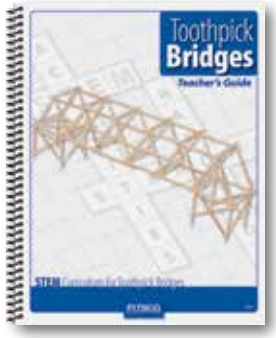
- QX30003 Toothpick Bridge Tester
- QX35590 Glue Bottle w/Lid (2 oz) (30 pk)
- QX51742 Square Toothpicks (pkg of 800) (8 boxes included)
- QX51748 Blue Structures Glue (16 oz) (2 bottles included)
- QX50032 Waxed Paper
- QX59642 Dr. Zoon Toothpick Bridges Video

QX35589 Toothpick Bridges – Getting Started Package—$89

Ages 12+

Requires hobby knife and tape, sold separately.

⚠ Please read and follow all teacher tips and safety information provided with this product.



TOOTHPICK BRIDGES TEACHER'S GUIDE

A Pitsco Exclusive

This guide is ideal for those teachers who love toothpick bridge activities but need them to cover a greater span of curricula. Covering concepts such as tension, force, ratios, efficiency, and truss design, students learn much more than model building. Paperback/Spiral-bound, 97 pages.

Ages 12+

QX59615—$24.95

DR. ZOON TOOTHPICK BRIDGES VIDEO

A Pitsco Exclusive

This simple, yet challenging, activity is a favorite among many teachers. Let Dr. Zoon provide a few ideas and step-by-step instructions to ensure success for students. Closed-captioned. Time: 26 minutes.

Ages 12+

QX59642 DVD—$24.95



TRY THIS: TOOTHPICK BRIDGE KIT



A Pitsco Exclusive

No time to build a regular-size toothpick bridge? Cover some of the same structural concepts in a fraction of the time with this kit. Includes toothpicks and instructions for one small bridge. Requires white glue and waxed paper, sold separately.

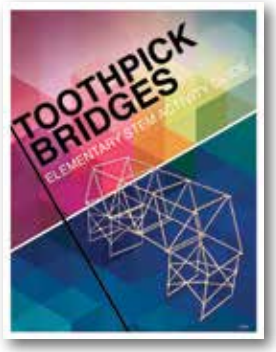
Pitsco's Try This kits are designed as quick and easy activities that show some of the basic concepts of larger projects. This kit should take 30 minutes or less to construct.

Ages 9+

QX40309—$1.50

NEW!

TOOTHPICK BRIDGES ELEMENTARY STEM ACTIVITY GUIDE



A Pitsco Exclusive

Written for Grades 3-5, this guide helps students grasp a variety of subjects including types of bridges, bridge design, Newton's laws, effects of weather, and bridge geography.

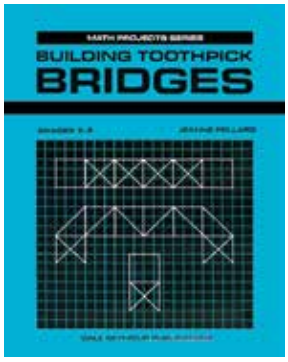
The *Toothpick Bridges Elementary STEM Activity Guide* contains Next Generation Science Standards and Common Core mathematics and English language arts standards addressed; teacher and student instructions for math, science, and engineering activities; assessment questions; and student pages. This guide contains two guided inquiry lessons and a culminating engineering challenge where students apply concepts learned in their inquiry lessons.

Equipment and materials needed to complete guide activities include the Pitsco Toothpick Bridges – Getting Started Package or Try This: Toothpick Bridge Kit, quick-drying glue, waxed paper, graph paper, toothpicks, rulers, notebooks, toy cars, sticky notes, colored pencils, and standard classroom tools and materials. **Note:** This list is for all activities; individual activities don't require all listed materials. Paperback, 21 pages.

Ages 8-11

QX41804—$4.95

BUILDING TOOTHPICK BRIDGES



Link your math curriculum to the world around you with the motivational ideas in this book. A company of students builds a bridge with an architect, project managers, bookkeepers, a budget, and materials – a practical approach to math, geometry, and social studies! For the teacher, the book contains clear guidelines and plans. Paperback, 30 pages.

Ages 12+

QX51784—$29

TOOTHPICK CADDY



A Pitsco Exclusive

Avoid classroom glue spills and mess with the Pitsco Toothpick Caddy. Designed to house HD Bond II or Pitsco Structures Glue, the caddy adds convenience for projects that require glue, such as toothpick or balsa bridges. Toothpicks can be dipped into the glue before being added to a toothpick structure – or the toothpick can be used to apply glue to a joint in a balsa or basswood structure.

QX40350—$3.95

TOOTHPICK BRIDGE TESTER



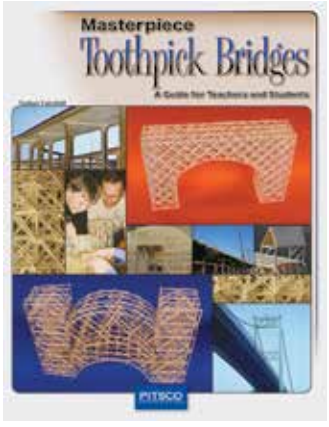
A Pitsco Exclusive

Here's an easy, economical way to find out how strong a toothpick bridge is. Attach the Pitsco Toothpick Bridge Tester to your finished bridge and gradually fill the tester with weights until your bridge beats the competition or collapses. Includes mounting hardware.

Ages 12+

QX30003—$19.95

MASTERPIECE TOOTHPICK BRIDGES BOOK



A Pitsco Exclusive

This activity guide helps teachers and upper-elementary students bridge the gap between building simple toothpick bridges and mastering the construction of a toothpick bridge that will drop jaws.

Masterpiece Toothpick Bridges delves into design principles needed to construct an elaborate bridge, detailed lessons, material selection, building techniques and tips, a research paper assignment, bridge testing, and more! Plenty of photos illustrate the details of this black-and-white book. Paperback/Spiral-bound, 48 pages.

Ages 12+

QX59026—$19.95



SQUARE TOOTHPICKS

To prevent rolling and to make cleaner joints on toothpick bridges and towers, try these Square Toothpicks. Toothpicks are 2-5/8" long.

QX51742 (pkg of 800)—$2.95



ROUND TOOTHPICKS

Round Toothpicks are 2-5/8" long. Use these for toothpick bridges and structures.

QX51741 (pkg of 800)—$3.50



FLAT TOOTHPICKS

Use for building toothpick bridges and structures. 2-3/8" long.

QX33450 (pkg of 2,500)—$3.50

Balsa **Bridges**



BRIDGEPAK

A Pitsco Exclusive

Balsa wood or basswood strips, individual bottles of colored Pitsco Structures Glue, *The Pitsco Bridge Book*, student guide sheets – all the materials you need to complete an exciting bridge design and building activity. Packs are available for a class of 10 or a class of 25. Balsa wood strips are 1/8" x 1/8" x 24". Basswood strips are 3/32" x 3/32" x 24". Construction requires hobby knife or Timber Cutter, small clips, foam board, pins, and waxed paper, sold separately.

Ages 12+

QX35679 Balsa Wood 10-Pack—$46
QX51706 Balsa Wood 25-Pack—$99
QX35681 Basswood 10-Pack—$54
QX51707 Basswood 25-Pack—$85

Visit **www.pitsco.com/balsabridges**



BALSA BRIDGES – GETTING STARTED PACKAGE

A Pitsco Exclusive

Building model bridges from balsa wood is a great way to get students engaged in technology, science, and engineering principles. This Getting Started package includes materials for 25 students, testing equipment, and curriculum to get your classroom into bridge building.

The Balsa Bridges – GS Package includes the following products:

- QX51706 BridgePak (balsa wood) 25-Pack
- QX54604 Structure Testing Device
- QX18818 Timber Cutter
- QX18523 Timber Tester
- QX59889 Bridge Video

QX23619 Balsa Bridges – Getting Started Package—$410

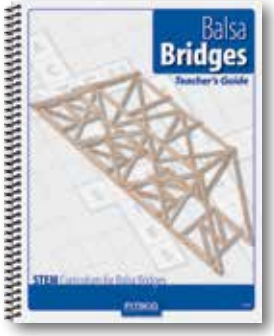
Ages 12+

Standard alignments available via the Standards Navigator at pitsco.com/StandardsNavigator.

Digital downloads available

BALSA BRIDGES TEACHER'S GUIDE

A Pitsco Exclusive



Whether your sights are on design, strength, history, symmetry, or construction techniques, this guide helps focus your efforts on using this popular structures activity. In the process, students learn about the strength of materials, types of joints, design concepts, lamination, and efficiency. Individual activities available for digital download on the website. Paperback/Spiral-bound, 96 pages.

Ages 12+

QX59460—$24.95

BRIDGE VIDEO

A Pitsco Exclusive



Bridges are a vital part of our transportation systems, and now your students can follow along with this program to build their own model bridge. They start by learning how to design and draw their bridges and then construct the bridge parts and put them together. Finally, they test their bridges to determine the efficiency of their designs.

Along the way, students learn about racking, efficiency, civil engineering careers, and how to use a Timber Tester to determine beam strength. Closed-captioned. Time: 23 minutes.

Ages 12+

QX59889 DVD—$24.95



MAGNETIC BUILD FIXTURE

A Pitsco Exclusive

Go 3-D with your structure building! The Magnetic Build Fixture enables students to build model structures such as bridges vertically as well as horizontally.

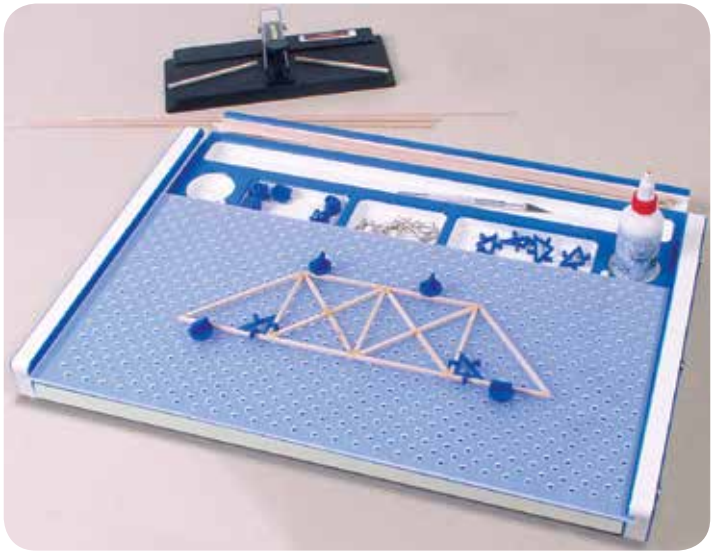
Tape your building drawing onto the galvanized metal plate, place the magnetic angle plates along the drawing lines, and start building by placing additional magnets on the angle plates where needed to hold structural members for gluing. The angle plates can also help keep members at right angles.

The plate fits perfectly into Pitsco's Construction Caddy II, sold separately. Includes 50 Rectangular Ceramic Magnets.

QX39364—$49⚠



Magnetic Build Fixture on the Pitsco Construction Caddy II, sold separately.



CONSTRUCTION CADDY II

A Pitsco Exclusive

Constructed of high-density polyethylene, the Construction Caddy II is water resistant and durable. It has a big work area – 18-3/4" x 9-3/8" – that holds a piece of foam board or the Pitsco Perf Insert. Tape a template to foam board and pin the pieces for convenient gluing. The foam board can be removed and stored, so the caddy can be used again quickly. The caddy holds pins, balsa wood sticks, glue, and more. Includes one piece of foam board. Balsa wood, glue, T-pins, Perf Insert, and Accu-Fixtures sold separately.

QX29254—$119

PERF INSERT FOR CONSTRUCTION CADDY II

A Pitsco Exclusive

The Perf Insert measures 18-3/4" x 9-3/8" and fits snugly inside the Construction Caddy. The holes allow students to use our Accu-Fixtures Set to build projects without the pins. Made of polyethylene. Requires Accu-Fixtures, sold separately.

QX29658—$9.95

All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!

ACCU-FIXTURES SET

A Pitsco Exclusive

When used with your Construction Caddy and Perf Insert, this Accu-Fixtures Set is the best way to snap your project in place! The small plastic pieces come in round and angular shapes to help your project stay in place while making the finishing touches.

You'll be impressed at how strong structures are when using these tools. Each set includes six 45/45/90-degree Accu-Angles, two 30/60/90-degree Accu-Angles, and six Accu-Cams. Cams require Perf Insert, sold separately.

QX26624—$2.75





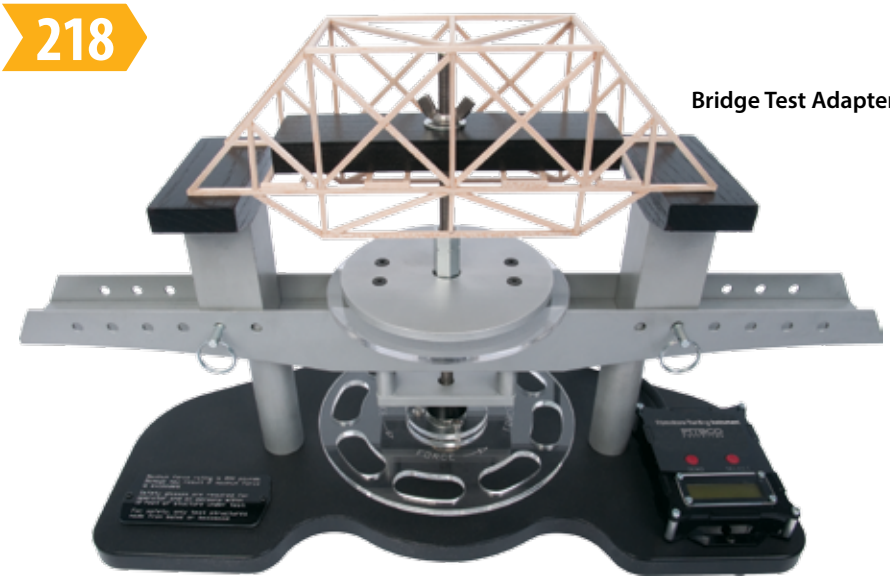


BUILDER'S BOARD NEW!

A Pitsco Exclusive

Use our sturdy Builder's Board to assemble stick bridges, towers, trusses – any stick modeling project. Built-in slots hold glue and balsa wood sticks.

QX41878 (18" L x 11-3/4" W)—$69.95



Bridge Test Adapter



Tower Test Adapter

STRUCTURES TESTING INSTRUMENT

A Pitsco Exclusive

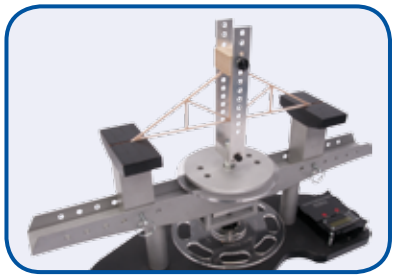
Using the Structures Testing Instrument, students can apply up to 800 pounds of force to structures including balsa wood or basswood towers and bridges. They can apply pressure in small increments and stop applying pressure at the first sign of structural damage. Because the load reading is given at every change, students can follow a precise pattern to ensure consistent testing.

Features include quick and convenient testing; load-cell technology; ability to test both bridges and towers; safety shield for tower testing; easy-to-read digital display; and measuring force in pounds, kilograms, and newtons.

QX36730—$1,395



All Components



TRUSS TESTER FOR STRUCTURES TESTING INSTRUMENT

A Pitsco Exclusive

Attached to the Structures Testing Instrument, this tester enables you to test trusses built from balsa wood up to 1/4" as well as basswood up to 3/16". Or test double- or triple-width trusses.

Holds trusses up to 5-1/2" tall. Comes with blocks to firmly hold in place triangular trusses with 15°, 20°, 25°, and 30° angles.

QX37708—$69.95



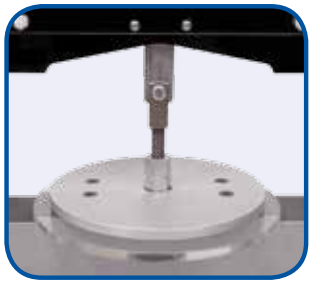
BALSA TRUSS TESTER – FIXTURE FOR 1/8"

A Pitsco Exclusive

Testing a truss design before building an entire model bridge or roof makes sense – and now you can do that with the Balsa Truss Tester. It works with a hanging weight or on the Structures Testing Instrument (with a Balsa Truss Tester Adapter), sold separately.

For trusses made from 1/8" balsa wood, the tester adjusts for trusses up to 4" tall and 12" wide. It has two different load blocks: one adjusts to four different angles (15°, 20°, 25°, and 30°) for triangular trusses, and the other is square for flat-topped trusses. Made of colored acrylic, the tester's clear acrylic shield keeps trusses securely in place while offering protection from splintering wood. Comes assembled.

QX37764—$79.95





BALSA TRUSS TESTER ADAPTER

A Pitsco Exclusive

This adapter enables you to use the Balsa Truss Tester with the Structures Testing Instrument.

QX37775—$15.95

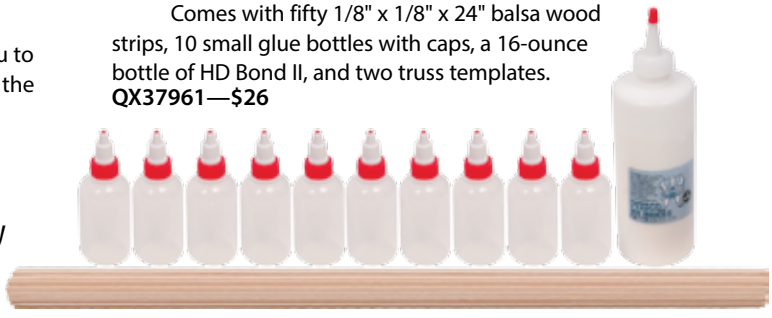
TRUSS BUNDLE

A Pitsco Exclusive

Enough materials to build 25 trusses – ideal as a lesson before a bridge- or structure-building activity.

Comes with fifty 1/8" x 1/8" x 24" balsa wood strips, 10 small glue bottles with caps, a 16-ounce bottle of HD Bond II, and two truss templates.

QX37961—$26



All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!





BOOMILEVER ADAPTER

A Pitsco Exclusive

Test cantilevered structures with the Boomilever Adapter that attaches to the Pitsco Structure Testing Device. Includes necessary hardware and installation instructions. Table, bucket, and chain not included.

QX23035—$39

BOOMILEVER CLASS PACK

A Pitsco Exclusive

Vital to bridges, balconies, radio towers, and other structures, cantilever design is an important structures concept. Students learn about cantilever structures and prepare to build one. This pack provides enough basswood and balsa wood, full-size building plans, and glue for 30 students, working in teams of two, to build a cantilever structure (15 total), as well as a teacher's guide on CD.

Ages 12+

QX33662—$165

PRECISION TEST BLOCK – BOOMILEVER



A Pitsco Exclusive

The test block needed to test cantilevered structures in Science Olympiad competitions with the Boomilever Adapter and Pitsco Structure Testing Device. Size: 50 mm x 50 mm x 19 mm.

QX24183—$7.95

STRUCTURE TESTING DEVICE

A Pitsco Exclusive

Features a sturdy metal stand with an adjustable bridge span. A test block sits on the roadbed with a bucket suspended underneath. The load can be gradually applied to the bridge by slowly adding sand (not included). **Caution:** The maximum weight to add to the bucket is 100 lb.

Includes stand, test block, chain, bucket, and other necessary hardware. Requires 5/16" nut driver or wrench, pliers, screwdriver, and sand (or other weight), sold separately.

QX54604—$275

PRECISION TEST BLOCK – BRIDGES



A Pitsco Exclusive

Accurate test block for use with Science Olympiad bridge competitions. Size: 50 mm x 80 mm x 19 mm.

QX24182—$10

TOWER CRUSHER

A Pitsco Exclusive

Can your structure take the pressure? The Tower Crusher enables students to answer that question and challenges them to explore ways to increase the endurance of their paper structures. Students build a structure from ordinary printing paper and set up the crusher stand. The strength of the structure is evaluated by adding mass to the bottle until the structure fails. Requires a scale, sand, paper, and tape.

QX40300—$69







Earthquake **Towers**



EQ^5 EARTHQUAKE TOWERS CLASS PACK

A Pitsco Exclusive

Updated for the EQ^5 Tremor Table's floor plate system, this pack gathers the building supplies needed for 30 students working in teams of two to build towers (15 total).

This EQ^5 Earthquake Towers Class Pack includes 1/8" wood strips, Pitsco colored Structures Glue, 75 Wood Floor Plates, 30 grid sheets, and the *Earthquake Engineering: EQ^5 Project Book*. Includes 15 each of the Foundation Block, Tower Block Base, glue bottle, and student guide.

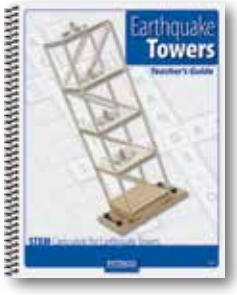
Ages 12+

QX31830 Balsa Wood (1/8" x 1/8")—$175
QX31829 Basswood (3/32" x 3/32")—$195

Visit www.pitsco.com/earthquake.

Standard alignments available via the Standards Navigator at pitsco.com/StandardsNavigator.

Digital downloads available



EARTHQUAKE TOWERS TEACHER'S GUIDE

A Pitsco Exclusive

Building an earthquake-resistant tower takes more than glue and balsa wood – it takes an understanding of earthquakes, how mass is distributed in the tower, and structural design. This guide helps students grasp these concepts so they can build and test a great tower.

The *Earthquake Towers Teacher's Guide* contains NSTA, NCTM, and ITEEA standards addressed; teacher and student instructions for a variety of math, science, and engineering activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students.

Equipment and materials needed to complete guide activities include the Pitsco Earthquake Towers – Getting Started Package, ruler, protractor, safety glasses, clothespins or small clamps, world map, compass, waxed paper, foam board or cardboard, and standard classroom tools and materials. **Note:** This list is for all activities; individual activities don't require all listed materials. Paperback/ Spiral-bound, 91 pages.

Ages 12+

QX59725—$24.95



EARTHQUAKE TOWERS – GETTING STARTED PACKAGE

A Pitsco Exclusive

Testing student-engineered structures for earthquake resistance will really get things shaking in your classroom. This package includes everything needed for 30 students (in teams of two) to design, build, and test a structure: tower materials, Timber Cutter, Timber Tester, mass plates and associated hardware, EQ^5 Tremor Table earthquake simulator, and Pitsco *EQ^5 Earthquake Tower* video.

The Earthquake Towers – GS Package includes the following products:

- QX31830 EQ^5 Earthquake Towers Class Pack (balsa wood)
- QX30718 EQ^5 Tremor Table
- QX31825 EQ^5 Mass Plate Hardware Pack
- QX18818 Timber Cutter (6 cutters included)
- QX18523 Timber Tester (6 testers included)
- QX59753 EQ^5 Earthquake Tower Video

QX31834 Earthquake Towers – Getting Started Package—$1,595

Ages 12+

All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!

EQ^5 EARTHQUAKE TOWER VIDEO

A Pitsco Exclusive



Get things shakin' with the EQ^5 Tremor Table – and this video will eliminate any tremors you have about it!

Learn how to build an earthquake-resistant tower with the floor plate system, where the plate is built into the tower instead of placed into it. This new system widens the range of tower design possibilities – including taller towers!

Then, see how to test your tower to the point of destruction with the EQ^5, sold separately. Closed-captioned. Time: 26 minutes.

Ages 12+

QX59753 DVD—$24.95

NOTE: Sensors and hardware within the MyQuake miniSystem (pg 275) can be used with the EQ^5 for data acquisition.



EQ^5 TREMOR TABLE

A Pitsco Exclusive

Looking like a chunk of Earth's crust dislodged by an earthquake, the EQ^5 Tremor Table shakes model buildings to the breaking point. A control box with an LED display reports the cycles per second from zero to 30, which is within the range of an earthquake's P waves. Plus, you can program up to eight minutes of a shake sequence – perfect for consistent testing and structure-building contests.

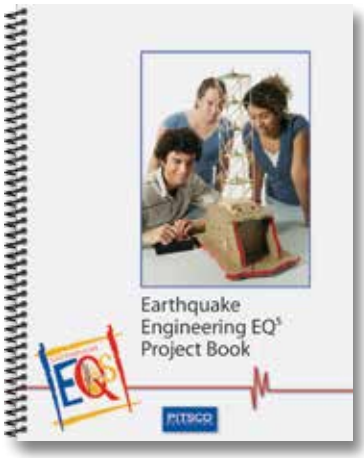
When used with the floor plate system, the EQ^5 helps your students reach new heights of learning. The wooden floor plates are built as part of the structure; holes in the plate's center allow bolts and washers to be attached, which simulate the load on the floors of a real skyscraper.

Includes the Pitsco *Earthquake Engineering* book to guide students through the structure design and building process. Comes with five of the wood floor plates, five bolts and nuts, and 50 washers – enough to build one earthquake tower. Requires balsa wood or basswood strips, sold separately.

QX30718—$945

EARTHQUAKE ENGINEERING PROJECT BOOK

A Pitsco Exclusive



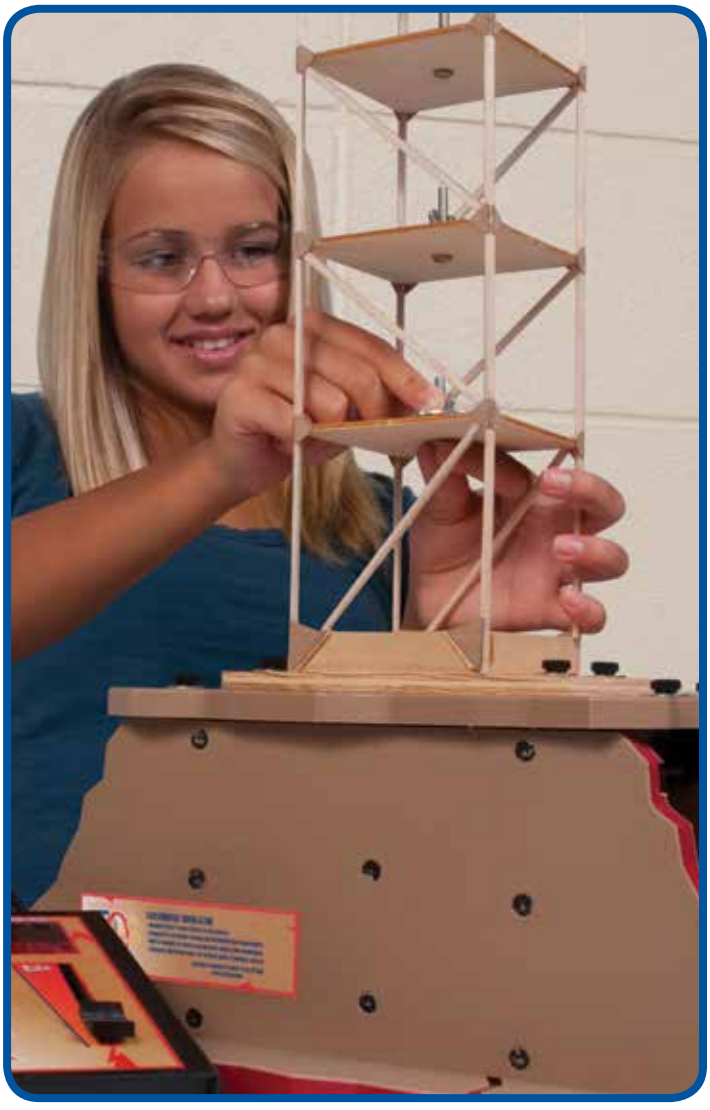
Updated for the EQ^5 Tremor Table, *Earthquake Engineering* didn't break away from solid content and intriguing activities. This hands-on guide outlines for students the process of designing and building a quake-proof structure.

In addition to learning about engineering concepts, students also learn a lot about earthquakes, such as P waves versus S waves, magnitude, amplitude, and more. An exciting design of the load plate system allows greater flexibility for student testing of structures.

Also included is a glossary, technology challenge, and resource section. Paperback/Spiral-bound, 25 pages.

Ages 12+

QX31718—$3.95
10 or more—$3.65 each
100 or more—$3.40 each



With an average of 1,444,471 earthquakes occurring annually worldwide, there is a measurable earthquake of 2.0 magnitude or greater happening every 22 seconds somewhere in the world. The Pitsco EQ^{S} enables your students to see the number of cycles per second from zero to 30 – these numbers are within the range of an earthquake's P waves. This demonstrates resonant frequency as well. With this technology, students can engineer and test towers to determine the proper structure to withstand various earthquake magnitudes.



EQ^{S} MASS PLATE HARDWARE PACK

A Pitsco Exclusive

If screwing and unscrewing a single set of hardware while testing towers is making you a wreck, this pack will eliminate that stress. Contains all the hardware you need to test 15 standard balsa wood towers. Includes 750 Mass Plates, 75 wing nuts, and 75 bolts.

QX31825—$260



EQ^{S} MASS PLATES

A Pitsco Exclusive

Offering a variety of mass configurations for tower testing, this pack has 50 Mass Plates – an average of 10 per floor for a standard five-floor tower.

QX31733 (pkg of 50)—$18.95



EQ^{S} FOUNDATION BLOCK

A Pitsco Exclusive

QX13341—$1



TOWER BLOCK BASE

A Pitsco Exclusive

If you don't want to make your own bases, we made some for you! Use this Tower Block Base to attach balsa wood towers built on foundation blocks to the EQ^{S} Tremor Table.

QX13342—$2.50



EQ^{S} FLOOR PLATES

A Pitsco Exclusive

These laser-cut Floor Plates enable a more flexible design for towers. A tower built with this floor plate system typically requires five Floor Plates – choose the pack to fit your needs.

QX31731 (pkg of 5)—$3.50
QX31732 (pkg of 25)—$19.95
QX32481 (pkg of 75)—$59

HARMONIC HIGHRISE KIT

A Pitsco Exclusive

Get a visual of the effect earthquakes have on tall structures. The Harmonic Highrise, when placed on the EQ^{S} Tremor Table (sold separately), gives a clear view of how buildings react to various frequencies of shaking. Great for demonstrating resonant frequency without destroying a wooden tower – the structure's polycarbonate sides won't break even at high frequencies!

Ages 12+

QX32211—$29





EQ^{S} FLOOR PLATE WING NUTS AND BOLTS

A Pitsco Exclusive

This hardware secures the Mass Plates to your tower's Floor Plates. Includes enough for one five-floor tower.

QX31734 (pkg of 5)—$2.95



MYQUAKE MINI PACK

A Pitsco Exclusive

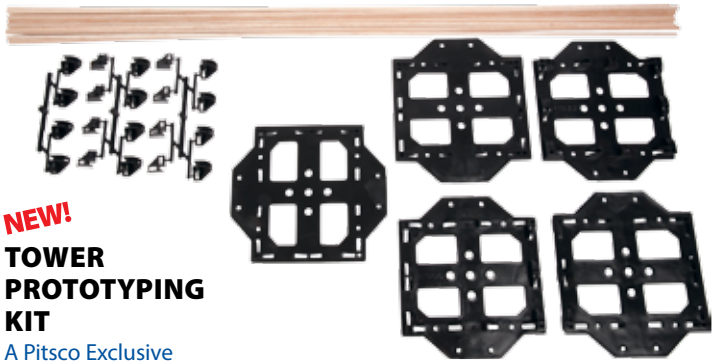
Students learn about seismic waves, plate tectonics, and other key concepts; build simple structures to test on the myQuake; experiment with the Harmonic Highrise to see resonant frequency; and other activities.

The two-student pack provides materials and equipment for two students working as a team; the 10-student pack provides materials and equipment for 10 students working in teams of two. Includes a teacher's guide and DVD. Requires an NI myDAQ per student team, sold separately.

Ages 12+

QX39743 (2 students)—$295
QX39742 (10 students)—$1,395

See miniSystems on pages 274-275.



NEW!

TOWER PROTOTYPING KIT

A Pitsco Exclusive

Quickly build balsa towers for testing with the Tower Prototyping Kit. The kit comes with Prototyping Floor Plates (5), Prototyping Connectors (20), and balsa sticks (1/8" x 1/8" x 24"). The floor plates and connectors allow for quick tower builds that don't sacrifice sturdiness. Balsa sticks easily fit into the slots on the floor plates and connectors, creating a secure build without the need for glue. The Tower Prototyping Kit works together with the myQuake miniSystem so students can quickly build and test structures during class.

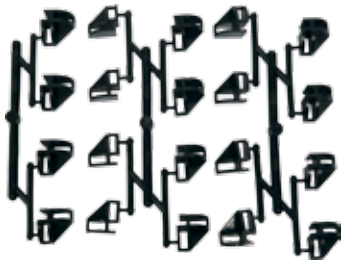
QX41431 Kit—$14.95
QX41432 10-Pack—$89
QX41433 30-Pack—$250



NEW!

PROTOTYPING CORNER CONNECTORS

A Pitsco Exclusive



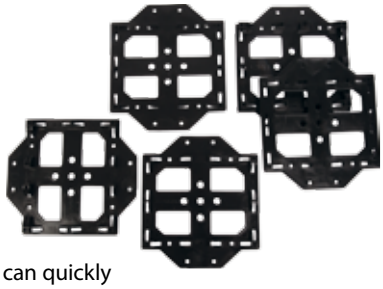
Students use Prototyping Corner Connectors to create truss work, cross members, or other structural elements to provide more rigidity for balsa towers. Balsa sticks securely slide into slots on the connectors, allowing for quick and easy builds that do not sacrifice sturdiness. Prototyping Corner Connectors are used with the myQuake miniSystem and Prototyping Floor Plates.

QX40704 (pkg of 20)—$5.95
QX40706 (pkg of 200)—$36.95

NEW!

PROTOTYPING FLOOR PLATES

A Pitsco Exclusive



Prototyping Floor Plates work together with the myQuake miniSystem. Students can quickly produce multilevel balsa towers without the usual wait for glue to dry. Balsa sticks securely slide into slots to allow for a quick build that doesn't sacrifice sturdiness. Packs come with five or 50 floor plates so students can easily build three to five floors per tower.

QX40703 (pkg of 5)—$3.95
QX40705 (pkg of 50)—$24.95



DR. ZOON TOWER BUILDING VIDEO

A Pitsco Exclusive

When taking on a model tower project, it saves time and material to know how to build strong structures.

In this program, Dr. Zoon has solid tips and instructions to make your tower building a success. For instance, did you know that rotating a piece of wood 90 degrees can make a tremendous difference in the strength of that piece? Watch and learn! Closed-captioned. Time: 25 minutes.

Ages 12+

QX59704 DVD—$24.95



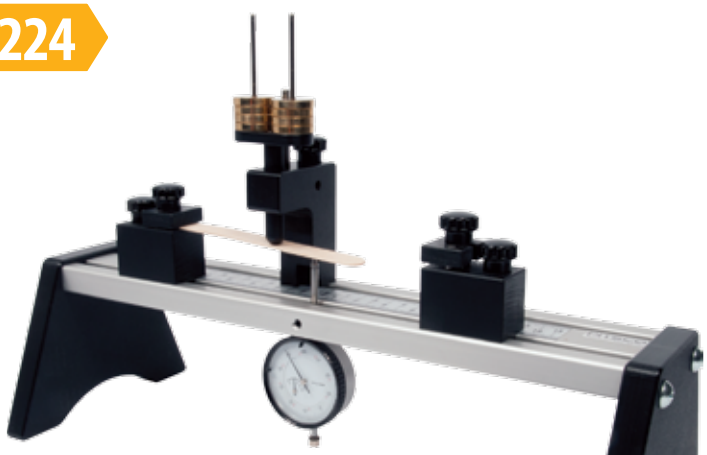
TOWERPAK

A Pitsco Exclusive

The TowerPak supplies your class with the materials for the tower-building activity – balsa wood, colored Pitsco Structures Glue, tower design grid sheets, and copies of the *Student Guide to Model Tower Building.* Not intended for use with the EQ^5 Tremor Table.

Ages 12+

QX35683 Balsa Wood TowerPak (1/8" x 1/8" x 24") 10 Students Served—$40
QX52534 Balsa Wood TowerPak (1/8" x 1/8" x 24") 25 Students Served—$85
QX35685 Basswood TowerPak (3/32" x 3/32" x 24") 10 Students Served—$45
QX52537 Basswood TowerPak (3/32" x 3/32" x 24") 25 Students Served—$85



MATERIALS DEFLECTION TESTER

A Pitsco Exclusive

For teachers wanting to go further into materials testing, we've got the perfect piece of equipment. The Materials Deflection Tester brings accurate measurement to testing various materials. Want to know whether laminated balsa wood bends more or less than plain balsa wood? If aluminum bends more than steel? It's easy with this tester.

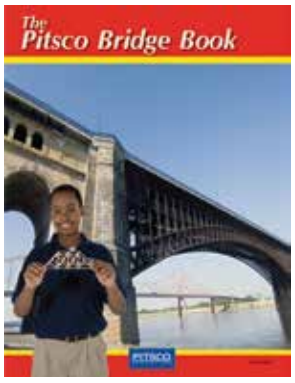
Just place the material in the clamp and on top of the metric dial indicator plunger, zero the indicator, place the desired weights on top, and read the amount of deflection on the dial. You can test materials using a point load and several support types including cantilever, fixed, simple, and roller, and you can move the weight to different areas of the materials, such as the center versus the middle.

Tests material up to 1' L x 1-1/4" W x 3/4" H with a maximum deflection of 0.78". Comes with 500 grams of masses for testing. No assembly required.

QX39211—$299

THE PITSCO BRIDGE BOOK

A Pitsco Exclusive



This complete guide to model bridge building discusses the history of bridges, types of trusses, glue joints, and construction ideas.

This illustrated guide includes competition rules and drawings. Developed as a teacher's resource as well as a student's construction guide. Paperback, 22 pages.

Ages 12+

QX32455—$2

LIL' TERMITE SANDER

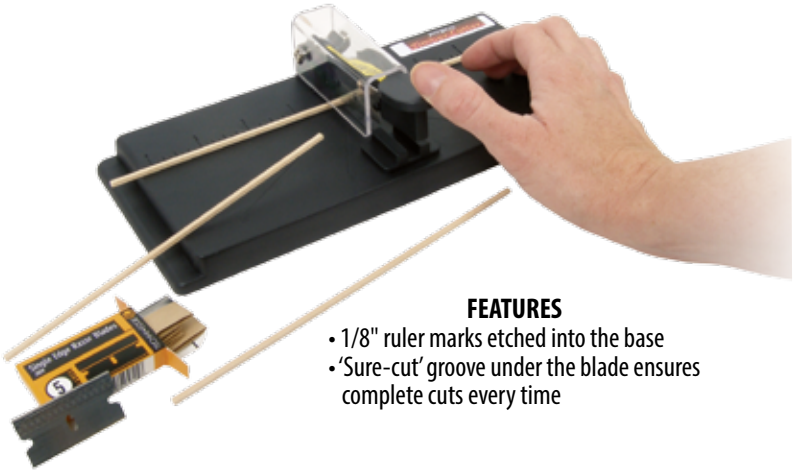
A Pitsco Exclusive



The Lil' Termite Sander creates more precise angles and tighter joints for wood structures – as well as deburrs axles for dragsters. Either make angles freehand or use the etched miter angles on the sanding table.

Dimensions are 5" x 3" x 2-1/4" with a round sanding surface 1-1/2" in diameter. Includes five sanding discs and a sanding disc cleaner. Uses 110-120 VAC wall outlet.

QX30574—$59
QX30742 Replacement Sanding Discs (pkg of 5)—$3.95



FEATURES

- 1/8" ruler marks etched into the base
- 'Sure-cut' groove under the blade ensures complete cuts every time

TIMBER CUTTER

A Pitsco Exclusive

The Timber Cutter is a helpful tool for cutting 1/8" wooden sticks. We recommend it for bridge and tower building as well as other model projects. The see-through safety guard limits finger access to the blade.

A single-edged razor blade provides a clean, accurate cut. Miter marks are molded into the base to use as a reference when making angle cuts. Five extra blades are included. Additional replacement blades sold separately.

QX18818—$19.95
10 or more—$17.95 each

REPLACEMENT BLADES

Replacement blades for the Pitsco Timber Cutter and the Lumberjack.

QX18819 (pkg of 5)—$1.50
10 pkgs or more—$1.35 each



TIMBER TESTER

A Pitsco Exclusive

By using the Timber Tester, you can determine the best timbers to use for the most critical members of the bridge or tower, as well as the optimum way to orient the timbers to provide the maximum amount of load-bearing capacity for any structure. The unit is durable, with the main member of the unit constructed of rugged ABS plastic. The testing span is adjustable from 4 to 12 inches, and the scale provides readings from 0 to 7 units of load. We recommend one Timber Tester for every four to six "structural engineers."

QX18523—$24.95
10 or more—$22.45 each



PAPER-COVERED RIGID FOAM

This is the best material available for scale-model walls and roofs. Paper covers both sides of the rigid foam. Cuts easily with hobby knife. Sold by the sheet. Available in two thicknesses.

QX51531 (1/8" x 12" x 36")—$2.95
QX51528 (3/16" x 12" x 36")—$2.95
10 or more—$2.75 each
QX29587 Foam Boards for Construction Caddy II (3/16" x 18-7/8" x 9-3/8") (pkg of 5)—$5.95
10 pkgs or more—$5.35 each
QX12752 Precut Foam Board (1/8" x 16" x 12")—$1.45
10 or more—$1.30 each

LIFT BRIDGE KIT

Need an uplifting activity? Try the Lift Bridge Kit! This kit is a scale model of a bascule bridge – a drawbridge that has a counterweight that continuously balances the bridge span. It is an excellent tool for introducing the concepts of center of balance, equilibrium, and the lever as a simple machine to general science, physical science, or physics students.

Kit includes precision laser-cut wood parts, hardware, adjustable counterweight, and roller platform. Requires HD Bond II, wood glue, or Insta-Cure adhesive, sold separately. Scale: 1/130.

Ages 12+

QX32561—$11.95
QX32559 12-Pack—$139.95



LIFT BRIDGE TEACHER'S GUIDE

Full of helpful information, this digital guide reveals all sorts of great ways to implement the Lift Bridge activity in your classroom. Written for two grade-level groups: 5-8 and 6-12. CD-ROM.

Ages 12+

QX32560—$5.95



EASY CUTTER ULTIMATE TOOL

Looking for the ultimate tool when cutting wood for your tower-, bridge-, or model-building project? The Easy Cutter Ultimate features a self-indexing, movable fence with seven popular angles from 45° to 135°. Students simply select an angle and click the fence into position. The tool cuts strips of wood up to 1/2" thick in just seconds, eliminating the need for protractors and squares. With a no-slip rubber grip and a safety-lock handle, there's no better way to describe this tool than easy.

QX58813—$24.95



EASY CUTTER

Easy Cutter precisely cuts strips of wood and dowels up to 1/2" thick. It features a high-carbon steel blade that is double ground and heat treated to stay sharp longer. The die-cast aluminum angle plate includes English and metric markings. Just place the wood against the guard and line it up with the angle mark. Squeeze the comfortable textured grips, and presto – a perfectly angled cut every time.

QX57214—$21.50



MINI EASY CUTTER

Mini Easy Cutter is constructed of the same high-quality materials as Easy Cutter but is not as large, so it is easier for small hands to use. It cuts materials up to 1/4" thick and includes a built-in protractor with 45-, 60-, 90-, and 120-degree angles.

QX58011—$17.50

ELECTRONIC DIGITAL SCALE

The digital battery scale is ideal for weighing the amount of sand in the bucket after a student's bridge or tower breaks while using the Structure Testing Device. It operates on a 9 V lithium battery and is accurate up to 300 pounds. Battery sold separately.

QX57685—$31.95



TRUE SANDER

True Sander is the perfect tool for quickly and accurately sanding wood or plastic end cuts on miniature picture frames, structure window and door frames, trestle timbers, ship planking, and more. The adjustable angle guide ensures perfectly fitted mitered corners as well as square cuts. Includes preset 30-, 45-, 60-, and 90-degree miter guides and a "stacking fence" that holds up to 1/2" of parts for simultaneous end finish sanding. Requires a single-edged razor blade, sold separately.

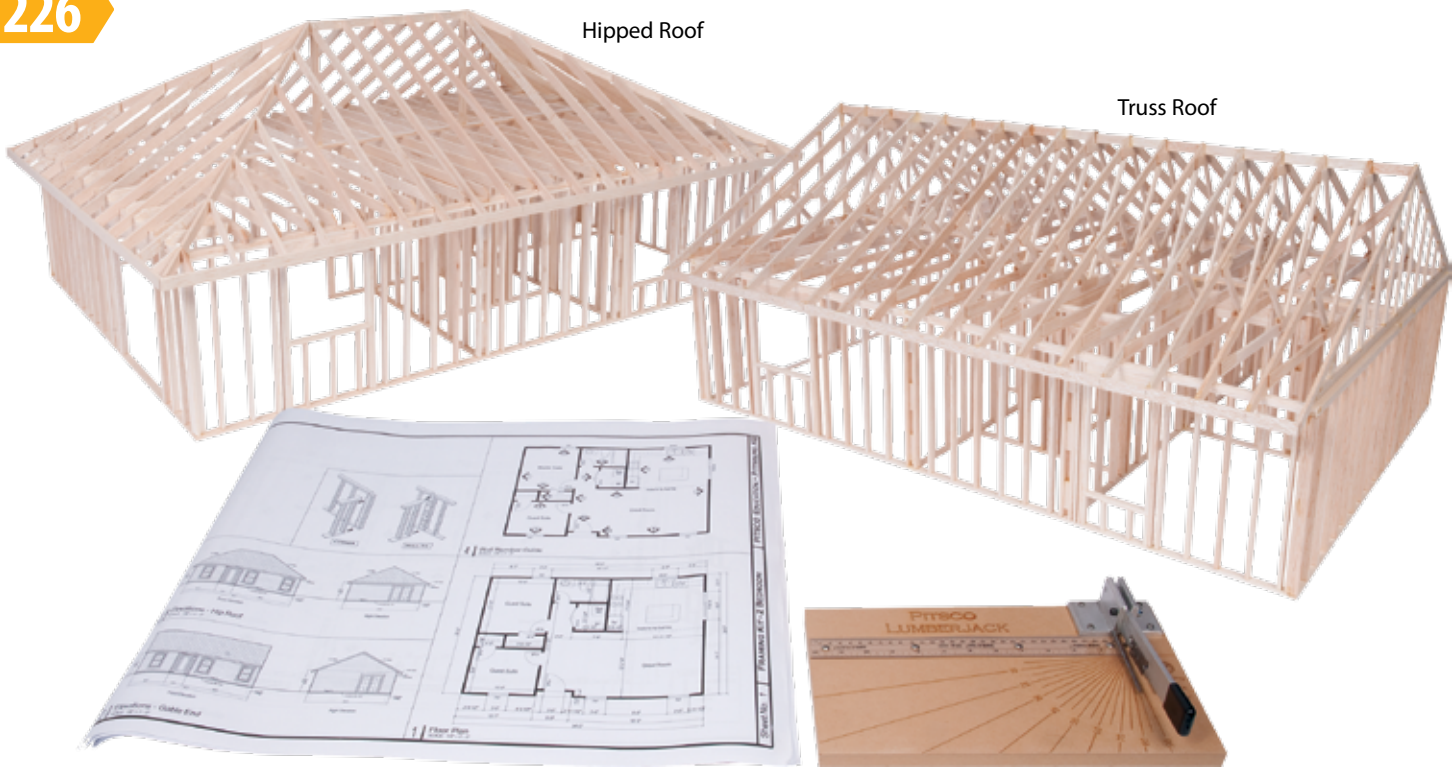
QX58024—$40

MECHANICAL SCALE

Few mechanical scales used in bridge-strength competitions compare with the Rapala scale. Capable of measuring up to 50 pounds with its stainless steel hook, the hanging scale features a rust-free, anodized aluminum housing and a stainless steel soft-grip handle. The marker scale moves down as weight measurements are taken and remains there after the weight has been lifted off – perfect for reading total weights. The easy-to-read measurements can be taken in increments of pounds and kilograms.

QX58837—$39.95





TRUE SCALE HOUSE FRAMING KIT

A Pitsco Exclusive

Two in one! The True Scale House Framing Kit is unique in that you can build it with either a gable or a hipped roof. Whichever roof style is selected, students learn about:

- Dimensioning the lumber to the scale of real lumber used in construction.
- Reading house plan drawings.
- Using construction techniques in accordance with the International Building Code.
- Construction terminology.
- Attention to detail.

The framing kit is for a home featuring a standard, two-bedroom layout. Includes the house plans (12 sheets), balsa wood lumber, architect scale, pins, Lumberjack Cutter, foam base, glue, sandpaper, and instructions that cover both roof builds.

Ages 12+

QX36790—$125
QX36803 Refill Kit—$89



HD BOND II

A Pitsco Exclusive

This superior tacky glue has excellent properties for bridge and tower building and many other applications. It dries quickly for a strong, flexible bond. It is nontoxic and nonpenetrating and dries clear.

QX34502 (2 oz)—$2.50
QX34503 (16 oz)—$9.95

LUMBERJACK CUTTER

A Pitsco Exclusive

If you are using larger balsa wood but want the safety and precision of a cutter, the Lumberjack is the perfect choice. Starting with a solid 8" x 14" base of MDF, the Lumberjack features a 12" built-in ruler and angles marked at 10-degree increments from 0 to 90 degrees – handy tools when building a detailed structure project. Metal bars block access to the blade to ensure safety during use. Cuts balsa wood up to 1/8" thick and 3/4" wide. Replacement blades sold separately.

QX36595—$44.95



REPLACEMENT BLADES

QX18819 (pkg of 5)—$1.50
10 pkgs or more—$1.35 each

DIMENSIONED LUMBER

Bring the construction site to the classroom with Pitsco's Dimensioned Lumber! Our scaled basswood strips accurately represent six of the most popular lumber sizes used in wood frame construction. (See table below.) No more hours at the band saw ripping stock to the appropriate sizes! Students can now construct 1-1/2" = 1' (1:8) scale models of anything they can design.

No power tools are required to assemble Pitsco's Dimensioned Lumber. Lumber tolerance +/- 1/32".

Item	Lumber Equivalent	Actual Size	Qty	Price
QX34602	2" x 4" x 92-5/8" stud	3/16" x 7/16" x 11-19/32"	20	$11.95
QX34603	2" x 4" x 16'	3/16" x 7/16" x 24"	20	$21.95
QX34604	2" x 6" x 92-5/8" stud	3/16" x 11/16" x 11-19/32"	20	$14
QX34605	2" x 6" x 16'	3/16" x 11/16" x 24"	20	$27
QX34606	2" x 10" x 16'	3/16" x 1-5/32" x 24"	10	$17.95
QX34607	2" x 12" x 16'	3/16" x 1-13/32" x 24"	10	$21.95





GARAGE KIT 201

When your students are ready to move up from the basics of construction, the Garage Kit 201 is the next step. Students learn about constructing doors, windows, trusses, and more. The kit includes all the materials needed to build a 1":1' scale framing model of a garage plus templates, instructions, basic construction information, and basic construction mathematics.

Ages 12+

QX31574—$68.95



UTILITY BUILDING KIT 101

Give students the opportunity to learn building before they swing their hammers. This kit introduces students to the basic concepts of construction at a fraction of the cost of similar kits. The Utility Building Kit 101 includes all the materials needed to build a 1":1' scale framing model of a utility building plus templates, instructions, and basic construction information.

Ages 12+

QX31573—$30.95



HOME KIT 301

There's no place like home – but you won't need ruby slippers to build this scale model home!

This 1":1' scale framing model will open the door to more complicated construction tasks. From the foundation to the gable end, this kit presents a more challenging project for your advanced construction students. The kit includes the materials needed to build a scale model home plus templates, instructions, basic construction information, and applicable math concepts.

Ages 12+

QX31575—$150

1:16 SCALE HOUSE FRAMING KITS

The 1:16 scale (3/4" equals 1') framing material is high-quality balsa wood. Material is cut to same proportions as full-size lumber. Kits contain balsa wood materials, scale working drawings, instructions, miter jig (two-bedroom and A-frame kits only), cutting tools, tape measure, nails, and work/display base.



Arckit 60



Arckit 120



Arckit 120 parts

NEW!

ARCKIT ARCHITECTURE KITS

Based on contemporary building techniques, these kits consist of a series of interconnecting modular components permitting you to design, build, and modify multiple structures.

Arckit 60 is ideal for creating smaller structures, student projects, interior designs, and home extensions and for learning the basics. This is also a great gift for budding architects.

Arckit 120 is perfect for light professional use and versatile enough to create a range of structures.

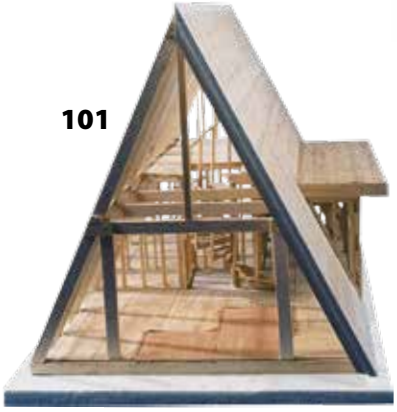
Arckit 240 is the pro's choice: large enough to create a diverse range of structures of varying sizes with enough components to really explore designs and ideas.

Ages 14+

QX41864 Arckit 60 Kit—$139.95
QX41865 Arckit 120 Kit—$259.95
QX41867 Arckit 240 Kit—$399.95



Arckit 240



101

A-FRAME CABIN KIT 101

A one-bedroom, A-frame cabin with a spiral stairway and loft.

Ages 12+

QX51769—$125
10 or more—$120 each



105

TWO-STORY TOWNHOUSE KIT 105

A modern, two-story structure.

Ages 12+

QX54467—$125
10 or more—$120 each



NAIL SETTER

Quickly and permanently install small nails into model structures made of wood with this handy tool. It features a sturdy wooden handle with adjustable spring-loaded shaft and a magnetized post to securely hold nails.

QX34688—$9

SWISS-STYLE MINI HAMMER

A perfectly balanced two-ounce hammer designed for small tasks such as kite making. The forged head with both flat and chisel faces is mounted on a hardwood handle. Length is nine inches.

QX34687—$8.95





REPLACEMENT NAILS

Replacement nails for wood framing kits.

QX79759—$6.50



SIDING AND FLOORING

Use these basswood strips for flooring or siding.

QX51550 (1/4" spaced grooves) (pkg of 15)—$32

CLAPBOARD SIDING

Basswood strips (1/8" x 3" x 24"). Thicknesses simulate thin or heavy siding.

QX51552 (1/8" lap) (pkg of 10)—$24
QX51553 (1/4" lap) (pkg of 10)—$28

See a full listing of balsa wood and basswood strips on page 230.



EMPIRE STATE BUILDING MATCHITECTURE KIT

Build a replica of one of the oldest and tallest buildings in the world with this Matchitecture kit. Complete with 500 microbeams, a cutter to give the beams sharp and precise edges, a bottle of glue, and instructions and plans, this kit enables students to build a realistic Empire State Building model.

Ages 12+

QX58795—$16.95



TORONTO CN TOWER MATCHITECTURE KIT

At approximately 1,800 feet tall, the CN Tower in Toronto, Canada, is a tourist attraction for those who want to see the world's tallest tower. With this kit, you can experience the magnitude of the tower's height on a somewhat smaller scale – this model stands almost four feet tall when the 1,500-microbeam kit is finished. The completed model also features details like the revolving restaurant at the top and the elevator that shuttles visitors.

Ages 12+

QX58796—$34.95



MATCHITECTURE MICROBEAMS REFILL

2,000 extra microbeams for Matchitecture kits.

QX58799—$15.50



3-D HOME KIT

3-D Home Kit provides complete materials to design floor plans and build a detailed, 1/4" scale model of a home or remodeling project up to 6,200 square feet. Building materials include siding, roofing, windows, doors, skylights, decking, brick, stone, interior walls, stairs, kitchen cabinets, appliances, bath fixtures, and landscaping. The kit also includes complete model-building instructions, scale ruler and roofing slope calculator, floor plan grid, furniture and bath symbols, and design notes from a professional designer on how to design and evaluate your plans. Floor plan grid is 18" x 24".

Ages 12+

QX51646—$29.95
10 or more—$27.45 each

GREEN ARCHITECTURE: ENVIRONMENTALLY FRIENDLY HOUSING VIDEO

Follow along as 20 teams from leading colleges compete to design, build, and demonstrate the operation of the most energy-efficient and attractive home they can create. See the complete process, from finding corporate sponsors to completing construction. Closed-captioned. Time: 30 minutes.

Ages 15+

QX35672 DVD—$99.95



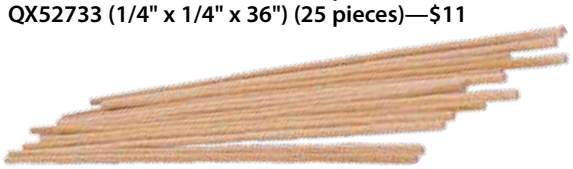


Look for dowel rods on page 283.

BALSA WOOD STRIPS

Use these balsa wood strips for bridge and tower building and other structural engineering projects.

QX54655 (1/16" x 1/16" x 24") (50 pieces)—$6.95
QX58538 (1/16" x 1/8" x 24") (20 pieces)—$5.95
QX51730 (3/32" x 3/32" x 24") (50 pieces)—$7.95
QX59630 (3/32" x 2" x 24") (20 pieces)—$22
QX51743 (1/8" x 1/8" x 24") (50 pieces)—$9.50
QX52734 (1/8" x 1/8" x 36") (50 pieces)—$13
QX58540 (1/8" x 1/4" x 24") (20 pieces)—$6.95
QX57790 (1/8" x 3/8" x 24") (25 pieces)—$13.95
QX52732 (1/8" x 1/2" x 36") (25 pieces)—$12.95
QX51649 (1/4" x 1/4" x 24") (20 pieces)—$6.95
QX52733 (1/4" x 1/4" x 36") (25 pieces)—$11



HARDWOOD DOWEL STRUCTURE STICKS

Great for various construction projects.

QX54462 (6" long x 2 mm) (pkg of 1,000)—$9.95

BALSA WOOD DENSITY STRIPS

Microcut, density-graded balsa strips in bundles of 100. Choose the density that matches the mass and strength you need for bridge building or airplane structures.

QX57470 Medium Density (pkg of 100)—$29.95
QX57469 Heavy Density (pkg of 100)—$29.95

BASSWOOD STRIPS

Use these basswood strips for projects such as structural bridges and other activities.

QX51590 (3/32" x 3/32" x 24") (50 pieces)—$9.95
QX51591 (1/8" x 1/8" x 24") (50 pieces)—$9.95
QX51593 (1/4" x 1/4" x 24") (20 pieces)—$9.95
QX51592 (1/8" x 3" x 24") (15 pieces)—$21
QX51625 (1/4" x 3" x 24") (10 pieces)—$25

BALSA WOOD SHEETS

Use these balsa wood sheets for various glider and construction projects. Balsa wood is very lightweight and easy to cut and shape.

QX54656 (1/32" x 3" x 24") (10 pieces)—$4
QX51893 (1/16" x 2" x 36") (20 pieces)—$24
QX51892 (1/16" x 3" x 36") (20 pieces)—$24
QX50113 (3/32" x 3" x 36") (20 pieces)—$19.95
QX51891 (1/8" x 3" x 36") (20 pieces)—$35
QX57193 (3/16" x 4" x 36") (10 pieces)—$35
QX52730 (1/4" x 3" x 36") (5 pieces)—$11



BASSWOOD MEGAPACK

Get the whole class involved! 3/32" x 3/32" basswood bundled in a 500-piece package is perfect for building bridges, towers, and other model construction projects.

QX40342—$65



BALSA WOOD MEGAPACK

For teachers who regularly incorporate tower- and bridge-building activities into their curriculum, this Balsa Wood MegaPack is a great buy. Get 500 pieces of balsa wood, each measuring 1/8" x 1/8" x 24".

QX12739—$65



BRIDGE BUILDING MEDALS

A Pitsco Exclusive

A great way to reward students for superior design and construction of model bridges. These medals are 1-1/2" in diameter and feature a pin-on ribbon. Available in gold tone (first place), silver tone (second place), and bronze tone (third place).

QX51752 Gold—$7.95
QX51753 Silver—$7.95
QX51754 Bronze—$7.95



SNAP-BLADE KNIFE

Pro-Edge has positive locking action. Snap-off dull blade with blade snapper (included). Ideal for cutting or clipping of paper, leather, film, rubber, vinyl, or plastic. Comes with 13-point blade.
QX58903—$1.25
QX58904 Refill Blades (pkg of 5)—$2.25



HOBBY KNIFE WITH 5 REPLACEMENT BLADES

Round aluminum knife with five light-duty replacement blades.
QX58905—$3
10 or more—$2.80 each



HOBBY AND CRAFT KNIFE

Four-jaw machined aluminum chuck holds blade firmly in place. Includes plastic safety cap and one angled blade. Use with our super-sharp, carbon steel, double-honed angled blade (for trimming wood, plastic, paper, cloth, and film) or our stencil blade (for trimming and scoring). Uses light-duty replacement blades.
QX80300—$1.75



GRIP ON ART KNIFE

A Pitsco Exclusive

Soft, rubberized blue barrel for increased comfort and control. Quick and easy blade release at the end of the handle for added safety. Blade locknut keeps knife from rolling away on work surface. Comes with one light-duty, straight-edge blade. Uses light-duty replacement blades.
QX58908—$3.95


Curved


Straight

LIGHT-DUTY REPLACEMENT BLADES

QX58912 Curved Replacement Blades (pkg of 100)—$30.75
QX58913 Straight Replacement Blades (pkg of 15)—$5.25
QX58914 Straight Replacement Blades (pkg of 100)—$20



MEDIUM-DUTY KNIFE WITH SAFETY CAP

Five-inch-long aluminum handle with deburring blade for cutting, carving, sawing, gouging, and all medium-duty work.
QX58907—$2.75


Straight


Bevel


Deburring

MEDIUM-DUTY REPLACEMENT BLADES

QX58909 Straight Replacement Blades (pkg of 5)—$1.50
QX58910 Bevel Replacement Blades (pkg of 5)—$1.65
QX58911 Deburring Replacement Blades (pkg of 5)—$1.65



NO. 5 HEAVY-DUTY KNIFE WITH SAFETY CAP

4-1/4" long heavy plastic handle with No. 19 blade. Blade storage in handle. For heavy cutting, sawing, gouging, and carving.
QX58898—$3.10

HEAVY-DUTY SOFT-HANDLE SNAP BLADE KNIFE

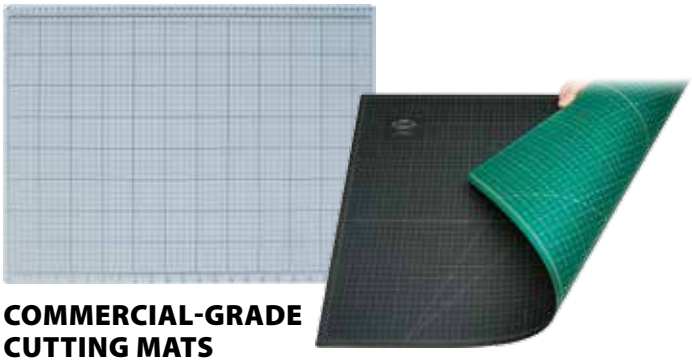


This Excel-brand utility knife is designed for a comfortable grip. The rigid metal sleeve provides safety and durability, and the positive slide-lock mechanism makes one-hand operation safe. Comes with five 7-point snap blades stored within the handle. Great for use on heavy plastics, Sheetrock, wood, and much more.
QX58899—$5.25
10 or more—$4.75 each
QX58900 Replacement Blades (pkg of 5)—$2.25

RETRACTABLE UTILITY KNIFE



Pro-Edge is all metal and designed to hold a standard utility knife blade. Blade adjusts to three positions. Three heavy-duty blades are included.
QX58901—$4.50
QX58902 Refill Blades (pkg of 5)—$1.95



COMMERCIAL-GRADE CUTTING MATS

Self-healing, reversible cutting mats are 3 mm thick and made from a unique composite vinyl material designed for both rotary blades and straight utility blades. They provide a long-lasting, nonglare surface that can be cut and slashed constantly without showing marks or cutting lines. Available in translucent with grids printed on one side or in green/black – green on one side, black on the other – with grids printed on both sides.
QX37453 (8" x 12") (translucent)—$7.25
QX37454 (12" x 18") (translucent)—$12
QX82119 (8" x 12") (green/black)—$7.25
QX82120 (12" x 18") (green/black)—$13.75



24" NONSLIP ALUMICUTTER

The AlumiCutter is designed to be used while cutting or drawing a straight line. One edge of this 24" ruler features a clever raised edge and finger groove to protect your fingers while cutting with a knife or rotary blade. The other edge is designed for inking, and the neoprene backing keeps the ruler in place as you cut or draw along the ruler's edge.
QX31860—$9.95



EASY MITER BOX DELUXE

Achieve accuracy with ease – this injection-molded miter box has three handy cam clamps to secure the material as you cut. The saw has 32 teeth and a thin 0.010 blade to deliver fine cuts. Features five possible miter angles: 22.5, 30, 45, 60, and 90 degrees.

The Easy Miter Box Deluxe is designed to cut material up to 1/2" thick and 2" wide.

QX31434—$12.50

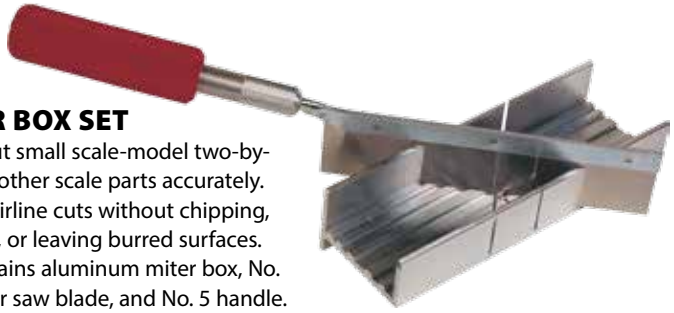


EASY MITER BOX

Achieve accuracy with ease – this injection-molded miter box has three handy cam clamps to secure the material as you cut. Features five possible miter angles: 22.5, 30, 45, 60, and 90 degrees.

The Easy Miter Box is designed to cut material up to 1/2" thick and 2" wide. Just like the Easy Miter Box Deluxe but without the saw.

QX31435—$7



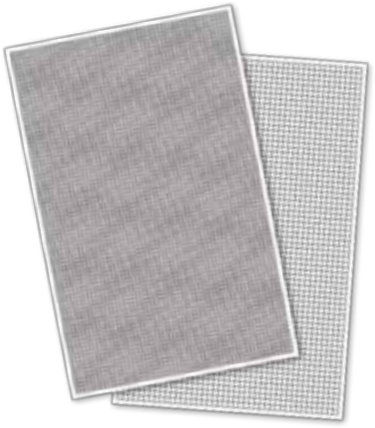
MITER BOX SET

Cut small scale-model two-by-fours or other scale parts accurately. Make hairline cuts without chipping, splitting, or leaving burred surfaces. Set contains aluminum miter box, No. 236 razor saw blade, and No. 5 handle.

QX58896—$14.25
10 or more—$13.75 each

REPLACEMENT SAW BLADE

QX58897—$3.75
10 or more—$3.55 each

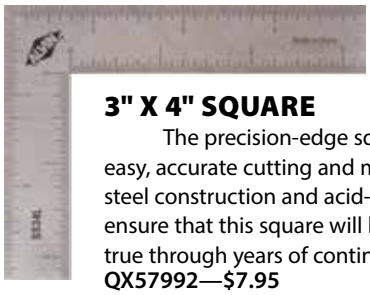


GRID PAPER

A Pitsco Exclusive

This Grid Paper is good for sketches needing a little more detail – plus, it is the recommended size for bridge-building activities.

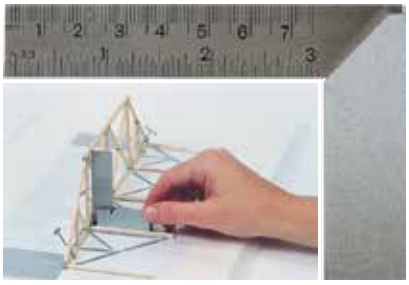
QX51850 (1/8" grid) (10-1/2" x 16") (100 sheets)—$14.95
QX55509 (1/4" grid) (9-7/16" x 15-3/4") (100 sheets)—$14.95



3" X 4" SQUARE

The precision-edge square is perfect for easy, accurate cutting and measuring. Stainless steel construction and acid-etched gradations ensure that this square will hold up straight and true through years of continual use.

QX57992—$7.95



EXCEL MACHINIST STEEL SQUARE

Made of tempered steel, this quality three-inch square has a true right angle – inside and outside – that makes machinery setup easy and joint layout almost foolproof.

QX58894—$10

TWEEZER SET



To place braces and other tower pieces in hard-to-reach spots, this Tweezer Set makes it a snap and reduces the risk of breaking a tower piece. Includes four 4-1/2" tweezers: one each with general-use tips, reversible-action tips, curved tips, and flat, wide tips.

QX31917—$12



PAPER-COVERED RIGID FOAM

This is the best material available for scale-model walls and roofs. Paper covers both sides of the rigid foam. Cuts easily with hobby knife. Sold by the sheet. Available in two thicknesses.

QX51531 (1/8" x 12" x 36")—$2.95
QX51528 (3/16" x 12" x 36")—$2.95
10 sheets or more—$2.75 each

DISPOSABLE DOT GLUE RUNNER



The Ad Tech Disposable Dot Glue Runner™ is a must-have tool for no-mess gluing. These runners are convenient and easy to use and can be taken anywhere. They are great for any project at home, school, or the office. Dots make it easy to follow curves. Adheres to foam, paper, wood, and many other materials. Acid-free and photo safe.

QX35247—$1.95



SUPER-GOLD+ CA GLUE

A Pitsco Exclusive

Save your foam and your senses! Super-Gold+ glue is an odorless cyanoacrylate glue that won't dissolve foam – ideal for foam wing gliders and other foam projects.

QX32963 (1/2 oz)—$7.50



INSTA-CURE THIN GLUE

A Pitsco Exclusive

This thin-viscosity cyanoacrylate (CA) adhesive is the best CA for balsa wood. Dries in 1-3 seconds. Joint between members should be tight (no gaps).

QX58923 (1 oz)—$4.95



INSTA-CURE+ GLUE

A Pitsco Exclusive

The consistency of this Insta-Cure+ glue is perfect for filling gaps when constructing balsa wood structures or model airplanes. The cyanoacrylate (CA) adhesive dries in 5-15 seconds.

QX56215 (1 oz)—$4.95



MAXI-CURE GLUE

A Pitsco Exclusive

For filling large gaps between pieces, Maxi-Cure is ideal. This CA adhesive cures in 15-25 seconds.

QX57514 (1 oz)—$5.95



UN-CURE

A Pitsco Exclusive

Working with students? Then you will need Un-Cure to safely unglue fingers and other objects accidentally glued together.

Un-Cure can also be used as a spot prewash for clothing with CA spills. Fabric color might be affected. Works on any CA adhesive.

QX57512 (1 oz)—$3.25



INSTA-SET

A Pitsco Exclusive

Spray Insta-Set on your CA joint for immediate cure of the adhesive. Perfect for all CA glues.

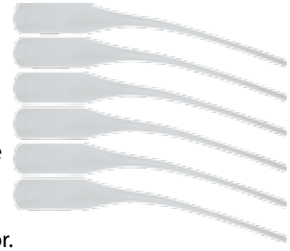
QX57513 (2 oz)—$4.95



FINE-TIP CA APPLICATOR

Using glue out of the bottle can be a sticky experience. Solve the problem with this Fine-Tip CA Applicator. Featuring a fine tip to get into tight spots and to deliver small amounts of glue, the applicator's tip can be replaced if it becomes clogged.

QX32962—$.60



EXTENDER TIPS FOR APPLICATORS

Here's a tip: use these to replace the clogged ends of the Fine-Tip CA Applicator.

QX32961 (pkg of 6)—$3.95



HD BOND II

A Pitsco Exclusive

This superior tacky glue has excellent properties for bridge and tower building and many other applications. It dries quickly for a strong, flexible bond. It is nontoxic and nonpenetrating and dries clear.

QX34502 (2 oz)—$2.50
QX34503 (16 oz)—$9.95



GLUE APPLICATOR TIP

This Glue Applicator Tip fits perfectly on our HD Bond II adhesive or Structures Glue two-ounce bottles, so you can get a fine, precise bead of glue for your more delicate construction activities. It's also great for hard-to-reach areas. Tips must be cleaned with water after use. Each tip comes with a cap.

QX59456—$1.95



GLUE BOTTLE W/LID (2 OZ)

Flexible plastic. Squeeze bottle is perfect for dispensing glue. Spout and tip included.

QX35590 (pkg of 30)—$22



INSTA-CURE IC-GEL

Tired of holding pieces in place as they dry? When a piece doesn't stay put as the glue dries – like those glued upside down or vertically – you need an adhesive like IC-GEL.

This cyanoacrylate (CA) paste is extremely thick but has the same bonding ability as Maxi-Cure CA glue. Can also be used as a putty for plastic models.

QX32960 (0.7 oz bottle)—$7.50



STRUCTURES GLUE

A Pitsco Exclusive

You've seen it at regional, state, and national competitions! Pink, green, and blue glues are a hit with teachers and students alike. Specially formulated for student-engineered wooden structures, the color makes it quick and easy to locate and judge glue joints. Available in two or 16 ounces.

QX51751 (2 oz, green)—$2.25
QX51749 (16 oz, green)—$5.50
QX51746 (2 oz, blue)—$2.25
QX51748 (16 oz, blue)—$5.50
10 or more of 2 oz (one color)—$2.05 each
10 or more of 16 oz (one color)—$5.05 each



EMPTY GLUE BOTTLE

Flexible plastic. Squeeze bottle is perfect for dispensing glue. Spout and tip included.

QX53599 (16 oz)—$2.95
10 or more—$2.65 each

TOOTHPICK CADDY

Avoid classroom glue spills and mess with the Pitsco Toothpick Caddy. Designed to house HD Bond II or Pitsco Structures glue, the caddy adds convenience for projects that require glue, such as Toothpick or Balsa Bridges. Toothpicks can be dipped into the glue before being added to a toothpick structure – or the toothpick can be used to apply glue to a joint in a balsa or basswood structure.

QX40350—$3.95



FIVE-MINUTE QUIK-CURE EPOXY

A Pitsco Exclusive

The superhero of adhesives, Quik-Cure Epoxy saves the day with a fast and super-strong bond.

This epoxy can be handled in 15 minutes and is at full strength after an hour. Can be applied to typical surfaces as well as polyester resins.

QX32958 (4.5 oz bottle)—$7.95



20-MINUTE FINISH-CURE EPOXY

A Pitsco Exclusive

For bonds of steel, Finish-Cure Epoxy is the adhesive to call! A general-purpose adhesive, this low-odor epoxy is fully cured after eight hours and can be sanded easily. Can also be used to prepare wood surfaces for primer and paint.

QX32959 (4.5 oz bottle)—$9.95



WAXED PAPER

Perfect for covering student drawings when building model bridges, towers, gliders, and other projects. Structural members can be pinned to the drawing (on foam board) for gluing. When the structure is dry, it will easily lift from the waxed paper, and the template can be reused. 1 ft x 25 yd.

QX50032—$2.25
10 or more—$2.05 each



GLUE DAUBERS

These swab-type applicators are great for applying just the right amount of glue to just the right place.

QX54464 (pkg of 50)—$6.95



MASKING TAPE

Great helping hand for bridge and tower construction.

QX51962 (1" wide by 60 yards)—$1.95
QX58542 (3/4" wide by 60 yards)—$1.75

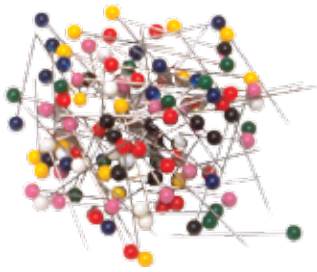


4" QUICK-RELEASE SPEED CLAMP

You'll never dread working with small items again! This clamp's ratchet jaws open up to four inches and are cushioned to protect the clamped item. Plus, a quick-release trigger makes adjustments a breeze. Great for holding together parts of bridge and tower structures. Features tough nylon construction.

QX32956—$5.95

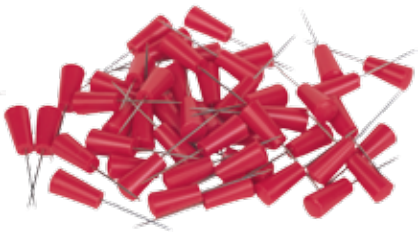




STRUCTURE BUILDING PINS

Pins come in a plastic storage box. The 1-1/4" pins are great for holding members of bridges, towers, and trusses while gluing.

QX51750 (pkg of 100)—$2
10 pkgs or more—$1.80 each



GRIP PINS

Replace T-pins with Grip Pins for a faster, more precise assembly of models and structures. The wide shoulder eliminates "cross-pinning," and the red, tapered barrel is easier to grip and to see.

QX57452 (pkg of 50)—$7.50



T-PINS

Excellent for bridge-building projects, these pins are 1-1/2" long.

QX50332 (box of 35)—$2.95
10 boxes or more—$2.75 each



CONSTRUCTION CLIPS

These clips are very handy for clamping joints on bridge construction projects.

QX52803 (pkg of 12)—$2.50



LARGE PLASTIC SLIDE CLAMP

This heavy plastic clamp can be used for clamping bridges and modeling projects. The slide beam is marked in inches and can be used as a ruler. Specifications: 7-3/4" jaw capacity, 2" throat depth.

QX50311 (pkg of 2)—$3.95
10 pkgs or more—$3.65 each



HOBBY & CRAFT SQUARE

This handy square includes both English and metric measurements and has a 45-degree edge with a built-in protractor calibrated in five-degree increments. It can be used as a 6" (15 cm) ruler, a dowel/tubing identification gauge from 1/16" to 3/4" (2 mm to 10 mm), a strip identification gauge from 1/64" to 1/2" (.5 mm to 10 mm), and a 90-degree square for perpendicular assemblies. It also features a built-in stop rail for quick alignment to a work surface.

QX59585—$5.95

PORTABLE DRAFTING BOARD



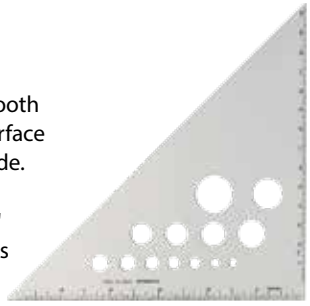
This great drafting tool lets students take their drawing projects anywhere! The 13" x 19" plastic board has a paper clamp and a sliding horizontal straightedge that locks in position. Kit includes two triangles, a protractor, a six-inch ruler, and an interior design template card.
QX54490—$45

DRAWING BOARD WITH CASE



This portable drawing board has a newly designed locking straightedge for quick, accurate adjustments. Features a nonskid base and flush-mounted clamps that hold drawings firmly. Drawing board (19-1/2" x 14-3/4") is packed in a sturdy case with carrying handle.
QX51653—$110

CALIBRATED ALUMINUM TRIANGLE



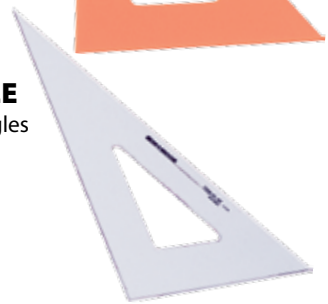
This super-hard, anodized aluminum triangle has an ultrasmooth finish that won't mar your work surface and won't rust, chip, peel, or corrode. Cleans easily with most solvents. Also has circle templates from 1/8" to 3/4" diameters. Marked in inches and centimeters. 45°/90° angles.
QX56883—$4.25

FLUORESCENT ACRYLIC TRIANGLES



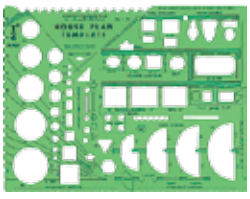
Quality acrylic triangles in fluorescent orange color.
QX12535 (30°/60°) (10")—$3.95
10 or more—$3.55 each
QX12536 (45°/90°) (10")—$4.95
10 or more—$4.45 each

CLEAR ACRYLIC TRIANGLE

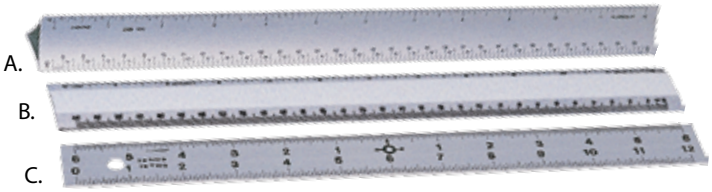


Koh-I-Noor clear acrylic triangles are precision molded of a highly transparent copolymer material for accuracy and long life.
QX51659 (30°/60°) (8")—$3.95

HOUSE PLAN TEMPLATE



Scale: 1/4" = 1'. Has circles for heaters, drains, corners, appliances, arcs, furniture, and posts; rectangles and squares for piers, flues, vents, panels, ducts, and masonry; spacing for stairs, framing, and tile; and fixtures for kitchen, bath, and laundry.
QX73607—$3.75



A. ARCHITECT SCALE

Triangular scale is made of high-quality aluminum with precision calibrations in 16ths and 32nds. Durable, ultrasmooth surface resists abrasions and stains.
QX56882 (12")—$6.95

B. NONSLIP RULER

Features water-resistant cork backing that raises the ruler above the work surface and allows inking without fear of bleeding or smearing. Calibrations are on both edges of the top side of the ruler. Measurements are in inches – 8ths and 16ths – as well as centimeters.
QX72342 (12")—$4.20

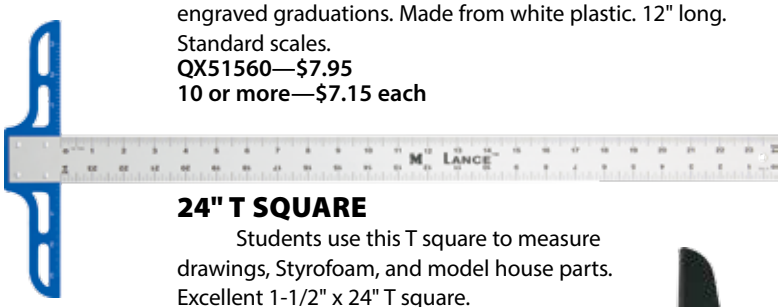
C. ALUMINUM STRAIGHTEDGE/CENTER-FINDING RULER

A high-quality, permanently anodized aluminum straightedge and center-finding ruler is precisely calibrated in 16ths and 32nds. The finish is durable yet smooth to resist abrasions and stains. Marked in inches and centimeters.
QX56885 (12")—$3.95
QX31859 (24")—$5.95



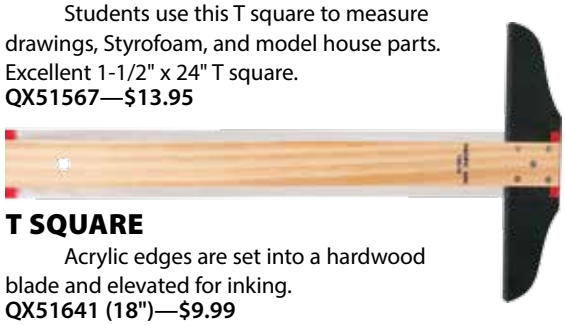
ARCHITECT TRIANGULAR SCALE

School-grade triangular scales with six divisions and engraved graduations. Made from white plastic. 12" long. Standard scales.
QX51560—$7.95
10 or more—$7.15 each



24" T SQUARE

Students use this T square to measure drawings, Styrofoam, and model house parts. Excellent 1-1/2" x 24" T square.
QX51567—$13.95

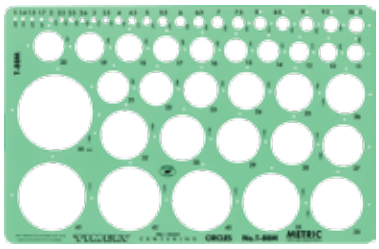


T SQUARE

Acrylic edges are set into a hardwood blade and elevated for inking.
QX51641 (18")—$9.99
QX36054 (24")—$10.99

METRIC/DECIMAL CIRCLE TEMPLATE

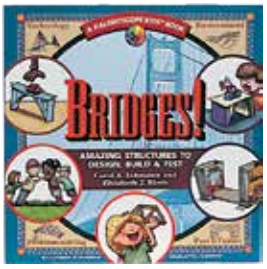
No more crooked circles! Draw perfect circles with this template featuring 50 metric circles ranging from 1 to 50 mm in diameter. Also labeled with decimal inch equivalents and has pinpoint centering.
QX33513—$4.25



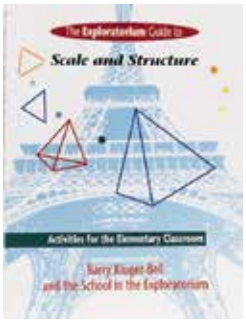
Structures Resources

For detailed descriptions of these **useful resources,** visit www.pitsco.com/structures.

Books



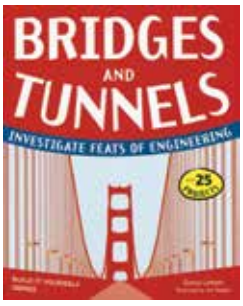
BRIDGES! AMAZING STRUCTURES TO DESIGN, BUILD & TEST
QX58052—$10.95



THE EXPLORATORIUM GUIDE TO SCALE AND STRUCTURE
QX54466—$45.95



PRACTICAL DRAFTING: APPLIED ENGINEERING GRAPHICS WORKBOOK
QX57994—$37



BRIDGES AND TUNNELS: INVESTIGATE FEATS OF ENGINEERING
QX38723—$13.95

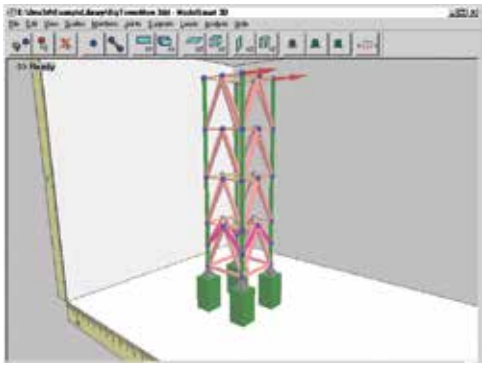
Software



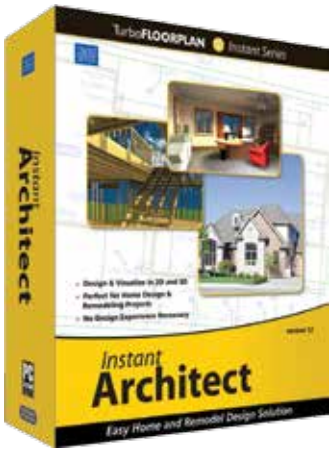
TURBO FLOORPLAN 3D HOME & LANDSCAPE DELUXE SOFTWARE
QX39881—$49.95



COMPLETE-A-SKETCH 123 SOFTWARE
QX35923—$34



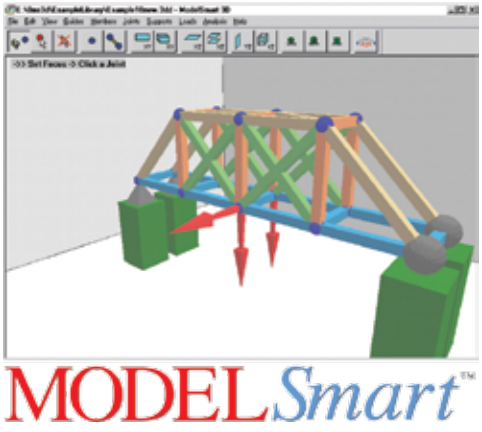
MODELSMART 3D SOFTWARE
QX57167 Single User—$89.95



INSTANT ARCHITECT SOFTWARE
QX33573 WIN CD-ROM—$29.95



STRUCTURES SOFTWARE
QX59093 WIN/Mac CD-ROM—$69.95



MODELSMART SOFTWARE
QX54648 WIN CD-ROM—$59.95

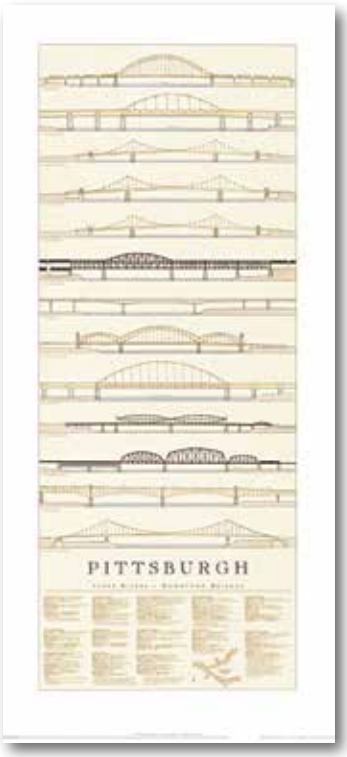
Posters



BRIDGE TOWERS: MONUMENTS IN TIME POSTER
QX31895 (30" x 15.5")—$18



NEW NARROWS BRIDGE POSTER
QX33438 (32" x 12.5")—$12

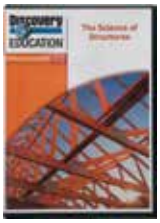


PITTSBURGH BRIDGES POSTER
QX33437 (17" x 37")—$12

Videos



BRIDGES DESIGN AND FUNCTION VIDEO
QX31352—$69.95



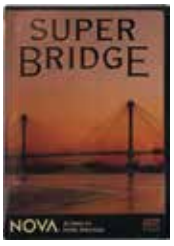
THE SCIENCE OF STRUCTURES VIDEO
QX33351—$59.95



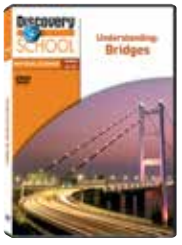
TOWERS VIDEO
QX59870—$14.95



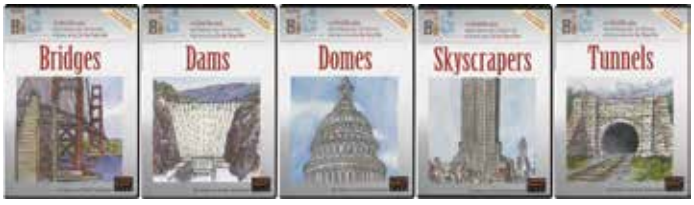
COLLAPSE: FAILURE BY DESIGN VIDEO
QX35098—$69.95



SUPER BRIDGE VIDEO
QX33512—$19.95



UNDERSTANDING: BRIDGES VIDEO
QX33353—$49.95



BUILDING BIG FIVE-DVD SET
QX59165—$69.95

PHYSICAL SCIENCE

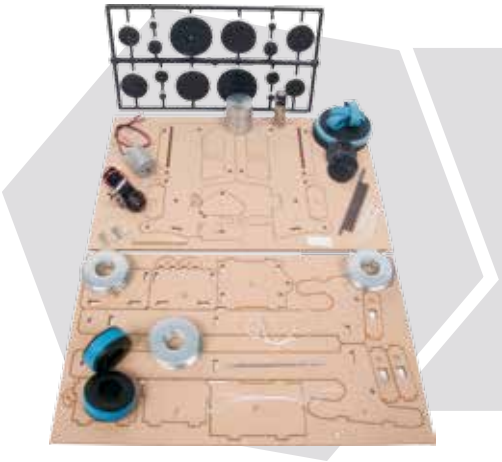
*"I used Pitsco Education's **catapult kits** and **catapult teacher's guides**. We spread the catapult project lessons nicely among the projectile motion lessons, and students were constantly **engaged**, learning the content with the **clear focus** to compete with the other team. Both my students and I simply love the experience. I keep the modified catapults to throw up a Catapult Wars game for my students."*

– Oguz Guvenc, Teacher, Sonoran Science Academy, Tucson, AZ



Hot ideas for team success.
Order on Amazon. See page 1.

See related product on pages 252-253.



PRODUCTS:

Physical science products enable students to experience simple machines and other important physics principles through hands-on design and construction.

Doc Fizzix – pages 244-248
NEW! **Gravity Jousting** – page 258
Trebuchets – pages 250-251
Sled Pull Challenge – page 257

ACTIVITIES:

From projectile mass and velocity to acceleration and gravity, physical science activities are sure to foster a deeper understanding of STEM concepts.

Trebuchets Teacher's Guide – page 251
NEW! ***EZ Catapult Elementary STEM Activity Guide*** – page 253
Catapults Teacher's Guide – page 253
Roller Coaster Engineering Teacher's Guide – page 255





CURRICULUM:

A combination of Pitsco proprietary materials, equipment, and resources make up our engaging Middle-Level STEM Units and High School Engineering Courses.

Middle-Level STEM Units
Medieval Machines – page 325
High School Engineering Courses
Engineering Principles & Problem Solving – page 334
Mechanical Engineering – page 335

SOLUTIONS:

At Pitsco Education, we believe that the ultimate solution is one that engages students and excites them about learning. The integration of Pitsco products, activities, and curriculum into a classroom creates a hands-on learning solution that positively affects learners.

"The thing that screams at me when I go in there [to the Pitsco Science lab] – it doesn't matter the time of day or what the population of kids is – is the transition. I'll walk in, and the kids are all working. I can talk with the kids, and they're doing what they need to be doing. It's seamless. They know what they need to be doing. It's really remarkable. Those are things we don't measure with paper and pencil, but it's so valuable."

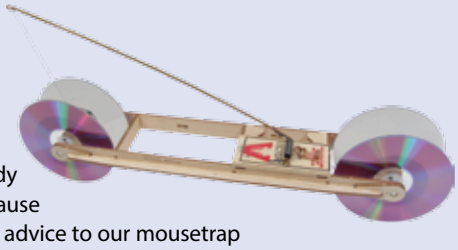
– Carol Murphy, K-12 Science Content Specialist, Manassas, VA, City Public Schools



EZ Mag Mousetrap Vehicles

EZ MAG MTV

A Pitsco Exclusive



"Build a better mousetrap and the world will beat a path to your door." Get ready to start knocking because we applied Emerson's advice to our mousetrap vehicle!

This magnetic mousetrap vehicle kit features laser-cut wooden parts for a clean, straight build. Plus, the magnetic axle assembly is nearly friction free. Small magnets embedded in the chassis hold the wheels and axles in place without pressure or friction to improve speed and distance.

Ages 12+

QX32058—$23.95⚠



EZ MAG MTV 10-PACK

A Pitsco Exclusive

Includes enough materials to build 10 kits. Requires scissors, Phillips screwdriver, white glue, ruler, needle-nose pliers, and wire cutters, sold separately.

Ages 12+

QX35676—$210⚠



EZ MAG MTV 30-PACK

A Pitsco Exclusive

Educational fun for an entire class! Our class pack includes enough materials for 30 students. Requires scissors, Phillips screwdriver, white glue, ruler, needle-nose pliers, and wire cutters, sold separately.

Ages 12+

QX35677—$595⚠

Visit **www.pitsco.com/ezmag.**

All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!



EZ MAG MOUSETRAP VEHICLES – GETTING STARTED PACKAGE

A Pitsco Exclusive

Hands-on excitement to the max! This Getting Started package provides an easy way for 30 students to get the mousetrap vehicle activity rolling in your classroom. Students experience simple machines and other physics principles through the design and construction of a vehicle powered only by an ordinary mousetrap.

The EZ Mag Mousetrap Vehicles – GS Package includes the following products:

- QX35677 EZ Mag MTV 30-Pack
- QX56632 Torsion Wheel
- QX58606 Dry Powder Graphite Lube
- QX56215 Insta-Cure+ Glue
- QX58261 Doc Fizzix's Mousetrap Powered Cars & Boats Book
- QX33089 EZ Mag MTV Video

QX35693 EZ Mag Mousetrap Vehicles – Getting Started Package—$635⚠

Ages 12+

EZ MAG MTV VIDEO

A Pitsco Exclusive

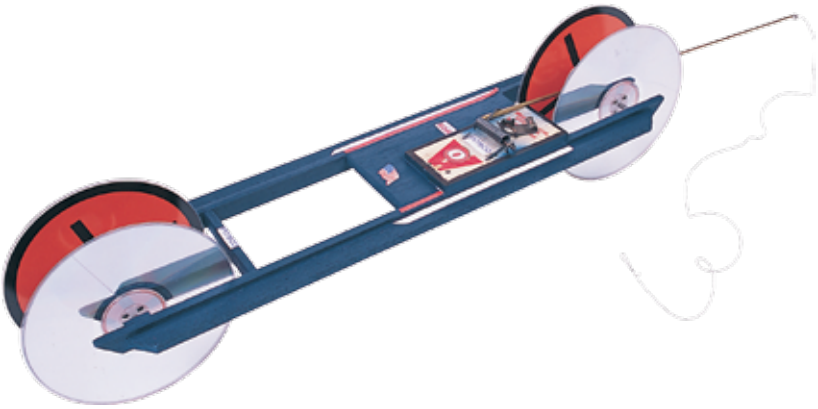


The EZ Mag MTV was already a snap to construct, but now this instructional program makes assembling it even easier. Follow the instructions to build this laser-cut kit that combines magnetism with a mousetrap to catch some fun in the classroom!

Plus, your students learn that magnetism, Newton's laws, mechanical energy, and other principles are key to the activity. Closed-captioned. Time: 16 minutes.

Ages 12+

QX33089 DVD—$24.95



MAGNETIC MOUSETRAP VEHICLE KIT

A Pitsco Exclusive

This mousetrap car really rolls thanks to its almost friction-free magnetic axle assembly. The secret? Tiny magnets embedded in the chassis hold the point of the steel axle in place. The result? Axles attach to the chassis as if by magic without pressure or friction. When a magnetic car races against a standard mousetrap vehicle, your students will see the effect of friction on speed and distance measurements.

Ages 12+

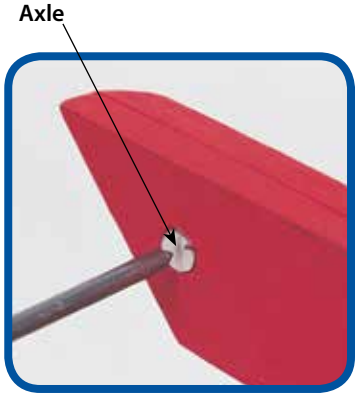
QX24641—$14.95⚠
QX25384 25-Pack—$325⚠

NEODYMIUM MAGNET AND AXLE SET

A Pitsco Exclusive

When you build a dragster or magnetic mousetrap vehicle of your own design, use this set of four 1/4" x 1/4" nickel-plated neodymium magnets and two 0.125 x 66 mm machined axles for a friction-free race to the finish line. **Note:** Magnets might be harmful if swallowed.

QX25043—$7.95⚠





NEODYMIUM SUPER MAGNETS

Neodymium magnets are the strongest magnets known to man – definitely strong enough to hold the axles of your magnetic mousetrap vehicle. Each magnet measures 1/4" x 1/4" and is nickel plated with the poles on the flat ends.

Caution: Always keep magnets away from computer equipment, 3.5" disks, credit cards, and windup watches. Magnets might be harmful if swallowed.

QX25042 (pkg of 10)—$9.95⚠

WARNING: This product contains (a) small magnet(s). Swallowed magnets can stick together across intestines, causing serious infections and death. Seek immediate medical attention if magnet(s) are swallowed or inhaled.



CD WHEELS & INSERTS CLASS PACK

A Pitsco Exclusive

For serious builders of mousetrap vehicles, CDs and high-grade inserts help you avoid the trap of building a wobbly vehicle. Here, we've grouped enough of our CD wheels and inserts for 30 four-wheeled mousetrap vehicles.

This package includes a total of 80 CD Wheels, 50 Mini CD Wheels, and 30 CD Wheel Inserts.

QX35686—$125



CD WHEEL INSERTS

A Pitsco Exclusive

For the do-it-yourselfer, a set of four injection-molded wheel inserts that convert CD-ROMs and DVDs into nonwobbling wheels for your mousetrap vehicle. Includes bushings, string anchor, and screws.

QX24642—$2.95
10 pkgs or more—$2.65 each
100 pkgs or more—$2.50 each



MOUSETRAP VEHICLE CD WHEELS

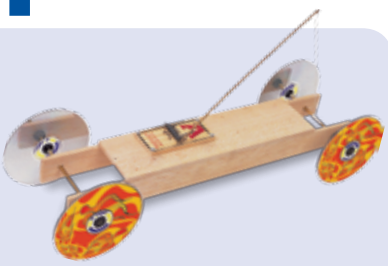
Use these normal-size CDs for wheels on your MTV. Axles and inserts not included.

QX55036 (pkg of 10)—$5.50
10 pkgs or more—$5 each



Mousetrap Vehicles

BASIC MOUSETRAP VEHICLE KIT



A Pitsco Exclusive

More than a mousetrap vehicle kit, this is a complete start-to-finish design activity. The student follows the design process and sees direct applications of science and technology as he or she designs and builds a mousetrap-powered vehicle and competes with classmates to design the fastest car or the car that goes the farthest. Each kit includes a mousetrap, balsa wood, four CDs (for wheels), CD spacers, thrust washers, brass tubing, string, and building instructions.

Ages 12+

QX57033—$15.95

MOUSETRAP VEHICLE 10-PACK



A Pitsco Exclusive

Includes materials to build 10 mousetrap vehicles, a copy of the building instructions, and *Dr. Fizzix's Mousetrap Powered Cars & Boats*. Requires white glue, ruler, hobby knife, wire cutter, and a drill or Dremel tool, sold separately.

Ages 12+

QX57034—$125

MOUSETRAP VEHICLE 30-PACK



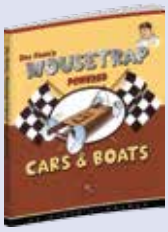
A Pitsco Exclusive

Includes materials to build 30 mousetrap vehicles, a copy of the building instructions, and *Dr. Fizzix's Mousetrap Powered Cars & Boats*. Requires white glue, ruler, hobby knife, wire cutter, and a drill or Dremel tool, sold separately.

Ages 12+

QX57035—$335

DOC FIZZIX'S MOUSETRAP POWERED CARS & BOATS



A Pitsco Exclusive

Well illustrated and fun to read, *Doc Fizzix's Mousetrap Powered Cars & Boats* examines in depth the physics of mousetrap vehicle construction. It takes students through each variable to consider during construction – making lightweight frames, reducing friction, making wheels, and building for speed or for distance. Packed with excellent construction tips and written in simple, easy-to-understand terms, this lighthearted book will give your students the information they need to build winning mousetrap vehicles.

Note: This book replaces both the student and teacher editions of the popular *Mouse Trap Cars: The Secrets to Success*. Paperback, 149 pages.

Ages 12+

QX58261—$12.95

MOUSETRAP VEHICLE VIDEO



A Pitsco Exclusive

Guide students through building a mousetrap vehicle with this step-by-step guide. Then, see how the stored energy in the mousetrap's spring can be used to speed the car across the room.

Along the way, learn about storing mechanical energy, Newton's laws of motion, and how to calculate speed. Closed-captioned. Time: 13 minutes.

Ages 12+

QX59835 DVD—$24.95



MOUSETRAP VEHICLES – GETTING STARTED PACKAGE

A Pitsco Exclusive

This package provides an easy way for 30 students to get the mousetrap vehicle activity rolling in your classroom. Students experience simple machines and other physics principles through the design and construction of a vehicle powered only by an ordinary mousetrap.

The Mousetrap Vehicles – GS Package includes the following products:

- QX57035 Mousetrap Vehicle 30-Pack
- QX56632 Torsion Wheel
- QX54575 Tubing Cutter
- QX56215 Insta-Cure+ Glue
- QX58606 Dry Powder Graphite Lube
- QX59835 Mousetrap Vehicle Video

QX23614 Mousetrap Vehicles – Getting Started Package—$379

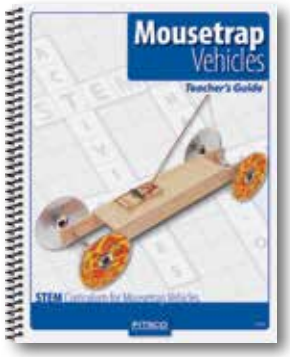
Ages 12+

Visit **www.pitsco.com/mtv**.

Standard alignments available via the Standards Navigator at pitsco.com/StandardsNavigator.

Digital downloads available

MOUSETRAP VEHICLES TEACHER'S GUIDE

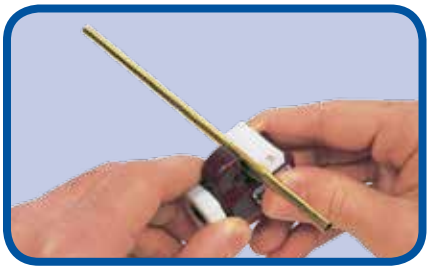


A Pitsco Exclusive

Examine, alter, design, and experiment with mousetrap vehicles to understand velocity, potential and kinetic energy, acceleration, speed, circumference, and distance – there's more potential in this guide than just potential energy! Individual activities available for digital download on the website. Paperback/Spiral-bound, 106 pages.

Ages 12+

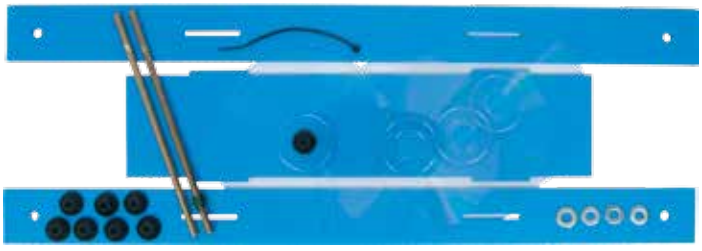
QX59463—$24.95



TUBING CUTTER

This handy tool cuts small-diameter metal tubing. Great for cutting brass axle tubes and bushings.

QX54575—$7.95
10 or more—$7.35 each



SNAP-FIT FRAME WITH WHEELS AND AXLES SET

A Pitsco Exclusive

This lightweight vehicle frame is made of corrugated plastic and can be used for mousetrap vehicles, rubber band-powered vehicles, balloon-powered vehicles, and more! Parts snap together easily, eliminating the need for tools. This set includes two brass axles, four DVD wheels, four metal thrust washers, and four rubber DVD/CD spacers.

Ages 12+

QX36376—$9.95

TORSION WHEEL



A Pitsco Exclusive

Now, for use with your mousetrap cars – a simple way to test your mousetrap's starting energy and spring constant! The Torsion Wheel energy tester has been designed for accuracy and simplicity. A string attached at the bottom of a disk and fitted into a groove along the top is pulled downward with a force probe or a spring scale. The student records the pulling force for every five-degree increment marked on the disk. The Torsion Wheel is made of durable, high-quality plastic. Lab activities are included.

Ages 15+

QX56632—$29.95



NEW!

LIGHT SPEED

A Pitsco Exclusive

Lace up your shoes and put on your sunglasses – it's time to race . . . solar cars, that is. Although not limited to outdoor racing, Pitsco's Light Speed is a two-lane speed-tracking system with specially designed sensor modules that enable you to get your solar race on. In addition to solar car races, it can also be used for electric, mousetrap, propeller, or any other cars that race on a string.

With start and finish lines, a timing module, an LCD display, a 12 VDC power pack, two deceleration towels, and cable to connect it all, you have everything you need to set up this racing system to a maximum length of 80 feet.

Whether the Sun is shining bright or storm clouds are forming overhead, the race can proceed as scheduled. The Light Speed timing system has you covered indoors and out.

Includes a battery-powered option (eight AA batteries, sold separately) that provides a three-hour run.

Ages 12+

QX41929—$499



DRY POWDER GRAPHITE LUBE

Got a lock, hinge, or machine with too much friction? Don't mess with sticky, slippery products – this extra-fine graphite powder is perfect for any moving part that's having trouble with smooth movement.

QX58606—$3.45
10 or more—$3.30 each

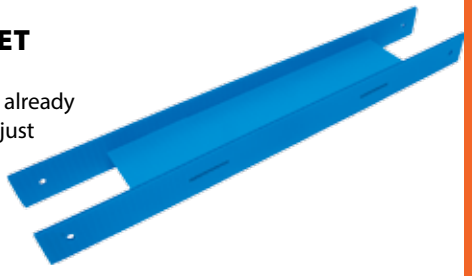


MINI PIN VISE WITH 12 ASSORTED DRILLS

All-metal pin vise with built-in steel chuck firmly holds drills from #80 (.0135") to #52 (.0635"). The drill chuck is pressed securely into the anodized aluminum barrel for easy drill changing and to prevent slipping.

QX81951—$12.50

SNAP-FIT FRAME SET

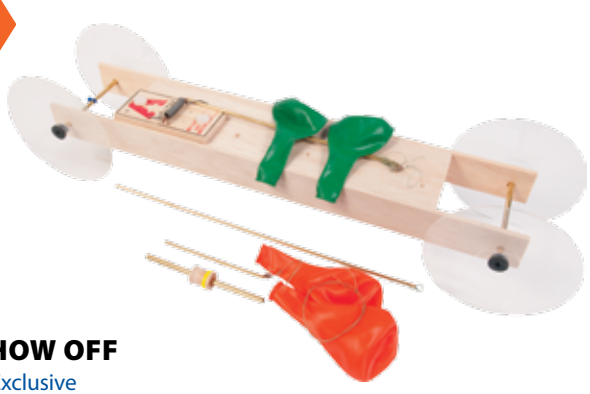


A Pitsco Exclusive

This set is ideal if you already have wheels and axles and just need a no-fuss frame. This lightweight vehicle frame is made of corrugated plastic and can be used for mousetrap, rubber band-powered, and balloon-powered vehicles and more! Parts snap together easily, eliminating the need for tools.

Ages 12+

QX36375—$5.95



NEW!

THE SHOW OFF

A Pitsco Exclusive

A mousetrap car kit that comes with completely reusable, adjustable, and interchangeable parts. The Show Off Kit was designed to be used as a demonstration model for instructors and/or a reusable kit for students, but it will also make a great science fair project.

This kit includes:

- Victor mousetrap
- Kevlar high-tech string
- Precut and predrilled balsa wood frame
- Low-inertia DVD layer wheels
- CD wheels
- DVD wheel adapters
- Brass tubing axles
- Thrust washers
- 2 different-sized gearing spools
- 3 different brass lever arms
- CD wheel with traction treads
- Plastic mounting bolt and nut
- Doc Fizzix's easy-wind, snag-free propulsion system
- Step-by-step plans with performance tips and tricks

Ages 12+

QX41649 Kit—$19.95
QX41656 The Show Off 10-Pack—$170



NEW!

THE TRAIL BLAZER

A Pitsco Exclusive

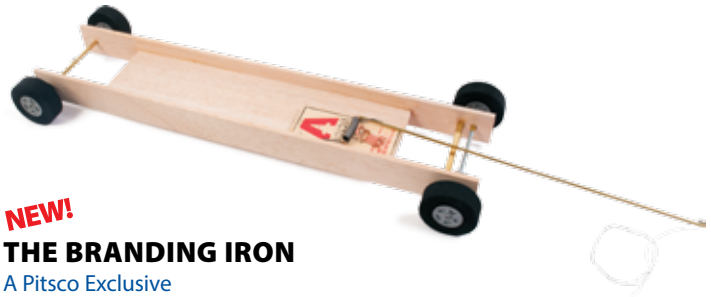
The Trail Blazer is going to leave its mark as it rockets off the starting line and skids to the perfect stop at the finish line with ultra-sticky foam wheels. It uses an easy-to-operate braking system. A wing nut that travels along a threaded axle and then wedges itself against the frame causes the racer to come to an instant stop. This braking system is consistently accurate to within 1 cm of just about any distance from one to 20 meters. The Trail Blazer comes ready to assemble with precut and predrilled parts so you can be ready for action and racing on the same day.

This kit includes:

- Pulley launch system
- Top-secret braking system
- Ultra-sticky foam wheels
- Lightweight balsa wood
- Brass tubing axles
- Precut and predrilled parts
- Doc Fizzix's easy-wind, snag-free propulsion system

Ages 12+

QX41652—$34.95



NEW!

THE BRANDING IRON

A Pitsco Exclusive

The Branding Iron, as its name suggests, will leave a mark on the competition. This kit is a mousetrap car that comes with an easy-to-operate braking system. The Branding Iron has a wing nut that travels along a threaded axle and then wedges itself against the frame, causing the racer to come to an instant stop. This braking system is consistently accurate within 1 cm of just about any distance from one to 20 meters.

This kit includes:

- Top-secret braking system
- Ultra-sticky foam wheels
- Lightweight balsa wood
- Brass tubing axles
- 12-inch brass lever arm
- Precut and predrilled parts
- Doc Fizzix's easy-wind, snag-free propulsion system

Ages 12+

QX41650—$32.95



NEW!

THE GUNSLINGER

A Pitsco Exclusive

A rubber band-powered racer that was designed to come to an instant stop with its onboard automatic braking system. The secret to the Gunslinger design is the wing nut locking system; a wing nut travels along a threaded axle until it locks against the frame, causing the vehicle to come to an instant stop. This braking system is consistently accurate to within 1 cm of just about any distance from one to 20 meters.

This kit includes:

- Pulley launch system
- Top-secret braking system
- High-grip tire treads
- Lightweight balsa wood
- Brass tubing axles
- Precut and predrilled parts
- Doc Fizzix's easy-wind, snag-free propulsion system

Ages 12+

QX41651—$25.95



SLING SHOT

A Pitsco Exclusive

This ultra-fast rubber band racer can travel five meters in one second! Engineered to generate a tremendous amount of torque by the stretching of a rubber band, the Sling Shot optimizes the transfer of potential energy into kinetic energy. The design of its ultra-sticky foam wheels provides maximum traction and keeps the Sling Shot from spinning out at the starting line. The result is a clear winner for all speed contests.

Ages 12+

QX59658 Kit—$12.95
QX31364 10-Pack—$99.95
QX31365 30-Pack—$290

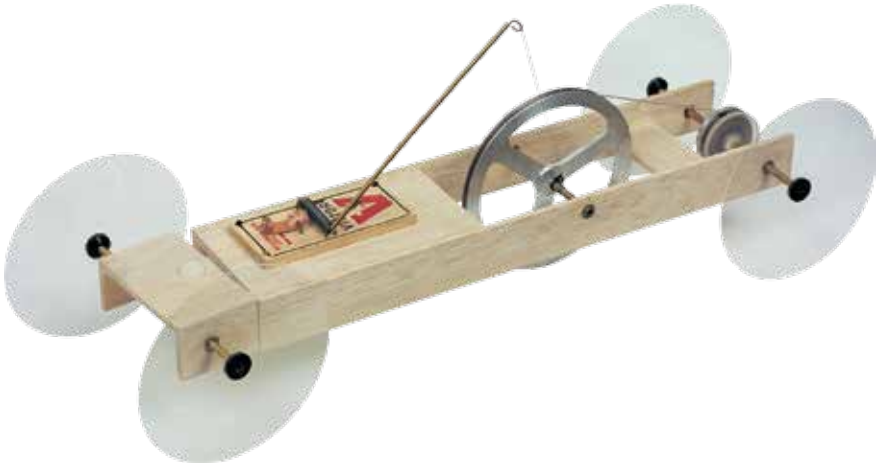
PULLEY POWER! MOUSETRAP VEHICLE

A Pitsco Exclusive

This kit offers your students a great lesson in pulley power – and a fun way to use up any old cassette tapes. The secret to this advanced mousetrap vehicle's success is in its pulley system. A large pulley wheel is used to change the overall gearing of the car. That way, each turn the large pulley wheel makes translates in the racer traveling four to five meters. By using a cassette tape spool instead of string to connect the drive axle to the pulley wheel, the vehicle can travel up to 120 meters depending on the starting position. Includes friction-free bushings, pulley wheel, adjustable steering, precut and drilled balsa wood, and step-by-step plans.

Ages 12+

QX58924—$46.95





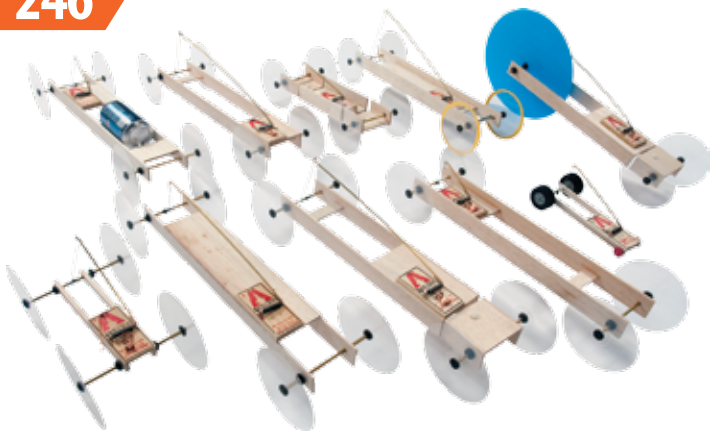
DOUBLE TROUBLE MOUSETRAP-POWERED RACER

A Pitsco Exclusive

No, you're not seeing double. This ultra-fast racer has two mousetraps for twice the power, speed, and distance! To help you avoid double jeopardy, though, we've included everything you need to assemble this speedy mousetrap vehicle.

Ages 9+

QX58996—$16.95



MOUSETRAP VEHICLE FUN PACK

A Pitsco Exclusive

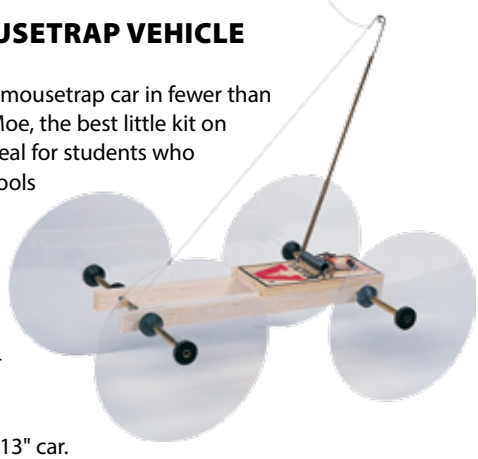
This Fun Pack wraps up 10 of Doc Fizzix's favorite mousetrap-powered vehicle kits for fun in the classroom. The package includes one each of Little Moe, The Basic Kit, The Basic Kit II, Speed-Trap Racer, Speedy, Can-Dew, The Wrangler, The Serpent, Lock-Tight, and The Big Cheese.

Ages 12+

QX36368—$135

LITTLE MOE MOUSETRAP VEHICLE

A Pitsco Exclusive



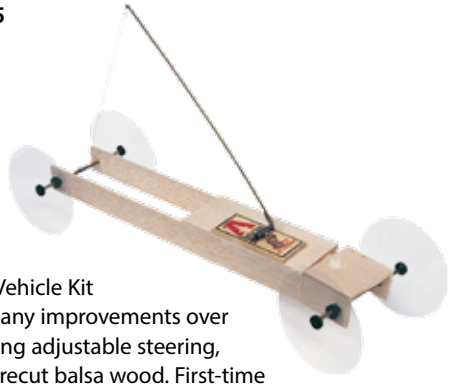
Design your own mousetrap car in fewer than 30 minutes with Little Moe, the best little kit on the market. This kit is ideal for students who have limited access to tools or are new to building mousetrap vehicles. Little Moe is one of the fastest mousetrap cars and travels from 10 to 20 meters for most first-time builders. Predrilled and ready to assemble; includes materials for a 13" car.

Ages 9+

QX58349 Kit—$8.95
QX58515 10-Pack—$69.95

BASIC MOUSETRAP VEHICLE KIT II – WITH STEERING

A Pitsco Exclusive



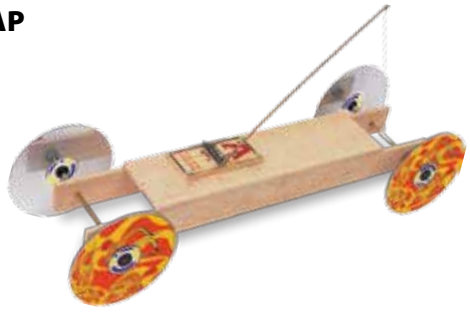
Our Basic Mousetrap Vehicle Kit II – With Steering features many improvements over the original Basic Kit, including adjustable steering, low-friction bushings, and precut balsa wood. First-time builders will find this vehicle travels from 35-75 meters without ball bearings. Capable of being built in about 45 minutes, this 21-inch-long vehicle is eligible for almost any contest in which your students can enter. And because of its adjustable steering, it can be built to go in a circle of almost any size radius. Requires a screwdriver, needle-nose pliers, and white glue, sold separately.

Ages 9+

QX58763 Kit—$17.95
QX41655 The Basic Kit II 10-Pack—$140

BASIC MOUSETRAP VEHICLE KIT

A Pitsco Exclusive



More than a mousetrap vehicle kit, this is a complete start-to-finish design activity. The student follows the design process and sees direct applications of science and technology as he or she designs and builds a mousetrap-powered vehicle and competes with classmates to design the fastest car or the car that goes the farthest. Each kit includes a mousetrap, balsa wood, four CDs (for wheels), CD spacers, thrust washers, brass tubing, string, and building instructions.

Ages 12+

QX57033—$15.95



MOUSETRAP VEHICLE 10-PACK

A Pitsco Exclusive

Includes materials to build 10 mousetrap vehicles, a copy of the building instructions, and *Dr. Fizzix's Mousetrap Powered Cars & Boats*. Requires white glue, ruler, hobby knife, wire cutter, and a drill or Dremel tool, sold separately.

Ages 12+

QX57034—$125



MOUSETRAP VEHICLE 30-PACK

A Pitsco Exclusive

Includes materials to build 30 mousetrap vehicles, a copy of the building instructions, and *Dr. Fizzix's Mousetrap Powered Cars & Boats*. Requires white glue, ruler, hobby knife, wire cutter, and a drill or Dremel tool, sold separately.

Ages 12+

QX57035—$335



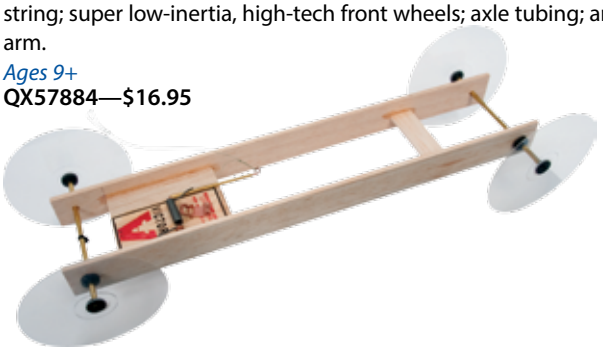
SPEED-TRAP RACER

A Pitsco Exclusive

This is one super high-tech car that anyone can put together in less than an hour! Comes with everything you need to make a record-setting speed dragster that will travel up to five meters in 1.2 seconds. Includes mousetrap; two super lightweight foam wheels; wood; Kevlar string; super low-inertia, high-tech front wheels; axle tubing; and lever arm.

Ages 9+

QX57884—$16.95



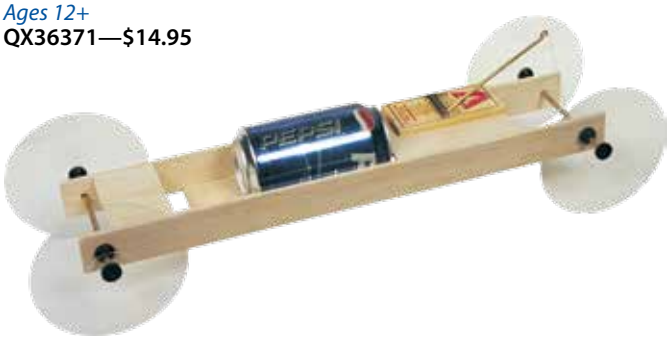
SPEEDY

A Pitsco Exclusive

Speedy was engineered to be a superfast mousetrap-powered vehicle able to meet the requirements of speed contests that measure and/or time a mousetrap racer over a predetermined distance. Speed contests are currently the second most popular type of mousetrap vehicle contest in the country – just behind distance contests.

Ages 12+

QX36371—$14.95



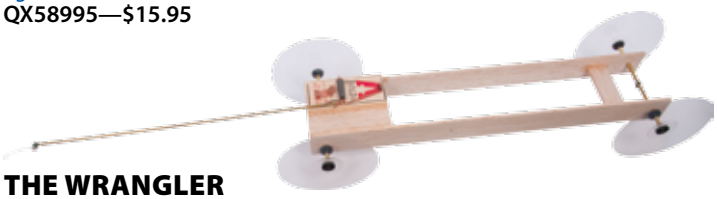
CAN-DEW MOUSETRAP-POWERED RACER

A Pitsco Exclusive

Need to quench your thirst for something new in MTV racing? The Can-Dew Racer, designed to carry a soda can or a large weight, will fill the order! This kit includes all the supplies necessary to build one racer, which will travel 15-45 meters.

Ages 9+

QX58995—$15.95



THE WRANGLER

A Pitsco Exclusive

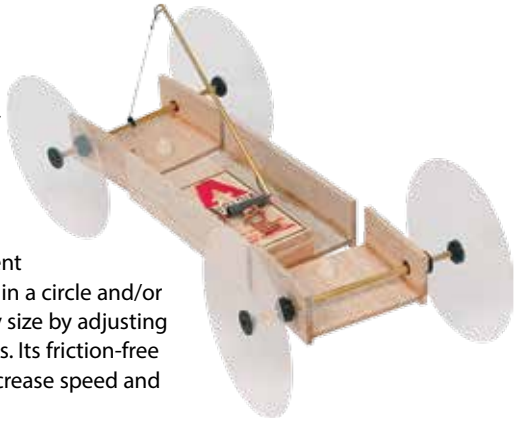
Designed for an easy build, The Wrangler is a long-distance mousetrap-powered vehicle. The Wrangler's design extends the pulling force of the mousetrap over a 50-percent greater travel distance, making it a long-distance winner.

Ages 12+

QX36373—$15.95

THE SERPENT

A Pitsco Exclusive



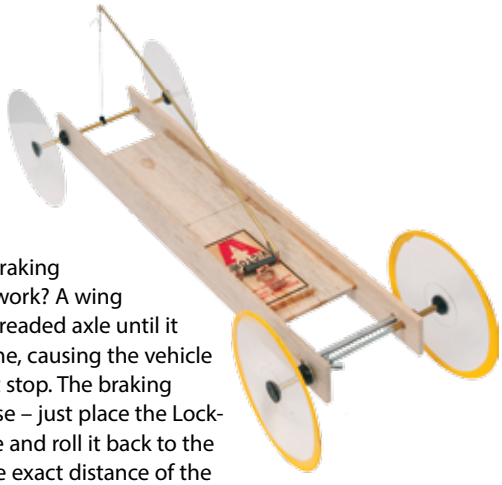
Super fast and fun, The Serpent mousetrap-powered racer comes with adjustable steering and low-friction bushings. The Serpent was designed to go in a circle and/or radius of almost any size by adjusting its twin swivel points. Its friction-free bushings help to increase speed and distance.

Ages 12+

QX36369—$18.95

LOCK-TIGHT

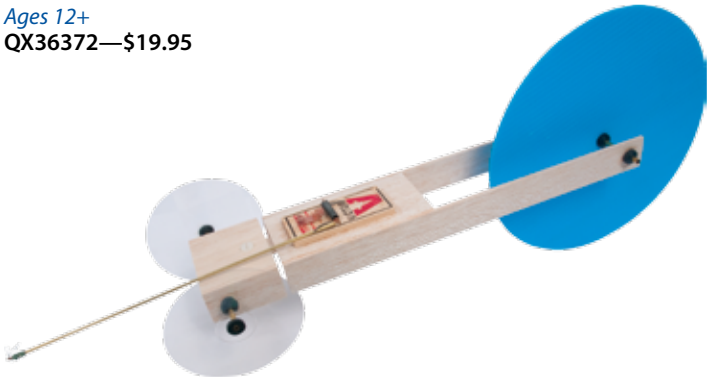
A Pitsco Exclusive



Lock-Tight is a high-tech mousetrap-powered racer designed to come to an instant stop by using an onboard automatic braking system. How does it work? A wing nut travels along a threaded axle until it locks against the frame, causing the vehicle to come to an instant stop. The braking system is simple to use – just place the Lock-Tight at the finish line and roll it back to the start line. This sets the exact distance of the braking system, and Lock-Tight is now ready to go. The system is accurate to within one centimeter of most distances between one and 30 meters.

Ages 12+

QX36372—$19.95



THE BIG CHEESE

A Pitsco Exclusive

When building a distance mousetrap-powered vehicle, success is all about the vehicle's gearing – that is, how quickly the potential energy of the mousetrap is converted into kinetic energy. The Big Cheese was designed to maximize the transfer of potential energy into displacement over the greatest possible distance. For every wrap of string around its axle, The Big Cheese travels almost one meter. Features adjustable steering to ensure it will travel straight down any hallway without hitting a wall.

Ages 12+

QX36370—$19.95



NEW!

ESSENTIAL FRAME AND AXLE SET

A Pitsco Exclusive

The Essential Frame and Axle Set has all the parts needed to build mousetrap vehicles, rubber band racers, balloon-powered projects, and more. All you have to do is add your own power source, and away you go. The Essential Frame and Axle Set includes 10 complete balsa frame sets, DVD layer wheels, brass metal axles, DVD/CD wheel spacers, thrust bearings, axle hooks, and high-tech Kevlar strings.

Ages 12+

QX41654—$89.95



NEW!

HIGH-TECH BRAKING SYSTEM

A Pitsco Exclusive

An easy and advanced braking system, the High-Tech Braking System has a wing nut that travels along a threaded axle and then wedges itself against the frame, causing the racer to come to an instant stop. Can be used with any type of project including mousetrap cars, rubber band-powered racers, balloon vehicles, and much more.

Ages 12+

QX41659—$8.95



NEW!

RUBBER BAND PROPULSION SETUP

A Pitsco Exclusive

A rubber band propulsion system designed for propelling a rubber band-powered vehicle. The advanced pulley system allows a rubber band to be stretched to its maximum capacity for maximum potential energy. The trouble with almost all other rubber band propulsion systems is that the rubber band is twisted or wound in order to store energy. This rubber band propulsion system stretches the rubber band. This provides a more uniform transfer of potential energy and also maximizes the total amount of energy available.

Ages 12+

QX41660—$5.95



NEW!

ESSENTIAL PROJECT PACK

Perfect for mousetrap vehicles, rubber band racers, and balloon-powered projects, the Essential Project Packet contains all the small parts you need to get your project from start to finish. The Essential Project Packet includes all the hard-to-find parts that are included in mousetrap-powered car and rubber band racer kits. The Essential Project Pack includes DVD/CD wheel spacers, thrust bearings, axle hooks, and high-tech Kevlar string. This is a 10-set of project packs.

Ages 12+

QX41653—$24.95



AXLE HOOKS

These simple and easy-to-use zip tie axle hooks are a must-have for any mousetrap-powered vehicle kit.

Ages 12+

QX58766—$5.95



CASSETTE TAPE PULLEY AND HOLDER

A Pitsco Exclusive

This large pulley wheel gives your mousetrap vehicle a new spin on things. The pulley wheel changes the overall gearing of the car so that for every turn of the large pulley wheel, the mousetrap vehicle travels four to five meters. Instead of using string, a cassette tape spool is attached to the axle by a unique hub. Tape ribbon (included) is wound from the axle to the large pulley as the mousetrap lever arm falls.

Ages 12+

QX58925—$34.95



PREFAB FRAME PACK

Missing the tools to cut the wood but want to build a mousetrap vehicle? Then check out this prefabricated wood frame pack. Includes one precut and predrilled lightweight frame that can be used to build any style of vehicle, including mousetrap racers. Each frame is made out of light balsa wood, and axle holes fit a 3/16" diameter axle.

Ages 12+

QX58767—$3.95



DVD WHEEL SLICES

These DVD Wheel Slices make great mousetrap-powered vehicle wheels. They can be used with our CD Wheel Inserts or the CD/DVD Wheel Spacers.

Ages 9+

QX58347—$29.95



CD/DVD WHEEL SPACERS

A Pitsco Exclusive

These hard-to-find items are essential for a mousetrap car. If you are using compact discs or DVDs for wheels, you will need these adapters to make the size of the hole in the disc smaller in order to fit an axle. These spacers fit perfectly in the disc's hole and convert its size to 3/16".

Ages 9+

QX58351—$24.95



DVD AXLE AND WHEEL SET

A Pitsco Exclusive

Try DVDs instead of CDs for your mousetrap car wheels – you'll see how much faster they make your car. DVDs have half the weight and rotational inertia of a normal CD, giving them better aerodynamics. This set provides everything needed to get your vehicle moving: four DVDs, eight CD/DVD spacers, four thrust washers, an axle hook, two six-inch axles, and one meter of Kevlar string. If you want that winning edge over the competition, put this DVD Axle and Wheel Set on your list!

Ages 9+

QX58499—$6.95



CSI: PITSCO TOOL KIT

A Pitsco Exclusive

Not taking advantage of your students' interest in forensics to teach science? That's just criminal!

Cleaning up your record is easy with this tool kit, which gathers everything needed for students to complete hands-on mock investigations.

The CSI: Pitsco Tool Kit includes:

- Crime Scene Template
- 2 rolls of Clear Lifting Tape and a dispenser
- Dual-Use Fingerprint Powder and 2 dusters
- 10 Plastic Evidence Bags and 20 Paper Evidence Bags
- 50 White Coin Envelopes and 12 evidence jars (1 oz)
- Flashlight
- Vinyl Exam Gloves
- Laboratory scoop
- 2 magnifiers
- 2 metal rulers (12")
- 2 safety glasses
- Tape measure (10 m)
- Lift Backing Cards with Scale
- Tweezers and pair of scissors
- 2 pens
- Toolbox

Plus, this tool kit comes with three basic activities to get you started in collecting fingerprints, analyzing fingerprints, and gathering trace evidence. Serves two students.

Ages 15+

QX32463—$295

CLEAR LIFTING TAPE



You've dusted for prints, and now you need to get them off the surface. All in a day's work for this Clear Lifting Tape, which captures fingerprints with good adhesion and clarity – and no bubbles! 1.5" tape comes in 360" rolls.

QX29617—$8.95



VINYL EXAM GLOVES

Avoid self-incrimination – keep your prints out of the mix! These powder-free, latex-free gloves can handle the job. Non-sterile – not for medical use.

QX23299 (pkg of 100)—$7.50



PAPER EVIDENCE BAGS

With "EVIDENCE" printed in 3/4" letters, there won't be any confusion about what these bags contain. Preprinted with information forms for proper evidence submission, these heavy-duty paper bags are suitable to take custody of a variety of evidence. Size: 7" x 4.5" x 13.5".

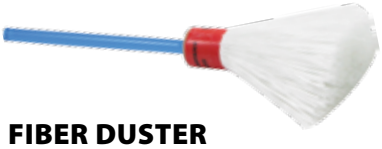
QX32674 (pkg of 20)—$10

DUAL-USE FINGERPRINT POWDER



Double trouble for criminals, this Fingerprint Powder actually changes color depending on the background. On light surfaces, it looks black. On dark surfaces, it appears silver.

QX29619 (2 oz)—$13.95



FIBER DUSTER

Seven-inch duster is lightweight and designed to dust for fingerprints. Replaces worn dusters from your CSI: Pitsco Tool Kit.

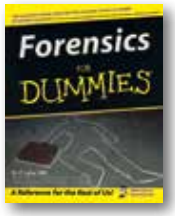
QX29620—$17.95

PLASTIC EVIDENCE BAGS



If you use forensics to teach science, these heavy-duty resealable plastic bags will keep evidence safe and sound. Size: 9" x 12".

QX32676 (pkg of 10)—$5



FORENSICS FOR DUMMIES

Forensics for Dummies dissects the world of forensic science to explain the criminal mind, fingerprints, autopsies, DNA, and more. It also illustrates famous forensic cases, how Hollywood forensics are misleading, and various forensic careers. Paperback, 356 pages.

Ages 12+

QX29355—$19.95

WHITE COIN ENVELOPES



Trace evidence such as hair, soil, and fibers can easily get lost in bigger, clear containers. These White Coin Envelopes keep track of those small but mighty clues. Preprinted lines for case number, date, and initials. Size: 3.5" x 2.25".

QX32675 (pkg of 50)—$12.50

SCALE LIFT BACKING CARDS



These glossy cards ensure accuracy when scanning fingerprints into a computer system. Each card comes with a bonus metric ruler on the latent print side of the card. Size: 4" x 5".

QX29618 (pkg of 100)—$22.95

Trebuchets

TREBUCHET KIT

A Pitsco Exclusive



Experience the thrill of flinging projectiles like medieval war machines while focusing on height, velocity, and distance. Students can alter projectile (clay) mass, string length, or the counterweight of the trebuchet to test different variables.

Includes punch-out basswood body parts, sling materials, and other hardware. Clay and mass plates are sold separately.

Ages 12+

QX26635—$10.95



TREBUCHET 10-PACK

A Pitsco Exclusive

Includes enough materials for 10 students.

Ages 12+

QX35634—$85



TREBUCHET 25-PACK

A Pitsco Exclusive

Includes enough materials for 25 students.

Ages 12+

QX27013—$200

Visit **www.pitsco.com/trebuchet**.

All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!



TREBUCHETS – GETTING STARTED PACKAGE

A Pitsco Exclusive

Help your students learn and have a good time with our Trebuchets – Getting Started Package. As students assemble and use the trebuchets, they absorb lessons about inertia, counterweights, friction, and velocity.

The Trebuchets – GS Package includes the following products:

- QX27013 Trebuchet 25-Pack
- QX59466 Siege Machines, 2nd Edition
- QX37660 Modeling Clay
- QX58977 Mass Plates (pkg of 100) (2 packages included)
- QX34502 HD Bond II (5 two-ounce bottles included)
- QX59836 Trebuchet Video

QX27135 Trebuchets – Getting Started Package—$250

Ages 12+

TREBUCHET VIDEO

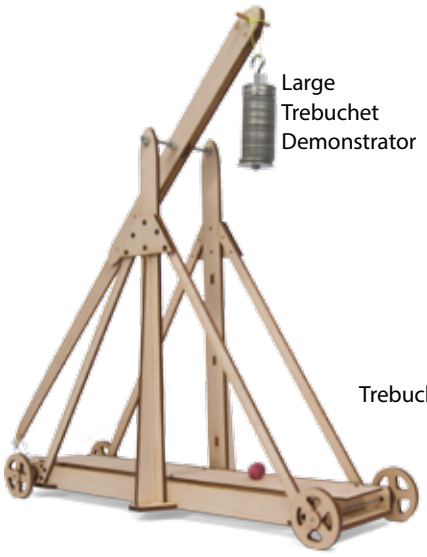
A Pitsco Exclusive



Learn how to build the siege machine called the *trebuchet*, the catapult's powerful cousin, with this program. Using the video's clear visual instructions, your students will be flinging projectiles and experimenting with counterweights in no time. Plus, they'll learn about parabolas, projectile motion, and the history of siege machines. Closed-captioned. Time: 20 minutes.

Ages 12+

QX59836 DVD—$24.95



LARGE TREBUCHET DEMONSTRATOR

A Pitsco Exclusive

At almost two feet tall, the Large Trebuchet Demonstrator hits the spot for showing a classroom the physics of this classic siege machine.

This cousin to the Trebuchet Kit can sling up to a 10-gram projectile using up to 1,000 grams of counterweight. It comes with the option of a wheeled platform, making it more like the trebuchets from the pages of history.

Includes laser-cut basswood parts, wooden dowels, string, sling material, hardware, 30 mass plates, and clay. Built model with wheels is 21" H x 26" L x 6-1/2" W.

Ages 12+

QX35230—$115





TREBUCHETS TEACHER'S GUIDE

A Pitsco Exclusive

Wage war on dull curricula! This teacher's guide leads the charge of teaching how projectile mass affects distance and trajectory achieved, how much potential energy a given trebuchet has, how to engineer a trebuchet to hit a given target, and more! Paperback/Spiral-bound, 95 pages.

Ages 12+

QX59611—$24.95



ROLLING TREBUCHET

A Pitsco Exclusive

One can never have too many siege machines, so we've added another kit to this popular line! The Rolling Trebuchet features a counterweight to use gravity to propel projectiles, but this trebuchet is on wheels. This not only mimics medieval trebuchets that had to be portable but also lets the counterweight fall vertically, which adds momentum to the throwing arm.

Includes the laser-cut parts and hardware needed to build one trebuchet. Requires white glue, needle-nose pliers, scissors, and sandpaper, sold separately.

Ages 12+

QX40115—$10.95



SIEGE MACHINES, 2ND EDITION

A Pitsco Exclusive

People love catapults, trebuchets, ballistae, and other medieval siege machines – you can use that interest to teach students science, math, history, and more.

Originally based on Pitsco's Trebuchet and Catapult Kits, the second edition of *Siege Machines* adds activities for the Torsion Ballista and Torsion Catapult Kits plus a culminating challenge utilizing more than one kit. As students build and test the kits, they learn about tension, torsion, gravity, force and motion, elasticity, materials testing, English-to-metric conversion, and more. Includes national standards met by the activities. Paperback/Spiral-bound, 46 pages.

Ages 12+

QX59466—$3.95



MODELING CLAY

Makes great projectiles.

QX37660—$3.50
10 or more—$3.25 each



MASS PLATES

QX58676 (pkg of 20)—$3.95
QX58977 (pkg of 100)—$17.50

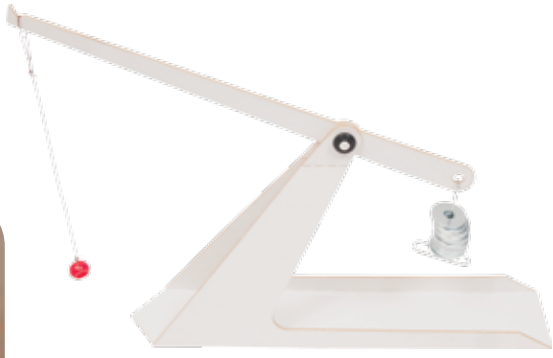


TARGET PIECES

A Pitsco Exclusive

Give your students something to aim at – besides each other – after they've constructed their trebuchets. These white plastic targets are one square inch in size and make great target walls.

QX27137 (pkg of 100)—$1.95



EZ TREBUCHET

A Pitsco Exclusive

Take your students on a journey through medieval times. The EZ Trebuchet is a quick, easy build – no gluing and no tools required. The trebuchet is counterbalanced by small washers and uses a lightweight bead on a string as the projectile. Students can experiment with various counterweight masses, different lengths of strings on the projectile, and beads with different masses as the projectile.

Ages 9+

QX41014 —$6.95

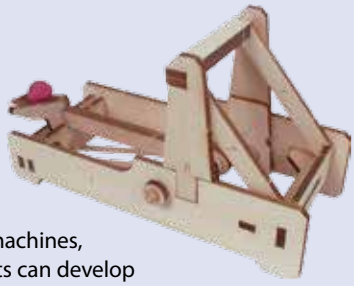
Catapults

GS



CATAPULT

A Pitsco Exclusive



For the catapult, stored tension equals the power of projectile motion, which now equals awesome learning power! This kit demonstrates force and motion, vectors, trajectory, simple machines, medieval history, and more. Students can develop math and problem-solving skills while trying to reach different distances by varying weights of ammunition (included clay).

Ages 12+

QX59468—$10.95



CATAPULT 10-PACK

A Pitsco Exclusive

This pack includes all the materials for your class to construct 10 catapults. Requires white glue, sold separately.

Ages 12+

QX35629—$83.95



CATAPULT 30-PACK

A Pitsco Exclusive

This pack includes all the materials for your class to construct 30 catapults. Requires white glue, sold separately.

Ages 12+

QX35628—$230

Visit **www.pitsco.com/catapult**.

CATAPULTS – GETTING STARTED PACKAGE

A Pitsco Exclusive

This package provides enough materials for 30 students to build and experiment with their own rubber band-powered catapults. Students discover the effects of different load masses and rubber bands as they learn about tension, forces, data graphing, and other concepts.

The Catapults – GS Package includes the following products:

- QX35628 Catapult 30-Pack
- QX59466 Siege Machines, 2nd Edition
- QX34502 HD Bond II (6 two-ounce bottles included)
- QX59456 Glue Applicator Tip (6 tips included)
- QX33030 Catapult Video

QX35630 Catapults – Getting Started Package—$249

Ages 12+

CATAPULT VIDEO

A Pitsco Exclusive



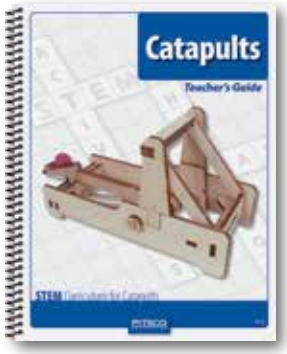
Make building this kit a fun fling with the *Catapult* video. Follow along with the step-by-step instructions that will have your students' catapults built and operating in no time. Along the way, students learn about torsion and other types of energy, laws of physics, projectile motion, and the history of siege machines. Closed-captioned. Time: 18 minutes.

Ages 12+

QX33030 DVD—$24.95

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CATAPULTS TEACHER'S GUIDE

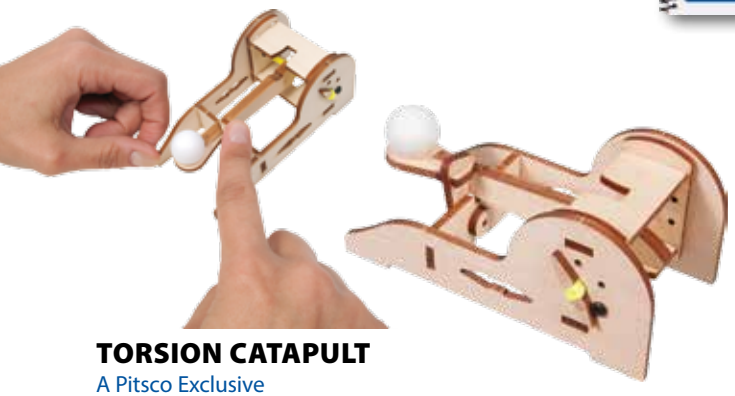


A Pitsco Exclusive

Blow the dust off the historical catapult – because this flinging device is loaded and ready to deliver educational content to your classroom! This guide throws itself into subjects such as Newton's laws, projectile motion, simple machines, speed, and mass – all while your students build and test the fun catapult. Paperback/Spiral-bound, 99 pages.

Ages 12+

QX59726—$24.95



TORSION CATAPULT

A Pitsco Exclusive

At last, a catapult kit that uses the same power source as the ancient and medieval catapults – torsion! By twisting the strings holding the launch arm, students can launch small projectiles with this fun siege machine. Plus, it's great for helping students understand how to apply torque, projectile motion, and other concepts.

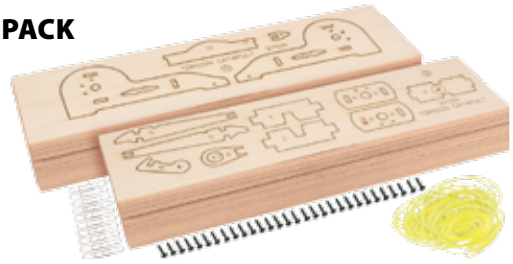
The kit features laser-cut basswood parts and the string and hardware needed to build the catapult.

Ages 12+

QX37521—$8.95

QX38182 Styrofoam Ball Kit (pkg of 3)—$1.50

TORSION CATAPULT 10-PACK

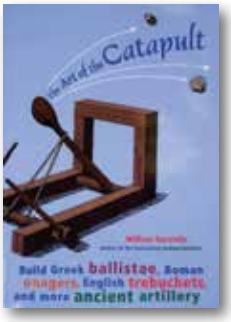


A Pitsco Exclusive

Perfect for a class exercise with students working in teams of two or three. Includes enough laser-cut basswood parts, string, and hardware for 10 Torsion Catapults.

Ages 12+

QX37965—$79.95



THE ART OF THE CATAPULT

If your students are intrigued by the trebuchets they see in movies or on TV, this book is sure to be a hit! It details the history of such devices and adds instructions to make them! From Alexander the Great's Cabulus to John Crabbe's ship-mounted catapults, *The Art of the Catapult* really attacks the science and history of this amazing weapon. Paperback, 172 pages.

Ages 12+

QX59218—$22.95

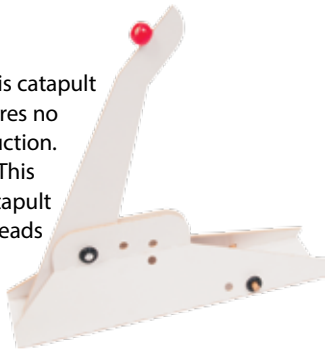
RANGE PAPER

Students roll out this 24-pound, white bond paper to help them calculate the range of a modeling clay projectile. Fired from a straw rocket, trebuchet, or catapult, the clay leaves a mark on the paper, making it easy to measure from the launcher to the landing. Each roll is 24 inches x 50 yards.

QX59333—$19.95



EZ CATAPULT



A Pitsco Exclusive

True to its name, this catapult is easy to build, as it requires no gluing or tools for construction. It is, however, fun to test. This rubber band-powered catapult sends lightweight pony beads flying! Students can learn how science and math apply to the catapult while discovering the history of this medieval machine.

Ages 9+

QX41011—$5.95



NEW!

EZ CATAPULT CLASS PACK

A Pitsco Exclusive

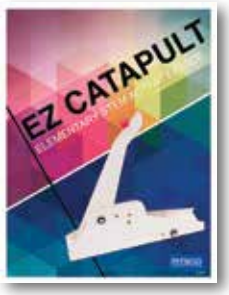
The EZ Catapult Class Pack has enough materials to get a class of 30 students traveling back in time. No tools required for building.

Ages 9+

QX41548—$165

NEW!

EZ CATAPULT ELEMENTARY STEM ACTIVITY GUIDE



A Pitsco Exclusive

Written for Grades 3-5, this guide helps students grasp a variety of subjects including forces, projectile motion, engineering design, catapult history, and tons more.

The *EZ Catapult Elementary STEM Activity Guide* contains teacher and student instructions for math, science, and engineering activities; assessment questions; resource pages; and student pages. This guide contains two guided inquiry lessons and a culminating engineering challenge for students to apply concepts learned through the inquiry lessons.

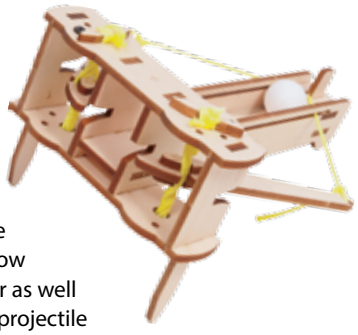
Equipment and materials needed to complete guide activities include the EZ Catapults kit, computers, targets, hot glue guns, rulers, scissors, paint sticks, rubber bands, clothespins, straws, tubes, shoe boxes, tape, and standard classroom tools and materials. Paperback, 31 pages.

Ages 8-11

QX41501—$4.95

TORSION BALLISTA

A Pitsco Exclusive



Inspired by the ancient Greek and Roman ballistae, this kit uses torsion on both sides of the bow arm to fling Styrofoam balls across the classroom! Great for demonstrating how torque can be applied to create power as well as potential and kinetic energies and projectile motion.

The kit features laser-cut basswood pieces, string, hardware, and two Styrofoam balls (projectiles).

Ages 12+

QX37517—$12.95
QX38182 Styrofoam Ball Kit (pkg of 3)—$1.50



TORSION BALLISTA 10-PACK

A Pitsco Exclusive

Enough Torsion Ballista Kits for a small army! Includes all the laser-cut basswood pieces, string, and hardware to build 10 ballistae as well as 20 Styrofoam balls (for projectiles).

Ages 12+

QX37966—$115

GEAR FACTOR

A Pitsco Exclusive



Unlike many gear toys, the Gear Factor turns fascination with gear mechanics into a true educational tool. With six different gear sizes, there are many gear ratios possible. The gears are easy to change and move, making it easy for students to learn about gear combinations, gear ratios, building and testing gear combinations for a building project, and more.

Includes two Gear Fonts with 16 gears to fit the Gear Factor, 16 gear pins, and the approximately 4.25" x 8" base with predrilled gear-pin holes.

Ages 12+

QX32242 Kit—$39
QX33466 10-Pack—$375

GEAR FACTOR VIDEO

A Pitsco Exclusive



Showing how quick and easy it is to build the Gear Factor, this program quickly moves on to visually demonstrate key terms such as *gear train*, *mechanical advantage*, *ratio*, and *torque*. Then, see how to construct several simple activities with the gear trainer. Closed-captioned. Time: 12 minutes.

Ages 12+

QX33453 DVD—$24.95

CRANE

A Pitsco Exclusive



Give students an advantage – an understanding of the mechanical advantage inherent in cranes!

Simple machines such as pulleys, wheels and axles, and levers work together to help move heavy loads – these machines helped build the world as we know it. Featuring laser-cut parts, this Crane Kit is built easily – students quickly move on to experimenting with load, ballast, and other concepts.

Includes basswood parts, string, hardware, and a user guide.

Ages 12+

QX32869 Kit—$19.95
QX35687 Crane 30-Pack—$540

CRANE VIDEO

A Pitsco Exclusive



A crane is a complex machine made of three simple machines, but building the Crane Kit isn't complex at all when following this step-by-step program. As you build, learn about the various simple machines and the uses of cranes around the world. Then, try replacing the crane's hook with a magnet or balancing the crane with a ballast. Closed-captioned. Time: 19 minutes.

Ages 12+

QX34126 DVD—$24.95



INCLINED PLANE WITH PULLEY

Made of durable steel, this Inclined Plane features a graduated protractor and an adjustable pulley. Also comes with a 14-ounce roller that acts either as a vehicle on the plane or as a counterweight. These extras – as well as the included pan and cord for the masses – give this demonstration tool added flexibility. Size: 23" x 4".

QX31880—$75

ROLLER COASTER TRACK

A Pitsco Exclusive

Create the loops, hills, and banked curves of a real roller coaster with this extruded rubber track designed especially for classroom use. Designing, creating, and experimenting with this track is a fun way to demonstrate the following:

- Potential and kinetic energies
- Energy changes within a system
- Limits of safety
- Connecting slope to velocity

Includes two each of 3/4" metal, 1" wooden, and 1" acetal balls to use as roller coaster cars. The included activity guide offers coaster-building instructions as well as several activities with reproducible student pages. The Roller Coaster Track is sold in four different lengths. Start with a 20-foot track to test basic roller coaster physics, or go up to 50 feet for some serious experimentation. Track stands, track pads, and hardware are sold separately. Requires scissors, sold separately.

Ages 9+

QX35235 (20 feet)—$65
QX35236 (30 feet)—$95
QX35237 (40 feet)—$119
QX35238 (50 feet)—$145



ROLLER COASTER TRACK STANDS PACKAGE

A Pitsco Exclusive

Use these four stands with heavy bases, track pads, hook-and-loop fasteners, and hardware to design and secure your own roller coaster experiment. Includes one 36" stand and three 20" stands. Tracks sold separately.

QX35233—$119



Track stands, track pads, and hardware are sold separately.

ROLLER COASTER BALL KIT

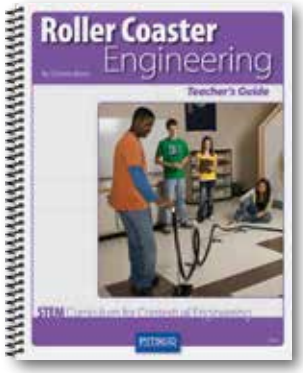
A Pitsco Exclusive

Replacement balls for your Roller Coaster Track. Includes two each of 3/4" metal, 1" wooden, and 1" acetal balls.

QX35327 (pkg of 6)—$6

ROLLER COASTER ENGINEERING TEACHER'S GUIDE

A Pitsco Exclusive



Roller coaster thrills STEM from engineering smarts! This guide will lead students through hands-on activities to use gravity, g-force, potential and kinetic energies, and more concepts to create fun and fast model roller coasters. Paperback/ Spiral-bound, 69 pages.

Ages 12+

QX59872—$39.95

Choking Hazard: This toy is a small ball. Not for children under 3 years.

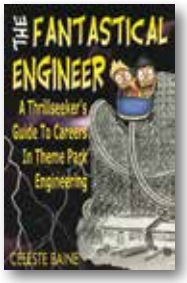
PING-PONG BALL



Great for nose cones!

QX51946—$.55
10 or more—$.50 each
100 or more—$.45 each
QX54558 Steel Balls (1/2" diameter) (pkg of 10)—$2.95⚠
QX54560 Steel Balls (3/4" diameter) (pkg of 5)—$3.95⚠
QX54562 Steel Balls (1" diameter) (pkg of 5)—$9.50⚠

THE FANTASTICAL ENGINEER

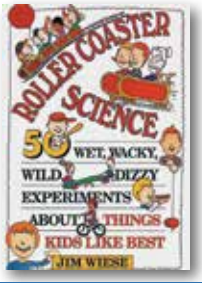


The Fantastical Engineer: A Thrillseeker's Guide to Careers in Theme Park Engineering helps students discover if they have the science and artistic skills needed to design theme parks, museums, and other creative engineering projects. Includes appendices of suggested reading and roller coaster engineer employers. Paperback, 124 pages.

Ages 12+

QX58740—$21.95

ROLLER COASTER SCIENCE



Experience all the fun of science – or the science of fun – with *Roller Coaster Science*. Discover why you do not fly out of your seat when amusement park rides turn upside down. Why does a Frisbee fly? How is cotton candy made? Packed with amusing illustrations and easy-to-follow explanations. Paperback, 113 pages.

Ages 5-11

QX54194—$13.95



FORCES & SIMPLE MACHINES KIT

This kit pulls together everything you need to provide a meaningful demonstration of simple machines and forces.

The Forces & Simple Machines Kit features a force board, inclined plane, vector board, and a complete set of accessories including an 11-piece weight set, spring scales, pulleys, levers, support base and rod, and more. Also includes a manual with more than 60 pages of lab activities and a CD with a slide presentation of possible experiments.

Ages 12+

QX31879—$199.95



SIMPLE MACHINES KIT

What is work? What are simple machines? How are force, work, and distance related? Your class will answer these and other questions as they apply critical-thinking skills to investigate people's earliest use of such machines as pulleys, wheel and axle mechanisms, and levers. They'll study the principles behind these simple machines as well as the mechanical advantage and efficiency each offers. In the process, they will become familiar with the connection between theory and the machines used in our everyday lives.

Ages 12+

QX57579—$160



PHYSICS SIMPLE MACHINES

Experimenting with the different simple machines – lever, wheel and axle, pulley, inclined plane, screw, and wedge – proves fun and easy with this desktop-sized set with snap-together parts. Comes with a color instruction sheet to show how to build and use the three classes of levers, a spring scale, movable and compound pulleys, wheeled chassis, gear experiments, and more.

Ages 9+

QX39806—$15



ALUMINUM SPRING SCALES

Handy to have in the lab! These scales have a hook on each end for easy hanging and weighing. Constructed of anodized aluminum, with steel hooks, they are also designed to last.

Available in 100-, 250-, 500-, and 1,000-gram sizes.

QX38629 (100-gram)—$4.95
QX38630 (250-gram)—$4.95
QX38631 (500-gram)—$4.95
QX38632 (1,000-gram)—$4.95



PULLEYS

This simple machine and mechanical advantage take on a new light when students actually use these pulleys. They are free running and feature a 50 mm diameter plastic sheave and metal swivel hooks on each end.

QX59398 Single Pulley—$1.50
QX59399 Double Pulley—$2.50
QX59400 Triple Pulley—$3



TANDEM PULLEYS

Help students visualize and understand the concepts of force and mechanical equilibrium with one of these pulleys. Free-running tandem pulley features plastic sheaves and plated aluminum hooks conveniently placed at each end.

QX59401 (50 mm sheave)—$4
QX59402 (40 and 50 mm sheaves)—$5
QX59403 (30, 40, and 50 mm sheaves)—$6

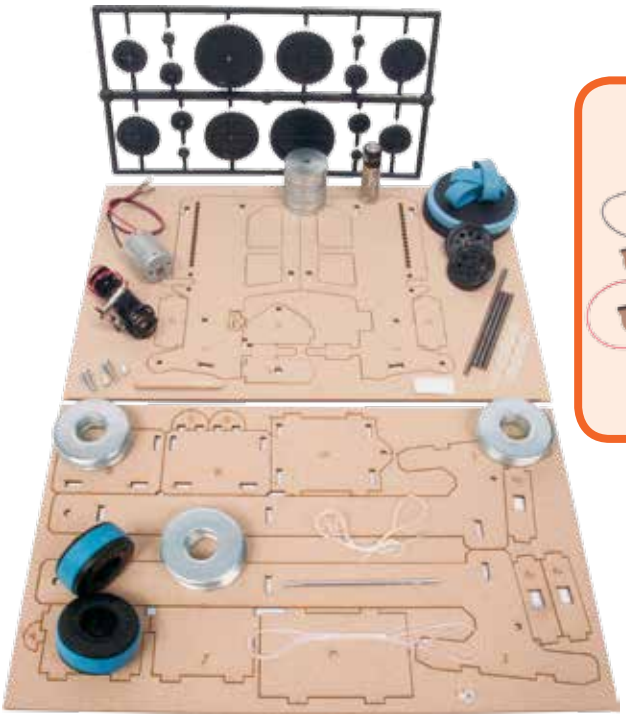


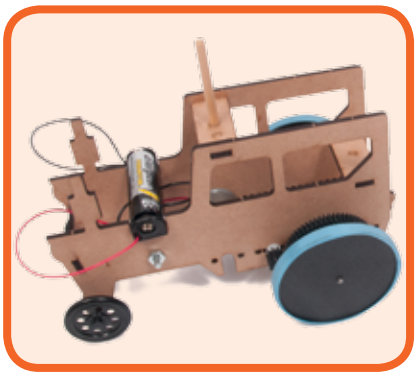
SIMPLE MACHINES SET

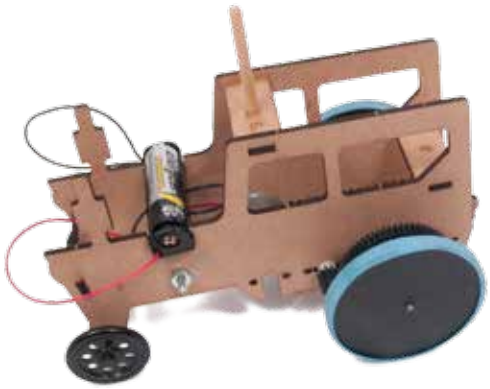
Build five simple machines – pulley, wheel and axle, inclined plane, lever, and wedge – with this sturdy plastic set. Each machine is easy to assemble and take apart, so students can explore the different configurations and learn how they provide mechanical advantage. Includes 63 pieces and an assembly guide.

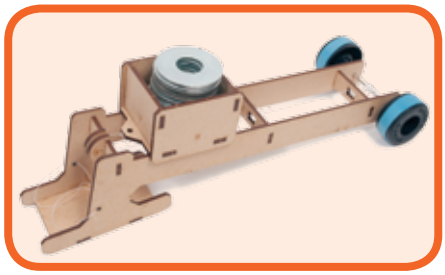
Ages 9-11

QX34394—$42
QX37378 Simple Machines Activity Card Set—$14.95









PULLING TRACTOR

A Pitsco Exclusive

Torque your students off as they build a tractor using laser-cut parts. After installing the motor and battery module (included) and attaching the wheels and gears, it's time to drive the tractor. Students determine which gear ratios provide the best speed and which provide the greatest amount of pulling power (via torque). Requires glue and a Phillips-head screwdriver, sold separately.

Ages 12+

QX40122—$33

SLED PULL CHALLENGE

A Pitsco Exclusive

After building a battery-powered tractor, students experiment with different gear ratios to determine the effect of various ratios on the performance of the tractor. Building the sled and attaching it to the tractor provides students the opportunity to measure the performance of each gear choice. The sled provides a gradual increase in the load by moving metal masses as the sled moves forward. Requires glue and a Phillips-head screwdriver, sold separately.

Ages 12+

QX40883—$49



The Pitsco Gravity Guru is proudly manufactured by us in Pittsburg, KS, USA. Visit us!



GRAVITY GURU: A PICKET FENCE ACTIVITY

A Pitsco Exclusive

With our Picket Fence Activity, you can demonstrate acceleration and gravity to students in a way they'll finally understand! This hands-on activity demonstrates that any object's acceleration due to gravity is the same – and proves it.

Students drop a polycarbonate picket fence through the photogate apparatus. Then, they check out the data recorded on the computer: velocity, time, and acceleration. The software makes the calculations and displays them in a variety of graphs.

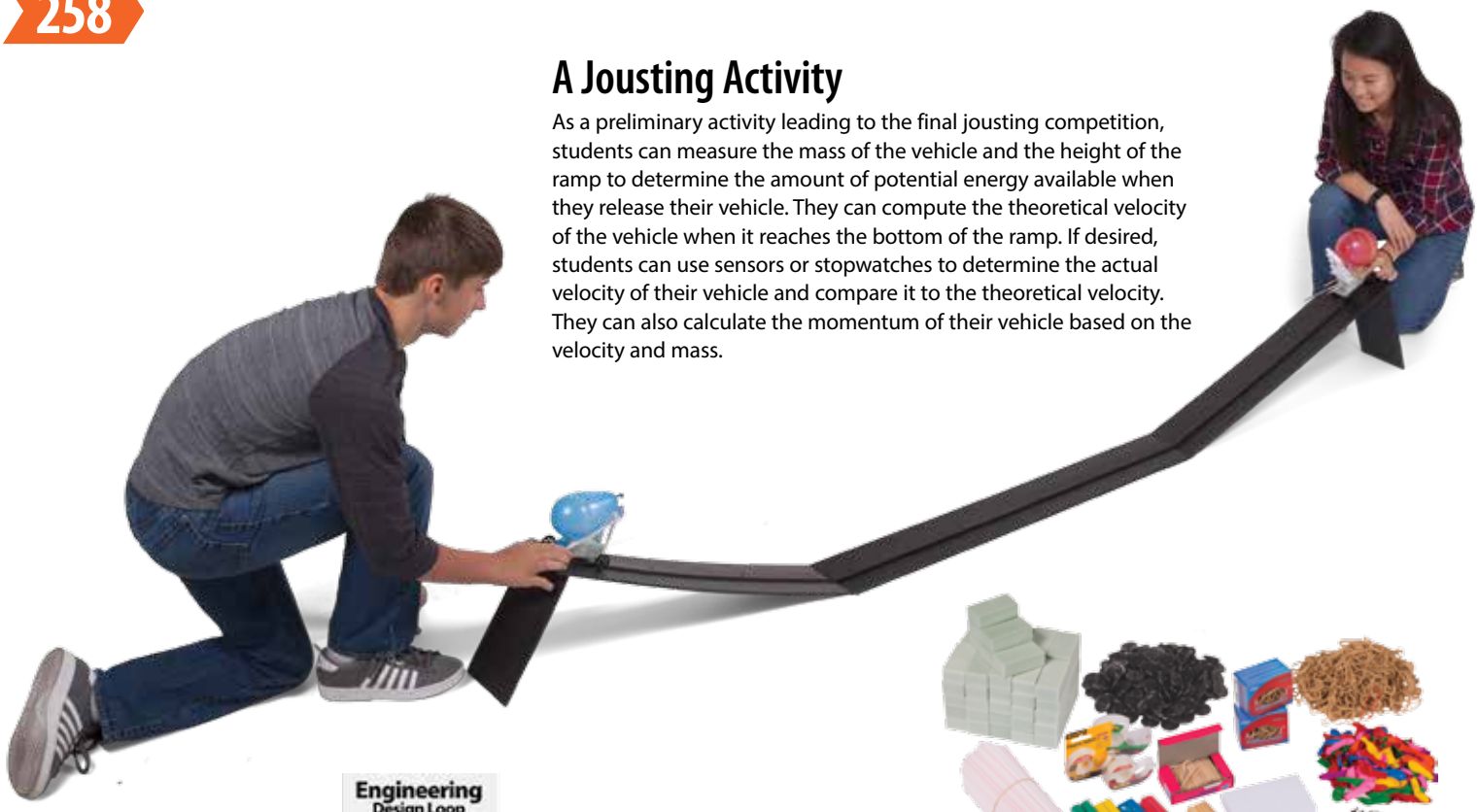
Includes WIN 7/8-compatible CD-ROM, two picket fences (one fence is half the weight of the other), a photogate box, and instructions. System requires one available USB port.

Ages 12+

QX38952 CD-ROM—$165

A Jousting Activity

As a preliminary activity leading to the final jousting competition, students can measure the mass of the vehicle and the height of the ramp to determine the amount of potential energy available when they release their vehicle. They can compute the theoretical velocity of the vehicle when it reaches the bottom of the ramp. If desired, students can use sensors or stopwatches to determine the actual velocity of their vehicle and compare it to the theoretical velocity. They can also calculate the momentum of their vehicle based on the velocity and mass.





NEW!

GRAVITY JOUSTING STARTER PACK

Engineering design with a point (or two)!

In this activity, students design and construct a jousting vehicle powered by gravity. They incorporate toothpicks, skewers, or T-pins for their lance, and they design a shield from index cards within given design specifications. Students compete by rolling their jousting vehicles down opposing ramps, attempting to pop their opponent's balloon while protecting their own. Multiple STEM concepts are illustrated and used within this activity, providing a vehicle (pun intended) for STEM integration.

Students are provided components for a rolling chassis – but from that point forward, they determine the designs of their vehicles. The package provides a variety of building components, enough for 30 students to each build their own gravity jouster. Small balloons and an inflator are provided.

The Gravity Jousting Track is constructed of high-density polyethylene and requires no tools for assembly. Can be easily disassembled for storage. A teacher's guide with reproducible student procedures and worksheets is also included.

Ages 12+

QX41931—$160



NEW!

GRAVITY JOUSTING CLASS PACK

This package provides a variety of design and construction components for 30 Gravity Jousting Vehicles, including components for the base chassis. Design thy mighty steed and mount up to defend thy engineering honor!

Ages 12+

QX41530—$84.95



NEW!

GRAVITY JOUSTING TRACK

A Pitsco Exclusive

Line up two cars at each end, let them go, and watch them collide! The Gravity Jousting Track is a track made from ABS plastic to be used in Gravity Jousting activities. While it is best used for Gravity Jousting, it can be used for other activities that require an incline.

Ages 12+

QX40888—$64.95





AQUATRAK

A Pitsco Exclusive

Students in technology, math, and physical science classes can build foam or wooden boats using our Boat Hull Design Kit. With AquaTrak, they can analyze their boats' wake patterns in relation to variations in the hull design. They can learn firsthand the effects of buoyancy and drag as well as how to design a boat to account for factors such as stability and load-bearing capacity. Boats can be timed for racing, or varying weights can be added to test power usage. The AquaTrak package includes our Boat Design and Testing: From AquaTrak to the Oceans curriculum.

The vinyl AquaTrak tank is 6 meters long and 15 inches wide and has a 20- to 30-gallon capacity. The boat is pulled through the water by means of a free fall-weighted pulley system. The tank and pulley system are supported by a framework of PVC pipe.

AquaTrak comes partially assembled with complete assembly instructions. The track is designed to sit on the floor – leave it standing all year or disassemble it after each use (the longest piece is 38 inches). Filling and emptying the AquaTrak tank is fast and easy using the A.T.A.K. (AquaTrak Accessory Kit).

QX21331—$1,095

BOAT HULL DESIGN

A Pitsco Exclusive

This basic boat kit contains everything a student needs to make both a foam prototype and a wooden boat for use with the AquaTrak. The kit includes one foam block (3-1/2" x 12" x 1-15/16"), one wooden block (3-1/2" x 12" x 1-13/16"), a screw eye, a paper clip (to serve as boat hook), three grades of sandpaper, grid paper, and an instruction booklet.

Ages 12+

QX56812—$17.95

QX21384 Wood Boat Hull Blank (3-1/2" x 12" x 1-13/16")—$12.95

10 or more—$12.45 each

BOAT DESIGN AND TESTING: FROM AQUATRAK TO THE OCEANS



A Pitsco Exclusive

This exclusive curriculum relates boats and boating across the entire curriculum! Two fully developed activities using AquaTrak incorporate many science, math, and technology principles and include reproducible masters of worksheets, diagrams, and assessment protocols. A third activity, "Cruising the World," involves social studies and language arts as students plan and carry out a world cruise. Students incorporate knowledge from AquaTrak activities and their own research as they each plot a course across the ocean and write logbook entries describing their "trip." In addition to the three complete activities, the curriculum includes abundant start-up information and enrichment ideas for every discipline. Three-ring binder, 90 pages.

Ages 12+

QX56695—$29.95



SLOTTED MASS SET WITH WEIGHT HANGER

These slotted weights are useful for a variety of physics experiments and are designed to not fall off the weight hanger. The set contains a total of 12 weights – nine 20-gram, one 10-gram, and two 5-gram – and a 50-gram weight hanger approximately 3-1/2" high.

QX20903—$32

A.T.A.K. (AQUATRAK ACCESSORY KIT)

A Pitsco Exclusive

To make filling and emptying your AquaTrak tank easier, Pitsco offers the A.T.A.K. This kit consists of one 30-gallon tank, two five-gallon buckets, a garden hose, and a pump. The pump will empty the water from your AquaTrak into the buckets, into the tank, or down the drain in two minutes or less.

Ages 12+

QX56817—$425





MOUSETRAP-POWERED BOAT

A Pitsco Exclusive

Totally reengineered, our mousetrap-powered boat is faster and travels farther than ever before. With its slick new hull design, the boat glides across the surface of the water with minimal friction. The kit can be built for distance or speed, and the assembly time is between one and two hours for most students. Finished kit is 4" wide and 18" long.

Ages 12+

QX59656—$12.95

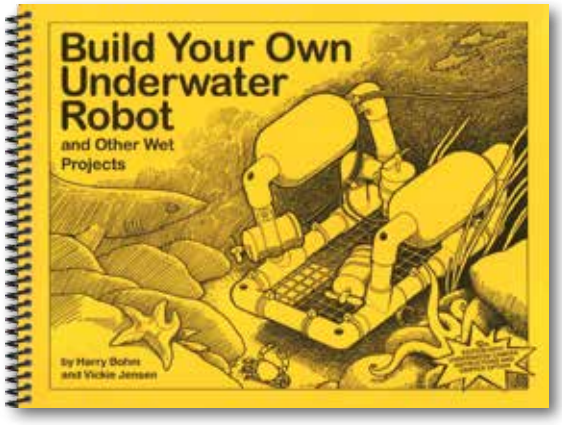


AMPHIBIOUS VEHICLE

Versatility has never been so much fun as with the Amphibious Vehicle Kit. This "quacky" kit combines wheel and propeller propulsion to move seamlessly from land to water. Features the FA-130 underwater motor and Styrofoam floats to stabilize the vehicle on water. Requires one AA battery, sold separately.

Ages 12+

QX59142—$18.95

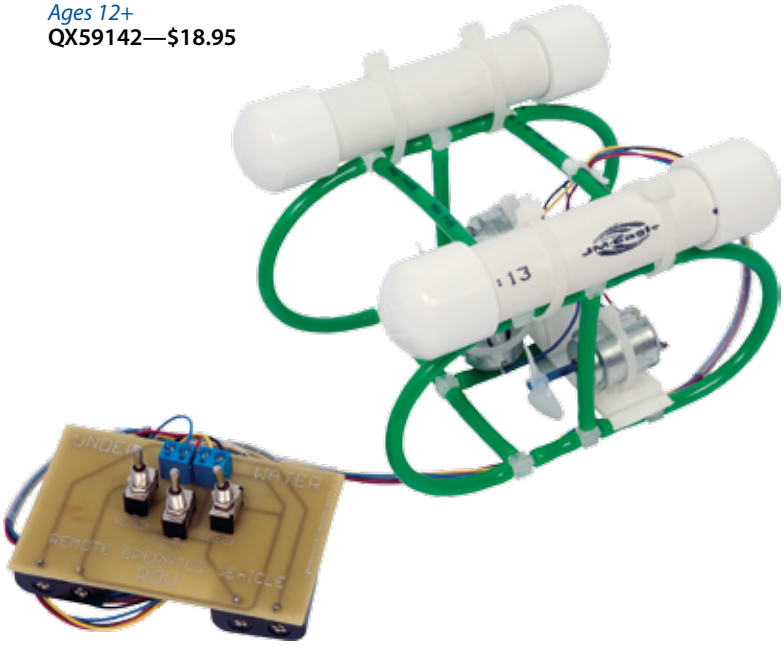


BUILD YOUR OWN UNDERWATER ROBOT AND OTHER WET PROJECTS

The book that inspired several educational programs to start remote-operated vehicle programs is back with a new edition! It now includes how to waterproof a camera for an underwater robot, adding a hydraulic gripper, the history of subsea exploration, helpful tips, and much more.

These clear plans and illustrations for a variety of projects will help you infuse the classroom with the fun and learning of underwater exploration! Paperback/Spiral-bound, 150 pages.

QX57007—$20



UNDERWATER MINI REMOTE-OPERATED VEHICLE

Robots have been used in underwater exploration for decades, and now students can join the adventure. Follow the instructions to build a mini underwater robot that really works. Included is a workbook with four lessons covering voltage, current, resistance, propulsion, buoyancy, and speed calculations. Following these are six activities that make learning how to operate the robot a fun experience.

Assembly and activities require a soldering iron, solder, and other common hand tools, sold separately.

Ages 12+

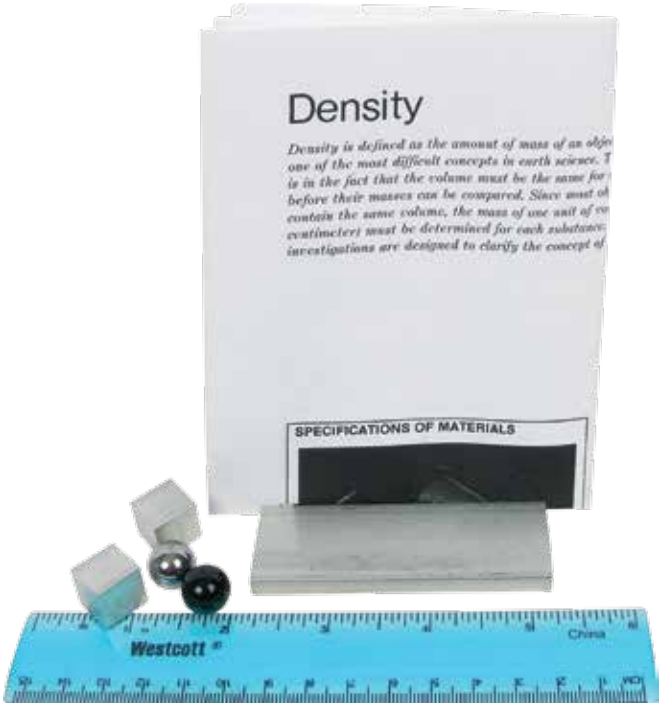
QX36505—$124



DENSITY CUBES

Why does wood float and iron sink? The answer has to do with density, an often difficult concept for youngsters to comprehend. Density Cubes clarify the topic by providing a tangible way of learning about mass, volume, specific gravity, buoyancy, and flotation. The set contains 10 one-inch cubes, each made of a different metal, wood, or type of plastic. Each cube has a unique density and weight. Includes instructions for classroom use.

QX57649—$34



DENSITY KIT

Having trouble getting students to grasp $d = m/v$? This kit with suggested investigations should clear up the concept. The kit includes an aluminum bar (3" x 1" x 1/4"), steel sphere, glass sphere, metric ruler, two 1/2" steel cubes, and an instruction guide.

Requires balance with accuracy to 0.1 grams and a graduated cylinder, sold separately.

Ages 9+

QX31420—$14.95

DENSITY CYLINDERS

Proving that size isn't always an indication of mass is easy with these Density Cylinders. Though the same size – 2" x 1/2" – they all have different masses.

Set includes one cylinder each of aluminum, steel, brass, and copper.

QX31422—$8.95





SQUARE STACKING MASS SET

These inexpensive masses are great for adding a load to model vehicles, trebuchets, and other science experiments you might need to weigh in on. They stack and come in three sizes that are each represented by a different color – so it's easy to see how much mass you're working with.

Each set comes with five 20-gram pieces, ten 10-gram pieces, and twenty 5-gram pieces.

Ages 12+

QX31423—$5



SLIME SCIENCE KIT

Glooze, wiggly wonder, power putty, flip-flop slime, and sewer slime are the five grossly fantastic substances you can make with this kit and a few simple items from home. The instruction manual explains the corresponding science concepts such as polymers, non-Newtonian fluid, and colloids.

Ages 9+

QX33414—$12



INVESTIGATING FORCE AND MOTION LAB INVESTIGATION

Students discover for themselves the key principles of the physical world around us: force and motion, friction and gravity, action and reaction, and work and power. They test a variety of surfaces for friction resistance, correlate weight to friction resistance, and investigate a variety of ways to reduce friction using wheels and rollers. With the materials included, students will explore variable inertia and use the mini-dynamics carts included to study the basics of elastic versus inelastic collisions.

Ages 12+

QX57577—$175



IMPACT CAR

No crash dummies are necessary for these crash tests! The rugged plastic Impact Car features a graduated spring scale and a slide that is displaced on impact against an obstacle. Conduct tests with different masses and slopes and gauge the effect on the spring scale and slide. In the process, students learn how mass affects momentum and the force upon impact. Includes an activity guide.

Ages 12+

QX59407—$12



MOTION, FORCES, & ENERGY BINGO

Add some energy to reviewing the principles of physics – just add Motion, Forces, & Energy Bingo to the formula!

Students try to find the answers to questions on their game card. When they have five in a row, they call "Bingo!" When the answers are verified as correct, they win. If not, they clear their game cards off and start again. Includes 30 game cards, 75 question cards, chips, and an answer key.

Ages 12+

QX33429—$26.50



FAN CART

Looking for a fun way for your class to explore the mass, force, and acceleration of Newton's second law? Fan cart physics is the way to go. This racer is powered by a fan that has a thrust of 88 mN for an acceleration of 0.4 m/s^2. Reverse the airflow with a transparent plate. Activity included; requires two AA batteries, sold separately.

Ages 12+

QX37158—$22



Determine the coefficient of linear expansion for various metals!

HEAT EXPANSION GAUGE

A Pitsco Exclusive

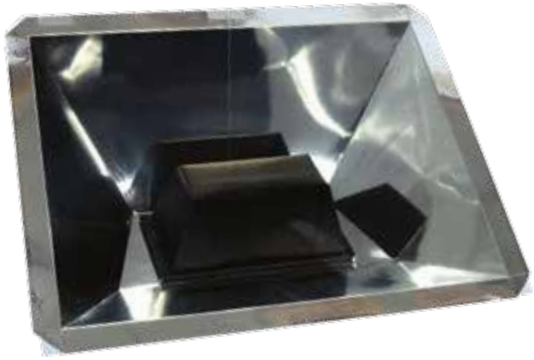
Demonstrate the effect of heat on various metals with the Heat Expansion Gauge, Pitsco's exclusive tool for your physics classroom. Simply insert one of the three metal rods – aluminum, copper, or steel – into the heat expansion chamber. Then, apply either 750 or 1,500 watts of heat. The Heat Expansion Gauge measures the metal's expansion to within 1/100 of an inch!

QX57773—$275

HAIR DRYER

Wear out the hair dryer that comes with the Heat Expansion Gauge? This 1,875-watt turbo dryer is the perfect replacement. Has two speeds.

QX32354—$24.50



SOLAR OVEN KIT

A Pitsco Exclusive

This affordable kit is a great way to get students thinking of everyday applications for solar energy. Use this solar oven to demonstrate heat gain, heat loss, and the second law of thermodynamics. Students can toast up s'mores, nachos, and other small treats with the 13-1/4" x 10-1/2" x 6" oven. **Caution:** Oven might not get hot enough to safely cook products containing egg.

Packs include enough material to build 10 or 30 Solar Ovens.

Ages 12+

QX35546 Kit—$7.95
QX36310 10-Pack—$74.95
QX36311 30-Pack—$220



STEAM ENGINE KIT

Build a working steam engine with this exciting kit! Specifications for this efficient engine include a solid-brass boiler (2-1/8" diameter by 4" long) and a single-acting oscillating cylinder. Fired with dry-fuel pellets, sold separately, and equipped with a safety valve and whistle. Engine has throttle valve, and power takeoff pulley is mounted separately on the engine base. Cylinder dimensions are 7/16" bore x 5/8" stroke. All engine parts are finished in bright nickel plate with realistic firebox and smokestack. No valves.

Ages 9+

QX50102—$165

DRY-FUEL TABLETS

QX50103 (pkg of 20)—$7.95
10 pkgs or more—$7.35 each



HOW HEAT FLOWS – INVESTIGATING HEAT AND TEMPERATURE KIT

Introduce your class to heat and heat transfer with the hands-on activities in the How Heat Flows lab investigation kit. Activities include measuring thermal conductivity and thermal expansion of various metals; exploring the methods of heat transfer including conduction, convection, and radiation; gauging the specific heat of various substances; investigating heat and phase changes of matter; and more.

Students then identify substances that conduct heat effectively (conductors) and those that do not (insulators).

Ages 12+

QX57587—$99.95

MULTIMETER AND IR THERMOMETER



This autoranging digital multimeter teams up with a built-in infrared thermometer. Featuring a large, backlit display plus audible and visual input alerts, this multimeter has nine functions plus auto power off and data-hold features. The noncontact thermometer uses a laser to measure unsafe or out-of-reach objects. Comes with built-in stand/hanger, test leads, and 9 V battery.
QX32932—$175

MICRO IR THERMOMETER



Using infrared, this thermometer can read temperatures of hard-to-reach places, unsafe objects, and electrical hot spots. And it's small enough to fit into the palm of your hand. Noncontact temperature reading from -34 to 446 degrees Fahrenheit. 3 V battery included.
QX31913—$45



WATERPROOF THERMOMETER

This pocket thermometer is perfect for measuring temperatures in wet or dry settings. The thermometer, which has a stainless steel stem, a data-hold function, and automatic power off, has a minimum/maximum recall option. It measures from -40 to 392 degrees Fahrenheit and is complete with one LR44 button battery. The thermometer is waterproof for the measurement of liquid and dry temperatures.
QX58370—$22.95

CLASSROOM THERMOMETER



Track temperature variations in experiments – or just in the classroom – with this affordable thermometer. Reads temperatures from 0 to 230 degrees Fahrenheit or -20 to 110 degrees Celsius. Glass thermometer mounted on stainless steel.
QX59405—$1.75

INVESTIGATING SOUND WAVES SET

Investigating Sound Waves provides your class with a hands-on way to research the concept of sound. Students investigate what sound is, how it is made and transmitted, and its key properties and applications. Tuning forks are provided to investigate the interaction of sound waves, the vibration of sound in a medium, sympathetic vibration, resonance, interference, and the Doppler effect.
QX57580—$110

WAVE DEMONSTRATOR SET



Telling students about transverse and longitudinal waves and other wave concepts is good, but showing them cements these ideas in their minds. Use this three-piece set to demonstrate the different types of waves, properties of a wave, wave interference, and more!

Includes a 3/4" x 72" helical spring that can be stretched to five meters, a 3" x 4" helical spring, and a length of cotton rope.
QX59404—$16.95

TUNING FORK SET



Pick up good vibrations with this set of aluminum alloy tuning forks that demonstrates sound wave creation and propagation. Frequency and scale are stamped on each fork. Frequencies and scales for this eight-fork set are 256 (C'), 288 (D'), 320 (E'), 341.3 (F'), 384 (G'), 426.6 (A'), 480 (B'), and 512 (C") Hz.

Includes a mallet with a soft and hard side for working with all frequencies. Comes in a wooden, foam-lined box.
QX59383—$34

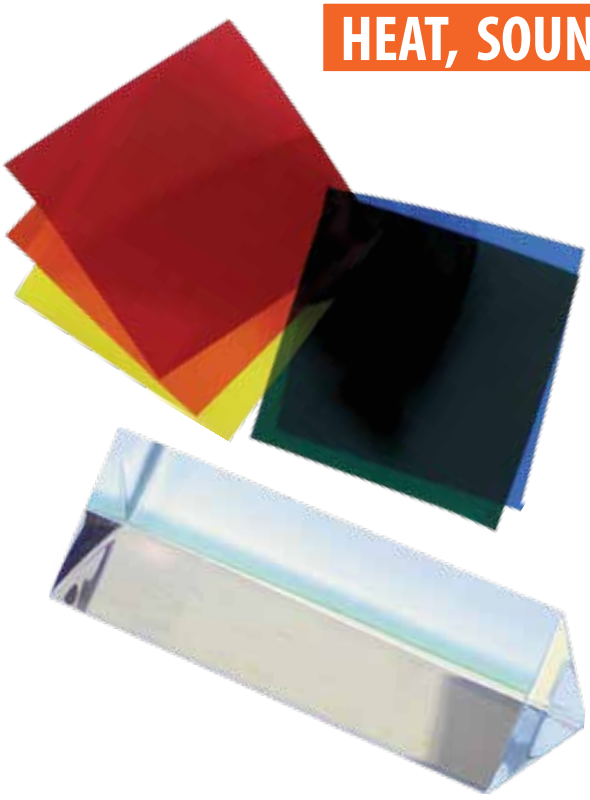




DEMONSTRATION LENS SET

Using these six acrylic lenses, students can learn about optics, magnification, how telescopes and cameras work, and more. Comes in a storage box and with an activity guide. Includes the following 38-millimeter lenses: double convex, plano-convex, concavo-convex, double concave, plano-concave, and convexo-concave.

QX59386—$13.50



GELATIN COLOR FILTERS

Light experiments shadowed by too many wavelengths of light? Help students understand the properties of light with these 4" x 4" filters that block the different wavelengths. Filter colors are yellow, orange, red, green, and blue. Useful for a variety of science fair projects.

QX31425 (pkg of 5)—$4.25

EQUILATERAL PRISM

Great for demonstrating dispersion, this acrylic Equilateral Prism is a great tool for studies of light. The prism is 75 millimeters long with a face size of 25 millimeters.

QX59388—$4.50



OPTICAL SCIENCE & ART KIT

Astonish yourself with optical illusions and amazing visual phenomena as you explore the science of human perception in this fascinating kit. With it, you can experiment with light and the color spectrum by building a color wheel, a fiber-optic peacock, and diffraction glasses; learn how the eye and a camera are similar and how they are different; build a camera obscura and pinhole glasses; view stunning optical illusions involving shapes, color, depth, and scale; make a curved line look straight; and much more!

See firsthand how your eye and brain work together to perceive color, light, depth, perspective, size, shape, and motion. Conduct more than 24 experiments, guided by the 48-page, full-color experiment book.

Ages 12+

QX35052—$35



NEW!

LIGHT BLOX KIT

Prepare to see STEM in a whole new light. This Light Blox Kit will have your students learning all about light technology and the value of this technology in their lives and in the world.

Kit includes:

- Set of three LED Light Blox: red, green, and blue
- Set of three acrylic lenses
- Two mirrors with stands
- Protractor
- Diffraction grating
- 25-page activity guide

Ages 12+

QX41921—$49



NEW!

LASER BLOX LASERS

Whether you're new to lasers in the classroom or a seasoned and certified laser geek, LASER Blox is sure to make both your teaching and your students' learning easier and more fun. You get functionality, flexibility, and versatility. Available in three wavelengths – 635 nm red, 532 nm green, and 405 nm violet.

Compliant with all FDA safety standards.

Ages 12+

QX41922 Laser Blox Red Laser—$99
QX41923 Laser Blox Violet Laser—$99
QX41924 Laser Blox Green Laser—$99

LASER AUDIO/SIGNAL TRANSMITTER

A Pitsco Exclusive

Transmit sound and other types of signals – via a laser. First, connect various inputs to the laser/transmitter module – such as a microphone, radio, or a computer sound card or CD-ROM drive. Then, aim the modulated laser beam at the sensor panel of the receiver module. The built-in speaker plays the audio loud and clear, even over a great distance!

Conduct exciting experiments with sound transmission, bouncing the laser off mirrors, through glass and translucent mediums, and over varying distances. Features include:

- Receiver module has an output that can be connected to an oscilloscope for analysis or to an amplified speaker system.
- Both the transmitter and receiver modules operate on 9 V batteries as well as AC adapters (two adapters are included).

Radio not included.

Ages 12+

QX20709—$395





LASER POINTER

Attractive, all-metal laser pointer with attached key ring. Clip is small enough to keep in your pocket but is still comfortable to use. A side-mounted switch turns it on and off. Batteries included.
QX30017—$6.95



PLASTIC MIRROR

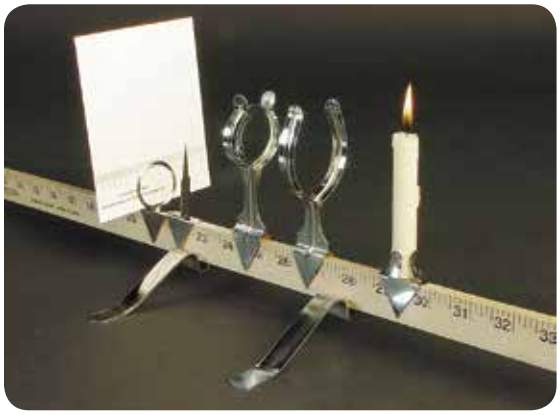
A safe and inexpensive alternative to a glass mirror, this Plastic Mirror is perfect for reflective experiments and science fair projects.
QX31419 (3-1/2" x 2-1/2")—$2.50



LP-100 LASER POINTER

This aesthetically appealing, ergonomically designed pointer combines a traditional baton-style pointer with a futuristic laser-beam pointer. The precisely focused beam will help you conduct impressive presentations and is great for classroom laser demonstrations.

A lock switch prevents the laser from being accidentally activated. Requires two AA batteries, sold separately.
QX54869—$59



OPTICAL BENCH SET

Just set up the included meterstick, lens and mirror holders, candle and holder, screen and holder, and meterstick supports with your own object and you can explore many different optical activities. Create real or virtual images of a convex lens.

Includes instructions with two activities.

Ages 12+
QX38625—$16.95



ECONOMY OPTICS KIT

Demonstrate the principles of color and light without breaking the bank!

Kit includes a double convex lens, double concave lens, plain lens, clear glass screen, two acrylic mirrors, plastic screen, five cellophane squares, three lens/mirror supports, two equilateral prisms, plastic beaker, flashlight (batteries included), candle, and activity guide.

Ages 12+
QX33427—$34

ERLENMEYER FLASK



The flask of choice for slow evaporation and reduced "tipability," this Erlenmeyer flask is made of borosilicate glass. Holds 250 milliliters.
QX59355—$3.75

TEST TUBE



When it's time to heat things up in the lab, you'll need test tubes. Try these rimless test tubes in your school's lab. And don't forget a rack, clamps, and brushes to use and care for your test tubes.
QX59356 Test Tube (15 mm x 125 mm)—$.40
QX59357 Test Tube (18 mm x 150 mm)—$.50
QX59366 Test Tube Rack (8" x 2-2/4" x 3-1/4")—$2.50
QX59370 Test Tube Clamp (5-1/4" long)—$.75
QX59371 Test Tube Brush (1/2" x 8")—$.75
QX59372 Test Tube Brush (3/4" x 6")—$1



PLASTIC BEAKER

Accidents do happen, making this beaker a good alternative for the classroom – these beakers won't break if you drop them! Our plastic graduated beakers are made of polypropylene and have excellent clarity and chemical resistance. Order them as a set or individually.
QX59341 (100 ml)—$1
QX59342 (250 ml)—$1.75
QX59343 (500 ml)—$2.50
QX59382 (set of 5) (50, 100, 250, 500, and 1,000 ml)—$11



PLASTIC GRADUATED CYLINDER

Molded as one piece of polypropylene, these cylinders are sturdy as well as affordable. Order the set or individual cylinders.
QX59344 (10 ml)—$1.25
QX59345 (50 ml)—$3
QX59346 (100 ml)—$4
QX59381 (set of 7) (10, 25, 50, 100, 250, 500, and 1,000 ml)—$26



GLASS GRADUATED CYLINDERS

These cylinders sport heavy, hexagonal bases for improved stability. Made of borosilicate glass.
QX59352 (10 ml)—$3.25
QX59353 (50 ml)—$5.50
QX59354 (100 ml)—$6.50



GLASS BEAKER SET

Made of borosilicate glass, these beakers are perfect for heating. They have the optimum balance between thermal resistance and mechanical resistance due to their controlled wall thickness at the sides, radius, and bottom. Spout makes for clean pouring.
QX59380 (set of 5) (50, 100, 250, 600, and 1,000 ml)—$22
QX59350 (100 ml)—$2.25
QX59351 (250 ml)—$2.50

STUDENT PLASTICWARE KIT



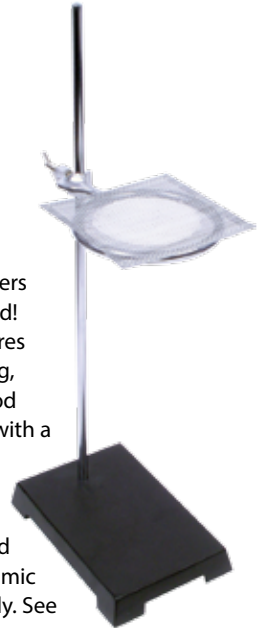
Get the most commonly used plastic labware items together in one convenient kit. Includes 20 items in a plastic storage box: 250 ml beaker, 10 ml graduated cylinder, 100 ml graduated cylinder, 65 mm top diameter funnel, drop dispenser bottle, wash bottle, four reagent bottles, three plastic test tubes, and six pipettes.
QX36446—$25.95



GLASS STIRRING RODS

These Stirring Rods are made of soft glass and feature rounded ends. Rods are eight inches long and five millimeters in diameter.
QX59358 (pkg of 12)—$3.50
QX59359 Rubber Policemen (pkg of 12)—$3.50

RING STAND AND ACCESSORIES



Give your beakers the support they need! Our Ring Stand features a zinc-plated, 20" long, 3/8" diameter steel rod and a cast iron base with a black enamel finish. The Ring Stand is pictured with Cast Iron Support Ring and Wire Gauze with Ceramic Center, sold separately. See related items below.

QX59362 Ring Stand (5" x 8" base)—$14.95
QX59365 Support Ring – Cast Iron—$7
QX59374 Wire Gauze with Ceramic Center—$1
10 or more—$.90 each

ASSORTED RUBBER STOPPERS



These convenient assortments offer a variety of sizes of rubber stoppers – they'll fit the bill for most of your lab needs. Each assortment comes in a one-pound bag.

QX59375 (sizes 1-6)—$7
QX59377 One-Hole Rubber Stoppers (sizes 00-7)—$7



STAINLESS STEEL SPATULA

Handling chemicals is a sensitive operation, so have the right tools for the job on hand. This six-inch spatula features one flat end and one spoon end.

QX59369—$1.25
10 or more—$1.15 each

PLASTIC WASH BOTTLE



This Plastic Wash Bottle really has it together! Holding up to 250 milliliters, this bottle features a built-in delivery tube for a one-piece construction. Translucent bottles are made of unbreakable, low-density polyethylene. Graduated on the outside for approximate volume readings.

QX59347—$2.75



PLASTIC FUNNELS

When you're pouring a solution, make sure it gets where you want it to go. One of these Plastic Funnels will do the trick and keep messes to a minimum. Funnels feature long stems, 60-degree cone angle, and external ribs to prevent air lock.

QX59348 (75 mm)—$1.25
QX59349 (100 mm)—$1.95



EYE DROPPERS

When you need just a little of the solution, don't try to pour it from a flask or cylinder. Keep some of these eye droppers on hand and you'll eliminate a lot of frustration. Straight glass tubes with tapered rubber bulbs are 70 mm long and hold 2 ml.

QX59379 (pkg of 3)—$1



LARGE TIME TIMER

Every teacher overseeing a classroom of competitors has heard the question, "How much time do we have left?" Get rid of the chalkboard reminders with this ingenious product that does the counting for you! The Time Timer is a clock with a big face and a bright red cloak that highlights how much time is remaining – a nice, big display for students sitting in the back. The timer counts backward from one hour or less (however long you set it) and operates automatically with the use of one AA battery, sold separately.

QX58654 12" display—$39.95
QX51046 AA Batteries—$1.95

HOOK COLLAR CLAMP



Clamp down on parts coming undone – try this item to keep your labware together. Use the Hook Collar Clamp to suspend pulleys, balances, and other objects from support rods or cross members.

QX59361—$3.50



ELECTRONIC COLOR PROGRAMMABLE MESSAGE DISPLAY

This message board features a handheld wireless remote programmer (keyboard batteries included).

Show messages in eight colors and three rainbow effects. Twenty-seven characters can be displayed at once. Store up to 75 moving messages. There are 66 different ways to display each character, and a message can be shown in 25 attention-getting modes. Display size is 28.9" L x 4.5" H x 2.2" D. Character height is 2". 115 VAC.

QX12075—$369



CJ600 DIGITAL SCALE

Laden with smart features, the CJ600 Digital Scale combines precision weighing with compact, quality construction. The orange backlight and extra-large LED display make it easy to read.

Weigh up to 600 grams in three units: grams (0.1 g), pounds and ounces (0.01 oz), and pennyweight (0.1 dwt). Includes tare and zero functions as well as a handy counting feature. The clear scale cover doubles as a bowl to use on the scale. Operates on three AAA batteries (included).

QX33914—$39.95



TRIPLE BEAM BALANCE

Find the mass of your dragster, siege machine projectiles, and other objects within 1/10th of a gram. Made of aluminum alloy and stainless steel, this durable yet economical mechanical balance will provide dependable, accurate service. Capacity/readability: 2,610 g x 0.1 g and comes with three weights.

QX38628—$98.95



ESCALI POCKET SCALE

Versatile and small, this pocket scale is extra-sensitive like bigger and more expensive scales. Ideal for the lab or science classroom needing to weigh items for experiments and tests. Weighs up to 500 grams (18 ounces) in 0.1 gram (0.005 ounce) increments and has counting, tare, hold, and auto shut-off features. Uses an included 9 V battery.

QX34505—$31



MEASUREMENT KIT

Measuring angles, thickness, volume, internal diameters, and more doesn't require a lot of sourcing – this kit packs everything you need in a wooden storage box.

Kit includes a vernier caliper, micrometer, wire gauge with a conversion table, depth gauge, 12" ruler, protractor, tape measure, aluminum square, plastic cylinder, plastic vial, aluminum wire, graduated cylinder, and a guide with measurement history and 15 activities.

QX33428—$45



OHAUS SCOUT PRO ELECTRONIC BALANCE

This electronic balance is the perfect weight measurement tool for your dragsters or weight-related competitions. Easy to operate, it features a high-contrast LCD display, multiple weighing units, and four application modes. Measures to the nearest 0.1 gram, with a capacity up to 400 grams.

Its raised stainless steel platform means the large display can be viewed from any angle. A sealed panel and molded spill ring make it easy to clean. Change weight units with the touch of a button or use the weigh-below hook for specific gravity determination. Runs on four AA batteries, sold separately, or with the included AC power pack.

QX58759—$260



HOOKED WEIGHT SET

When you need weights that do more than sit around, this black enamel weight set features hooks for easy use in a range of experiments. Set includes one each of 10-, 50-, 100-, 500-, and 1,000-gram weights, as well as two each of 20- and 200-gram weights.

QX33426—$49.95

Physical Science Resources

For detailed descriptions of these **useful resources,** visit **www.pitsco.com/physicalscience.**

Books



FIVE-MINUTE CRIMEBUSTERS
QX34444—$6.95



SCIENCE AND MATH FOR TECHNOLOGY
QX57918—$27.95

Software



STRUCTURES
QX59093 WIN/Mac CD-ROM—$69.95

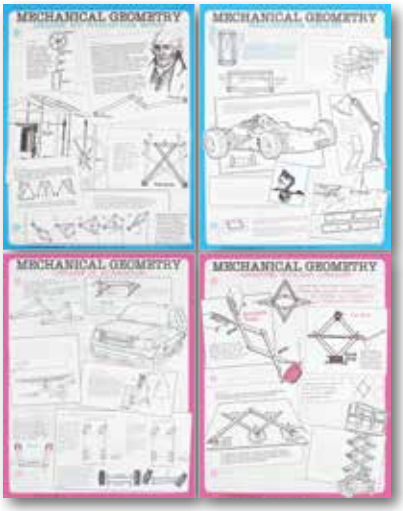
Posters



FOUR STATES OF MATTER POSTER
QX59564 (19" x 25")—$4.25



MASS VS DENSITY VS WEIGHT POSTER
QX59563 (19" x 25")—$4.25



MECHANICAL GEOMETRY POSTER SET
QX59578 (17" x 22")—$19.95



THE SCIENCE OF . . . POSTER SET I
QX32935 (17" x 32")—$39.95



THE SCIENCE OF . . . POSTER SET II
QX32936 (17" x 32")—$39.95

Videos



MEDIEVAL SIEGE VIDEO
QX59230—$19.95



MOTION, FORCES, ENERGY, AND ELECTRICITY VIDEO
QX31347—$69.95



PHYSICAL SCIENCE IN ACTION: SIMPLE MACHINES VIDEO
QX59182—$39.95



ROLLER COASTERS: MAXIMUM THRILLS, MINIMUM DANGER VIDEO
QX33350—$59.95



UNDERSTANDING CAR CRASHES VIDEO
QX31647—$10

ENGINEERING

*"So if you are one of those teachers fortunate enough to have access to **3D printers** already, or would like to convince your principal that it's a **wise investment**, there's no shortage of teaching ideas and materials available for all your 3D printing classroom needs."*

– Pitsco 3-D Printing Curriculum review on 3DPrint.com



The HOT Plan. Now available on Amazon. See page 1 for more info.

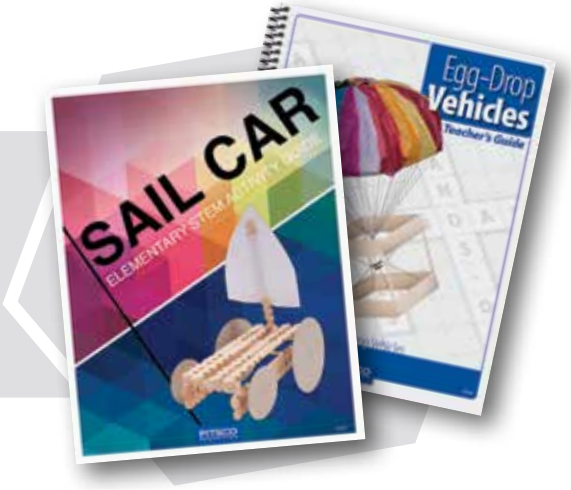
See related product on pages 284-285.



PRODUCTS:

From Try This Kits to basic engineering tools to 3-D printer supplies, Pitsco has all you need to teach engineering concepts.

myTemp and myQuake – pages 274-275
Perilous Plunge Getting Started Package – page 280
Nanotechnology Floating Magnet Set – page 298



ACTIVITIES:

Sometimes, the best engineering activity is one in which students figure things out all on their own, just like real engineers.

Egg-Drop Vehicles Teacher's Guide – page 278
NEW! ***Sail Car Elementary STEM Activity Guide*** – page 282
Pitsco Engineering Teacher's Guides – pages 294-295



CURRICULUM:

Students explore careers in engineering and learn the importance of science and math principles by applying them to engineering concepts in Pitsco's 3-D Printing Curriculum and Engineering Courses.

NEW! **3-D Printing Curriculum** – pages 284-285

SOLUTIONS:

At Pitsco Education, we believe that the ultimate solution is one that engages students and excites them about learning. The integration of Pitsco products, activities, and curriculum into a classroom creates a hands-on learning solution that positively affects learners.

"We have to go in this direction [implementing a Pitsco STEM solution] because that's the job market for our students. They're going to have jobs that change multiple times, and the majority of those will have some deep connection to math, science, and technology."

– Angela Dominguez, Somerset High School Principal, Somerset, TX









MYTEMP MINI PACK

A Pitsco Exclusive

Turn up the heat with the Pitsco myTemp Mini Pack. Students integrate math, science, and technology to investigate temperature, explore radiation, test heat capacity, and ultimately build a solar water heater.

Students gain a scientific understanding of the electromagnetic spectrum, heat transfer, Ohm's law, and more. Lessons include vocabulary, resources, and assessments, and each activity ends with the students using scientific terms to explain their results.

The two-student pack provides materials for one team of two students, and the 10-student pack provides the materials for five teams of two students. **Requires an NI myDAQ per student team, sold separately.**

Ages 12+

QX39745 (2 students)—$250
QX39744 (10 students)—$950
QX60085 myTemp Teacher's Guide—$49





MYTEMP MINISYSTEM

This multi-sensor temperature measurement system is used to teach applications such as temperature process control, basic sensor measurements, and data acquisition and analysis. Great for exploring heat transfer, conduction, convection, and more.

The myTemp uses an analog input channel to read three thermistor inputs, and another analog input can be switched among four additional thermistor inputs or an AUX input terminal.

Includes a DVD that uses a small amount of NI LabVIEW™ to display data from the myTemp miniSystem. NI miniSystems are small-scale replicas of real-world systems that connect to NI hardware and software for a powerful learning experience for science and engineering. **Requires an NI myDAQ per student team, sold separately.**

Ages 12+

QX38232—$99

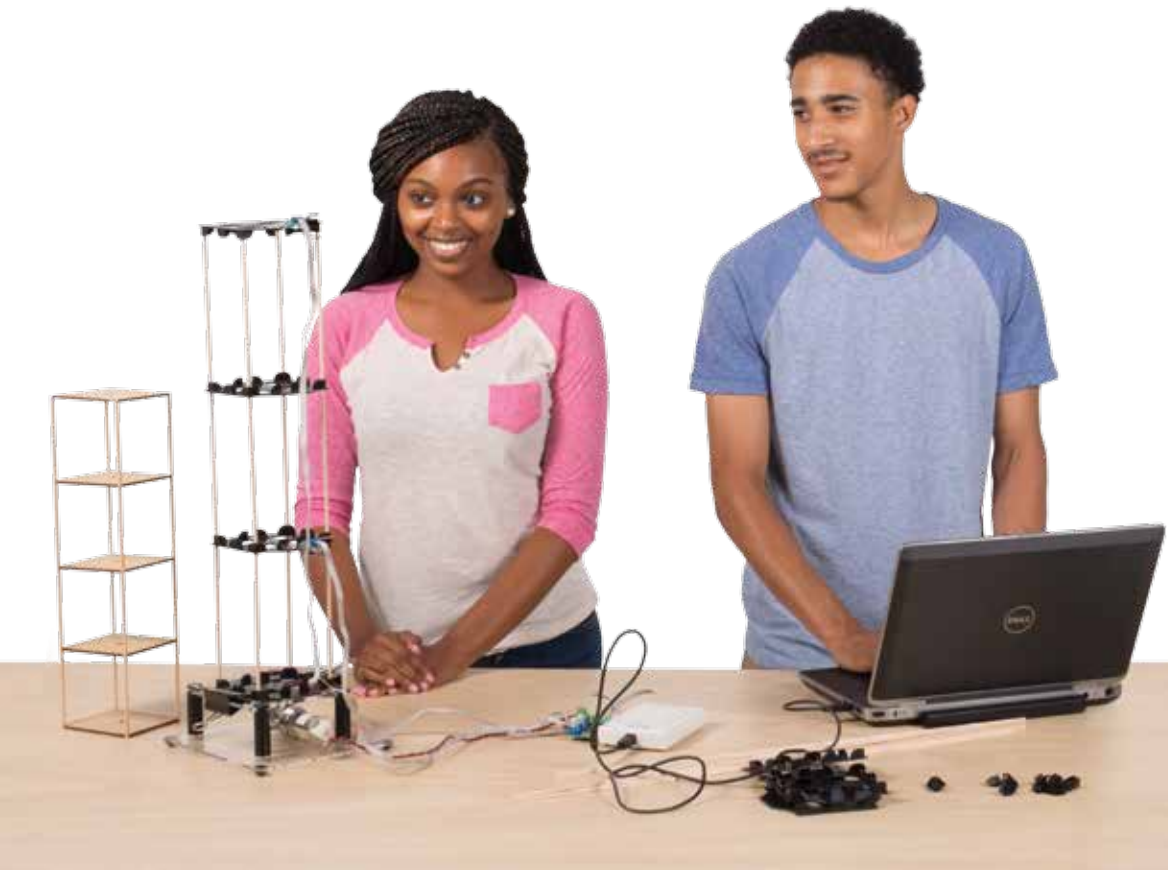
STEM Connections

Science
- Temperature effect on molecular motion
- Conservation of energy within systems
- Second law of thermodynamics

Technology
- Systems design
- Data collection
- Sustainable design

Engineering
- Model development and use
- Iterative design
- Thermal efficiencies

Math
- Data analysis
- Real-time graphing
- Data averaging







MYQUAKE MINI PACK

See Tower Prototyping Kit on page 223.

A Pitsco Exclusive

This pack enables students to experiment with wave properties, explore the concept of resonance, and examine design strategies for constructing earthquake-resistant buildings. Students incorporate this knowledge to design a tower that can withstand an earthquake.

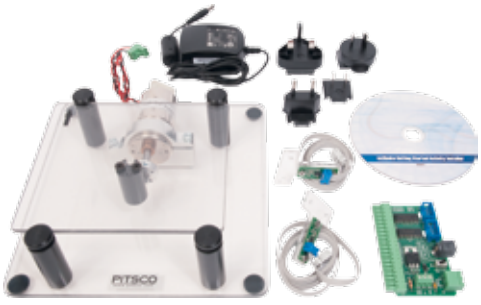
Students employ seismic waves, plate tectonics, and other key concepts to build simple structures to test on the myQuake. They can also experiment with the Harmonic Highrise Kit to see resonant frequency, among other activities.

The two-student pack provides materials for one team of two students, and the 10-student pack provides the materials for five teams of two students. **Requires an NI myDAQ per student team, sold separately.**

Ages 12+

QX39743 (2 students)—$295
QX39742 (10 students)—$1,395
QX60086 myQuake Teacher's Guide—$49





MYQUAKE MINISYSTEM

A Pitsco Exclusive

Earth science, physics, and engineering all combine in the study of earthquakes to make a dynamic learning opportunity that is captured in this pack.

Students learn about seismic waves, plate tectonics, and other key concepts; build simple structures to test on the myQuake; experiment with the Harmonic Highrise Kit to see resonant frequency; and complete other activities.

The two-student pack provides materials and equipment for two students working as a team; the 10-student pack provides materials and equipment for 10 students working in teams of two. Includes a teacher's guide and DVD. **Requires an NI myDAQ per student team, sold separately.**

Ages 12+

QX37979—$199

STEM Connections

Science

- Resonant frequency
- Dynamic acceleration
- Structural integrity

Technology

- Data collection
- Materials science
- Technological solutions

Engineering

- Qualitative and quantitative constraints in a design problem
- Solutions design
- Iterative design

Math

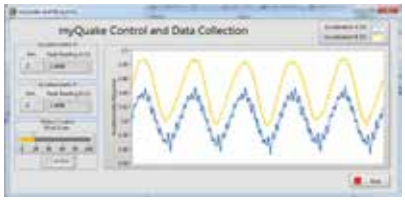
- Angle measure, area, surface area, and volume
- Real time graphing
- Computational models in context

NI myDAQ
Data-Acquisition Device



Industry-proven data-acquisition techniques that are student accessible.

The basis for collecting real-time data from sensor output is National Instruments' myDAQ. It provides the electronic interface between the sensors in Pitsco's miniSystems and the computer.



Data from the myDAQ is processed by the computer using National Instrument's LabVIEW™ software. The data can be manipulated and displayed in a variety of ways, either in real time or saved for further analysis at a later date.

Input for the myDAQ can be in the form of audio connections (iPods, MP3 players, or other) and voltage (test leads provided). The myDAQ can also provide digital input and output via digital I/O lines.

Pitsco miniSystems include a printed circuit board with digital I/O that plugs into the side of the myDAQ. This allows data from sensors to be read and displayed by the computer. It also allows miniSystems and other devices to be controlled (such as changing the speed or direction of a motor) via the computer.

myDAQ Connections

Analog Input:
2 channels, 200 kS/s, 16-bit

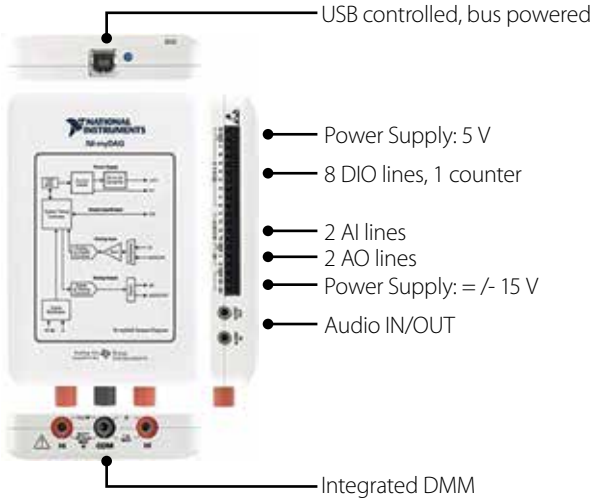
Analog Output:
2 channels, 200 kS/s, 16-bit
3.5 mm stereo audio jacks

Digital I/O: 8 LVTTL lines

Counter: 1 counter/timer

Integrated DM: V, A, Ohm

Power Supply: +5 V, +/-15 V
Screw term + mass term option
Bus Powered (USB) operation



MYDAQ HARDWARE



Give students an authentic engineering experience without the price tag of professional equipment. This compact white box replaces eight common instruments: an oscilloscope, digital multimeter, digital reader, digital writer, Bode analyzer, arbitrary waveform generator, function generator, and dynamic signal analyzer.

Powered by connecting to a computer via the USB port, myDAQ can be used with hundreds of sensors and controls – even homemade ones! It also works with NI LabVIEW™ software, a graphical programming environment used by engineers and scientists. An iPod can be attached to the myDAQ as a source of audio frequencies for LabVIEW to display.

Includes one NI myDAQ, test leads, USB cable, audio cable, pluggable screw terminal block, small screwdriver, and a 30-day trial version of LabVIEW for Education.

Ages 12+
QX37967—$249

LABVIEW™ FOR EDUCATION SOFTWARE



LabVIEW™ for Education software is the educational version of a graphical programming environment giving engineers and scientists a way to create, measure, test, and control systems. The drag-and-drop placement of graphic icons on a frame like a flowchart gives LabVIEW users an intuitive way to develop the program or system they need.

Use LabVIEW with myTemp and myQuake to expand how the data is displayed and used. The data can then be exported to various formats.

An industry leader for more than 25 years, LabVIEW connects with many hardware devices – including myDAQ – and is compatible with Windows, Mac, Linux, and other OSs.

System requirements: Microsoft Windows 7/Vista/XP/2000, 2.4 GB of disk space, 1 GB RAM recommended (256 MB min); Mac OS X 10.4 or later, 1.4 GB of disk space, 1 GB RAM recommended (256 MB min).

Ages 12+
QX37970—$129
QX37971 LabVIEW™ for Education 10-Pack—$799
QX37972 LabVIEW™ for Education 25-Pack—$1,499



MYDAQ + LABVIEW™ FOR EDUCATION

Get two powerful tools together: the myDAQ data-acquisition tool that replaces eight different engineering instruments along with LabVIEW™ for Education, software that enables future engineers and scientists to create programs and systems for the lab.

Ages 12+
QX37973—$370
QX37974 10-Pack—$2,999
QX37975 25-Pack—$6,899

Measure the world around you with Action Packs.

Start with your data acquisition device, myDAQ, then choose the Action Pack that works for you.

Heat Transfer

Discover Heat Transfer Action Pack:
Study thermal conduction properties, measure heat conduction, and build an insulating or conducting system.

- Physics
- Chemistry
- Engineering
- Computer Science

DISCOVER HEAT TRANSFER ACTION PACK



Warm students up to the concepts of thermal conduction, insulation, and other heated subjects with this National Instruments Action Pack featuring the myTemp miniSystem.

Following the lesson plans, students learn to measure and gather data for heat as it moves through various materials such as aluminum and wood.

This pack provides the Pitsco myTemp miniSystem, NI LabVIEW™ *Discover Heat Transfer* software, detailed lesson plans with Next Generation Science Standards and Common Core Math Standards correlations, seven thermistors, electric heating plate and heat lamp, and other materials needed to complete the investigations. **An NI myDAQ is required per student team, sold separately.** Comes with PC-based installation DVD.

A single pack serves up to three students, a 10-pack up to 25 students, and a 25-pack up to 60 students.

QX39428—$259
QX39687 10-Pack—$2,195
QX39688 25-Pack—$5,495

Structures

Understand Structures and Earthquakes Action Pack:
Learn about earthquakes and their effects on buildings. Then, make earthquake-resistant structures.

- Physics
- Engineering
- Computer Science

UNDERSTAND STRUCTURES AND EARTHQUAKES ACTION PACK



Want students to learn the difference between a live load and a dead load? How about how engineers create buildings to withstand an earthquake's force? This NI Action Pack brings together everything needed for students to learn and apply these and other concepts.

This pack provides the Pitsco myQuake miniSystem, NI LabVIEW™ *Structures & Earthquakes* software, detailed lesson plans with Next Generation Science Standards and Common Core Math Standards correlations, and other materials needed to complete the investigations. A single pack serves up to three students, a 10-pack up to 25 students, and a 25-pack up to 60 students.

An NI myDAQ is required per student team, sold separately. Comes with PC-based installation DVD.

QX39429—$299
QX39689 10-Pack—$2,695
QX39690 25-Pack—$6,695

Power & Energy

Explore Power & Energy Action Pack:
Observe how energy is generated and consumed. Then design energy-conservation solutions.

- Physics
- Engineering
- Computer Science

EXPLORE POWER & ENERGY ACTION PACK



Bring home the impact that our energy consumption has on the world for your students. Combining this action pack with the National Instruments myDAQ provides real-world data about energy use with a simulated electric smart grid. Using what they learned, students design a solution to an energy challenge of your choice.

This pack provides the Pitsco myGrid miniSystem, NI LabVIEW™ *Power & Energy* software, detailed lesson plans with Next Generation Science Standards and Common Core Math Standards correlations, a small light source, and a Kill A Watt meter. **An NI myDAQ is required per team, sold separately.** Comes with PC-based installation DVD.

A single pack serves up to three students, a 10-pack up to 25 students, and a 25-pack up to 60 students.

QX39430—$239
QX39685 10-Pack—$1,995
QX39686 25-Pack—$4,995

Egg-Drop **Vehicles**

GS



CHALLENGEPAK

A Pitsco Exclusive

The challenge is to name all the uses of the ChallengePak. Mousetraps, wheels, axles, dowel rods, wood strips, rubber bands, balloons, and much more! Use for a variety of problem-solving challenges. The possibilities are endless. Depending on the project, requires items such as cool-melt glue gun and glue, white glue, hobby knives, and rulers, sold separately.

Ages 12+

QX51385—$149⚠



Visit **www.pitsco.com/eggdrop**.

⚠ **Choking Hazard:** Children younger than eight years old can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

EGG-DROP VEHICLES – GETTING STARTED PACKAGE

A Pitsco Exclusive

Students love this activity, and this Getting Started package provides an "eggcellent" vehicle (pun intended) for getting your class into this inventive activity! This package provides materials for 25 students.

The Egg-Drop Vehicles – GS Package includes the following products:

- QX51385 ChallengePak
- QX21343 Drop Zone
- QX59790 Dr. Zoon Egg-Drop Vehicles Video

QX23620 Egg-Drop Vehicles – Getting Started Package—$550⚠

Ages 12+

Depending on student designs, requires items such as cool-melt glue gun and glue, white glue, hobby knives, and rulers.

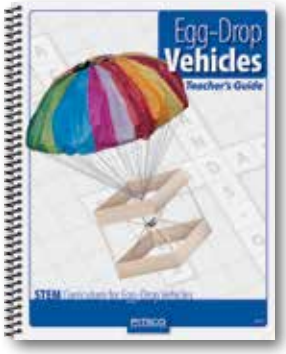
EGG-DROP VEHICLES TEACHER'S GUIDE

A Pitsco Exclusive

With this teacher's guide, your students take a humble egg and experiment to create vehicles that will keep it safe. In the process, they'll learn about density, resiliency, velocity, initial potential energy and final kinetic energy, efficiency, brainstorming, and more. Paperback/ Spiral-bound, 99 pages.

Ages 12+

QX32945—$24.95



DR. ZOON EGG-DROP VEHICLES VIDEO

A Pitsco Exclusive

Don't get egg on your face in the egg-drop competition. Get design ideas and construction techniques from Dr. Zoon for this great competitive event.

This is an "eggcellent" way to integrate math, science, and technology concepts in the classroom. Closed-captioned. Time: 17 minutes.

Ages 12+

QX59790 DVD—$24.95



All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!





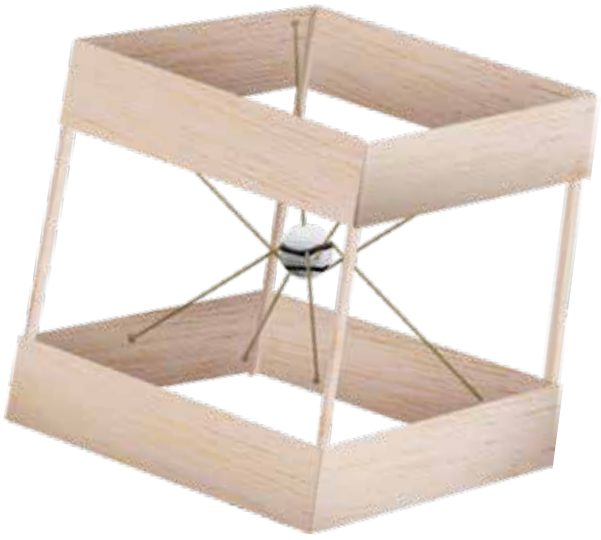
DROP ZONE

A Pitsco Exclusive

Designed as a timing device for the Science Olympiad Egg Drop competition, the Drop Zone is also great as a general timing device for physical science activities including free-fall tests and parachute drops. The landing pad is 24" x 24", and the timer is accurate to the nearest 0.001 second, up to 9.999 seconds. Includes one copy of *The Drop Zone Activity Guide*.

QX21343—$399





INVENTION EXPLORE-A-PAK

A Pitsco Exclusive

If your students can dream it up, they can invent it with the Invention Explore-A-Pak! We have included a wide variety of materials – rubber bands, straws, basswood, dowel rods, Skill Sticks, balloons, wheels, glue, plastic spools, and more. Students must supply the imagination. For a class of 30.

Ages 12+

QX35560—$125⚠

Choking Hazard: Children younger than eight years old can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

Invention Explore-A-Pak can be applied to different subjects and encourage creativity and imagination in your students. You can do instant challenges to task the students to create something that solves the challenge. These challenge and build ideas encourage students to collaborate, imagine, and invent. Visit **www.pitsco.com/InventionExplore** for build ideas and cross-curricular applications for the Invention Explore-A-Pak.

Perilous **Plunge**



THE PERILOUS PLUNGE STARTER PACK

A Pitsco Exclusive

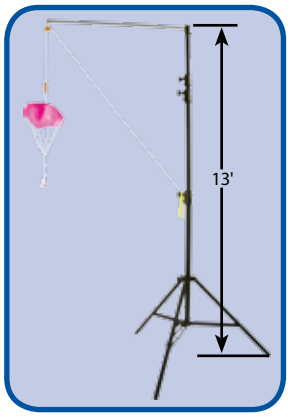
What could be more fun for exploring proportions and lines of best fit than a bungee-drop experiment? But with this kit, you and your students stay safely on the ground!

With all the materials needed to create a rubber band bungee cord, you attach a doll or weight to the end and experiment and predict the outcome with different rubber bands, lengths, weights, and more! Includes one box of narrow rubber bands, one box of medium rubber bands, two boxes of wide rubber bands, a box of binder clips, six Rip Cord Parachute Drop kits, and a user guide with activity ideas.

Requires action figures, dolls, or other objects of various weights, not included.

Ages 12+

QX33463—$199
QX52803 Construction Clips (pkg of 12)—$2.50
QX33567 #16 Rubber Bands (2-1/2" x 1/16")—$5.95
QX33568 #31 Rubber Bands (2-1/2" x 1/8")—$5.95
QX33569 #62 Rubber Bands (2-1/2" x 1/4")—$5.95







Students shown using Rip Cord Stand, sold separately. See page 142.



PERILOUS PLUNGE – GETTING STARTED PACKAGE

A Pitsco Exclusive

Tune in your students to the ideas of elasticity, proportion, line of best fit, and more with this exciting activity. Students build a bungee cord out of rubber bands that you attach to the Rip Cord Parachute Drop and Stand. Add a doll or weight to the cord and have the students experiment to keep the load safe from a disastrous crash.

Includes the needed rubber bands, Rip Cord Parachute Drop kits, and Rip Cord Parachute Drop and Stand.

- QX32894 Rip Cord Stand
- QX32863 Rip Cord Parachute Drop
- QX33463 The Perilous Plunge Starter Pack
- QX52803 Construction Clips

QX40564 Perilous Plunge – Getting Started Package—$385 ⚠

Ages 12+

Requires action figures, dolls, or other objects of various weights, not included.

All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!

Visit **www.pitsco.com/perilousplunge**.

⚠ Please read and follow all teacher tips and safety information provided with this product.

Z-MILL

A Pitsco Exclusive

Our engraving machine delivers the perfect combination of technology and art. The Z-Mill is an enclosed engraver with a movable plate that enables students to engrave original designs on pieces of laminate. Using the x- and y-axes buttons on the Z-Mill's control panel, students move the engraver's tool up, down, left, and right to create the pattern they want.

An included software program enables students to create designs on their PC (or use predesigned computer images) and send them electronically to the Z-Mill. Either way, the Z-Mill will fascinate students as it carves their designs onto laminate plates to create name tags, labels, and much more.

The Z-Mill comes fully assembled with a Windows-compatible CD-ROM, 2-7/8" x 2-7/8" laminate pieces, and detailed instructions.

- Create name tags with glue and safety pins.
- Engrave original artwork and display it.
- Use glue and magnets to create a refrigerator magnet.
- Teach your class about carving processes, mechanical force, and mathematical axes.

System Requirements:

- Windows Vista, Windows XP, Windows 7, or Windows 8
- 800 x 600 screen resolution minimum
- 128 MB RAM minimum
- CD-ROM drive
- One available USB port

Ages 12+

QX34131—$1,995



PLASTIC ENGRAVING STOCK

Use this engraving stock with the Pitsco Z-Mill.

QX26694 (2-7/8" x 2-7/8") (pkg of 10)—$6.95

All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!



1. After turning on the Z-Mill, test the axis buttons on the base of the machine by pressing them up and down and side to side.



2. Place double-stick tape on the back of the laminate piece to hold it in place while the machine is engraving.



3. Using your own design or one suggested in the *Z-Mill* software program, engrave your piece of laminate using the manual buttons or your PC.



4. Raise the engraver's tool and turn off the machine. Remove the laminate piece and brush off the extra shavings to see what you created with the Z-Mill!

TRY THIS: ENGINEERING KIT

A Pitsco Exclusive



Sometimes, the best activity is the one where students figure things out all on their own. That's what this kit does: it presents them with the materials to build a sail car but lets them figure out how to do it on their own – just like real engineers! Requires paper, glue, and a hobby knife, sold separately.

Pitsco's Try This kits are designed as quick and easy activities that show some of the basic concepts of larger projects. This kit should take 20 minutes or less to construct.

Ages 9+

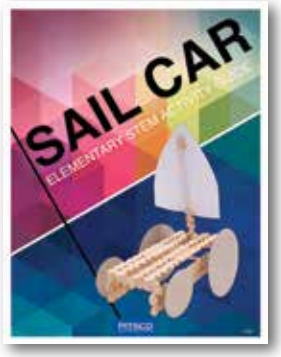
QX40311—$1.50



NEW!

SAIL CAR ELEMENTARY STEM ACTIVITY GUIDE

A Pitsco Exclusive



Written for Grades 3-5, this guide helps students grasp a variety of subjects including distance, speed, weight, variables, inquiry, and much more.

The *Sail Car Elementary STEM Activity Guide* contains teacher and student instructions for math, science, and engineering activities; assessment questions; resource pages; and student pages. Contains three guided inquiry lessons and a culminating engineering challenge for students to apply concepts learned through inquiry lessons.

Equipment and materials needed to complete guide activities include the Try This: Engineering Kit, glue, paper, hobby knives, hole punches, washers, scissors, tape, box fan, tape measures, highlighters, stopwatches, recyclable materials, and standard classroom tools and materials. Paperback, 43 pages.

Ages 8-11

QX41527—$4.95

DISPOSABLE DOT GLUE RUNNER



The Ad Tech Disposable Dot Glue Runner™ is a must-have tool for no-mess gluing. These runners are convenient and easy to use and can be taken anywhere. They are great for any project at home, school, or the office. Dots make it easy to follow curves. Adheres to foam, paper, wood, and many other materials. Acid-free and photo safe.

QX35247—$1.95

TRY THIS: ENGINEERING SAIL CAR CLASS PACK

A Pitsco Exclusive

Want to challenge all your students with the Try This: Engineering Kit? It's easy to do with the class-sized pack.

In this activity, students design their own solution to creating a sail car with the supplied materials from this pack. This pack is for 30 students and includes a design brief featuring teacher tips, student design brief, design process, testing, extensions, and standards.

Ages 9+

QX40603—$35

Choking Hazard: This toy is a small ball. Not for children under 3 years.

PING-PONG BALL



Great for nose cones!

QX51946—$.55
10 or more—$.50 each
100 or more—$.45 each
QX54558 Steel Balls (1/2" diameter) (pkg of 10)—$2.95⚠
QX54560 Steel Balls (3/4" diameter) (pkg of 5)—$3.95⚠
QX54562 Steel Balls (1" diameter) (pkg of 5)—$9.50⚠

WOODEN BALLS



QX53632 (1" diameter) (pkg of 10)—$1.50⚠
10 pkgs or more—$1.35 each

MODELING WIRE

This aluminum modeling wire works well when building model roller coasters. Use two pieces of the same length to build a track that your marbles can roll up and down, or combine the wire with a roller coaster kit to give your marbles a sturdy, extra-long track.

QX58784 (1/8" x 4')—$7.95





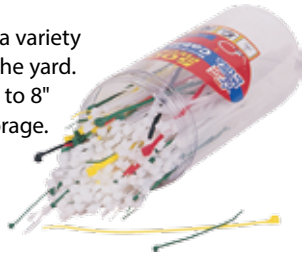
NEW!

MILK CARTON

Here's a simple pack of five half-pint milk cartons that can be used for a variety of projects. Need to build a little boat that can float on water, some small buildings, or maybe a model town? These milk cartons are perfect for that!
QX41425—$2.50

CABLE TIES

Tube of 500 colorful cable ties for a variety of projects at school, home, work, or in the yard. Ties come in a variety of lengths from 4" to 8" and include a screw-on lid for secure storage.
QX58335—$14.95





BALLOONS

QX33356 (11", pkg of 100)—$12.95⚠

Choking Hazard: Children younger than eight years old can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.



PLASTIC SPOOLS

Imaginative kids will find all kinds of uses for these handy spools that are just the ticket for a variety of construction projects. Use them as wheels on simple vehicles or as pulleys on inventions or contraptions.
QX57738 (pkg of 10)—$4.95

RAZOR SAW SET

This set from Excel gives you two blades in one! The comfortable No. 5 handle connects to each of the two included smooth-cutting blades. A precise set for trimming structure frames.
QX58947—$10.25



Check out our complete knife selection on page 231.



HOOK-AND-LOOP FASTENER

Great for a multitude of applications! One 10-foot strip of each material. 3/4" wide.
QX51974—$25.95

DOWEL RODS

Quality hardwood dowels for use in design and problem-solving activities. The 1" x 12" size may also be used to form your custom body tubes.

QX53508 (36" long x 1/8" diameter)—$.35
100 or more—$.30 each
QX51945 (36" long x 3/16" diameter)—$.35
100 or more—$.30 each
QX53474 (36" long x 1/4" diameter)—$.40
100 or more—$.35 each
QX53475 (36" long x 5/16" diameter)—$.50
100 or more—$.45 each
QX53476 (36" long x 3/8" diameter)—$.50
100 or more—$.45 each
QX53477 (36" long x 1/2" diameter)—$.85
100 or more—$.80 each
QX53479 (36" long x 3/4" diameter)—$1.80
100 or more—$1.60 each
QX53480 (36" long x 1" diameter)—$2.95
100 or more—$2.75 each



BALSA WOOD ECONOMY BAG

Save big with this handy bag containing 72 cubic inches of randomly shaped and sized balsa wood pieces.
QX57442—$9



REGULAR CRAFT STICKS

These finest-quality craft sticks are great for all kinds of building projects! Sticks are 4-1/2" long, 3/8" wide, and 1/16" thick.
QX50454 (pkg of 1,000)—$4.25
10 pkgs or more—$3.95 each



JUMBO CRAFT STICKS

6" x 3/4" x 1/16" craft sticks. Use to create many different items.
QX53725 (pkg of 75)—$3.50



SKILL STICKS

Skill Sticks are notched craft sticks used to produce many fun projects. They are all alike but can be snapped into six various combinations. No cutting is required. The sticks are 4-1/2" long x 3/8" wide.
QX59506 (pkg of 150)—$9.95



TWINE

Polyester/cotton, roll of 300 feet.
QX51912—$2

3-D Printing: Vehicle Engineering



NEW!

3-D PRINTING: VEHICLE ENGINEERING PACKAGE

A Pitsco Exclusive

Pitsco's 3-D Printing: Explorations in Innovation/Vehicle Engineering Package enables students to create prototype components and other parts, which is rapidly becoming a normal part of the engineering process.

This package includes the 3-D printer, 3-D software for PC and Mac, 3-D printer curriculum, handling tools, ABS filament, five *Competition Catalogs*, and the 3-D Vehicle Engineering Class Pack complete with *Engineering Notebooks* and everything needed to build battery-operated cars.

No assembly is needed for the printer, but it does require the use of a wall outlet and a computer. **System Requirements:** PC – Windows XP/Vista/7; Mac – OSX.

QX41455—$4,225



NEW!

PREMIUM ABS FILAMENT

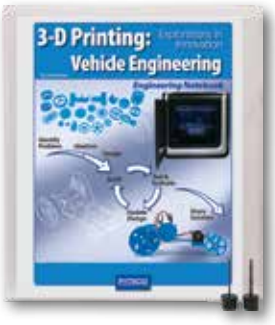
Keep the 3-D parts printing! Premium ABS material for your Afinia 3D Printers is available in three colors: blue, red, and yellow. Many parts can be made from each roll of filament.

QX41439 Each, Blue—$65
QX41440 Each, Red—$65
QX41441 Each, Yellow—$65

NEW!

3-D PRINTING: VEHICLE ENGINEERING CURRICULUM

A Pitsco Exclusive



This curriculum is designed for three weeks of class time, and students begin by learning engineering and rapid prototype processes and seeing how the 3-D printer operates. Then, they work in teams to design their own battery-operated cars, using the 3-D printer to make parts to construct their vehicles. Finally, they see the results of their work on race day.

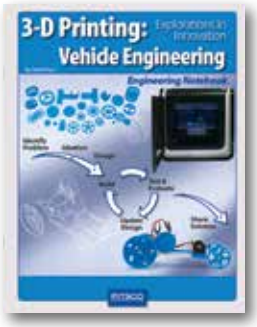
Written by an engineer, this classroom activity was developed to address several Next Generation Science Standards, specifically the Grades 6-9 Engineering Design performance expectations. Aside from helping instructors meet standards, the activity helps students experience real-world conditions such as peer review and working within a budget.

Includes a DVD, teacher's guide, five *Competition Catalogs*, and drill assemblies for cleaning axle holes. **Requires 3-D printer and** Engineering Notebooks, not included.

QX41456—$395

NEW!

3-D PRINTING: ENGINEERING NOTEBOOK



This notebook helps students record all their design work in one place. By using this notebook, students learn about the design process and complete tasks that lead them closer to the final design of a competition-ready, battery-operated car. The *Engineering Notebook* is used with the *3-D Printing: Vehicle Engineering Curriculum*.

QX41470—$150



NEW!

3-D PRINTING: VEHICLE ENGINEERING CLASS PACK

A Pitsco Exclusive

Supply your classroom with car kits to use with your 3-D printer. This package provides all the parts needed to create 50 battery-operated cars; however, some parts can be made with the 3-D printer if desired. Includes wheels, axles, chassis, battery holders, batteries, motors, and other necessary components and hardware. Also includes 250 *Engineering Notebooks* for student use. **Requires 3-D printer**, not included.

QX41457—$1,350

3-D Printing: Design Solutions



NEW!

3-D PRINTING: DESIGN SOLUTIONS PACKAGE

A Pitsco Exclusive

Pitsco's 3-D Printing: Explorations in Innovation/Design Solutions Package features four 3-D printers and curriculum that enables students to create three small designs that may be 3-D printed. The curriculum enables instructors to effectively present basic 3-D design along with copyright and patent information. Included activities foster a greater understanding of 3-D design, CAD and CAM software platforms, and methods used for 3-D printing.

QX41458—$10,925



NEW!

3-D PRINTING: VEHICLE ENGINEERING DESIGN SOLUTIONS PACKAGE

A Pitsco Exclusive

Combine the Pitsco 3-D Printing Vehicle Engineering and Design Solutions packages for a powerful pairing that features four 3-D printers, 3-D software for PC and Mac, 3-D Printing Curriculum, handling tools, ABS filament, and the 3-D Vehicle Engineering Class Pack complete with *Engineering Notebooks* and everything needed to build battery-operated cars. Everything you need to teach key aspects of 3-D design, prototyping, and engineering is included in this bundle that is easy to use and understand.

QX41459—$12,600

NEW!

3-D PRINTING: DESIGN SOLUTIONS CURRICULUM



Design Solutions includes three weeks of activities to illustrate how an engineer uses 3-D printing to prototype new designs. In that time, students learn about copyrights, patents, and trademark protection and how to use basic modeling software. Teams of two are then challenged to create solutions to three problems. These design solutions are then printed using 3-D printers. Students present their solutions to the class for review. Written to address ITEEA Standards for Technological Literacy, Design Solutions enables teachers to address standards while students get the real-world experience of creating a design they are able to hold in their hands when finished. Design Solutions includes a DVD and teacher's guide. **Requires** Design Solutions Logbooks (sold separately) **and 3-D printer** (not included).

QX41472—$395



NEW!

3-D PRINTING: DESIGN SOLUTIONS LOGBOOK

A Pitsco Exclusive

Resupply your class with *Design Solutions Logbooks* for the *3-D Printing: Design Solutions Curriculum*.

QX41471—$150



NEW!

3-D PRINTING: DESIGN SOLUTIONS CONSUMABLES KIT

Resupply your classroom with Design Logbooks and premium filament. Includes four rolls each of red and blue filament and 125 logbooks, enough for five sections of 25 students. **Requires 3-D printers**, not included.

QX41461—$625

ELEMENTARY-SIZE SAFETY GLASSES



Getting young students started in hands-on activities is a great idea, but so is safety! These glasses are properly sized for children to protect their eyes while the anti-scratch lens can be used for years.
QX38809—$5.50



VISORGOGS

Visorgogs are full-vision, wraparound goggles specially designed to protect eyes from flying particles or liquids and from glaring overhead light. Lightweight, cool, and fog free. Includes screened port ventilators, impact-resistant lens, opaque visor, down angle lens, and a neat, modern appearance. Can be worn over prescription glasses. Meets requirements of ANSI Z87.1 and OSHA.
QX50926—$8.50
10 or more—$7.80 each



SPLASH GOGGLES

Chemical splash goggles protect against hazardous liquids and dust. Made of soft, comfortable vinyl. Fits over personal glasses. Replaceable acetate lens available in clear. Meets requirements of ANSI Z87.1.
QX50930—$7.95
10 or more—$7.35 each
QX50902 Replacement Lens—$2.95

EYE PROTECTORS



Jumbo goggles are lightweight and comfortable. Fit over personal glasses. Frames are made of tinted, nonglare vinyl plastic. Meets requirements of ANSI Z87.1.
QX50901—$5.95
10 or more—$5.50 each
QX50902 Replacement Lens—$2.95



X300 SAFETY GLASSES

Finally, safety glasses that make eye protection look cool. These lightweight, anti-scratch glasses offer a sleek design while providing impact strength, optical clarity, and 99.9% UV protection. Meets ANSI Z87.1-2003 and ANSI + High Impact Standards.
QX34192 Smoke—$1.95
QX34189 Amber—$1.95
QX34191 Mirrored—$1.95
QX34190 Clear—$1.95

VISITORS GLASSES



Visitors Glasses provide temporary eye protection for visitors to a potentially hazardous area. Lightweight, attractively styled, and designed to fit comfortably over most prescription glasses. Optical-quality plastic lenses, side shields. Provides 99.9% UV protection. Not for chemical safety. Meets requirements of ANSI Z87.1.
QX50900—$2.95
10 or more—$2.65 each

STA-CLEAR CLEANING TISSUES



Sta-Clear Cleaning Tissues are formulated and treated for cleaning safety glasses and goggles and prevent fogging. No special solution is required – just water.
QX50907 (box of 1,000)—$19.95

EYE WASH STATION



Its 16 ounces of sterile isotonic saline solution effectively flushes irritants. Mount anywhere – requires no plumbing.
QX50908—$29.95

LAB/SHOP COAT



Prevent soil and stains on personal clothing with a professional-type overgarment. This garment features permanent-press, acid-resistant blend of 65 percent polyester and 35 percent combed cotton, safety-stitched seams, and concealed four-button closure. Postman blue with long sleeves.
QX53690 (48)—$39
QX53691 (52)—$51

DISPOSABLE DUST MASKS



This mask is designed for use against nontoxic nuisance dusts not exceeding 15 mg/m airborne concentrations. This product is not designed for use against asbestos; silica; cotton dust; or any other toxic dusts, fumes, mists, gases, or vapors.
NOT FOR USE IN SPRAY PAINT OPERATION.
QX50911—$2.95
10 or more—$2.75 each



SLIMLINE MUFFS

These slimline ear protectors weigh 4.5 oz and have a noise reduction rating of 23 dB T. The shell is made of ABS plastic, and the ear cushions are soft PVC film covered and foam filled.
QX50929—$9.95
10 or more—$8.95 each



ELECTRIC HOT PLATE

Double burner, variable heat, 1,100-watt and 550-watt burners, 110 VAC. Baked enamel finish, fast heating. This is an ideal heat source for the Pitsco liquid plastic and fishing lures.
QX50427—$62.95



DISPOSABLE GLOVES

A low-cost, disposable, protective plastic glove. Poly gloves are made of an unusually soft and pliable polyethylene. Resistant to most chemicals, detergents, and acids. Excellent for protection when working with fiberglass resins.
QX50458 Medium—$11
10 boxes or more—$9.90 each
QX50459 Large—$8.50
10 boxes or more—$7.65 each

BIODEGRADABLE MOLD RELEASE



Use to achieve great release of plastic from molds. No special treatment of moldings is needed. It can be painted over or plated over and gives a perfect finish every time. The maximum operating temperature is 600°F.
QX50453 (20 oz)—$8
10 or more—$7.40 each

SHIPPING INFO
See policies page at back of catalog.

MEASURING CUPS



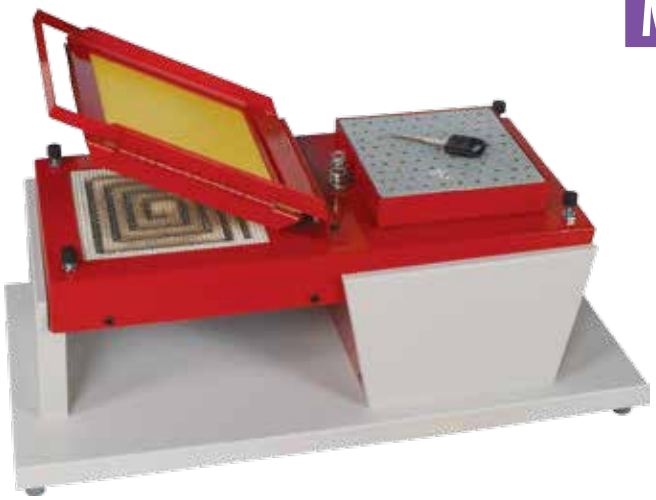
Excellent for measuring resin, catalyst, or colors. Each eight-ounce cup is graduated at each ounce and half ounce as well as cubic centimeters and milliliters. Cups have lines inside for easy visibility for measuring.
QX50460 (box of 50)—$15.95

VACUUM FORMER

A Pitsco Exclusive

Introduce students to the vacuum-forming process with Pitsco's Vacuum Former that forms 6" x 6" x .020" plastic sheets. The innovative hinged-plastic holding frame is placed over the heating grid and then flipped over to the vacuum port for forming. The unit is very safe – the heater operates only when the switch is held. Mounted on a stable 9" x 13" solid plastic base.

QX13282—$725



PLASTIC VACUUM-FORMING SHEETS

For use with the Pitsco Vacuum Former. 6" x 6" x 0.020" plastic sheets.

QX54061 (pkg of 10)—$4.95

POLYSTYRENE SHEETS

Sixty-five various colored sheets. Thickness from 0.0075" to 0.060".

QX50494—$110



PLASTIC STRIP HEATER

The Plastic Strip Heater is a commercial-type strip heater designed to heat sheets of acrylic plastic until they become soft and pliable for shaping to the form desired. It is essentially used for straight-line bends or folds and is capable of heating sheet material up to 1/2" thick. Heating time varies from 30 seconds to four minutes, depending on the material's thickness. Mark-off on the sheet is prevented because the material does not come in contact with the heating elements and the platen remains cool.

QX50479 (21" long)—$175

PRINT-ON MAGNETIC PAPER

Create your own magnetic signs on your ink-jet or bubble-jet printer! Anything that can be printed on regular paper can be printed on Print-On Magnetic Paper – photos, messages, original artwork, and more. 8.26" x 11.69" sheet can be used in any ink-jet or bubble-jet printer. **Note:** Not for use in laser printers or copiers.

QX58037—$1.95

PLEXIGLAS ACRYLIC SHEETS: TYPE MC

CLEAR

QX50624 (12" x 24" x 1/8")—$9.95
10 or more—$9.15 each
QX50625 (12" x 24" x 1/4")—$19.95
10 or more—$18.60 each
QX50626 (24" x 36" x 1/8")—$26
10 or more—$25 each

CLEAR PLEXIGLAS ACRYLIC SHEET – TYPE GM

QX16068 (12" x 24" x 1/16")—$10
10 or more—$8.95 each

RED TRANSLUCENT

QX50635 (12" x 24" x 1/8")—$11.95
10 or more—$11.45 each

BLUE TRANSLUCENT

QX50637 (12" x 24" x 1/8")—$12
10 or more—$11.50 each

ORANGE TRANSLUCENT

QX50643 (12" x 24" x 1/8")—$12
10 or more—$10.80 each

YELLOW TRANSLUCENT

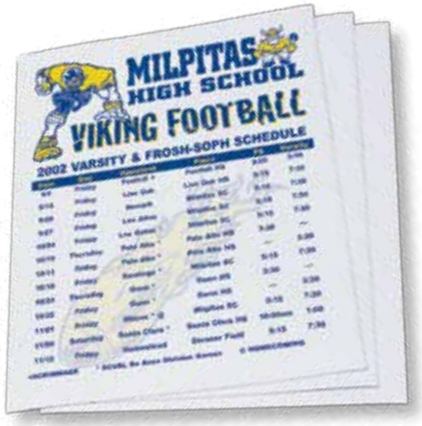
QX50645 (12" x 24" x 1/8")—$12
10 or more—$10.80 each

LIGHT GREEN OPAQUE

QX50641 (12" x 24" x 1/8")—$12
10 or more—$10.80 each

BLACK OPAQUE

QX50628 (12" x 24" x 1/8")—$15
10 or more—$14.50 each
QX50630 (12" x 24" x 1/4")—$22.50
10 or more—$20.85 each



EDGE-SCRAPING TOOL FOR PLEXIGLAS



This tool is designed to plane or scrape the edges of acrylic sheets to produce the smooth, crisp perpendicular edges essential for making good solvent cement joints and as a first step in achieving a polished high-gloss edge. The tool is made of anodized aluminum and has a high carbon steel scraping blade.

QX50589—$15

INSTA-CURE THIN APPLICATOR BOTTLE



Enables students to apply a very fine line of solvent. Holds approximately two ounces. Long, needlelike point is handy for getting to hard-to-reach places.

QX50591—$2.95
10 or more—$2.65 each

A CLOSER LOOK AT POLYMERS: MAKING SLIME



Investigate the properties of Slime, a trademarked toy material first marketed commercially in the 1970s. Your students will prepare this entertaining – yet educational – material using various natural and synthetic polymers and color it with various dyes. In addition, students will create Flexi-Putty, form it into a bouncing ball, and compare its properties to Slime. In the process, they'll gain a better understanding of the chemistry behind these long-chain polymers and their application in a variety of products we use in everyday life. Enough for 40 students.

QX57594—$49.95

POLISHING COMPOUNDS #40 TRIPOLI



One of the most popular compounds for buffing Plexiglas or Lucite. It has high tallow content and sticks to the buffing wheel. Should be used with a muslin buffing wheel for fast cut down after fine sanding has been completed. Brownish-red.

QX50702—$9.50



ELECTRIC DRILL

This quality 3/8" drill from Black & Decker features variable speed (0-1,350 rpm) and is reversible.
QX52790—$59.95



DRILL BITS

This 13-piece starter set is in a permanent storage container. Sizes: 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 11/64", 3/16", 13/64", 7/32", 15/64", and 1/4".
QX53696—$19.95



DUAL-TEMP GLUE GUN

Whether you want a hot-melt or cool-melt glue gun, this one does the trick! Flip the switch to change from high to low temperature. With heavy-duty circuitry and a tough housing, this glue gun will last. Also features a non-drip nozzle and safety stand. Requires standard wall outlet for power.
QX38019—$16.95

GLUE SLUGS

For use with all hot-melt glue guns. Not for cool-melt glue guns.
QX51740 (pkg of 30)—$4.95
10 pkgs or more—$4.55 each



STANLEY 30' LEVERLOCK

This tape rule measures up with the convenient LeverLock feature that allows one-hand operation, a high-visibility case, and a generous 1" blade with 16" center marks.
QX51803—$23



STANLEY TAPE MEASURE

This 3/4"-wide yellow blade is marked in inches and feet, plus stud marks every 16". Sturdy steel case.
QX50379 (12')—$19.95



TAPE MEASURE – ECONOMY

Lightweight, low-price, shop-use tapes for your students. Feet and inches to 1/16" top edge. 16" center stud markings.
QX50394 (6' long x 1/2" wide)—$6.95
10 or more—$6.25 each



STANLEY FIBERGLASS HANDLE HAMMER

A 16-ounce hammer with stranded fiberglass handle and rubber grip. Length 13-1/4".
QX50405—$22



TRY SQUARE

8" blade, 5-1/8" handle.
QX50395—$6.95
10 or more—$6.25 each



PRACTICAL METAL-BENDING WORK CENTER

This metal-bending center is ideal for schools. The work center includes punch/shear machine, rivet/bend/roll tool, two scroll formers, rolling handle, approximately one pound of assorted rivets, 150 assorted nuts and bolts, hex wrenches, tape measure, operating instructions, and design book.
QX50563—$795

METAL STRIPS

QX50565 (3/8" x 1/16" x 36") (30 strips)—$39.95

TUBULAR STEEL HANDLE



Extra heavy-duty toolbox handle. Handle is 7-1/4" long. Zinc-plated steel.
QX53541—$1.50
10 or more—$1.40 each
100 or more—$1.30 each



STEEL CORNERS

Use these steel, nickel-plated corners for toolbox/tray and storage box projects. Rivet mounted.
QX58301 (pkg of 10)—$3.95
10 pkgs or more—$3.55 each
100 pkgs or more—$3.20 each

STEEL CATCH



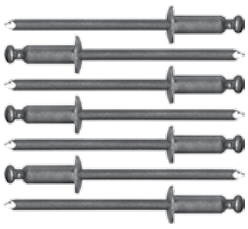
Zinc plated with padlock opening.
QX53540—$1.70
10 or more—$1.60 each
100 or more—$1.50 each

METAL TOOLBOX KIT

A Pitsco Exclusive

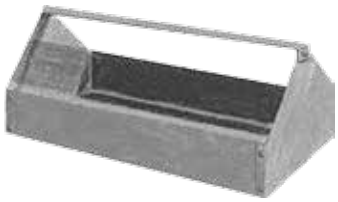


Everything necessary (including metal) to make the toolbox. Ideal for the first sheet metal project. Students can use the box for tools or tackle. Galvanized steel construction – will not rust. Box may be left plain or painted. Requires 1/8" rivets. Drawings included. Requires a drill with 1/8" metal bit, crimper, straight snips, metal file, hand bender or breaker, and spot welder or rivet gun, sold separately.
QX50519—$12.95
10 or more—$11.50 each



BLIND RIVETS

Aluminum blind rivets.
QX50520 (1/8") (pkg of 100)—$5.95



TOOL TRAY KIT

A Pitsco Exclusive

Students make this handy tool caddy of 24-gauge galvanized steel. 6" x 12" x 4-1/2" high when finished. All parts are precut. Requires 1/8" rivets, drill with 1/8" metal bit, crimper, straight snips, metal file, and hand bender or breaker, not included.
QX50522—$4.50
10 or more—$4.15 each



CONTINUOUS HINGES

Plain steel, continuous hinge for toolboxes and other sheet metal projects.
QX53608 (1" x 13-1/4")—$.65
10 or more—$.60 each
QX53543 (1" x 17-3/4")—$.95
10 or more—$.90 each



GIANT SUPER CLIP KIT

A Pitsco Exclusive

Complete kit contains all the materials needed to build a giant Super Clip. Self-teaching student workbook provides hands-on instruction on using the basic woodworking tools. Students love this project. Kit includes soft wood precut to rough size (9"), giant spring, instruction workbook, and storage box. Giant spring and workbook also sold separately.

Ages 12+

QX50023—$6.95
100 or more—$6.40 each

GIANT SUPER CLIP WORKBOOK

A Pitsco Exclusive

Get the most out of Pitsco's Giant Super Clip activity with this workbook. Paperback, 12 pages.

Ages 12+

QX50374—$2
10 or more—$1.80 each
100 or more—$1.65 each

PLASTIC GAME PEGS

A Pitsco Exclusive



Note: *Available in black, red, blue, white, or mixed colors. Please select an option.*

Pitsco has developed a peg for game-type projects. It may be used for the jump-a-peg game, tic-tac-toe, and even checkers. Now, there is no more problem with students poking each other or upholstery with golf tees! Overall length is 9/16", top is approximately 1/4" diameter, and post diameter is 1/8". The top of the peg has a hole that allows for the pegs to be stacked on top of each other. Package of 500.

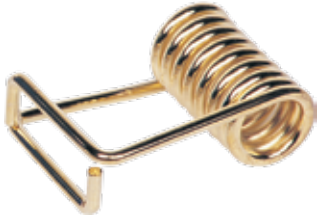
QX13322 Black—$11.95
QX13319 Red—$11.95
QX13320 Blue—$11.95
QX13321 White—$11.95
QX53675 Assorted—$11.95

GOLF TEES



Use these for jump-a-tee games or out on the links during summer vacation. To make jump-a-tee game, drill seven holes about 1/2" apart on an isosceles triangle drawn on a piece of wood. Then, fill in the remaining area with holes to coincide with the outside holes. Mixed colors.

QX53488 (pkg of 1,000)—$26.95



BRASS-FINISH SPRING

A Pitsco Exclusive

Used in Giant Super Clip Kit.

QX50375—$.95
100 or more—$.85 each

KEY FOB PACK

Pack includes Tennessee oak tooling cowhide key fob blanks with prepunched holes, rivets, key rings, and instructions. This popular project won't strain your budget.

Ages 12+

QX53576 (pkg of 25)—$39.95





HOLD-DOWN FIXTURE CLAMP

Recommended load is 200 lb. 3/4" travel from closed to open position.
QX53443—$22



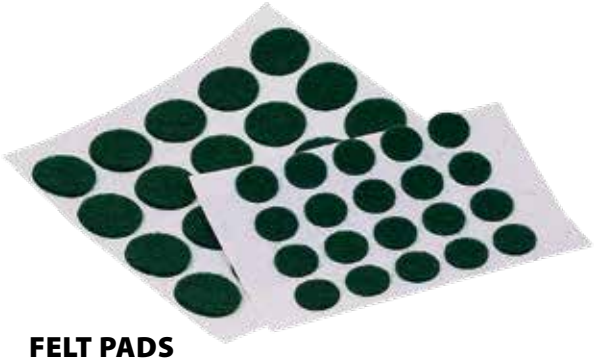
PROJECT HOLDER

This holder works in any position and helps students produce neater work. Excellent for positioning bridge pieces.
QX58895—$11.75



LAZY SUSAN TURNTABLE

These ball bearing turntables are useful for constructing rotating robotic bases, rotating displays, and lazy Susans. Mounting screws not included.
QX53669 (4")—$1.55
10 or more—$1.40 each
QX53673 (6")—$2.40
10 or more—$2.15 each



FELT PADS

Two sizes of felt circles for protecting surfaces from scratches and wear. Pressure-sensitive backing bonds securely to slick and porous surfaces. Precludes use of additional adhesives. Sturdy nap, green only. Sizes: 1/2" and 3/4".
QX53465 (pkg of 240)—$12.95
10 pkgs or more—$11.95 each



BENCH BRUSH

Blend of black horsehair and plastic bristles. Handle with hanging hole is approximately 12-1/4" long, and bristle span is 8".
QX53609—$7.95
10 or more—$7.35 each



WHITE WOOD GLUE

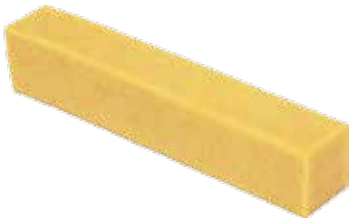
An excellent aliphatic resin glue for wood projects. Dries fast and super strong.
QX34506 (1 gallon)—$19.95

SHIPPING INFO
See policies page at back of catalog.



RUBBER CEMENT

A superior grade of rubber cement for use in the classroom, office, and studio. Will not curl or wrinkle paper. Excess rubs off easily. Mounted item may be peeled off at any time. Use for bonding foam rubber, mounting photos, repairing rubber goods, leatherwork, and labeling. Four-ounce bottle with brush.
QX50783—$3.50



NU-LIFE ABRASIVE BELT CLEANER

Removes abraded material that has lodged between the abrasive grains and dulled the cut. It makes the belt look and perform like new. Every shop teacher needs this material to clean belts and discs.
QX50384—$14
10 or more—$13 each



FOAM PAINTBRUSH

These handy brushes have foam tips and wooden handles.
QX52697 (1")—$.35
QX52698 (2")—$.50

TRADITIONAL CLIPBOARD CLIPS



Either of these strong, high-quality clips may be used with an acrylic sheet, wood, metal, and so on to produce a custom clipboard.
QX53442 (3" long)—$1.25
100 or more—$1.15 each
QX53919 (6" long)—$2.95
100 or more—$2.75 each

SQUARE CORNER BUTT HINGE



Brass plated and mounts with #4 flathead screws, sold separately. Two screw holes on each side.
QX53786 (0.035 gauge, 1" x 1-1/16")—$4.95
QX53787 (0.042 gauge, 1" x 1-7/16")—$6



LOW PROFILE CLIPBOARD CLIPS

These clips are used like the conventional clipboard clips. The only difference is that they are the latest low-profile design. The six-inch clip has only a 1/2" height, and the two-inch clip features a swinging lever arm that folds flat. May be mounted on wood, metal, Plexiglas, and so on. Metal spring guarantees a bulldog grip.
QX53602 (2" long)—$.75
100 or more—$.70 each
QX57067 (5" long)—$2.95
100 or more—$2.80 each
QX53601 (6" long)—$1.50
100 or more—$1.35 each

SCREW EYES



Use to attach your solar vehicle to guide wire. Available with a 5/8" shaft or a 3/4" shaft.
QX58537 (5/8" shaft) (pkg of 100)—$12.95
QX50058 (3/4") (pkg of 100)—$5.50

CLOTHESPINS



Classic spring-type wood clothespins. Package of 30.
QX53503 (pkg of 30)—$3.25

MINI QUARTZ CLOCK MOVEMENT



Accurate, dependable, and versatile! Features a self-start, one-second step motor, front or rear handset, and a convenient on/off switch. Dimensions: 2-1/8" high x 2-1/8" wide x 5/8" deep. Shaft diameter: 5/16" (8 mm). Requires one AA battery, sold separately.
QX52780—$6.50

BRASS-PLATED #4 WOOD SCREWS



Good for most small wood projects. Keep plenty of these 1/2" #4 Wood Screws on hand. Package of 100.
QX53591 (#4 flathead, 1/2" long)—$5

SNAKE KEY CHAIN



Allow students to carve or cast objects to include on key chains.
QX53471 Silver (pkg of 10)—$2.25
10 pkgs or more—$2.05 each

DOWEL BUTTONS



Use these buttons to cover holes made by dowels or wood screws. For 3/8" diameter holes.
QX53507 (3/8") (pkg of 100)—$4.95

A.



B.



A. MUG PEGS

These mug pegs are turned from hardwood. They fit a 1/2" diameter hole and are 5/8" deep.
QX53560 (pkg of 100)—$28.80

B. SHAKER PEGS

These shaker pegs are turned from hardwood. They fit a 1/2" diameter hole and are 5/8" deep.
QX53559 (pkg of 100)—$19.95



PICTURE HANGERS

Attractive brass-plated hangers for clocks, plaques, pictures, mirror sconces, and so on. Can be mounted with nails, screws, or staples. Mounting hardware sold separately.
QX53590 (1-7/8") (pkg of 100)—$14.95



ENGINEERS CAN DO ANYTHING! VIDEO

For every activity or thing people are passionate about, there's probably an engineer involved with it at some point. Sports, animal care, computers, music, amusement parks, movies, cars – they all require engineering.

Celeste Baine, author of *Is There an Engineer Inside You?* and *High Tech Hot Shots*, discusses the ever-widening career path available to those with engineering degrees. Plus, she shows you how to discover if you have what it takes to be an engineer. Time: 18 minutes.

Ages 12+

QX31446 DVD—$34.95



WOMEN IN ENGINEERING VIDEO

Inspiring girls to follow an engineering dream is easier with the stories of women successful in the field. Interviewing 16 female engineers, this program looks at how they were inspired to become engineers, the variety of work they do, their work environment, how they cope with working in a male-dominated field, and their advice for girls interested in becoming engineers. The program also looks at beauty and stereotypes in engineering as well as the never-give-up attitude needed to enter this career field. Time: 24 minutes.

Ages 12+

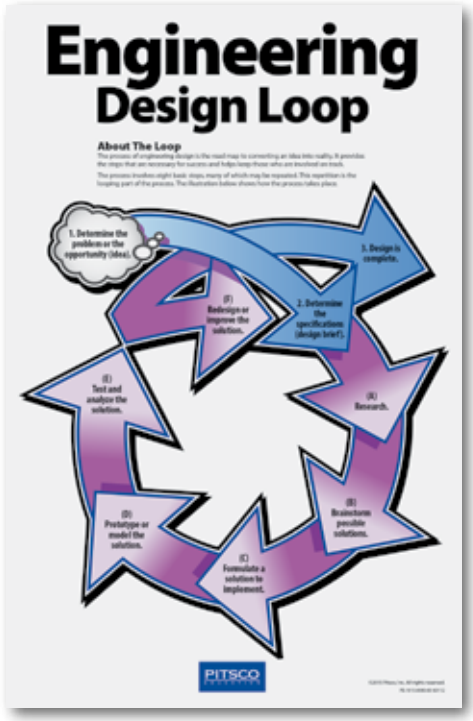
QX35600 DVD—$29.95

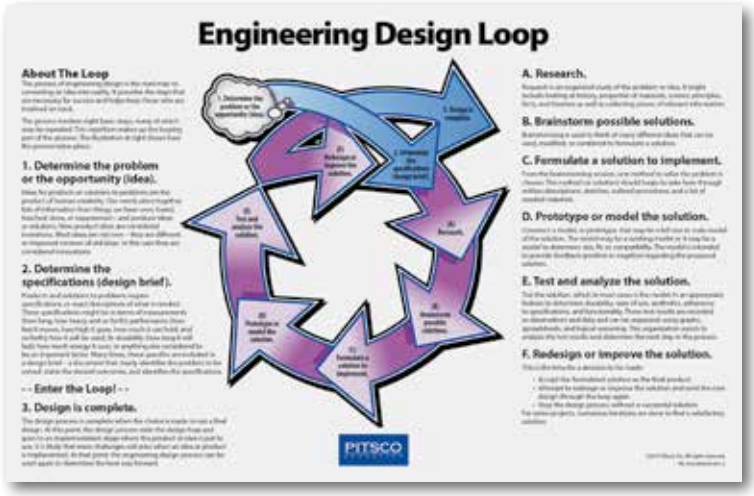
ENGINEERING DESIGN LOOP POSTER SET

A Pitsco Exclusive

Remind students of the engineering process with these two posters, one vertical and one horizontal. Reinforces guidelines from the Engineering Teacher's Guides. Gloss posters are 11" x 17".

QX60112—$9.95



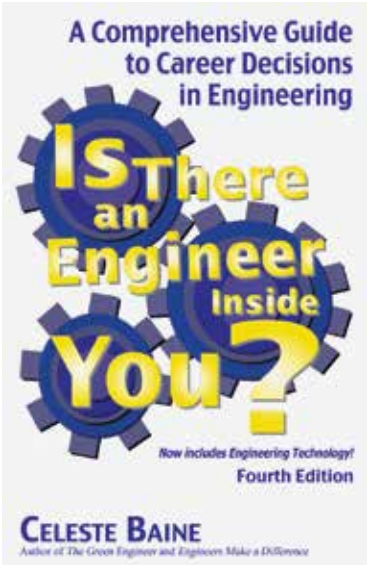


IS THERE AN ENGINEER INSIDE YOU?

A great source for career counselors, teachers, and students, this book explains various engineering opportunities and what makes a great engineer. It covers 27 branches of engineering, how to prepare for an engineering career, success stories, suggested reading, and contact information for almost 100 engineering societies. Paperback, 193 pages.

Ages 15+

QX59066—$26.95



All of Pitsco's Engineering Teacher's Guides have lesson plans with reproducible student materials, standards addressed, assessments, glossaries, and puzzles. Use these full-color guides individually as supplements or combined with other guides to develop an engineering curriculum.

AERONAUTICAL ENGINEERING TEACHER'S GUIDE



A Pitsco Exclusive

The lure of flight is a great hook to get many students interested in and involved with engineering. In this guide, hands-on activities set that hook through contextual learning opportunities where students experience the underpinnings of aeronautics through STEM concepts. Paperback/Spiral-bound, 94 pages.

Ages 12+

QX33091—$39.95

AEROSPACE ENGINEERING TEACHER'S GUIDE



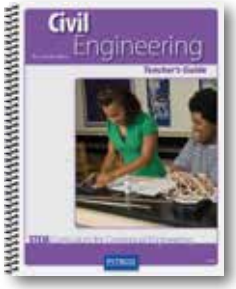
A Pitsco Exclusive

Rockets galore! This guide launches into aerospace with activities utilizing four different types of rockets. Learn about variables with straw rockets, fuel pressure with air-powered rockets, fuel volume and trajectory with water rockets, altitude and velocity with solid-fuel rockets, and more. Paperback/Spiral-bound, 67 pages.

Ages 12+

QX59796—$39.95

CIVIL ENGINEERING TEACHER'S GUIDE



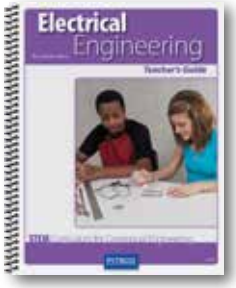
A Pitsco Exclusive

This Pitsco teacher's guide provides students with a first experience in the field of civil engineering. Early activities dig into the basic structural concepts used by civil engineers: beam and joint strength, compression, tension, and more. Later, students build their own model bridges and towers and test them for efficiency and load-bearing ability. Paperback/Spiral-bound, 70 pages.

Ages 12+

QX33090—$39.95

ELECTRICAL ENGINEERING TEACHER'S GUIDE



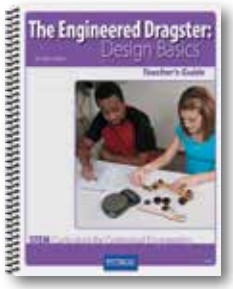
A Pitsco Exclusive

Electrical engineering is a diverse field with more than 750,000 people working in it. Spark students' interest in this practical career through the hands-on projects in this guide. Through several activities and challenges, students learn about switches, series and parallel circuits, Ohm's law, schematics, breadboarding, soldering, and more. Paperback/Spiral-bound, 72 pages.

Ages 12+

QX59903—$39.95

THE ENGINEERED DRAGSTER: DESIGN BASICS TEACHER'S GUIDE



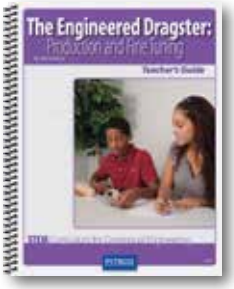
A Pitsco Exclusive

Don't let students wing it – have them design CO_2 dragsters using engineering concepts. This guide starts by teaching them about the engineering design process. As they work through the activities and design dragsters, students will learn about specifications, Newton's laws, identifying and minimizing friction, bearing surfaces, and much more! Paperback/Spiral-bound, 68 pages.

Ages 12+

QX59904—$39.95

THE ENGINEERED DRAGSTER: PRODUCTION AND FINE TUNING TEACHER'S GUIDE



A Pitsco Exclusive

This guide continues the process of guiding students in designing and building an excellent dragster while understanding the science and technology principles behind it.

Production and Fine Tuning delves into the importance of carefully aligned axles, quality paint finishes, and topics that go beyond shape and basic construction. Principles explored include alignment and drift, rolling and sliding friction, aerodynamic drag, specifications, and symmetry. Paperback/Spiral-bound, 75 pages.

Ages 12+

QX59991—$39.95

THE ENGINEERED DRAGSTER: SKETCHING, DRAFTING, AND PROTOTYPING TEACHER'S GUIDE



A Pitsco Exclusive

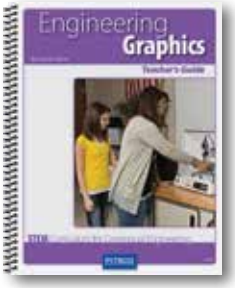
Students design their own CO_2 vehicle, produce a foam prototype, and create a finished Custom Cruiser model. The culminating activity is to deliver a presentation about the process of creating the Cruiser.

Through these activities and challenges, students learn about and apply several concepts: scaling, orthographic drawings, drafting and tools for drafting, modeling, and more. Paperback/Spiral-bound, 77 pages.

Ages 12+

QX59905—$39.95

ENGINEERING GRAPHICS TEACHER'S GUIDE



A Pitsco Exclusive

Form and function meet in this guide that encourages students to use their creativity and technical skills. Covers orthographic sketching, logo design, modeling, CAD and CAM, milling, and more.

Note: Several activities require the use of screen printing equipment or the Pitsco Z-Mill or a similar milling machine. Paperback/Spiral-bound, 64 pages.

Ages 12+

QX33093—$39.95

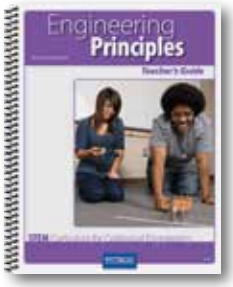
ENGINEERING PRINCIPLES TEACHER'S GUIDE

A Pitsco Exclusive

A great jumping-off point for engineering curriculum, this guide introduces students to the key tenets of engineering. Measurements, formulas, design, problem-solving methods, data analysis and graphing, and other necessary skills and information are covered through contextual activities. Paperback/Spiral-bound, 82 pages.

Ages 12+

QX33092—$39.95



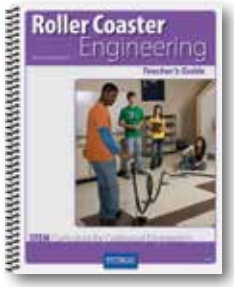
ROLLER COASTER ENGINEERING TEACHER'S GUIDE

A Pitsco Exclusive

Roller coaster thrills STEM from engineering smarts! This guide will lead students through hands-on activities to use gravity, g-force, potential and kinetic energies, and more concepts to create fun and fast model roller coasters. Paperback/Spiral-bound, 69 pages.

Ages 12+

QX59872—$39.95



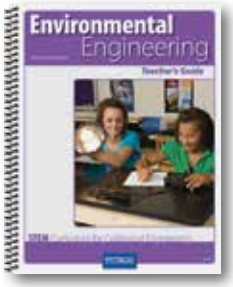
ENVIRONMENTAL ENGINEERING TEACHER'S GUIDE

A Pitsco Exclusive

Watch your students become experts on concepts behind the phrases *living off the grid*; *water quality*; and *reduce, reuse, recycle*. Explores environmental engineering, focusing on recycling, passive solar design, watersheds, public transportation, and other green subjects. Paperback/Spiral-bound, 64 pages.

Ages 12+

QX59776—$39.95



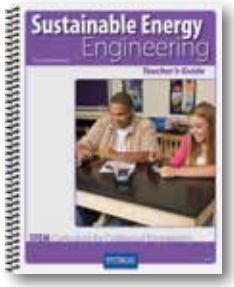
SUSTAINABLE ENERGY ENGINEERING TEACHER'S GUIDE

A Pitsco Exclusive

Sustainable Energy Engineering introduces students to energy consciousness, solar cooking, solar and fuel cell vehicles, and wind energy. It concludes with a Sustainable School Challenge in which students evaluate their own school and submit proposals to make it more green. Paperback/Spiral-bound, 72 pages.

Ages 12+

QX59775—$39.95



MARINE ENGINEERING TEACHER'S GUIDE

A Pitsco Exclusive

Boats have a wide range of use: from exciting jet ski boats to functional cargo ships.

By building and using a variety of boat models – rubber band powered, mousetrap powered, and a traditional boat hull – students can begin to understand the concepts behind marine transportation: buoyancy, displacement, hydrodynamics, hull design, and more! Paperback/Spiral-bound, 74 pages.

Ages 12+

QX59992—$39.95



TETRIX® MAX R/C ROBOTICS ENGINEERING TEACHER'S GUIDE

A Pitsco Exclusive

The *TETRIX® MAX R/C Robotics Engineering Teacher's Guide* applies students' creativity to the field of robotics to help them learn about robot engineering, simple machines, torque, power, and problem solving. Activities guide students in creating robots that draw, dance, herd golf balls, and more! Paperback/Spiral-bound, 84 pages.

Ages 14+

QX59793—$39.95



MECHANICAL ENGINEERING TEACHER'S GUIDE

A Pitsco Exclusive

One of the oldest forms of engineering, mechanical engineering encompasses everything from bicycles to animatronics. With this guide, students work with electric and solar cars, mousetrap vehicles, siege machine kits, cranes, and other hands-on projects. Along the way, they learn and apply an understanding of simple machines, mechanical advantage, acceleration, and more. Paperback/Spiral-bound, 69 pages.

Ages 12+

QX59797—$39.95



Look for **complete 9-week engineering courses** on pages 332-336.

SCIENCE AND TECHNOLOGY IN OUR WORLD



A Pitsco Exclusive

Jam-packed with science and technology activities, this volume from a retired engineer and educator features 37 real-world topics. Understand how wood can be made of plastic, how smart traffic lights work, why humidity makes us so uncomfortable, how heat travels, how potholes form, and much more. Also includes discussion and activity ideas. Paperback/Spiral-bound, 41 pages.

Ages 12+

QX60090—$5.95

SPRINGS AND STRING: LESSONS IN ENGINEERING



A Pitsco Exclusive

Sometimes, the simplest items have the biggest lessons. This guide looks at how springs and string are vital to engineering. See how springs compare to rubber bands, how to make a spring, where springs are in disguise, how to test and improve string strength, and more through 11 experiments. Plus, there are suggested classroom activities, further reading, and links of interest. Paperback/Spiral-bound, 18 pages.

Ages 12+

QX60066—$7.50

PAPER AND PLASTIC CUPS: LESSONS IN ENGINEERING



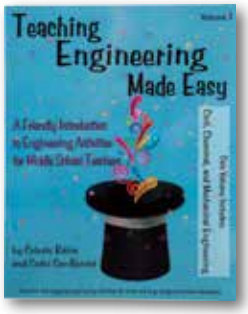
A Pitsco Exclusive

With the simplest of materials – paper and plastic cups – you and your class will explore bridge engineering, hydraulic systems, wind speed measurements, various audio devices, and more. Features 13 experiments, additional activity ideas, STEM connections, and more. Paperback/Spiral-bound, 26 pages.

Ages 12+

QX60063—$8.50

TEACHING ENGINEERING MADE EASY



Show young students engineering is more than bridges and dams – *Teaching Engineering Made Easy* will be the guide!

Starting with how to interest students in engineering, types of engineering work, and team-building activities, teachers then move to three sections: Chemical Engineering, Mechanical Engineering, and Civil Engineering. Each section presents a comprehensive description of the field followed by five to six activities. Activities detail standards alignment, materials required, procedure, teacher notes, and more. Paperback/Spiral-bound, 204 pages.

Ages 12-14

QX31447—$35

ENGINEERING INSIGHTS: WORKING WITH SIMPLE MATERIALS TO PROMOTE STEM THINKING



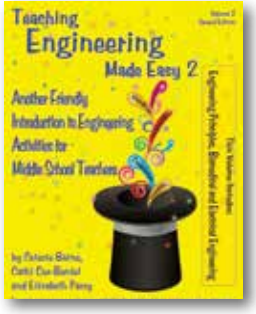
A Pitsco Exclusive

Use cardboard, paper, and screens to learn about the structural integrity of different forms such as columns, I-beams, chains, wind turbines, and geometric shapes. The book includes nine experiments, engineering information, and analysis. Paperback/Spiral-bound, 20 pages.

Ages 12+

QX60064—$7.50

TEACHING ENGINEERING MADE EASY 2

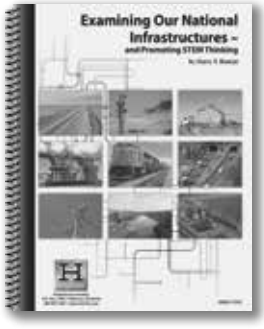


Pick up where the first volume left off – this guide helps you understand the importance of teaching engineering and then gives activities to pique student interest. It offers five each of team-building, biomedical engineering, electrical engineering, and green engineering activities. Paperback/Spiral-bound, 198 pages.

Ages 12-14

QX37299—$34.95

EXAMINING OUR NATIONAL INFRASTRUCTURES – AND PROMOTING STEM THINKING



A Pitsco Exclusive

First learning the challenges that face us concerning the national infrastructure, students go on to discover that it is more than highways and bridges. From meeting energy needs and building railroads to hydrogen fueling stations and the Internet, see how future needs and technology will affect the infrastructure that we rely on every day. Paperback/Spiral-bound, 24 pages.

Ages 12+

QX60062—$8.50

THINKING LIKE AN ENGINEER



Being a successful engineer takes more than understanding science and math concepts – it requires a mode of thought and inquiry for solving problems.

Thinking Like an Engineer helps students get in the right frame of mind with nine experiments exploring absorption, magnetic fields, recycling, sound transmission, energy, composites, air pressure, and more. Also includes key skills to develop, information about the engineering profession, how to tackle an engineering problem, and engineering challenges for students to solve. Paperback/Spiral-bound, 47 pages.

Ages 12+
QX59849—$8.50

ENGINEERING ACTIVITIES WITH PAPER AND CARDBOARD

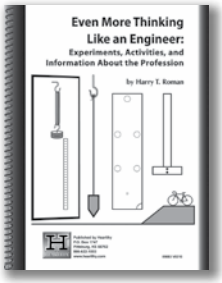


Engineering activities don't require expensive classroom equipment. All you need are a few common items such as paper, scissors, tape, and cardboard. Add a few milk or juice cartons, some coins, and Harry Roman's book, and you have all the ingredients needed to get your students thinking like engineers.

Engineering Activities with Paper and Cardboard includes 10 teacher-tested, multipart activities that demonstrate essential skills every engineer must possess: listening to and understanding specifications, planning, recognizing that variations in materials and design affect the integrity of a structure, testing a model, and graphing and drawing conclusions from test data. In addition, 23 classroom exercises challenge students to explore the properties and origins of building materials. Paperback/Spiral-bound, 35 pages.

Ages 12+
QX82173—$8.50

EVEN MORE THINKING LIKE AN ENGINEER



The third in a series, this activity guide features more activities to get students in the engineering mind-set. Explore friction with pendulums and bicycles, use poetry to improve communication skills, investigate "rock" radios, test the lubricating properties of various materials, and perform many other fun experiments. Paperback/Spiral-bound, 28 pages.

Ages 12+
QX59883—$8.50

AN ENGINEER LOOKS AT SOLAR WATER HEATING



The guide starts by analyzing standard gas or electric water heater systems before moving on to solar-based systems. It covers the math applied to create and use solar water heaters, factors affecting a solar water system's performance, six basic solar technologies, and how to integrate solar energy into other subjects. Four class activities provide hands-on applications of the concepts. Paperback/Spiral-bound, 27 pages.

Ages 12+
QX59901—$8.50

MORE THINKING LIKE AN ENGINEER



This activity guide continues in the vein of Harry Roman's *Thinking Like an Engineer* while looking closely at measurements. It covers temperature, sway, creative measuring tools, Btus, green energy, and much more. Plus it includes a 12-page student presentation that can be converted to slides. Paperback/Spiral-bound, 44 pages.

Ages 12+
QX59882—$8.50

MORE ENGINEERING ACTIVITIES WITH PAPER AND CARDBOARD

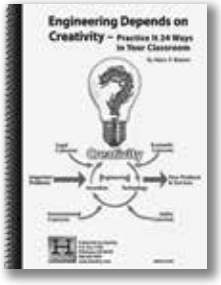


If your students enjoyed *Engineering Activities with Paper and Cardboard*, they will love this follow-up!

More Engineering Activities with Paper and Cardboard includes 13 student activities that use simple materials to mimic shapes, create a stroboscope, understand product testing, use paper for insulation, create an inclinometer, make a miniature greenhouse, and more. Paperback/Spiral-bound, 32 pages.

Ages 12+
QX59848—$8.50

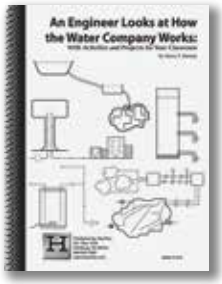
ENGINEERING DEPENDS ON CREATIVITY



Engineering is more than science and technology – it's also problem solving and creativity. Help students open up their creative side with this guide. It covers characteristics of creative people, inspirational quotes, how to encourage creative thinking, examples of creativity in engineering, four creative challenges to use in the classroom, and much more. Paperback/Spiral-bound, 41 pages.

Ages 12+
QX59902—$8.50

AN ENGINEER LOOKS AT HOW THE WATER COMPANY WORKS



We use water every day but rarely consider what it takes to get it into our homes. This guide takes a close look at the engineering involved in your local water utility, including types of water systems, pressure, designing a watershed, and planning and operating a water utility. Also covers water bills and home water heaters. Paperback/Spiral-bound, 35 pages.

Ages 12+
QX59906—$8.50



Nanotechnology

Get your class excited about science, technology, and engineering on a smaller scale – a nano-scale, to be exact. How small is a nanometer? Get out your ruler and find the one-inch mark. There are more than 25 million nanometers in one inch. Nanotechnology scopes it down to the atomic level to create products that are stronger, smaller, and more efficient.

MICRO MACHINES



Is there a machine small enough to crawl in our digestive system? Can bacteria inspire nanotechnology? Can anyone go into a store and buy something with nanoparticles? The answer to each of these questions is yes. Vividly illustrated in full color, this book explains how nanotechnology is made, various ways it is used, and what nanotechnology is coming in the future. Paperback, 32 pages.

Ages 9-14

QX36673—$8.95

NANOTECHNOLOGY VIDEO



"The itsy-bitsy computer climbed up the redwood tree." Could this be a nursery rhyme of the future? Find out as you visit the world of nanotechnology. This program demonstrates how the science of building ultrasmall electronic circuits and devices will help industry, medicine, and even researchers studying the endangered redwood trees. Time: 18 minutes.

Ages 12+

QX31355 DVD—$69.95



NANOTECHNOLOGY FLOATING MAGNET SET

A Pitsco Exclusive

People can't stop talking about nanotechnology, but how much do you really know about it?

The Nanotechnology Floating Magnet Set visually delivers basic concepts of nanotechnology and creates "aha!" moments for students and teachers alike.

This set uses floating foam pieces cut into different shapes and powerful neodymium magnets to demonstrate how different molecules self-assemble to create nanotech materials at the molecular level. And students learn about magnetism in the process.

The set features activities that explain and demonstrate attraction and repulsion in magnetism and the 2-D self-assembly process of nanotechnology. The activities also challenge students to use their new knowledge to create as many structures as possible.

Includes 12 each of triangle, square, and circle pieces; 18 neodymium magnets; 18 magnet inserts; 30 ceramic magnets; clear polystyrene container; compass; and activity guide.

Ages 12+

QX34109—$59⚠

WARNING: This product contains (a) small magnet(s). Swallowed magnets can stick together across intestines, causing serious infections and death. Seek immediate medical attention if magnet(s) are swallowed or inhaled.

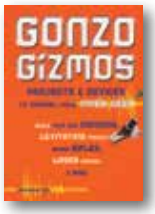
Engineering Resources

For detailed descriptions of these **useful resources,** visit www.pitsco.com/engineering.

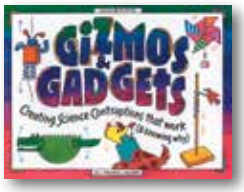
Books



AMAZING LEONARDO DA VINCI INVENTIONS YOU CAN BUILD YOURSELF
QX31384—$19.95



GONZO GIZMOS: PROJECTS & DEVICES TO CHANNEL YOUR INNER GEEK
QX59073—$16.95



GIZMOS & GADGETS
QX57704—$12.95



RETURN OF GONZO GIZMOS
QX31910—$16.95



RUBE GOLDBERG: INVENTIONS
QX57881—$25

Posters



POSTERS OF BLACK INNOVATORS
QX56237 (17" x 22")—$43.95



POSTERS OF INVENTIONS THAT CHANGED THE WORLD
QX56248 (17" x 22")—$44.95

Games



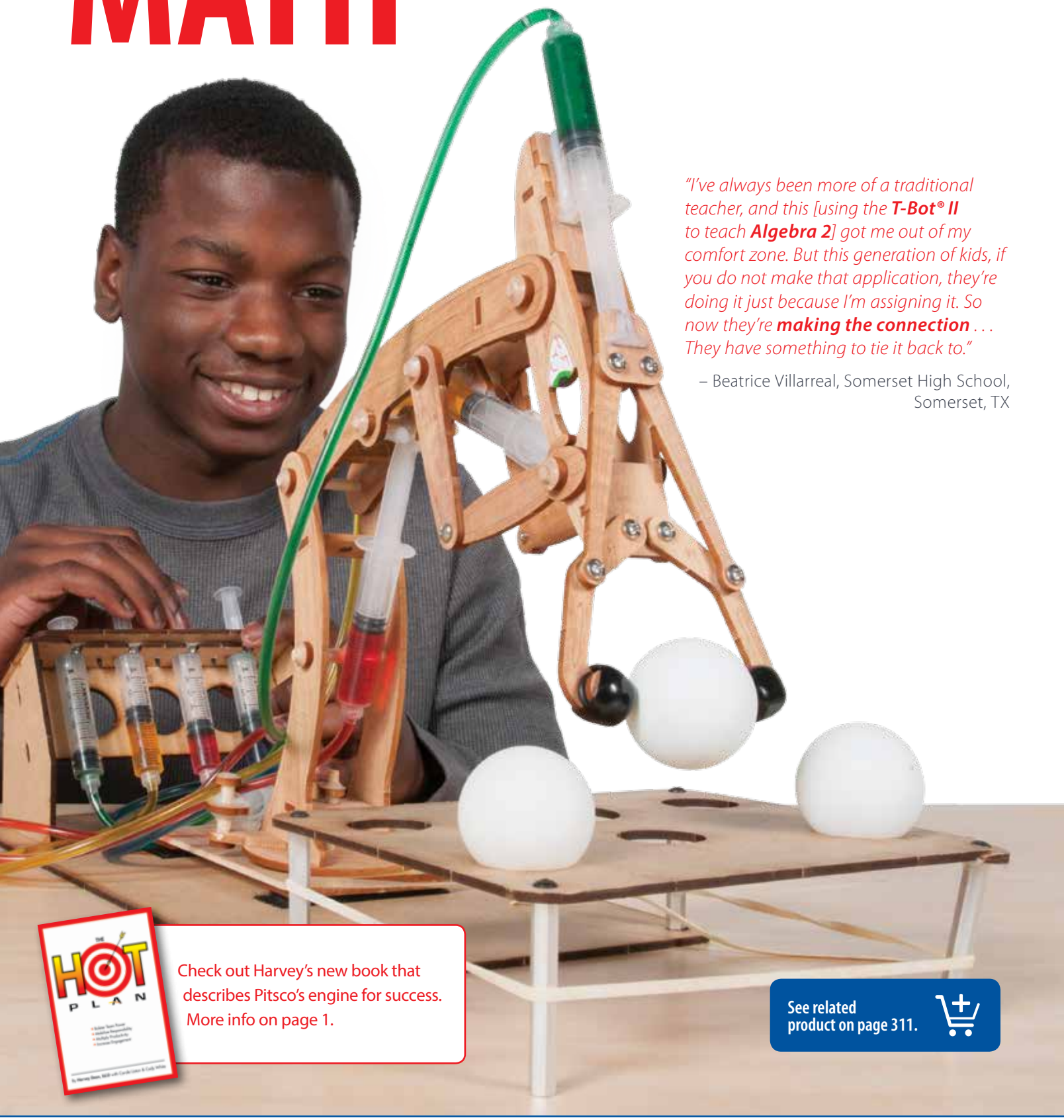
INVENTORS CARD GAME
QX58050—$6

Videos



JUNKYARD WARS: MECHANICAL MONSTERS CLASSROOM VIDEO SET
QX35664—$99.95

MATH



*"I've always been more of a traditional teacher, and this [using the **T-Bot® II** to teach **Algebra 2**] got me out of my comfort zone. But this generation of kids, if you do not make that application, they're doing it just because I'm assigning it. So now they're **making the connection** . . . They have something to tie it back to."*

– Beatrice Villarreal, Somerset High School, Somerset, TX

Check out Harvey's new book that describes Pitsco's engine for success. More info on page 1.

See related product on page 311.



PRODUCTS:

Adding contextual elements to math classes can be a challenge, but hands-on Pitsco math products can solidify math concepts for learners.

KaZoon Kites – page 310
Straw Structures Getting Started Package – page 302
Coordinate Geometry Board – page 308

ACTIVITIES:

Project-based activities combined with Pitsco math products result in relevant learning in a contextual application.

Packaging Design Teacher's Guide – page 306





CURRICULUM:

Pitsco math curriculum components can be implemented individually to supplement an existing math course or combined as full-course implementations to match standards and pacing guides.

MATH *Connections* – pages 304-305
Geosolids Kit – page 302

SOLUTIONS:

At Pitsco Education, we believe that the ultimate solution is one that engages students and excites them about learning. The integration of Pitsco products, activities, and curriculum into a classroom creates a hands-on learning solution that positively affects learners.

"The things they see in here [one of the Pitsco labs in Craven County, NC] are intriguing. They're cool. They want to learn more. To me, that is one of the big reasons for bringing this in here. Here in the STEM lab, they can take this algebraic concept they're learning and see it work. They don't have that opportunity for tactile learning in the regular classroom."

– Marlena Bleau, STEM Teacher, Havelock Middle School, Havelock, NC

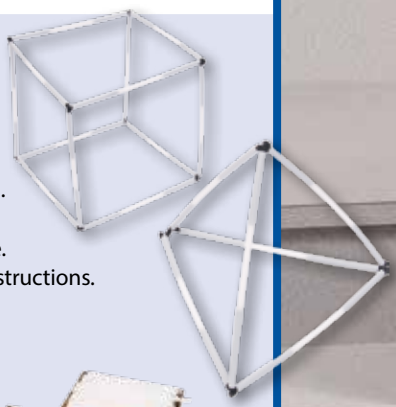


Straw **Structures**

GS

GEOSOLIDS KIT

A Pitsco Exclusive



Using simple materials, students build three-dimensional models of five geosolids, or regular polyhedra: tetrahedron, cube, octahedron, dodecahedron, and icosahedron. Activities have students note the number of vertices, edges, and faces of each structure. Includes 100 straws and pipe cleaners and instructions.

Ages 9+

QX35231—$9.95

GEOSOLIDS 30-PACK

A Pitsco Exclusive



Enough materials to use the Geosolids Kit activity in an entire classroom. Students learn to build five three-dimensional models of geosolids, or regular polyhedra: tetrahedron, cube, octahedron, dodecahedron, and icosahedron. Includes straws, pipe cleaners, and teacher and student instructions.

Ages 9+

QX36315—$129.50

Visit www.pitsco.com/strawstructures.



STRAW STRUCTURES – GETTING STARTED PACKAGE

A Pitsco Exclusive

Structures start taking shape with this Getting Started package. Students explore structures and geometric shapes with instruction from Dr. Zoon and the Polyhedra Poster. This package provides materials for 30 students.

The Straw Structures – GS Package includes the following products:

- QX33890 Plastic Straws (pkg of 500) (5 packages included)
- QX54853 Pipe Cleaners (pkg of 100) (9 packages included)
- QX58497 Polyhedra Poster
- QX59703 Dr. Zoon Straw Structures Video

QX35757 Straw Structures – Getting Started Package—$95

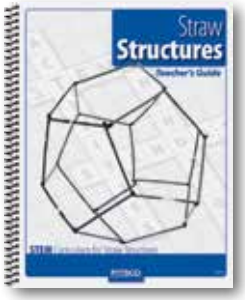
Ages 9+

Standard alignments available via the Standards Navigator at www.pitsco.com/StandardsNavigator.

Digital downloads available

STRAW STRUCTURES TEACHER'S GUIDE

A Pitsco Exclusive



Structures made with straws and pipe cleaners might look simple, but they offer a range of learning. Geometric figures and their strengths, ratios, structural designs, and static forces are some of the subjects this guide will help you and your students to really soak up!

The *Straw Structures Teacher's Guide* contains NSTA, NCTM, and ITEEA standards addressed; teacher and student instructions for a variety of math, science, and engineering activities; pretests and posttests; resource pages; and puzzles. Contains separate activities for middle school and high school students.

Equipment and materials needed to complete guide activities include the Pitsco Straw Structures – Getting Started Package, scissors, spring scale, hanging weights, tape measure, ruler, grid paper, stopwatch, straws with 1/8-inch inside diameter, several hundred pipe cleaners, and standard classroom tools and materials. **Note:** This list is for all activities; individual activities don't require all listed materials. Paperback/Spiral-bound, 95 pages.

Ages 12+

QX59728—$24.95

DR. ZOON STRAW STRUCTURES VIDEO

A Pitsco Exclusive



Join Dr. Zoon as he explains some basic principles of how structures work. To illustrate these principles, he uses straws and pipe cleaners to build a variety of structures including many geometric solids. Along with the demonstrations, he shows students how to build their own straw structures. Closed-captioned. Time: 24 minutes.

Ages 9+

QX59703 DVD—$24.95



DR. ZOON STRUCTURES VIDEO SERIES

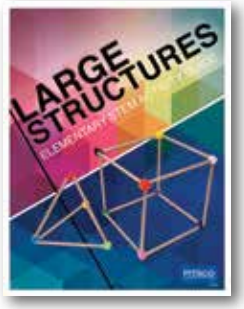
A Pitsco Exclusive

For beginners of straw, toothpick, or balsa wood structure activities, the *Dr. Zoon Straw Structures Video* and *Dr. Zoon Toothpick Bridges Video* build students' understanding of structures, design, and geometric shapes. For more advanced coverage of these concepts, as well as forces and construction techniques, we've included the *Dr. Zoon Bridge Building Video* and *Dr. Zoon Tower Building Video*. All programs cover construction, tips, and explanation of concepts. Closed-captioned. Time: 125 minutes.

Ages 9+

QX59711 DVD—$69.95

LARGE STRUCTURES ELEMENTARY STEM ACTIVITY GUIDE



A Pitsco Exclusive

Written for Grades K-2, this guide helps students grasp a variety of subjects including geometry, solid figures, plane shapes, attributes, and more.

The *Large Structures Elementary STEM Activity Guide* contains teacher and student instructions for math, science, and engineering activities; assessment questions; resource pages; and student pages. This guide contains two guided inquiry lessons and a culminating engineering challenge for students to apply concepts learned through the inquiry lessons.

Equipment and materials needed to complete guide activities include Large Structures Package, paper, and standard classroom tools and materials. Paperback, 22 pages.

Ages 5-8

QX41524—$4.95

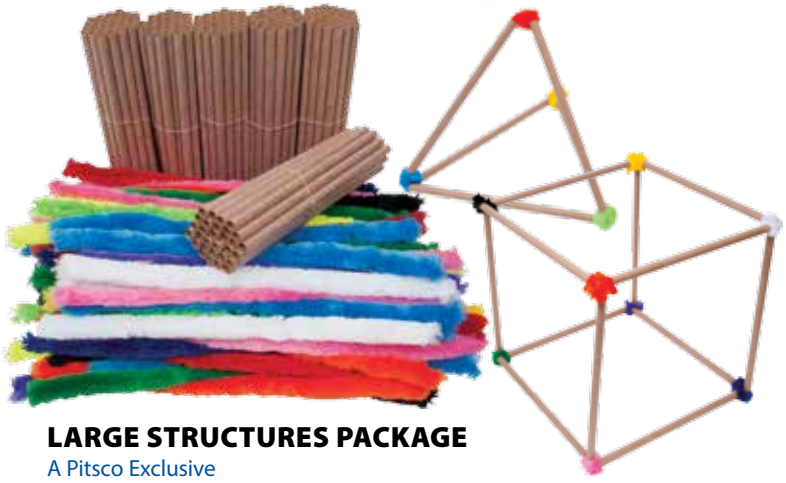


POLYHEDRA POSTER

A Pitsco Exclusive

Do your students need a little help in the area of geometric shapes? Strengthen their skills with this colorful polyhedra poster. Displays the vertices, edges, and faces of 18 different polyhedrons, including the five regular polyhedrons.

QX58497 (18" x 28")—$9.95



LARGE STRUCTURES PACKAGE

A Pitsco Exclusive

Younger students can learn about basic structures but might not be able to handle the materials of the Straw Structures Getting Started Package. The giant, fuzzy, and colorful pipe cleaners in this pack are not only fun to use but also easy to handle for small hands. A class of students can each learn to make two basic shapes and then combine materials to create bigger, more complex structures.

Comes with 120 large assorted-color pipe cleaners, 180 AP Rocket Tubes (12" long, .518 ID, .544 OD), and instructions for building a cube and tetrahedron.

Ages 5+

QX38598—$69.95

PLASTIC STRAWS

For use as axle bushings or for straw structures.

QX33890 White (1/8" diameter x 5-3/4" length) (pkg of 500)—$11.95
10 pkgs or more—$11.05 each
QX56856 White (1/4" diameter x 10" length) (pkg of 500)—$12
QX23733 Clear (1/4" diameter x 7-3/4" length) (pkg of 250)—$2.95
QX23734 White/red stripe (1/4" diameter x 7-3/4" length) (pkg of 250)—$2.50

ART STRAWS FOR STRUCTURES

Unwaxed straws are 16 inches in length. Use for bridge and tower building and architectural models. Straws make lightweight but strong and durable projects.

QX52843 (4 mm diameter x 16" long) (box of 1,800)—$49.95



PIPE CLEANERS

For structures, attach straws together easily with pipe cleaners. Colors may vary.

QX54853 (pkg of 100)—$3

Whole-Class MATH *Connections* Kits

Many of the Common Core State Standards for Math include references to real-world problems and contexts. Addressing these standards can be difficult without concrete ideas for activities – or without spending inordinate amounts of time developing real-world connections. Our methodology for these connections has always been the same – hands-on activities!

Features

- Small-group, team-based activities that reinforce understanding of math concepts
- Provides opportunities for students to apply math concepts through real-world activities and scenarios
- Can be used as a culminating activity for a concept or series of concepts covered
- Provides a strong foundation in core mathematics
- Reinforces student learning and real-world impact
- Written and aligned to core math concepts
- Supports direct teacher instruction and math textbooks
- Each MATH *Connection* contains student instruction, a teacher's guide, a *PowerPoint* presentation, individual assessments, and hands-on activities and materials for eight students.





CIRCLES

A Pitsco Exclusive

Through a real-world, hands-on activity, students apply concepts such as area, surface area, and volume as they complete two different containers for a sample product. Students must measure, calculate, and design their packages to best suit the contents. The included *PowerPoint* provides a review of the subject matter while card stock, compasses, rulers, graph boards, and other necessary resources are all included for completion of the project. Serves eight students.

QX37924—$215

QUADRATICS

A Pitsco Exclusive

A real-world application provides hands-on experiences connecting quadratic equations to projectile motion. Students are given a review of quadratics via a *PowerPoint* and then collect data on the flight of a straw rocket. Using quadratic equations, students compare theoretical range (distance the rocket traveled) with actual range. Students also calculate the apogee of the rocket from their data. Students solve equations on a graph board, factor expressions, and use the discriminant. The package includes rocket launchers, math symbols, and all other necessary resources for the activities. Serves eight students.

QX37921—$725

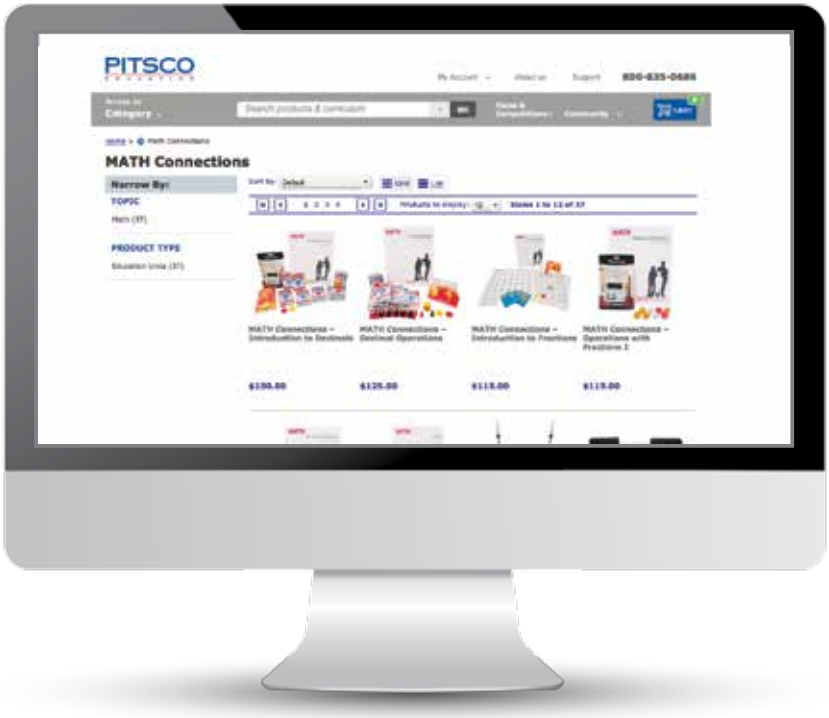


EQUATIONS

A Pitsco Exclusive

Utilizing a fascinating tool, students solve both simple and complex equations. Following an introduction via a *PowerPoint* presentation, students work with a hydraulic trainer specifically designed to solve equations. Never heard of such? Probably not – it's a new innovation made available by Pitsco Education. Students solve a simple or complex equation using the hydraulic trainer, and then check their answer by manipulating the hydraulic trainer's syringes and reading the answer (as indicated by the fluid level). The package contains all materials required to assemble four hydraulic trainers as well as other necessary resources. Serves eight students.

QX37753—$375



To find out more about MATH *Connections*, visit our website at **www.pitsco.com/MathConnections**.

Number System Domain		
Introduction to Decimals	QX37931	$150
Decimal Operations	QX37932	$125
Introduction to Fractions	QX37934	$115
Operations with Fractions I	QX37935	$115
Operations with Fractions II	QX37936	$125
Integers	QX37930	$135
Accuracy	QX37927	$575
Real Number System	QX37919	$315
Properties of Real Numbers	QX37937	$315
Sets	QX38284	$75
Ratios and Proportional Relationships Domain		
Ratios and Percents	QX37752	$485
Units	QX37926	$895
Expressions and Equations Domain		
Equations	QX37753	$375
Exponents	QX37750	$395
Radicals	QX37755	$350
Special Equations	QX37757	$315
Systems of Equations	QX37917	$325
Linear Equations and Graphing	QX37933	$550
Inequalities	QX37754	$365
Polynomials	QX37760	$175
Exponential Equations	QX37761	$215
Absolute Value	QX37938	$395
Logic and Sequences	QX37918	$475
Geometry Domain		
Transformations	QX37762	$395
Angles	QX37928	$125
Angle Relationships	QX38283	$295
Triangles	QX37923	$285
Polygons	QX37920	$195
Circles	QX37924	$215
Prisms and Pyramids	QX37925	$125
Probability and Statistics Domain		
Probability	QX37922	$115
Data Graphs I	QX37758	$465
Data Graphs II	QX37763	$125
Algebra I – Polynomials Domain		
Quadratics	QX37921	$725
Factoring	QX37756	$165
Functions Domain		
Functions	QX37759	$125
Algebra I – Statistics Domain		
Matrices	QX37751	$425

Packaging Design



SUPER BOXMAKER

Designing and constructing boxes is quick and easy with the Boxmaker fixtures!

For making telescoping boxes; students choose the dimensions of the box (length, width, and depth) and use the scoring tool with the corresponding channels in the Boxmaker fixture to accurately score the box for folding. Glue or tape can be used to secure the box after it is folded. Then, students use the opposite side of the fixture to produce the lid for the box.

This fixture can also be used for manual scoring of more intricate box folds and patterns by drawing the position of the folds on the card stock and using the scoring tool above a channel in the fixture to provide a straight score every time.

The Super Boxmaker is 8" x 10". A polycarbonate scoring tool and instructions are included with each kit.

Ages 9+

QX58479—$23



SCORING TOOL

If you've misplaced yours from a Boxmaker kit, get as many of these heavy-duty plastic Scoring Tools as you need.

Ages 9+

QX34692—$2.50

DR. ZOON PACKAGING DESIGN VIDEO



A Pitsco Exclusive

In this video, Dr. Zoon guides students through the design and construction processes commonly associated with packaging. Students will learn about basic packaging concepts and box prototyping. Students will see two-dimensional ideas take shape as three-dimensional packages. Closed-captioned. Time: 24 minutes.

Ages 9+

QX59783 DVD—$24.95

Visit www.pitsco.com/packagingdesign.



PACKAGING DESIGN – GETTING STARTED PACKAGE

A Pitsco Exclusive

Everything you need to get started in packaging design!

Nearly everything we buy has an element of package design. Help students become familiar with packaging principles and techniques.

The Packaging Design – GS Package includes the following products:

- QX58582 An Introduction to Package Design
- QX58479 Super Boxmaker (10 Boxmakers included)
- QX58960 Card Stock (11" x 17" x 0.018", 50 sheets)
- QX31721 Card Stock (11" x 17" x 0.024", 50 sheets)
- QX34502 HD Bond II (5 two-ounce bottles included)
- QX59783 Dr. Zoon Packaging Design Video

QX27995 Packaging Design – Getting Started Package—$315

Ages 9+

PACKAGING DESIGN TEACHER'S GUIDE



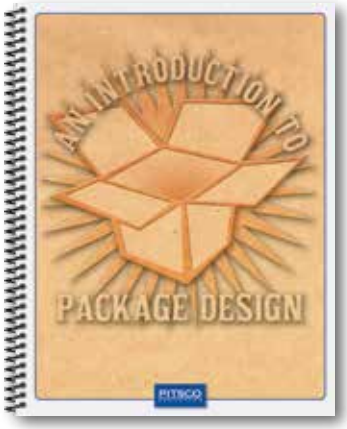
A Pitsco Exclusive

We are all affected by packaging – from the mail-order item that arrived broken to the flashy packaging in stores. With this guide, students learn about creating tessellations, evaluating material strength and performance, converting two-dimensional drawings to three dimensions, designing according to specifications, reducing waste in packaging, and more. Paperback/Spiral-bound, 100 pages.

Ages 12+

QX32943—$24.95

AN INTRODUCTION TO PACKAGE DESIGN



A Pitsco Exclusive

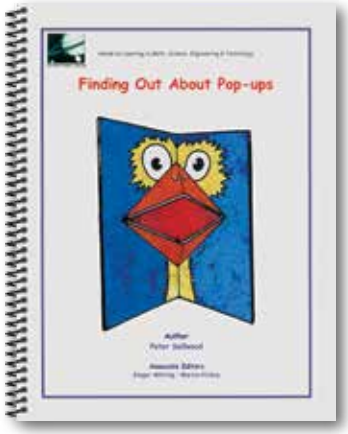
This well-illustrated book is a primer on packaging design. It includes an introduction to packaging and an overview of the components of packaging design and prototyping. It also includes information and patterns for common shipping, telescoping, decorative, retail, and geometric boxes. Includes a glossary on packaging terminology.

Box-making activities and ideas abound, and there are two box-making competitions (challenges). Includes patterns for more than 15 different box configurations. Paperback/Spiral-bound, 32 pages.

Ages 12+

QX58582—$4.95

FINDING OUT ABOUT POP-UPS



Pop-ups – often seen in cards and paper toys – provide an artistic and inspiring way for students to learn to apply accuracy, measuring, and geometry skills. Learn to use folds, push and pull mechanisms, paper springs, inserts, and more to create fun paper pop-ups in your classroom. Paperback/Spiral-bound, 64 pages.

Ages 9+

QX60105—$19.95



CURVULATOR BOXMAKER

Sometimes square corners just do not fit the design criteria for box projects. If a curved edge for a box is needed, use the Curvulator!

Using the instructions, Curvulator fixture, and a polycarbonate scoring tool (all included), students can design and fabricate infinite box shapes and configurations. They simply choose an arc on the Curvulator that best fits their box design, and they use the scoring tool to score the card stock so it bends easily into the curved shape.

QX58679—$14

BASIC PACKAGING



Introduce students to packaging design with tested, working designs. This volume includes 300 such designs – and each includes a photo of the finished package as well as a 3-D structural drawing to show the construction. Also included with the book is a CD with all the designs. Paperback, 400 pages.

Ages 12+

QX36500—$34.95

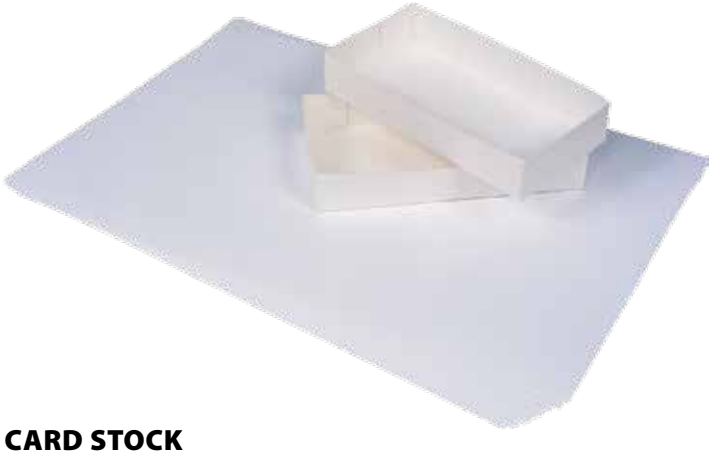


CARD GRID

This handy grid printed on card stock is ideal for creating pop-up mechanisms. Plus, it is an easy way to make fast boxes using a scoring tool, sold separately! Features a 1 cm grid printed on 11" x 17" paper.

Ages 9+

QX60158—$11.95



CARD STOCK

Make the sturdiest of boxes with this white card stock, thicker than paper but lighter than cardboard. Smooth clay coating on one side. Folds well. Available in 0.018" and 0.024" thickness.

QX58960 (11" x 17" x 0.018") (pkg of 50 sheets)—$42
QX31721 (11" x 17" x 0.024") (pkg of 50 sheets)—$49



MATHQUAKE FRACTIONS GAME

A Pitsco Exclusive

Shake up your math class with this feisty fraction game. Build a tower of math problem logs. Then, take turns pulling one out – without toppling the tower – and trying to solve the problem. Turn the log over to find the answer; answering correctly earns points. Keep going until the tower comes tumbling down.

MathQuake helps:

- Develop the ability to solve simple and complex fractions.
- Motivate students to learn fractions.
- Offer students a hands-on math exercise.

The game comes in a handy storage tin.

Ages 9+

QX30089—$36

FOLDING GEOMETRIC SHAPES SET



Help students grasp the difference – literally – between a 2-D and 3-D form and other concepts of geometry with these hands-on shapes. This set shows the shapes in solid form as well as flat. From a basic cube to a hexagonal prism, these eight shapes will help students grasp area, surface area, symmetry, perimeter, and volume. Also includes an activity guide.

Ages 9+

QX31919—$39.95



TRIANGLES GAME

A Pitsco Exclusive

The math teacher who developed this game couldn't keep the decks in her classroom! With right, obtuse, acute, scalene, isosceles, and equilateral/equiangular triangles as the card suits, students must recognize and use the triangles' side measures, angle measures, tick marks, angle marks, and names to play the game. Played much like UNO, the goal is to get rid of your cards first. Includes instructions. Colors may vary.

Ages 9+

QX59799—$12.95

QX59804 Triangles Game Class Pack—$65

COORDINATE GEOMETRY BOARD

A Pitsco Exclusive



Hands-on *x*, *y* coordinate experiences!

Divided into the traditional four quadrants, the Pitsco Coordinate Geometry Board invites students to plot *x*, *y* coordinates; find the slope of a line between two points; graph line; learn various quadrant characteristics; approximate areas of geometric figures; and much, much more!

This attractive, sturdy, 11" x 11" board is designed with 121 peg holes that snugly hold grooved wooden pegs. Simply insert pegs in various holes (*x*, *y* coordinates) and use the colored rubber bands to show various line segments. Holes are also available on both the *x*- and *y*-axes.

Contains the board, 25 pegs, and a bag of colored rubber bands.

Ages 12+

QX25700—$35

10 pkgs or more—$32 each



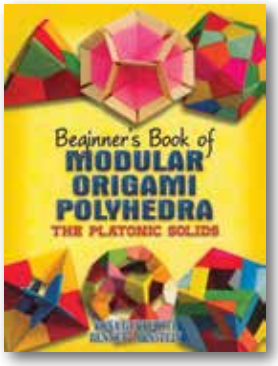
WIKKI STIX

Think these flexible, self-stick sticks are only for arts and crafts? Think again!

Wikki Stix are also great for math – try them for approximating curves when plotting functions on the Coordinate Geometry Board. They feature a patented wax formula, so your class can use them again and again. Wikki Stix come in a pack of 48 in primary colors (black, white, red, gold, blue, and green) and are nontoxic.

QX27669—$10.95

BEGINNER'S BOOK OF MODULAR ORIGAMI POLYHEDRA: THE PLATONIC SOLIDS



From symbols of the ancient elements to molecules built with nanotechnology, the five Platonic solids have long influenced math, science, and art. This book shows how to build folded paper models of these convex polyhedra while understanding the shape, faces, edges, and vertices of each. Includes 17 projects. Paperback, 60 pages.

Ages 12+

QX34447—$7.95

ZOME CHALLENGE CARDS



Pull a card and let the fun begin. These cards challenge students to use Zome components to build intriguing models. Includes 20 standards-based challenges for students ages 6 to 16, ranging from basic to out of the ordinary.

QX35656—$9.95

Perilous **Plunge**



THE PERILOUS PLUNGE STARTER PACK

A Pitsco Exclusive

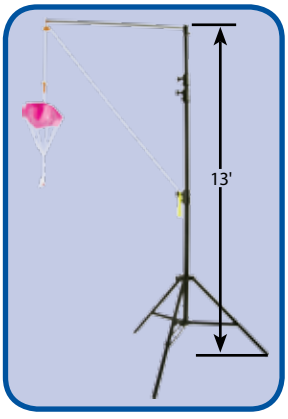
What could be more fun for exploring proportions and lines of best fit than a bungee-drop experiment? But with this kit, you and your students stay safely on the ground!

With all the materials needed to create a rubber band bungee cord, you attach a doll or weight to the end and experiment and predict the outcome with different rubber bands, lengths, weights, and more! Includes one box of narrow rubber bands, one box of medium rubber bands, two boxes of wide rubber bands, a box of binder clips, six Rip Cord Parachute Drop kits, and a user guide with activity ideas.

Requires action figures, dolls, or other objects of various weights, not included.

Ages 12+

QX33463—$199
QX52803 Construction Clips (pkg of 12)—$2.50
QX33567 #16 Rubber Bands (2-1/2" x 1/16")—$5.95
QX33568 #31 Rubber Bands (2-1/2" x 1/8")—$5.95
QX33569 #62 Rubber Bands (2-1/2" x 1/4")—$5.95



Students shown using Rip Cord Stand, sold separately. See page 142.







PERILOUS PLUNGE – GETTING STARTED PACKAGE

A Pitsco Exclusive

Tune in your students to the ideas of elasticity, proportion, line of best fit, and more with this exciting activity. Students build a bungee cord out of rubber bands that you attach to the Rip Cord Parachute Drop and Stand. Add a doll or weight to the cord and have the students experiment to keep the load safe from a disastrous crash.

Includes the needed rubber bands, Rip Cord Parachute Drop kits, and Rip Cord Parachute Drop and Stand.

- QX32894 Rip Cord Stand
- QX32863 Rip Cord Parachute Drop
- QX33463 The Perilous Plunge Starter Pack
- QX52803 Construction Clips

QX40564 Perilous Plunge – Getting Started Package—$385

Ages 12+

Requires action figures, dolls, or other objects of various weights, not included.

All items on this spread marked "Pitsco Exclusive" are proudly manufactured by us in Pittsburg, KS, USA. Visit us!

Visit **www.pitsco.com/perilousplunge**.

Please read and follow all teacher tips and safety information provided with this product.

KaZoon **Kites**

GS

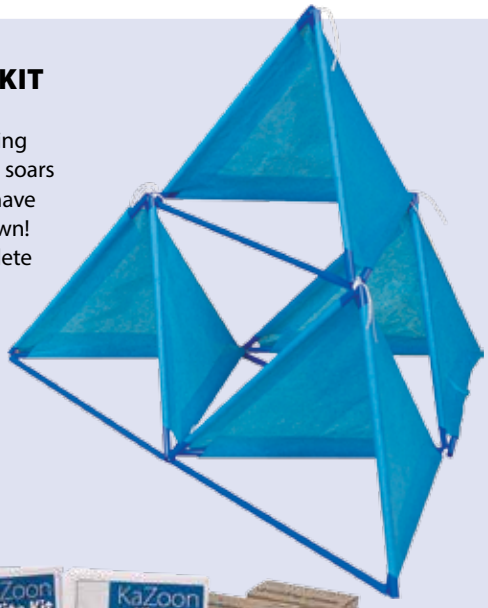
KAZOON KITE KIT

A Pitsco Exclusive

Assemble a flying tetrahedron kite that soars so easily you might have trouble getting it down! This kit comes complete with step-by-step instructions and the needed materials.

Ages 9+

QX56772—$6.95





KAZOON KITE 30-PACK

A Pitsco Exclusive

Go fly a tetrahedron kite – or 30. With this pack, complete with enough materials for 30 kites, discovering the principles of flight has never been easier.

Ages 9+

QX23626—$99

Visit **www.pitsco.com/kites**.



KAZOON KITES – GETTING STARTED PACKAGE

A Pitsco Exclusive

"Project on a string" usually indicates an inexpensive activity, and this is no exception. This package includes materials for 30 tetrahedron kites and the *Dr. Zoon KaZoon Kite Video*.

The KaZoon Kites – GS Package includes the following products:

- QX23626 KaZoon Kite 30-Pack
- QX59747 Dr. Zoon KaZoon Kite Video

QX23613 KaZoon Kites – Getting Started Package—$105

Ages 9+

DR. ZOON KAZOON KITE VIDEO

A Pitsco Exclusive

Watch as Dr. Zoon builds a tetrahedron kite using items contained in the KaZoon Kite Kit, sold separately. By following step-by-step instructions, students learn how to construct kites for maximum success aloft and are exposed to math and science principles in the process. Closed-captioned. Time: 38 minutes.

Ages 9+

QX59747 DVD—$24.95



KAZOON KITES TEACHER'S GUIDE

A Pitsco Exclusive

You don't have to play with lightning to learn from kites! This guide shows how to construct a tetrahedron kite and use it to demonstrate many important principles: lift, area and volume, density, forming and testing a hypothesis, tetrahedral and polyhedral design, and more. Paperback/Spiral-bound, 96 pages.

Ages 12+

QX59461—$24.95



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Balsa **Gliders**

Teaching Geometry with Balsa Gliders

In May 2015, after all geometry standards were covered, students conquered The Glider Project. Every student would design a glider, construct a cardboard model, construct a balsa prototype, and conduct flight trials with both models.

Specifically, during the design process, students cited symmetry, similarity, lines, parallel and perpendicular planes (and lines), angles, congruence, and various shapes such as triangles, trapezoids, rectangles, and combinations of shapes.

When we talked about flight, we added pitch, yaw, and roll . . . we were able to discuss reflections, surface area, area, ratios and proportions, and the importance of geometry in flight. This project allowed students to apply the high school geometry curriculum to real-world situations, and they absolutely rose to the occasion.

***Priscilla Narvaez Griggs**, Geometry Teacher*
Edison Preparatory High School, Tulsa, Oklahoma



Visit **www.pitsco.com/gliders**.

BALSA GLIDERS – GETTING STARTED PACKAGE

A Pitsco Exclusive

This Getting Started package has enough materials for a classroom of 30 students, including our *Metric Glider* book; the *Dr. Zoon Balsa Glider Video*; and a FlightPak complete with materials for designing, prototyping, building, and testing gliders.

The Balsa Gliders – GS Package includes the following products:

- QX35633 FlightPak Power Pack
- QX59749 Dr. Zoon Balsa Glider Video

QX35622 Balsa Gliders – Getting Started Package—$125

Ages 12+

T-Bot® II

Teaching Algebra II with the T-Bot® II

Polynomials. Volume formulas. Factoring. Surface area. . . . Bring back memories from your high school Algebra II class? For students in Beatrice Villarreal's classroom at Somerset (TX) High School, those stress-inducing terms have become positive memories.

Villarreal's students learned how the Algebra II concepts apply to a real-world object: the T-Bot® II Hydraulic Arm.

"Because we're getting ready to do higher-level polynomials, which is factoring and cubes, and since T-Bot shows volume and pressure, I thought it would be a good tie-in," Villarreal said. "And then there's the Cartesian coordinate system."

Students explained that the hands-on activity helped them better understand surface area difference in the context of simple hydraulics.



Visit **www.pitsco.com/TbotII**.

T-BOT® II – GETTING STARTED PACKAGE

A Pitsco Exclusive

Explore lessons in teamwork, robotics, hydraulics, and simple machines with this convenient package. It brings together everything needed for a classroom of 20 to 40 students working in teams of two or four to build the robotic arm and demonstrate teamwork to operate the hydraulic arm's controls.

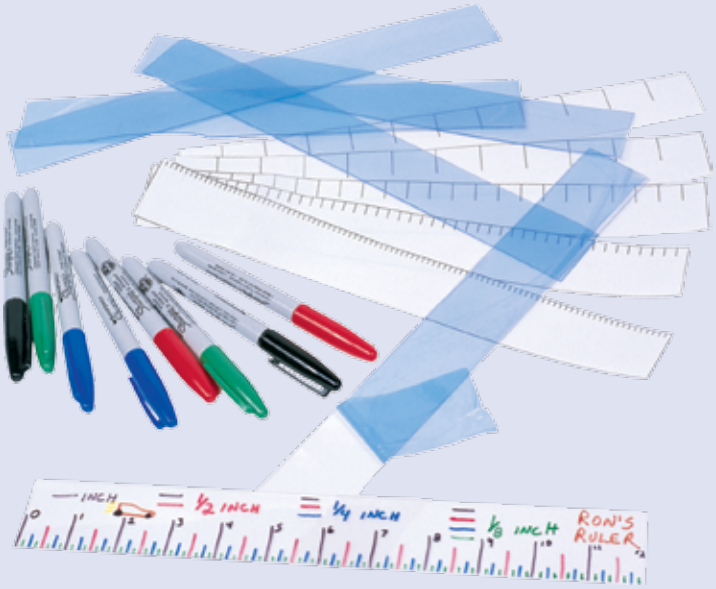
The T-Bot® II – GS Package includes the following products:

- QX34245 T-Bot® II Hydraulic Arm 10-Pack
- QX34502 HD Bond II (5 two-ounce bottles included)
- QX34122 T-Bot® II Video

QX34111 T-Bot® II – Getting Started Package—$370

Ages 12+

Making Your Own **Ruler**



MAKING YOUR OWN RULER PACK

A Pitsco Exclusive

Students learn about measuring and fractions as they make their own rulers! The pack provides everything necessary for this fun activity – permanent markers, plastic material, templates, and student worksheets – for a class of 30.

Ages 9+

QX15788—$54

MAKING YOUR OWN RULER REFILLS

QX27204 (pkg of 10)—$5.95
QX31833 (pkg of 30)—$19.95
QX54307 Sharpie Fine Point Marker (black)—$1.15
QX54308 Sharpie Fine Point Marker (red)—$1.15
QX54309 Sharpie Fine Point Marker (blue)—$1.15
QX54310 Sharpie Fine Point Marker (green)—$1.25
QX54316 Ruler Template—$3



ALUMINUM METERSTICK

Extruded aluminum with clear anodized finish. Screened, thermal-bonded black gradations in eighths of an inch and millimeters. Width 1-1/8".

QX59451—$7.50



MAKING YOUR OWN RULER – GETTING STARTED PACKAGE

A Pitsco Exclusive

Clear up any fraction befuddlement your students have with this fun activity. Get enough materials for a class of 30 to make their own rulers.

The Making Your Own Ruler – GS Package includes the following products:

- QX15788 Making Your Own Ruler Pack
- QX59702 Dr. Zoon Making Your Own Ruler Video

QX33446 Making Your Own Ruler – Getting Started Package—$65

Ages 9+

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DR. ZOON MAKING YOUR OWN RULER VIDEO



A Pitsco Exclusive

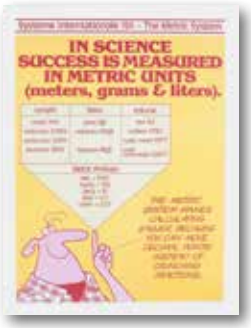
Follow along with the math maestro Dr. Zoon as he uses the Pitsco Making Your Own Ruler Pack to teach measurement and fractions. Students follow along, making their own rulers as they learn about fractions – a key to continued growth in mathematics. Closed-captioned. Time: 15 minutes.

Ages 9+

QX59702 DVD—$24.95



MEASUREMENTS & MEASURING POSTERS I
QX31375 (32" x 17")—$43



THE METRIC SYSTEM POSTER
QX59566 (19" x 25")—$4.25

PROPERTIES OF MEASUREMENT VIDEO



Help students gain the measurement know-how to succeed no matter what they do! Learn about the concept of rate with Lance Armstrong, how a triangle helps determine the Leaning Tower of Pisa's height, and the need for estimation during the Big Dig project in Boston, Massachusetts – each topic features three of such real-life examples.

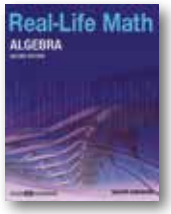
Properties of Measurement is split into seven topics: Rate, Perimeter, and Area of Shapes; Area and Volume; Problem Solving with Units and Conversion; Precision and Significant Digits; Accuracy and Tool Choice; Estimation to Solve Problems; and Indirect Measurements. Integrating easily into your math lessons, the program includes quizzes, teacher resources, and standards addressed. Time: 71 minutes.

Ages 12-14
QX31363 DVD—$49.95



MEASUREMENTS & MEASURING POSTERS II
QX31376 (17" x 32")—$39.95

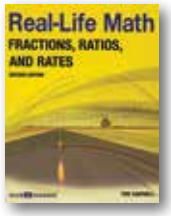
REAL-LIFE MATH: ALGEBRA



Using real-life situations such as calculating car payments and planning a business, this volume covers the basic concepts of algebra, linear equations, lines and distance, slopes and lines, parabolas, quadratic equations, and more. Paperback, 92 pages.

Ages 12+
QX37380—$21

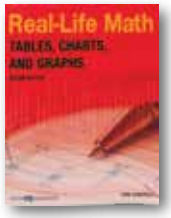
REAL-LIFE MATH: FRACTIONS, RATIOS, AND RATES



Whether you install carpeting, calculate batting averages, work in construction, or create low-calorie recipes, the concepts of fractions, ratios, and rates are key to figuring out the world. With engaging activities, this book explores fractions, equivalent fractions, finding patterns, ratio, solving proportions, rates, and unit pricing. Paperback, 94 pages.

Ages 12+
QX37381—$21

REAL-LIFE MATH: TABLES, CHARTS, AND GRAPHS



Nutrition labels, family trees, box scores – these are all graphical representations of numbers and data. Using everyday elements, this text helps students to create, read, and interpret a variety of tables, charts, and graphs. Paperback, 78 pages.

Ages 12+
QX37382—$21



PRECISION MEASUREMENT SET
Whether for the science and technology lab or for the math class, this four-piece set easily tackles the job of fine measurement. Set includes a micrometer, 0-25 x 0.01 mm; a vernier caliper, 150 x 0.05 mm; a knife-edge square; and a steel, 150-millimeter ruler. Includes a durable storage case.
QX31448—$89

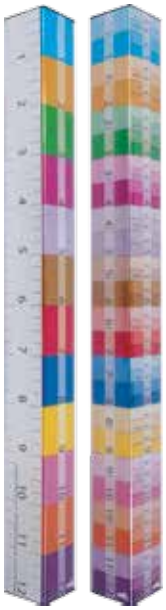
ADVANCED RULER



After students learn the basics of English measurement (whole, half, and quarter inches), this ruler is ideal for moving to smaller increments that can be confusing to students – and adults! The four-sided ruler shows a standard ruler, quarter inches, eighth-inch measurements, and finally the decimal equivalent of eighth-inch measurements. Also, the ruler has a snap-on end, so multiple rulers can be snapped together to measure longer objects.

Ages 5+
QX36551—$8

PRIMARY RULER



A clever way to introduce students to English measurement is with this colorful four-sided ruler. One side features a standard ruler, the second shows inches, the third shows half inches, and the fourth shows quarter inches. By just turning one side at a time, students can learn the various increments of the system. Also, the ruler has a snap-on end, so multiple rulers can be snapped together to measure longer objects.

Ages 5+
QX36550—$8



BINOSTAT PROBABILITY DEMONSTRATOR

A Pitsco Exclusive

The laws of probability can't be made much clearer than this! Students watch as small balls create a distribution curve in the tray as they randomly drop through a grid. The Binostat base and top grid are made of high-density polyethylene and connect easily. Comes with balls, grid pins, and a user guide. Size: 8" x 8" x 7".

Ages 12+

QX31359—$79



PRIMEPAK FACTOR THINKING GAME

For all the math brains out there, here comes a card game that will put all those hours spent studying algebra to use! The PrimePak card game is played by forming factor sets from a group of cards. Players can challenge one another when a mistake is made or a factor set is overlooked. Can be played in groups of one to six.

Ages 9+

QX58341—$15



10-PIECE MATHEMATICAL INSTRUMENT SET

Compact and stored in a metal case for portability, this durable instrument set will be a favorite of math students everywhere. It includes: 15 cm ruler, 180° protractor, 40° and 60° squares, sharpener, eraser, pencil, dividers, lettering guide, and compass. The compass and dividers feature short needle safety points.

QX37462—$4.50

FRACTION MATCHIN' GAME

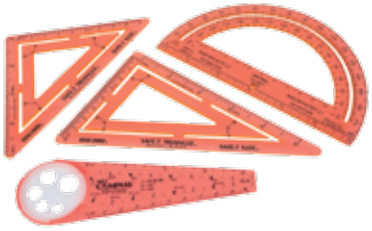


Master fractions with this fun game that's ideal for learning equivalent fractions, reducing and adding fractions, and multiples. Using tiles they draw, students are challenged to make the fraction (or its equivalent) they draw from the deck before time runs out. The player to use all his or her tiles first wins the game. For two to six players.

Ages 9-14

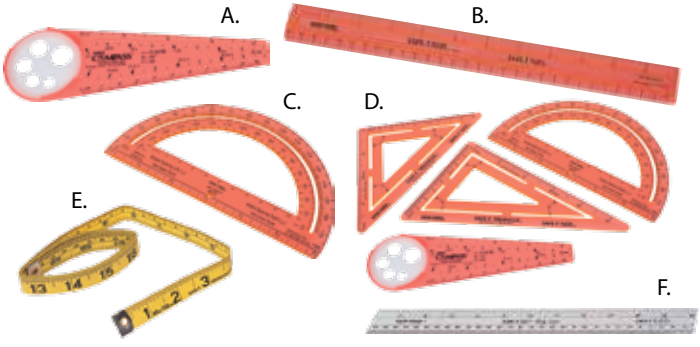
QX37379—$24.95

4-PIECE GEOMETRY SET



Ideal for classroom use! These pliable, translucent instruments are ultrasafe. They have no sharp points and are shatter resistant. They feature both English and metric units, so they're ideal for use in math, art, science, vocational, and early learning.

QX56085—$4.95



SAFE-T DRAWING AND MEASURING INSTRUMENTS

Ideal for classroom use! These pliable, translucent instruments are ultrasafe; they have no sharp points and are shatter resistant.

They feature both English and metric units, so they're ideal for use in math, art, science, vocational, and early learning.

A. QX56090 Compass—$1.25
B. QX56093 Safe-T Ruler 12"—$.75
C. QX56089 Protractor 6"/180°—$.75
D. QX56085 4-Piece Geometry Set—$4.95
E. QX56087 Tape Measure—$1
F. QX56092 Safe-T Ruler—$.80



TIC TAC CHEC GAME

This fun, quick game combines aspects of both chess and tic-tac-toe. The object of the game is to get your four pieces, a knight, a rook, a bishop, and a pawn, in line before your opponent does. Captured pieces are returned and can be played again. With this game, you can master the basic elements of chess within five minutes – including moves and strategy – without being intimidated. Both novice and avid chess players will love this game! Complete instructions included.

Ages 9+

QX58353—$16.95



SOMA CUBE WOOD PUZZLE

Don't let its simple, geometric style fool you – solving this cube puzzle isn't as easy as it looks. See if you have the spatial imagination to solve Piet Hein's puzzle made of seven irregular pieces called polycubes. With 240 possible solutions, you're sure to find one of them! On a scale of 5 to 10 (10 the most difficult), the Soma Cube is a Level 8. Made of solid wood.

Ages 12+

QX59329—$14



X MARKS THE SPOT PUZZLE

The objective is to take apart the two pieces that make the X. Sounds simple, right? Don't be so sure – this puzzle puts a tricky spin on the solution.

On a scale of 5 to 10 (10 the most difficult), this puzzle is a Level 6. Made of solid wood.

Ages 12+

QX31387—$10



TOWER OF HANOI WOOD PUZZLE

Build a solid base for understanding recursive patterns with the legendary Tower of Hanoi puzzle. Transfer the entire tower onto another peg – while moving one piece at a time and without putting a larger piece on a smaller one. And with seven disks, there's no worry the world will vanish when you solve the puzzle! On a scale of 5 to 10 (10 the most difficult), the Tower of Hanoi is a Level 9. Made of solid wood.

Ages 12+

QX59331—$12



CONUNDRUM WOOD PUZZLE

You don't have to wonder if this puzzle will keep your left brain busy. Disassemble the Conundrum and see how long it takes to put it back together. On a scale of 5 to 10 (10 the most difficult), the Conundrum is a grueling Level 9. Made of solid wood.

Ages 12+

QX59330—$12

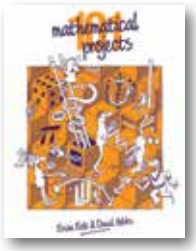


AVENGER WOOD PUZZLE

You'll need to tackle this puzzle with a vengeance to solve it. Our Avenger is a burr puzzle, which is a puzzle consisting of at least three rods intersecting each other at right angles. This rectilinear puzzle has nine pieces – three more than the standard burr puzzle. The Avenger is a true challenge at Level 10 on a scale of 5 to 10 (10 the most difficult). Made of solid wood.

Ages 12+

QX59332—$10

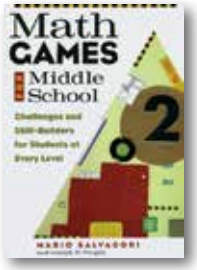


101 MATHEMATICAL PROJECTS

This collection of puzzles, games, and activities covers a wide range of mathematical concepts and skills and can be readily linked with other curriculum activities. Paperback, 138 pages.

Ages 9+

QX56899—$44

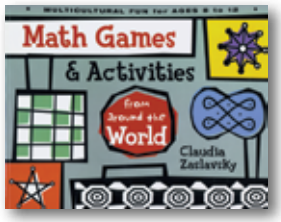


MATH GAMES FOR MIDDLE SCHOOL

This book is an ideal resource for teachers who want to challenge their students and at the same time reinforce basic skills. *Math Games for Middle School* reviews all the topics of the middle school curriculum, from addition and subtraction to plane and space geometry, graphing, and probability. Math Camps provide challenging ways to apply new skills and intriguing background about the human side of mathematics. Paperback, 168 pages.

Ages 12-14

QX55844—$16.95



MATH GAMES & ACTIVITIES FROM AROUND THE WORLD

Math, history, art, and world cultures come together in this delightful book, which connects youngsters with friends around the globe.

These math games encourage students to hone their math skills as they use geometry to design game boards, probability to analyze the outcomes of games of chance, and logical thinking to devise strategies for the games. These activities introduce students to the people who played the games, who solved the puzzles, and who designed the art. Paperback, 145 pages.

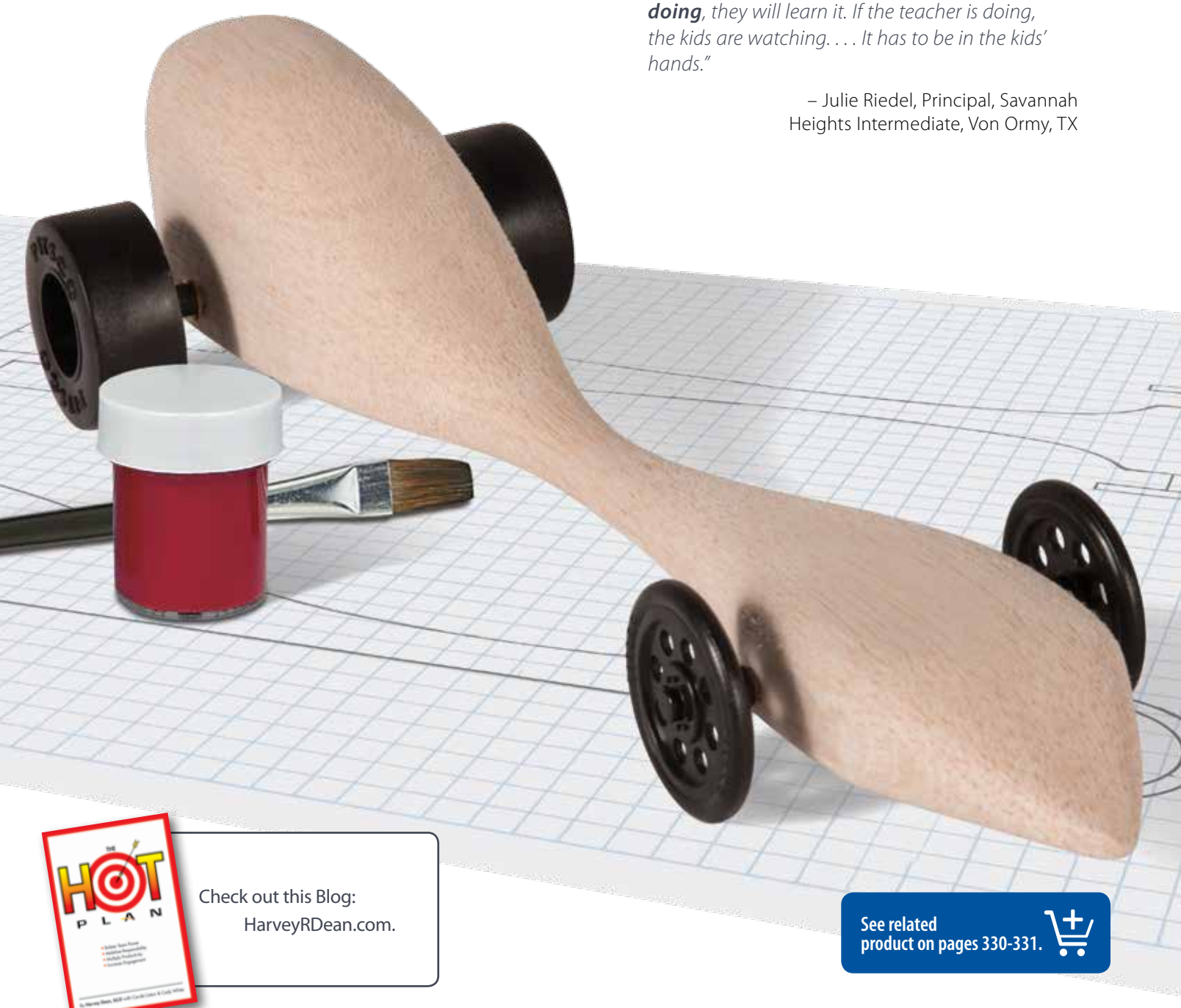
Ages 9-14

QX55845—$14.95

STEM CURRICULUM

*"I've always been a proponent of what I call **student-centered learning**. If the students are **doing**, they will learn it. If the teacher is doing, the kids are watching. . . . It has to be in the kids' hands."*

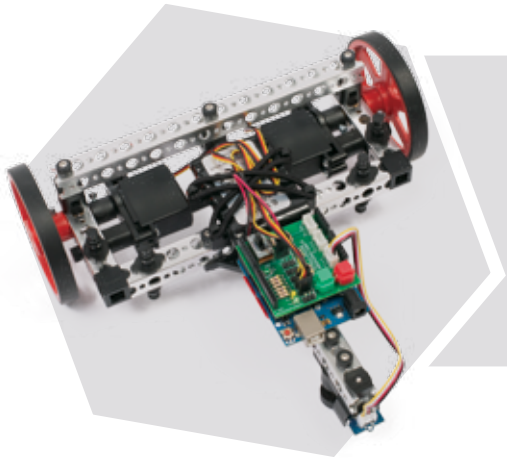
– Julie Riedel, Principal, Savannah Heights Intermediate, Von Ormy, TX





Check out this Blog:
HarveyRDean.com.

See related product on pages 330-331.



PRODUCTS:

Dragsters, robots, rockets, and more . . . STEM Units connect the excitement and engagement of Pitsco's most popular hands-on products to meaningful learning opportunities.

TETRIX® PRIME Autonomous Line-Following Robot – page 328
Straw Rocket Launcher – page 332



ACTIVITIES:

Implementation of whole-class units creates unlimited flexibility. Single whole-class units can be broken down and implemented by activity. See sample activities for each STEM Unit in this section.

NEW! **Exploring Structures in Literature K-2 Elementary STEM Unit** – page 319



CURRICULUM:

Pitsco Education's STEM Units and Engineering Courses provide educators with a series of teacher-led, team-based curriculum that helps students make connections among science, technology, engineering, and math disciplines.

NEW! **Elementary STEM Units** – pages 318-321
Middle-Level STEM Units – pages 322-331
High School Engineering Courses – pages 332-336

SOLUTIONS:

At Pitsco Education, we believe that the ultimate solution is one that engages students and excites them about learning. The integration of Pitsco products, activities, and curriculum into a classroom creates a hands-on learning solution that positively affects learners.

"We need to make learning more exciting. And any time you can have a hands-on environment, you will get better results. I've been in a lot of our schools to see it, and the kids are actually excited to be there."

– James Tager, Deputy Superintendent for Instructional Services, Volusia County, FL



Elementary Curriculum

Elementary STEM Units

The Elementary STEM Units include cross-curricular activities and experiments that teach concepts in math, science, technology, and language arts. In today's classroom, flexibility is key, and these STEM Units were created to be easy to set up and adaptable. Each unit comes with a unit guide, teacher notes, scope and sequence, teacher's guide, student pages, assessments, all the materials needed for a class of 24 students, and storage boxes for the materials.

STRUCTURES THEME K-2



Exploring Structures for Animals

Students work in teams of two to four to learn about the basics of structures and do several different experiments and activities. Students develop their design and building skills through these activities.

3 Weeks

SAMPLE ACTIVITY

In the Pet Home challenge activity, students design and build a home for a pet. They determine what an animal needs for a shelter and consider the size of their pet to determine the size needed to make the pet's home. During the challenge, students complete the design process and document each step in their guided portfolio.

A Pitsco Exclusive

QX41096—$575
QX41158 Exploring Structures for Animals – 4-Student Add-On—$59
QX41159 Exploring Structures for Animals Consumable Kit—$305





Exploring Transportation

Students work in teams of two to four to study directing structures – pathways that lead or direct someone or something – such as roads, rivers, and pipelines. Students learn about movement, time, and angles as they study theme park rides and roller coasters.

2 Weeks

SAMPLE ACTIVITY

In the Ride challenge activity, students design and build a ride that they would like to have on their school playground or in their neighborhood. Students must include a bridge, a tunnel, and a hilly section. There must be a way to reach the beginning of the ride and a safe place to end the ride and a way to carry a test marble.

A Pitsco Exclusive

QX41094—$575
QX41160 Exploring Transporation – 4-Student Add-On—$76
QX41161 Exploring Transportation Consumable Kit—$225



STRUCTURES THEME K-2



Exploring Packages

Students work in teams of two to four to learn about various types of packages that are used in our daily lives and to examine why a variety of materials are used in packaging. Students learn to design, decorate, and make their own packages.

2 Weeks

SAMPLE ACTIVITY

In the Package challenge activity, students design and make a package that will hold four cookies. Their package must follow a set of design criteria: it must be strong enough to protect the cookies from getting broken and has to be neatly decorated. During this challenge, students complete the design process and document each step in their guided portfolios.

A Pitsco Exclusive

QX41095—$695
QX41162 Exploring Packages – 4-Student Add-On—$69
QX41163 Exploring Packages Consumable Kit—$329





Exploring Structures in Literature

Students work in teams of two to four to learn about the *T* and *E* in STEM with five in-depth activities that guide them through the whole design process. Students complete design challenges based on different literature sources.

4 Weeks

SAMPLE ACTIVITY

In the Sailing for Souvenirs design challenge, students design and build a container to hold treasures children might find during an adventure traveling down the Nile River. Students read the book *We're Sailing Down the Nile*. They learn about Egypt from their many stops along the way in the story, and they identify types of structures in the book. During this challenge, students complete the design process and document each step in their guided portfolios.

A Pitsco Exclusive

QX41164—$1,295
QX41165 Exploring Structures in Literature – 4-Student Add-On—$105
QX41166 Exploring Structures in Literature Consumable Kit—$575



For detailed descriptions, visit **www.pitsco.com/ElementarySTEMunits.**

AIR THEME K-2



Exploring Air

Students work in teams of two to four to study the importance of air to all living things. Experiments include fundamental studies in gravity and lift. Students make drawings from what they observe in nature and make a whirly flyer that will hover like a seed on the air.

2 Weeks

SAMPLE ACTIVITY

In the Exploring How Seeds Are Carried activity, students find out what things float on air and how some seeds float. They examine pictures of different types of seeds and determine how their structures help with flight. They experiment with bubbles and different-shaped wands to see how the bubble shape is affected and observe how the wind carries the bubbles. They discuss how birds' feathers have special shapes that enable them to fly.

A Pitsco Exclusive

QX41093—$640
QX41167 Exploring Air – 4-Student Add-On—$70
QX41168 Exploring Air Consumable Kit—$242





Exploring Flight

Students work in teams of two to four to take a look at why and how birds can fly. Hands-on experiments include building basic and advanced paper gliders. Students will also learn how to build and fly a balsa wood glider.

2 Weeks

SAMPLE ACTIVITY

In the Making a Glider activity, students must create the tail, fins, wings, and supports of a glider by following a pattern. Then, students build each part of the glider and assemble it following the instructions. After it's assembled, students test their glider's flight and hold a competition. They draw comparisons to a bird's flight.

A Pitsco Exclusive

QX41360—$345
QX41362 Exploring Flight – 4-Student Add-On—$33
QX41363 Exploring Flight Consumable Pack—$33



For detailed descriptions, visit
www.pitsco.com/ElementarySTEMUnits.

AIR THEME K-2



Exploring Heated Air

Students work in teams of two to four to explore how the Sun works. Students study heat sources such as living creatures and friction, and they create and launch their own hot-air balloons.

2 Weeks

SAMPLE ACTIVITY

In the Hot Air Balloon challenge activity, students design and build a hot-air balloon that floats in the air without tipping upside down. Students explore what happens when the balloon is filled with hot air and released and test with counterweights to balance the flight of the balloon. During this challenge, students complete the design process and document each step in their guided portfolios.

A Pitsco Exclusive

QX41364—$660
QX41366 Exploring Heat – 4-Student Add-On—$89
QX41365 Exploring Heat Consumable Package—$132



COMING IN 2016

Grades 3-5 Elementary STEM Units

15 new STEM Units for Grades 3-5 in the following themes:

Structures Theme

- Bridge Structures
- Cantilever Structures
- Suspension Structures
- Arch Structures
- Structures Engineering Challenge

Air Theme

- Parachutes in Air
- Compressed Air
- Kites in Air
- Air Engineering Challenge

Electricity Theme

- Electricity: Level 1
- Electricity: Level 2
- Static Electricity
- Electricity Engineering Challenge

Magnetism Theme

- Magnetism: Level 1
- Magnetism: Level 2



Middle-Level Curriculum

Middle-Level STEM Units

Pitsco Education's STEM Units provide educators with a series of teacher-led, team-based curriculum that helps students make connections among science, technology, engineering, and math disciplines.

STEM Units can be integrated into existing programs in three- or six-week strands, or units can be combined for a quarter, semester, or yearlong STEM course. There are no prerequisites and units can be completed in any order desired.



3 Weeks

Air Rockets



Introduce students to variables and applied math with this unit on air-powered rockets and gliders. Students build straw rockets and more powerful tube rockets, test several variables, record data, and calculate velocity.

SAMPLE ACTIVITY

The Varying Launch Angles activity delves into the effect of launch angles on the flight of straw rockets. After building a basic rocket, students complete two launches at a given launch angle and repeat this process while increasing the angle in increments of 15 degrees. As they work, students measure and record each launch's flight time and range.

After completing the launches, students evaluate the collected data to learn about the connection between launch angle and rocket performance.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Straw Rocket Launcher
- AP Rocket Launcher
- Tire pump
- Digital scale
- Calculator
- Stopwatch
- Various small tools such as scissors and measuring tape
- Assorted kits and materials
- *Straw Rockets Teacher's Guide*
- *Basic Rockets Unit Guide*
- *AP Rocket and Glider* video
- *Straw Rocket* video
- Air Rockets Scope & Sequence



A Pitsco Exclusive

QX39850—$2,995



3 Weeks

Basic Structures



Combining geometry, material science, and graphic design, Basic Structures delivers great learning potential. From straw and pipe cleaner structures to box packaging, students create structures for strength or a specific volume.

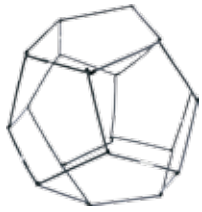
SAMPLE ACTIVITY

This unit begins with the Comparing Strength of Polyhedrons activity. First, students learn about static forces and geometric figures in order to develop a hypothesis about which geometric figure is the strongest.

Using pipe cleaners and straws, they build three polyhedrons: a cube, a rectangular prism, and a triangular prism. The strength of each polyhedron is tested with hanging weights that are progressively increased until the figure can no longer hold the weight. Then, students evaluate the results and compare them to their original hypothesis.

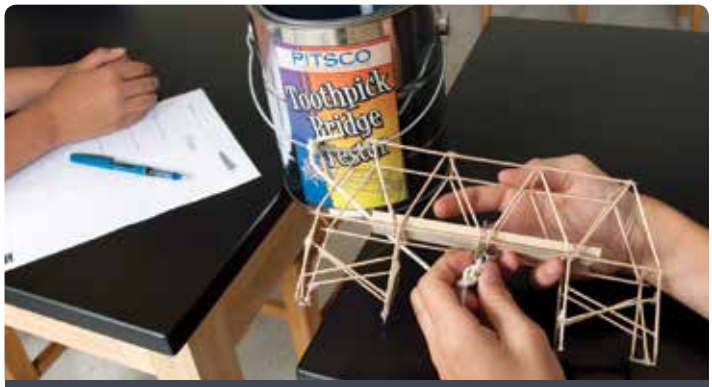
PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Super Boxmaker
- Hooked weight set
- Digital scale and spring scales
- Calculator
- Various small tools such as triangles, ruler, and scissors
- Assorted materials
- *Straw Structures Teacher's Guide*
- *Packaging Design Teacher's Guide*
- *Dr. Zoon Straw Structures Video*
- *Dr. Zoon Packaging Design Video*
- Basic Structures Scope & Sequence



A Pitsco Exclusive

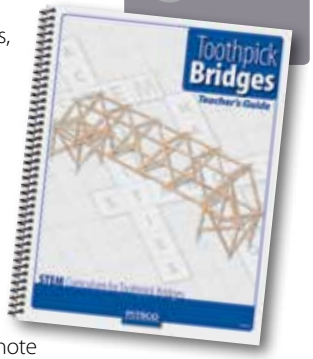
QX39852—$1,495



Bridges

3 Weeks

Bridge the gap between construction and engineering. By constructing toothpick bridges and balsa wood bridges and then testing them, students learn about material strength, specifications, efficiency, and various physics principles.



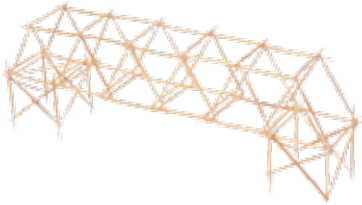
SAMPLE ACTIVITY

Following the unit's coverage of bridge construction and building a model toothpick bridge, the Calculating Efficiency activity focuses on determining the efficiency of the completed bridge.

Students weigh their bridges and then perform a destructive test on them, taking note of how much test weight broke each bridge. They use basic math skills to calculate the efficiency of each bridge based on its weight and the weight it was able to hold.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Toothpick Bridge Tester
- Pulley Bulley Bridge Tester
- Timber Cutter and Timber Tester
- Digital scale
- Calculator
- Various small tools such as rulers
- Assorted kits and materials
- *Toothpick Bridges Teacher's Guide*
- *Balsa Bridges Teacher's Guide*
- *Building Toothpick Bridges* book
- *Dr. Zoon Toothpick Bridges Video*
- *Dr. Zoon Bridge Building Video*
- Bridges Scope & Sequence



A Pitsco Exclusive
QX39854—$2,595



Green Future

3 Weeks

Prepare for a green future by introducing key technologies: fuel cells and magnetic levitation. While experimenting with working models, students calculate acceleration; investigate friction; and learn about electrolysis, efficiency, and resistance.



SAMPLE ACTIVITY

After building a magnetic levitation vehicle and learning about acceleration, students learn an important concept in the Investigating Friction activity. Students test a maglev chassis by running it down a maglev track at a specific incline. They repeat the process with a maglev chassis upside down (magnets up) on a track without magnets. The test times are recorded and the acceleration of each test run is calculated.

Finally, students consider acceleration and gravity to determine the different amount of friction acting on the vehicles in each test.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Maglev II Track
- Intelligent Fuel Cell Car Lab
- Digital scale
- Stopwatch
- Various small tools such as hobby knife and scissors
- Assorted kits and materials
- *Maglev Vehicles Teacher's Guide*
- *Intelligent Fuel Cell Guide*
- *Dr. Zoon Maglev Video*
- Green Future Scope & Sequence

A Pitsco Exclusive
QX39846—$3,995



STEM Education Units serve 24 students. Some common materials and equipment are required but not supplied, such as scissors, graph paper, and so on. Contact your Education Consultant for assistance.



3 Weeks

Green Machines



In Green Machines, students build and use model windmills and solar cars to understand how they use mechanical and electrical engineering. Students also learn about gear ratios, speed of rotation, graphing, wind speed, voltage, and slope.

SAMPLE ACTIVITY

Understanding gears is important to get the full potential from solar vehicles. In the Investigating Gears activity, students use parts from the SunEzoon Car Kit to learn gear ratios and to use gears to their advantage. Experimenting with different gear combinations, they learn how the combinations affect the number of rotations of a gear as well as the direction of rotation. Students write a lab report with their findings after they finish the hands-on portion of the activity.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- WinDynamo III Wind Generator
- Mini Multimeter
- Portable Wind Meter
- Table fan
- Stopwatch
- Various small tools such as hobby knife and tape measure
- Assorted kits and materials
- *Wind Energy Teacher's Guide*
- *SunEzoon Cars Teacher's Guide*
- *Dr. Zoon SunEzoon Video*
- *Wind Gen* video
- Green Machines Scope & Sequence



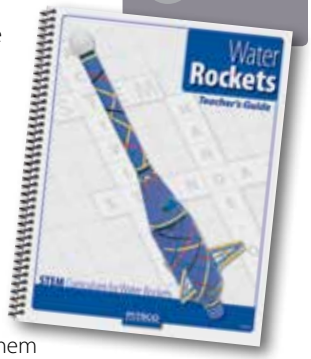
A Pitsco Exclusive

QX39847—$3,995



3 Weeks

High-Flying Rockets



Excitement goes hand in hand with STEM-based rocket activities. With water and solid-fuel rockets, students explore the science of rocketry: fuel pressure, fuel volume, apogee, average velocity, stability, and more!

SAMPLE ACTIVITY

Engineering design comes into play with the Designing Fins activity. First, students design their own fin shapes and create the appropriate number of identical fins. Following this, they build solid-fuel rockets with their originally designed fins.

Launching the rockets, students evaluate them for stability. If the fin designs achieve poor stability, students redesign the fins and test the rockets until more stable designs are achieved.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- AquaPort II Water Rocket Launcher
- LaunchGuard System
- Tire pump
- Rocket Fin Holder and Rolatape
- Altitude finder and digital scale
- Various small tools such as cool-melt glue gun, ruler, and scissors
- Assorted kits and materials
- *Water Rockets Teacher's Guide*
- *Solid-Fuel Rockets Teacher's Guide*
- *Dr. Zoon Pitsco Rocket Video*
- Estes Rocket Labs Curriculum
- High-Flying Rockets Scope & Sequence



A Pitsco Exclusive

QX39849—$4,495

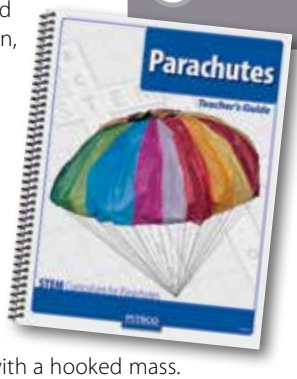
For detailed descriptions, visit **www.pitsco.com/MiddleSTEMUnits.**



Measurement & Prediction

3 Weeks

Measurement and prediction are key to STEM research. In this unit, students explore them through model parachutes and bungee jumps and learn about capacity, velocity, acceleration, Hooke's law, and scatter graphs.



SAMPLE ACTIVITY

Engineering, science, and fun collide in the Designing an Egg Parachute activity. Students apply their knowledge of load capacity, velocity, and acceleration from previous activities to build a parachute to carry an egg so it lands safely on the ground. They start by designing and building a parachute but testing it with a hooked mass. After testing and redesigning as needed, they test the final parachutes' performance with a real egg.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Rip Cord Parachute Drop and Stand
- Hooked Weight Set
- Digital scale
- Calculator
- Stopwatch
- Various small tools such as scissors, ruler, and tape measure
- Assorted kits and materials
- *Parachutes Teacher's Guide*
- *Perilous Plunge Activity Guide*
- *Dr. Zoon Parachutes Video*
- Measurement & Prediction Scope & Sequence



A Pitsco Exclusive

QX39844—$1,995



Medieval Machines

3 Weeks

Medieval war machines that once inspired fear now inspire awe in students. With this unit, students build and experiment with catapults and trebuchets to delve into projectile mass, elasticity, counterweights, potential energy, and more.



SAMPLE ACTIVITY

Brainstorming and design with catapults is the focus of the Transportation Design activity. First, students sketch a model catapult like one built in earlier activities and then brainstorm ideas for creating a system to make the catapult mobile. Students select their best idea from the brainstorming list and carefully sketch the completed design based on that idea.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Catapult and Trebuchet Kits
- Digital scale
- Spring scale
- Calculator
- Stopwatch
- Various small tools such as pliers and tape measure
- Assorted kits and materials
- *Catapults* and *Trebuchets Teacher's Guides*
- *Siege Machines* book
- *Catapult* video
- *Trebuchet* video
- Medieval Machines Scope & Sequence



A Pitsco Exclusive

QX39845—$1,195

STEM Education Units serve 24 students. Some common materials and equipment are required but not supplied, such as scissors, graph paper, and so on. Contact your Education Consultant for assistance.



3 Weeks

Model Airplanes



The dream of manned flight pushed science and technology to the skies. Students learn these principles with balsa gliders and rubber band-powered planes while considering aeronautical design, glider ratios, and other elements of flight.

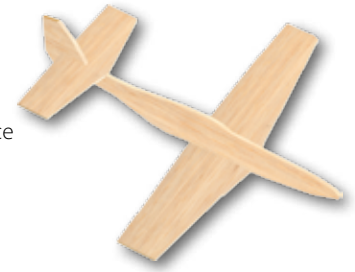
SAMPLE ACTIVITY

In the Investigating Forms of Energy activity, students learn about energy by testing rubber band-powered model airplanes.

After building a model airplane and learning how to calculate elastic potential energy and kinetic energy, students weigh their model. Winding it a specified number of times, they launch it and measure the flight range achieved by the model. Repeating this with an incrementally increased number of winds, students analyze the relationship among the number of winds, potential energy, kinetic energy, and flight range.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Electric Rubber Band Winder
- Digital scale
- Stopwatch and tape measure
- Various small tools such as hobby knife, scissors, and ruler
- Assorted kits and materials
- *Balsa Gliders Teacher's Guide*
- *Model Airplanes Teacher's Guide*
- *Dr. Zoon Gliders Video*
- *Dr. Zoon Delta Dart Video*
- Model Airplanes Scope & Sequence



A Pitsco Exclusive
QX39853—$1,195



3 Weeks

Unconventional Flight



Being unconventional can provide fun learning opportunities. By building and flying tetrahedron kites and model hot-air balloons, students apply geometry and engineering while learning about area, volume, and other flight principles.

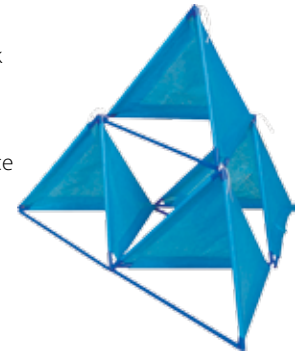
SAMPLE ACTIVITY

Students build and fly three sizes of tetrahedral kites to explore the different lift achieved by each in the Comparing Size and Lift activity. First, they build a small kite from a single tetrahedral wing, followed by one made from four wings and one from 16 wings.

Next, students write a hypothesis about which kits will have the most lift in flight and design an experiment to test their hypothesis. After conducting the experiment, they complete a lab report to detail the results of the experiment.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Inflation Station Launcher
- Indoor Balloon Launcher
- Wind Meter
- Altitude Finder
- Calculator
- Stopwatch
- Various small tools such as tape measure, spring scales, scissors, and meterstick
- Assorted kits and materials
- *KaZoon Kites Teacher's Guide*
- *Hot-Air Balloons Teacher's Guide*
- *Adventures in Lighter-than-Air-Flight* book
- *Dr. Zoon KaZoon Kite Video*
- *Dr. Zoon Hot-Air Balloons Video*
- Unconventional Flight Scope & Sequence



A Pitsco Exclusive
QX39851—$2,495

For detailed descriptions, visit **www.pitsco.com/MiddleSTEMUnits.**

STEM Education Units serve 24 students. Some common materials and equipment are required but not supplied, such as computers, scissors, graph paper, and so on. Contact your Education Consultant for assistance.



3-D Printing: Vehicle Engineering

3 Weeks

Students begin by learning engineering and rapid prototype processes and seeing how the 3-D printer operates. Then they work in teams to design, construct, test, and race their own battery-operated cars.

Written by an engineer, this classroom activity was developed to address several Next Generation Science Standards, specifically the Grades 6-9 Engineering Design performance expectations. Aside from helping instructors meet standards, the activity helps students experience real-world conditions such as peer review and working within a budget.



SAMPLE ACTIVITY

Teams of students build a car from a kit. The car is then tested and data is gathered about the speed and performance of the car. A hypothesis is formed about ways to improve the performance and parts selected from the *Competition Catalog* are printed. The vehicle is then tested again to decide whether the changes have improved the performance of the vehicle.

Vehicle Engineering will serve 250 students (5 groups per class, 5 students per group, 10 classes)

A classroom competition is held to see which vehicle is able to travel a distance in the shortest amount of time.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Vehicle kit
- *Engineering Notebook*
- *Competition* catalog
- 3-D printer
- 3-D printer filament

A Pitsco Exclusive
QX41455—$4,225



3-D Printing: Design Solutions

3 Weeks

Design Solutions illustrates how an engineer uses 3-D printing to prototype new designs. Students learn about copyrights, patents, and trademark protection and how to use basic modeling software. Teams of two are then challenged to create solutions to three problems. These design solutions are then printed using 3-D printers. Students present their solutions to the class for review.



SAMPLE ACTIVITY

Design Solutions enables students to use their creativity to design items they are interested in. Students use 3-D design software to modify a previously created design into a wearable item that supports an activity of interest to them.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- 3-D design software
- 3-D printer
- *Design Solutions Student Logbook*
- 3-D printer filament



A Pitsco Exclusive
QX41458—$10,925

Design Solutions will serve 120 students (12 groups per class, 2 students per group, 5 classes).

See pages 284-285 for more 3-D printing options.



TETRIX® PRIME Robotics: Remote Control

3 Weeks

The principles of building a remote-controlled robot and using this robot to complete various engaging challenges are the focus of this STEM Unit. The PRIME Starter Set is used for the basic building parts for students to construct various robots and complete challenges while addressing science, technology, engineering, math, and language arts standards. The PRIME Building System enables students to quickly prototype a variety of robots, test them, and engineer them for improved performance.



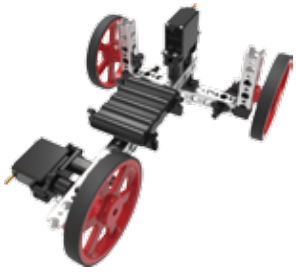
SAMPLE ACTIVITY

Students build a remote control robot and use the speed formula to determine the speed of the robot over a prescribed distance. Using the speed formula they determine how long it will take to move a different distance. They perform a time test to verify their calculations.

Next, students add gears to make the robot move faster and determine the new speed.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

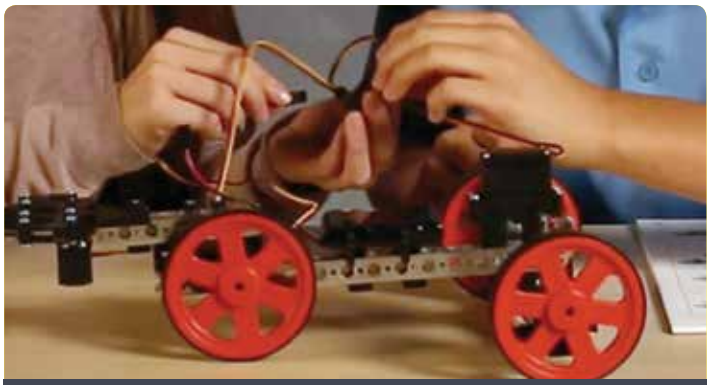
- TETRIX PRIME R/C Starter Set
- Stopwatch
- Painter's tape
- Tape measure
- *TETRIX PRIME Builder's Guide*
- *TETRIX PRIME Robotics: Remote Control Student Logbook*



A Pitsco Exclusive

QX41285 TETRIX® PRIME Robotics: Remote Control STEM Unit—$4,895
QX41286 Remote Control STEM Unit – 4-Student Add-On—$775
QX41193 Remote Control STEM Unit – Logbooks—$10

Serves 24 students



TETRIX® PRIME Robotics: Autonomous

3 Weeks

Using the TETRIX® PRIME Starter Set and adding sensors and an Arduino Uno controller, this unit focuses on creating a robot to complete tasks without operator input. Using an Arduino board and *ArduBlock* software along with ultrasonic and line-follower sensors, students write programs to complete various tasks that increase in complexity. Students use PRIME parts to quickly prototype and test different configurations and overcome additional obstacles. STEM standards are addressed with the engaging activities provided in this unit.



SAMPLE ACTIVITY

Students build a robot and attach a line finder sensor. They create a program of instructions using graphical programming software to have the robot autonomously follow the line.

The students also create instructions to have the robot autonomously navigate other driving courses using sensor input to react to obstacles.

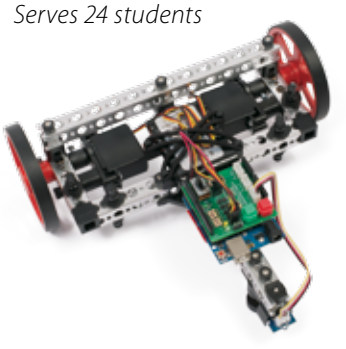
PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- TETRIX PRIME R/C Starter Set
- TETRIX PRIME Controller and Sensor Set
- Black tape
- *TETRIX PRIME Robotics: Autonomous Student Logbook*

A Pitsco Exclusive

QX41287 TETRIX® PRIME Robotics: Autonomous STEM Unit—$6,995
QX41288 Autonomous STEM Unit – 4-Student Add-On—$1,099
QX41452 Autonomous STEM Unit – Logbooks—$10

Serves 24 students





TETRIX® PRIME Robotics: Automation Manufacturing

3 Weeks

Combining the quick prototyping capabilities of the TETRIX® PRIME parts with the strength and ruggedness of the MAX parts, this unit focuses on activities and builds that might be used in manufacturing plants. Using an Arduino board and *ArduBlock* software along with various sensors, students program the computer to accomplish tasks that might normally be found in a manufacturing environment. By combining parts from the two products, students build quick prototypes with the strength to accomplish automated activities that address STEM standards.



SAMPLE ACTIVITY

Students build a pick and place robotic arm. Students create a set of step-by-step instructions using a graphical programming tool to have the robotic arm pick up an object and place it into a new location.

Serves 24 students

This pick-and-place robotic arm is used to move objects in a simulated production line with other robotic elements.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- TETRIX PRIME Automation Set
- *TETRIX PRIME Robotics: Automation Manufacturing Student Logbook*

A Pitsco Exclusive

QX41289 TETRIX® PRIME Robotics: Automation Manufacturing STEM Unit—$9,195
QX41290 Automation Manufacturing STEM Unit – 4-Student Add-On—$1,149
QX41767 Automation Manufacturing STEM Unit – Logbooks—$10

"It's been fantastic! The kids have really enjoyed the units. To be honest, I was a little hesitant about buying the curriculum, thinking I could do it on my own, but what Pitsco provided was perfect!"

Mike
Hutchinson Middle School, Hutchinson, MN



TETRIX® PRIME Robotics: Remote Control, Autonomous, and Automation Manufacturing STEM Unit

Want three robotics curriculum units? This package provides everything necessary to *incrementally* implement TETRIX® PRIME Robotics: Remote Control, TETRIX PRIME Robotics: Autonomous, and TETRIX Robotics: Automation Manufacturing. This package includes 12 TETRIX PRIME Starter Sets and all curriculum, materials, and activities from the other three packages, which combine for nine weeks of robotics.

A Pitsco Exclusive
Ages 12+
QX41297—$10,995





Science of Speed 2: Let's Get Moving

3 Weeks

Let's Get Moving teaches these concepts through several projects: a pop can engine, a balloon rocket, and air-powered bottle racers. Students not only build their vehicles but also test them and interpret data for the purposes of reengineering.



SAMPLE ACTIVITY

Students build AP Bottle Racers and then test their air-powered cars in a distance trial. After a class discussion about trends in the results, the students consider ways to improve the performance of their vehicles. Students select a variable to investigate. They write a hypothesis about the effect of changing that variable. They also write and perform an experiment to test their hypothesis.

Armed with the knowledge gained from the experiment, students make additional changes to their vehicles. They use their creativity to make a vehicle that is fast and aesthetically pleasing. They also must work within specifications. The vehicles are then pitted against one another in a distance competition.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Pop can engine
- Balloons, string, and other craft materials for making balloon racers
- Stopwatch
- Calculator
- AP Bottle Racer Kits and Launcher
- Videos and other resources on the Science of Speed website (not required)
- *Let's Get Moving Student Workbook*
- *Let's Get Moving Teacher Guide*

A Pitsco Exclusive

QX41705—$865



Science of Speed 2: Design for Speed

6 Weeks

Design for Speed gives students a heavy dose of science and math. Students engage in competitive engineering with the goal of creating the fastest and most eye-pleasing wooden dragster.



SAMPLE ACTIVITY

The entire Design for Speed curriculum is one extended activity that spans approximately six weeks. Students learn about the engineering design process by deliberately following each step of it as they create their dragsters. In the process, they learn about researching, designing to specifications, drafting, prototyping, construction, testing, and redesigning. Access to hand tools or power tools (preferred) is assumed. Students are asked to consider what balance they wish to strike between aesthetics and speed.

The final event is a head-to-head speed competition, and the teacher is given resources and ideas for making a big splash with the event, drawing a large audience and recruiting students for the program for next year.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Tool library including saws, drills, and sanders (power tools preferred)
- Foam for prototypes
- Balsa or basswood blanks
- CO_2 cartridges
- CO_2 car race system
- Videos and other resources on the Science of Speed website (not required)
- *Design for Speed Student Workbook*
- *Design for Speed Teacher Guide*
- *Includes one-year license to Synergy ITC*

A Pitsco Exclusive

QX41709 (Balsa Wood)—$995
QX41713 (Basswood)—$995

Note: *Instructional videos and other online resources are available with registration and subscription to Pitsco's learning content management system, Synergy ITC. The first year's subscription fee is included in your purchase of a Science of Speed Unit. Yearly subscription after the first year is $49 per unit per year.*



NEW!

DESIGN FOR SPEED – TOOLS PACKAGE

This package contains:

- Foam saber saw (12)
- Hand drill (6)
- Coping saw (24)
- Surform shaver (12)
- Dragster Paint Stand (24)
- CJ600 Digital Scale
- Sanding stick (12)
- Garnet paper (80 grit)
- Garnet paper (120 grit)
- Garnet paper (180 grit)
- Wet/dry sandpaper (400 grit)

QX41756—$889



NEW!

DESIGN FOR SPEED – EQUIPMENT PACKAGE

This package includes:

- Vision wood processing center
- 9" band saw
- 10" bench drill press
- 1-gallon wet/dry vac
- Vise clamp

QX41755—$1,650

THE SCIENCE of Speed 2

Visit www.science-of-speed.com to see an online showroom of student-built cars, inspirational articles, additional equipment and supplies, and so much more!

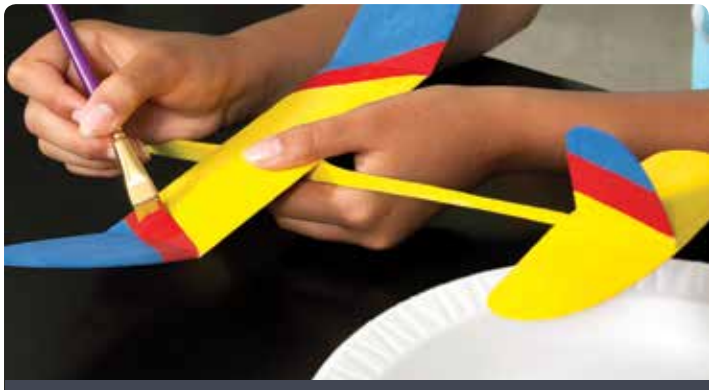


High School Curriculum

High School Engineering Courses

Engineering Courses provide an environment where engineering concepts and skills are applied in ways that make them meaningful to students. The curriculum takes students through a series of activities, building their understanding as they identify and design solutions to problems.

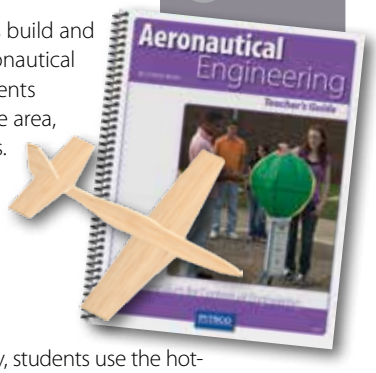
Engineering Courses can be implemented as individual courses or as a complete engineering program.



Aeronautical Engineering

9 Weeks

In Aeronautical Engineering, students build and launch flying models to illustrate aeronautical principles. With hot-air balloons, students understand the significance of surface area, volume, lifting force, and the gas laws. Then, four types of airplanes illustrate aspect ratio, stability, thrust, drag, initial velocity, control surfaces, and other concepts.



SAMPLE ACTIVITY

In the Surface Area and Volume activity, students use the hot-air balloons they constructed in the previous activity. Applying area estimation methods and formulas, they find the surface area of the tissue paper used to build each balloon and of the gores cut from the tissue paper. Using this information, they estimate the surface area of the assembled balloon.

Modeling the hot-air balloons as spheres, students then calculate the volume in cubic units. They launch the balloons, recording the wind speed, outside temperature, and flight time. All the data is recorded, graphed, and evaluated.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Inflation Station balloon launcher
- Foam Wing Cutter
- Wing Tester
- Balance or scale
- Various small tools such as a hobby knife, scissors, and ruler
- Assorted kits and materials
- *Aeronautical Engineering Teacher's Guide*
- *Model Airplanes Teacher's Guide*
- *Hot-Air Balloons Teacher's Guide*
- *Balsa Gliders Teacher's Guide*
- *Engineering the Future* textbook
- Aeronautical Engineering Scope & Sequence

A Pitsco Exclusive

QX39883—$5,795



Aerospace Engineering

9 Weeks

Rocketry is thoroughly explored in this course where students build and experiment with four types of rockets: easy straw rockets, air-powered tube rockets, water-fueled bottle rockets, and solid-fuel rockets. Along the way, they learn about center of gravity, types of variables, design, apogee measurement, basic trigonometry, and much more.



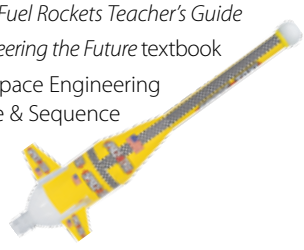
SAMPLE ACTIVITY

For the Computing Apogee II activity, students learn ways to calculate the apogee of a water bottle rocket. They launch a rocket built in a previous activity several times as they stand 10, 20, 30, and finally 40 meters from the launchpad while recording the altimeter angle of each launch.

Using the recorded launch data and trigonometric functions, students calculate the height of apogee for each rocket launch.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Straw Rocket Launcher
- AP Launcher with tire pump
- AquaPort II Launcher with tire pump
- LaunchGuard System
- Balance or scale
- Altimeter
- Various small tools such as a hobby knife, scissors, and ruler
- Assorted kits and materials
- *Aerospace Engineering Teacher's Guide*
- *Water Rockets Teacher's Guide*
- *Solid-Fuel Rockets Teacher's Guide*
- *Engineering the Future* textbook
- Aerospace Engineering Scope & Sequence



A Pitsco Exclusive

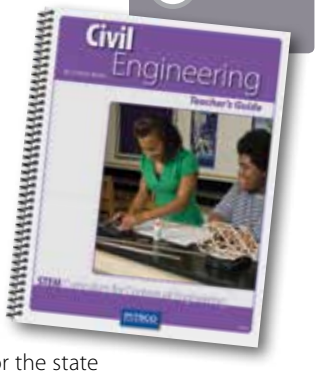
QX39884—$4,195



Civil Engineering

9 Weeks

In this course, students learn the principles to building strong and stable structures that are the cornerstone of modern society. Building structural elements, bridges, and towers, students experience the concepts of efficiency, load, compression, tension, mass distribution, and wave frequency.



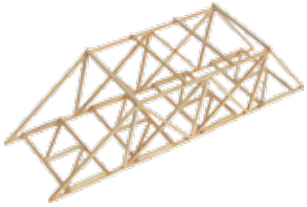
SAMPLE ACTIVITY

Students take on the role of civil engineers by designing a bridge for the state transportation department in the Designing for Efficiency activity.

Given a list of specifications for the roadbed, height, span, substructures, and construction techniques, students brainstorm and create sketches of several design options. This includes thorough labeling and providing a scale. After selecting the best design, students explain why the chosen design is the best option.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Structure Tester
- EQ^5 Tremor Table and hardware
- Digital scale or balance
- Weights or masses
- Calculator
- Various small tools such as a hobby knife, scissors, clamps, and a ruler
- Assorted kits and materials
- *Civil Engineering Teacher's Guide*
- *Balsa Bridges Teacher's Guide*
- *Earthquake Towers Teacher's Guide*
- *Engineering the Future* textbook
- Civil Engineering Scope & Sequence



A Pitsco Exclusive

QX39885—$7,095



Engineering Design & CAD

9 Weeks

Introduce students to computer-aided drafting and to using it to design engineering projects. In this course, students build a solid foundation for using the *SolidWorks* CAD program to create parts and assemblies. Then, they design and build a robot that moves billiard balls to goals and another that completes a timed maze challenge.



SAMPLE ACTIVITY

After learning how to design with the *SolidWorks* computer-aided drafting program in Unit 1, students make use of these practical skills in the Model TX activity. Here, young designers create a digital version of a physical model they built earlier using the TETRIX® Building System.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Windows-based computer
- *SolidWorks* software site license
- TETRIX Base Set
- R/C controller
- Pliers and hobby knives
- Assorted kits and materials
- *TETRIX Builder's Guide*
- *Introduction to Engineering Design with SolidWorks*
- *TETRIX Robotics* video
- *Engineering the Future* textbook
- Engineering Design & CAD Scope & Sequence



A Pitsco Exclusive

QX39887—$10,275

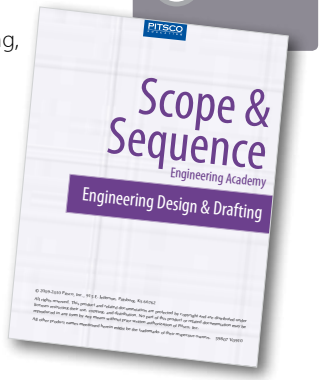
Engineering Courses serve 24 students. Some common materials and equipment are required but not supplied, such as scissors, graph paper, and so on. Contact your Education Consultant for assistance.



Engineering Design & Drafting

9 Weeks

Mechanical drafting doesn't have to be intimidating – this course helps students learn about drafting tools and instruments and basic concepts for using them, such as lettering, measuring, and line conventions. After students master these drafting basics, they move on to dimensioning and drawing and are challenged with drawing exercises.



SAMPLE ACTIVITY

Students prepare to start drafting as they learn about the tools of the trade in the Drafting Equipment activity. One at a time, students learn about and then learn to use the following items: triangles, protractors, compasses, dividers, erasers and eraser shields, French curves, technical pens, templates, scales, and drafting machines. Students utilize these tools in the production of both full-scale and scaled technical drawings.

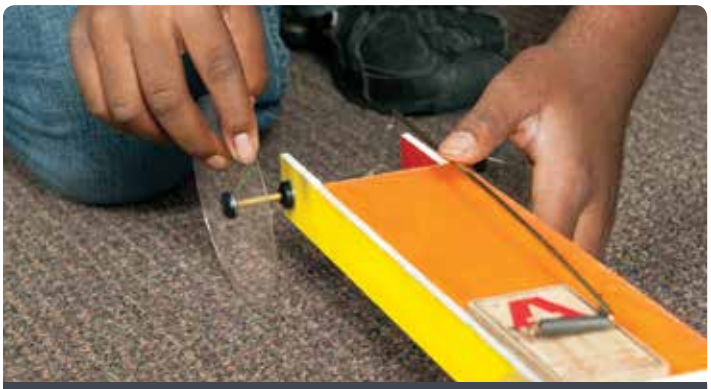
PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Student Drafting Kit (contains drawing board, instruments, and equipment)
- Vertical Lettering Template
- Geometric Designer Template
- *Instructional Workbook for Drafting Level I*
- *Instructional Workbook for Drafting Level I Instructor's Guide*
- *Exploring Drafting* book
- Engineering Design & Drafting Scope & Sequence



A Pitsco Exclusive

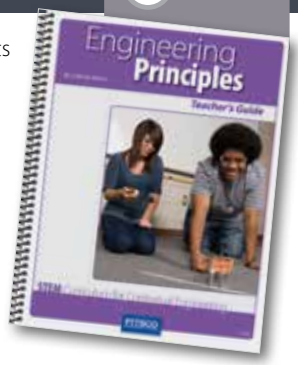
QX39888—$4,595



Engineering Principles & Problem Solving

9 Weeks

This suggested first course gives students the skills to succeed in Engineering Academy. By making rulers, Rube Goldberg machines, and mousetrap and egg-drop vehicles, students are given a hands-on way to learn about linear measurement, fractions, simple machines, mechanical advantage, force and motion, and more.



SAMPLE ACTIVITY

The Simple Machines: Pulleys activity provides students the opportunity to learn about the mechanical advantage gained by using a pulley.

Experimenting with a Forces & Simple Machines Kit, students create fixed and movable pulley systems. They use spring scales and hooked masses to determine the force required to hold up each mass with each pulley system, recording the data as they go. Students evaluate the data to answer questions about mechanical advantage, angle of effort, and which system would be best to lift a large load.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Linear measuring tools
- Digital scale and balance
- Cool-melt glue gun
- Small tools such as a hobby knife and scissors
- Assorted kits and materials
- *Engineering Principles Teacher's Guide*
- *Mousetrap Vehicles Teacher's Guide*
- *Egg-Drop Vehicles Teacher's Guide*
- *Engineering the Future* textbook
- Engineering Principles & Problem Solving Scope & Sequence



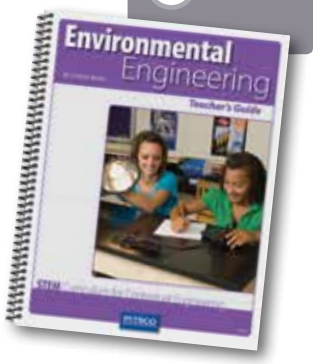
A Pitsco Exclusive

QX39891—$5,225



Green Engineering

9 Weeks



Green careers are predicted to have exponential growth, making green engineering skills important for the environment and for future career potential. In Green Engineering, students become energy conscious; assess the environmental impact of products; and experiment with solar vehicles, solar cookers, wind turbines, maglev technology, and fuel cell vehicles.

SAMPLE ACTIVITY

The culminating activity for Unit 1 is the Sustainable School Challenge, which encourages students to utilize the knowledge they gained about alternative energy and energy consciousness in earlier activities.

To complete the challenge, students work in teams of four to evaluate their own school's sustainability. Using an electrical watt meter and a careful physical examination of the school building, they collect data regarding the building's construction, water heating, heating and cooling systems, lighting, and more. Each team makes recommendations for ways the school can become more energy efficient and use alternative energies.

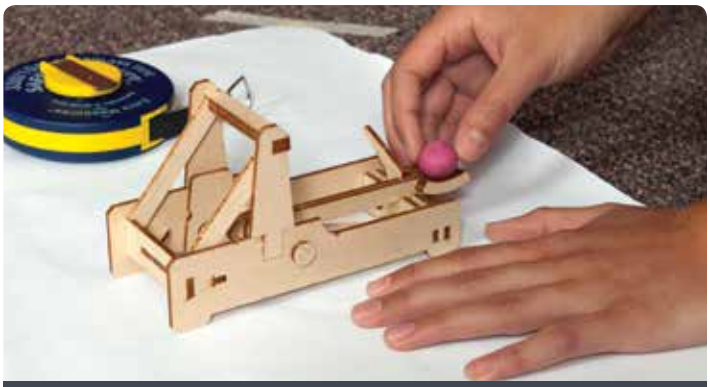
PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Wind turbine model
- Solar and fuel cell vehicles
- Solar cooker
- Various small tools such as a hobby knife and scissors
- Watt meter, stopwatch, ruler, and protractor
- Computer with Internet access and *PowerPoint*
- *Environmental Engineering Teacher's Guide*
- *Sustainable Energy Engineering Teacher's Guide*
- *SunEzoon Cars Teacher's Guide* and *Wind Energy Teacher's Guide*
- *Maglev Vehicles Teacher's Guide*
- *Engineering the Future* textbook
- Green Engineering Scope & Sequence



A Pitsco Exclusive

QX39889—$7,885



Mechanical Engineering

9 Weeks



Transportation, production, and building would still be in the Dark Ages without mechanical engineering. By building electric, solar, and mousetrap vehicles, students understand performance and energy before using cranes, siege machines, and hydraulic robotic arms to experience force, initial velocity, potential and kinetic energies, mechanical advantage, and more!

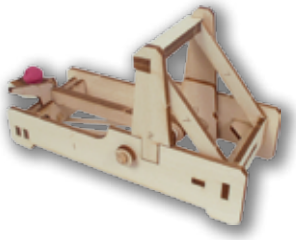
SAMPLE ACTIVITY

In the Trebuchets activity, students construct a model trebuchet and experiment with it to learn about variables, prediction, and potential and kinetic energies.

Using projectiles of various masses, students launch the projectiles and try to hit a bucket. Considering the launch outcome of each mass and a possible redesign of the trebuchet and its counterweight, they predict the outcome for two different masses. They launch these projectiles and see if their predictions were accurate. In the process, students learn about trajectory and how to calculate potential energy

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Solar and mousetrap vehicles
- Model catapult, trebuchet, and robotic arm
- Tape measure and ruler
- Calculator
- Various small tools such as scissors and needle-nose pliers
- Assorted materials
- *Mechanical Engineering Teacher's Guide*
- *Solar Vehicles Teacher's Guide*
- *Catapults Teacher's Guide*
- *Trebuchets Teacher's Guide*
- *T-Bot® II Teacher's Guide*
- *Engineering the Future* textbook
- Mechanical Engineering Scope & Sequence



A Pitsco Exclusive

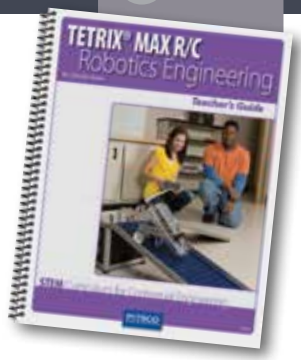
QX39890—$4,795

Engineering Courses serve 24 students. Some common materials and equipment are required but not supplied, such as scissors, graph paper, and so on. Contact your Education Consultant for assistance.



Robotics Engineering – Remote Controlled

9 Weeks



Robots are everywhere – manufacturing plants, bomb squads, and even on Mars. Using the TETRIX® MAX Building System and other materials, Robotics Engineering – Remote Controlled provides an exploration into robotic design, construction, and operation. Plus, students become proficient at operating the remote control to guide their robots.

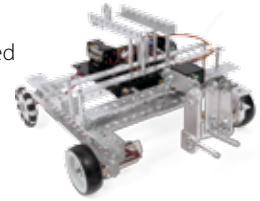
SAMPLE ACTIVITY

After learning the basics of robot construction, students focus on creative problem solving using the TETRIX MAX Building System. In the Robot Artist activity, they design and build a robot that can hold markers to draw on a paper canvas on the floor. First, students apply their knowledge of end effectors and robot maneuverability to create a robot design.

After building the design, they hone their skills as remote-control operators to create a pattern, design, or image on the canvas.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- TETRIX Base Set
- Motor Speed Controller
- Remote control
- Digital scale
- Small tools such as screwdrivers and markers
- Various common materials such as tape and paper
- Assorted items to be moved by robots
- *TETRIX MAX R/C Robotics Engineering Teacher's Guide*
- *Engineering the Future* textbook
- Robotics Engineering – Remote Controlled Scope & Sequence



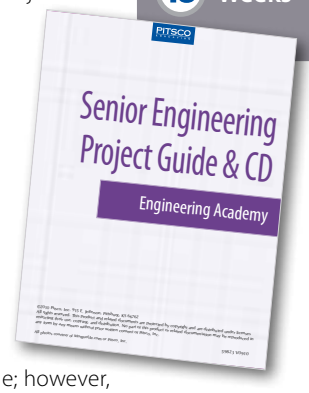
A Pitsco Exclusive

QX39893—$11,550



Senior Engineering Project

18 Weeks



After several semesters of the Engineering Education Courses, some students want a real-life project like the one outlined here. During this semester, students develop their own engineering project and go through the same processes as an engineer. Each student, in consultation with the instructor, determines the scale and detail of his or her project. This course's materials are free with the purchase of four Engineering Education Courses.

SAMPLE ACTIVITY

The open-ended nature of this course means that almost any activity is possible; however, the components of the project are the same no matter if they are designing a rocket or a robot. Students begin by developing a project proposal with a detailed written description and sketches. Next, they determine what resources they need and have available, followed by creating a budget.

The design and experimentation stage begins the hands-on element of the course, and students follow this by completing the final version of their project. To end the course, each student delivers a project presentation.

PRIMARY EQUIPMENT, MATERIALS, AND RESOURCES

- Digital projector
- Student equipment needs vary depending on project
- Assorted materials as required by the chosen project
- Senior Engineering Project Teacher and Student Outlines
- Senior Engineering Project Introduction on *PowerPoint*

FREE with purchase of four or more courses. A $495 value!

Engineering Courses serve 24 students. Some common materials and equipment are required but not supplied, such as scissors, graph paper, and so on. Contact your Education Consultant for assistance.

Providing meaningful **STEM** professional development for Grades K-10



Pitsco Education's comprehensive professional development includes classroom resources, STEM content, and instructional methods designed exclusively to provide the most positive and productive learning experience possible.

As an educator, what do I take away from the seminar?

- A better understanding of STEM
- A personalized definition of STEM
- Methods for making relevant STEM connections to classroom activities
- Group discussion with other teachers
- Practical applications that transfer directly to the classroom
- Hands-on resources and ideas for cross-curricular implementation

Contact a Pitsco Education consultant for more information: 800-828-5787.

STEM education prepares learners for the future through the integration of science, technology, engineering, and math concepts using relevant hands-on applications to connect school, community, and work.

PITSCO EDUCATION

ELEMENTARY



*"But as a **whole child**, I think we have all their values in mind. . . . Some kids are all about **academics**, so the regular classroom is wonderful. But if you have a child that hates academics and doesn't want to be there, and you have academics in the **resource area** they're strong in, you better **serve them**."*

– Cindy Jones, Creator of STEM in the Gym™

Use ideas and information from "The HOT Plan" in your classroom or on your teams. See page 1.

See related product on page 340.



PRODUCTS:

Elementary STEM products, such as Large Structures, Balloon Cars, and Sail Cars ensure K-5 students an engaging and fun experience.

Try This Kits – page 342
NEW! **Finch Robot** – page 345
STEM Books – pages 346-347

ACTIVITIES:

Eight new Elementary STEM Activity Guides are available for Pitsco's most popular elementary products!

NEW! **Elementary STEM Activity Guides** – pages 340-341
Children's Engineering: A Handbook for Elementary Educators – page 351
NEW! **Solar System Activities** – page 344





CURRICULUM:

Pitsco understands the time demands on elementary teachers. Get the same quality elementary products and activities within Pitsco elementary curriculum, developed to standards.

Everyday STEM Professional Development Units – pages 348-350
STEM in the Gym™ – pages 356-359
Class Phonics and Gym Phonics – pages 360-365

SOLUTIONS:

At Pitsco Education, we believe that the ultimate solution is one that engages students and excites them about learning. The integration of Pitsco products, activities, and curriculum into a classroom creates a hands-on learning solution that positively affects learners.

"I've been in education since 1975, and I have never seen a company who, when they sell you a product, provides the professional support and development that Pitsco does. When you're an old warhorse like I am, and you've seen enough vendors through the years that sell you stuff, you always have a natural skepticism to a certain degree; well, that's not been the case here."

– Dr. Tony Havard, Headmaster, UMS-Wright Preparatory School, Mobile, AL





NEW!

BALLOON CAR ELEMENTARY STEM ACTIVITY GUIDE



A Pitsco Exclusive

This guide, written for Grades 3-5, helps students grasp a variety of subjects including distance, speed, weight, testing, inquiry, and tons more.

The *Balloon Car Elementary STEM Activity Guide* contains teacher and student instructions for math, science, and engineering activities; assessment questions; resource pages; and student pages. This guide contains two guided inquiry lessons and a culminating engineering challenge for students to apply concepts learned through the inquiry lessons.

Equipment and materials needed to complete guide activities include the Pitsco Balloon Car Explore-A-Pak, ramps, scissors, tape, hole punches, art supplies, washers, tape measures, highlighters, stopwatches, and standard classroom tools and materials. Paperback, 30 pages.

QX41526—$4.95

See Balloon Car Explore-A-Pak on page 117 in Dragsters.

Choking Hazard: Children younger than eight years old can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.



NEW!

LARGE STRUCTURES ELEMENTARY STEM ACTIVITY GUIDE



A Pitsco Exclusive

Written for Grades K-2, this guide helps students grasp a variety of subjects including geometry, solid figures, plane shapes, attributes, and more.

The *Large Structures Elementary STEM Activity Guide* contains teacher and student instructions for math, science, and engineering activities; assessment questions; resource pages; and student pages. This guide contains two guided inquiry lessons and a culminating engineering challenge for students to apply concepts learned through the inquiry lessons.

Equipment and materials needed to complete guide activities include Large Structures Package, paper, and standard classroom tools and materials. Paperback, 22 pages.

QX41524—$4.95

See Large Structures Package on page 213 in Structures.



NEW!

STRAW ROCKET ELEMENTARY STEM ACTIVITY GUIDE



A Pitsco Exclusive

Building straw rockets is a great activity for elementary students to complete. This elementary guide is written for Grades 3-5. With these fun activities, students grasp a variety of subjects including Newton's laws, gravity, mass, and more.

The *Straw Rocket Elementary STEM Activity Guide* contains teacher and student instructions for math, science, and engineering activities; assessment questions; resource pages; and student pages. This guide contains two guided inquiry lessons and a culminating engineering challenge for students to apply concepts learned through inquiry lessons.

Equipment and materials needed to complete guide activities include the Pitsco Straw Rockets – Getting Started Package (includes launcher), tape, scissors, rulers, art supplies, scales, and standard classroom tools and materials. Paperback, 30 pages.

QX41525—$4.95

See Straw Rockets – Getting Started Package on page 120 in Aerospace.

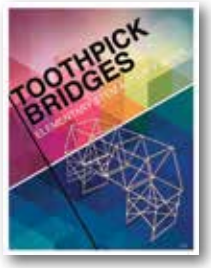






NEW!

TOOTHPICK BRIDGES ELEMENTARY STEM ACTIVITY GUIDE



A Pitsco Exclusive

Written for Grades 3-5, this guide helps students grasp a variety of subjects including types of bridges, bridge design, Newton's laws, effects of weather, and bridge geography.

The *Toothpick Bridges Elementary STEM Activity Guide* contains Next Generation Science Standards and Common Core mathematics and English language arts standards addressed; teacher and student instructions for math, science, and engineering activities; assessment questions; and student pages. This guide contains two guided inquiry lessons and a culminating engineering challenge where students apply concepts learned in their inquiry lessons.

Equipment and materials needed to complete guide activities include the Pitsco Toothpick Bridges – Getting Started Package or Try This: Toothpick Bridge Kit, quick-drying glue, waxed paper, graph paper, toothpicks, rulers, notebooks, toy cars, sticky notes, colored pencils, and standard classroom tools and materials. **Note:** This list is for all activities; individual activities don't require all listed materials. Paperback, 21 pages.
QX41804—$4.95

See Toothpick Bridges – Getting Started Package on page 214 in Structures.

NEW!

SPACESHIPONE ELEMENTARY STEM ACTIVITY GUIDE



A Pitsco Exclusive

Written for Grades 3-5, this guide helps students grasp a variety of subjects including airfoils, air pressure, gravity, thrust, drag, lift, forces, and aircraft design.

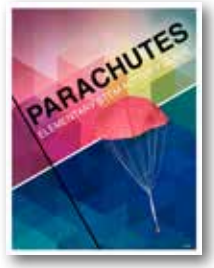
The *SpaceShipOne Elementary STEM Activity Guide* contains NGSS, CCELA, and CCSSM standards addressed; teacher and student instructions for math, science, and engineering activities; assessment questions; and student pages. This guide contains two guided inquiry lessons and a culminating engineering challenge where students apply concepts learned in their inquiry lessons.

Equipment and materials needed to complete guide activities include the Pitsco *SpaceShipOne* Foamie Glider, scissors, rulers, paper, art supplies, paper clips, tape measure, balloons, tape, umbrellas, balls, and standard classroom tools and materials. **Note:** This list is for all activities; individual activities don't require all listed materials. Paperback, 22 pages.
QX41805—$4.95

See SpaceShipOne Foamie Glider on page 156 in Aerospace.

NEW!

PARACHUTES ELEMENTARY STEM ACTIVITY GUIDE



A Pitsco Exclusive

Written for Grades 3-5, this guide helps students grasp a variety of subjects including testing variables, rate of descent, gravity, Newton's laws, and design.

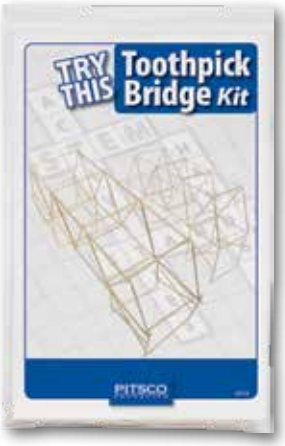
The *Parachutes Elementary STEM Activity Guide* contains NGSS, CCELA, and CCSSM standards addressed; teacher and student instructions for math, science, and engineering activities; assessment questions; and student pages. This guide contains two guided inquiry lessons and a culminating engineering challenge where students apply concepts learned in their inquiry lessons.

Equipment and materials needed to complete guide activities include the Pitsco Parachutes – Getting Started Package or Try This: Parachute Kit, tape, scissors, glue, string, rulers, paper clips, modeling clay, stopwatches, tape measures, labels, washers, and standard classroom tools and materials. **Note:** This list is for all activities; individual activities don't require all listed materials. Paperback, 20 pages.
QX41855—$4.95

See Parachutes – Getting Started Package on page 142 in Aerospace.

Try This Kits









At teachers' requests, Pitsco created the Try This and the EZ lines of products. These kits are an easy and economical way for teachers to try out some of our class pack activities before implementing them in the classroom. The activity materials are pre-bagged, making them simple to distribute.

The Try This packs enable teachers to quickly and easily demonstrate builds for the class. With their low cost, it is easy to supply the entire classroom with their own. The EZ products were created with big classrooms in mind – for the ease of students getting hands-on experiences with minimal (if any) tool requirements.

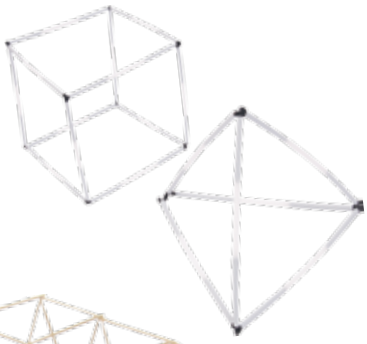
TRY THIS: STRAW STRUCTURE KIT

A Pitsco Exclusive

Help students understand basic three-dimensional shapes by constructing their own cubes and tetrahedrons! This kit includes the needed straws, pipe cleaners, and instructions for a student to build the shapes in no time. No tools required.

Pitsco's Try This kits are designed as quick and easy activities that show some of the basic concepts of larger projects. This kit should take 20 minutes or less to construct.

QX40308—$1.50



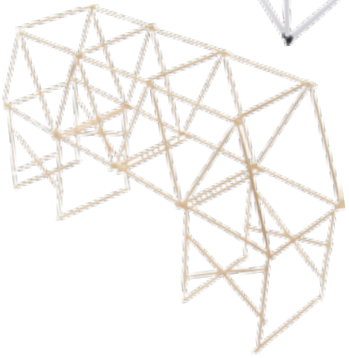
TRY THIS: TOOTHPICK BRIDGE KIT

A Pitsco Exclusive

No time to build a regular-size toothpick bridge? Cover some of the same structural concepts in a fraction of the time with this kit. Includes toothpicks and instructions for one small bridge. Requires white glue and waxed paper, sold separately.

Pitsco's Try This kits are designed as quick and easy activities that show some of the basic concepts of larger projects. This kit should take 30 minutes or less to construct.

QX40309—$1.50



TRY THIS: ENGINEERING KIT

A Pitsco Exclusive

Sometimes the best activity is the one where students figure things out all on their own. That's what this kit does: it presents them with the materials to build a sail car but lets them figure out how to do it on their own – just like real engineers! Requires paper, glue, and a hobby knife, sold separately.

Pitsco's Try This kits are designed as quick and easy activities that show some of the basic concepts of larger projects. This kit should take 20 minutes or less to construct.

QX40311—$1.50



TRY THIS: PARACHUTE KIT

A Pitsco Exclusive

Pitsco's parachute activity has gone mini! For a fast aerospace activity, try this mini parachute to give students an understanding of load, gravity, and more in no time. Requires scissors, glue stick, and modeling clay, sold separately.

Pitsco's Try This kits are designed as quick and easy activities that show some of the basic concepts of larger projects. This kit should take 20 minutes or less to construct.

QX40310—$1.50



Scholastic Instructor Teacher's Picks: STEM Staples
"I used this kit as a 'design' lesson. Students worked through two recesses because they wanted to."
Fourth-Grade Teacher Nancy Carroll, Walpole, Massachusetts



TRY THIS: ENGINEERING SAIL CAR CLASS PACK

A Pitsco Exclusive

Want to challenge all your students with the Try This: Engineering Kit? It's easy to do with the class-sized pack.

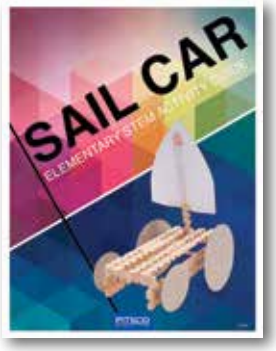
In this activity, students design their own solution to creating a sail car with the supplied materials from this pack. This pack is for 30 students and includes a design brief featuring teacher tips, student design brief, design process, testing, extensions, and standards.

Ages 9+

QX40603—$35

NEW!

SAIL CAR ELEMENTARY STEM ACTIVITY GUIDE



A Pitsco Exclusive

Building a sail car is a great activity for elementary students to complete. This elementary guide is written for Grades 3-5. With these fun activities, students grasp a variety of subjects including distance, speed, weight, variables, inquiry, and much more.

The *Sail Car Elementary STEM Activity Guide* contains teacher and student instructions for math, science, and engineering activities; assessment questions; resource pages; and student pages. Contains three guided inquiry lessons and a culminating engineering challenge for students to apply concepts learned through inquiry lessons. Paperback, 43 pages.

QX41527—$4.95



EZ CATAPULT

A Pitsco Exclusive

True to its name, this catapult is easy to build, as it requires no gluing or tools for construction. It is, however, fun to test. This rubber band-powered catapult sends lightweight pony beads flying! Students can learn how science and math apply to the catapult while discovering the history of this medieval machine.

QX41011—$5.95

NEW!

EZ CATAPULT CLASS PACK

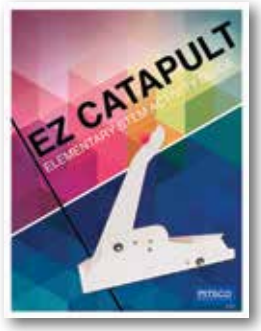
A Pitsco Exclusive

The EZ Catapult Class Pack has enough materials to get a class of 30 students traveling back in time. No tools required for building.

QX41548—$165

NEW!

EZ CATAPULT ELEMENTARY STEM ACTIVITY GUIDE

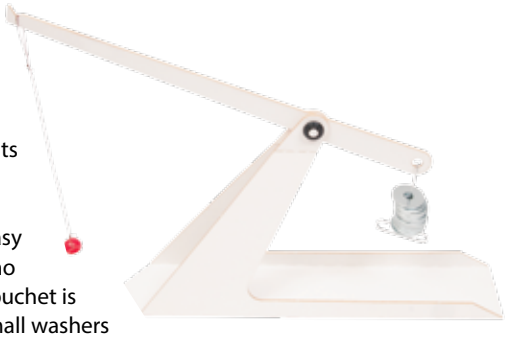


A Pitsco Exclusive

Building an EZ Catapult is a great activity for elementary students to complete. This elementary guide is written for Grades 3-5. With these fun activities, students grasp a variety of subjects including forces, projectile motion, engineering design, catapult history, and tons more.

The *EZ Catapult Elementary STEM Activity Guide* contains teacher and student instructions for math, science, and engineering activities; assessment questions; resource pages; and student pages. This guide contains two guided inquiry lessons and a culminating engineering challenge for students to apply concepts learned through the inquiry lessons. Paperback, 31 pages.

QX41501—$4.95



EZ TREBUCHET

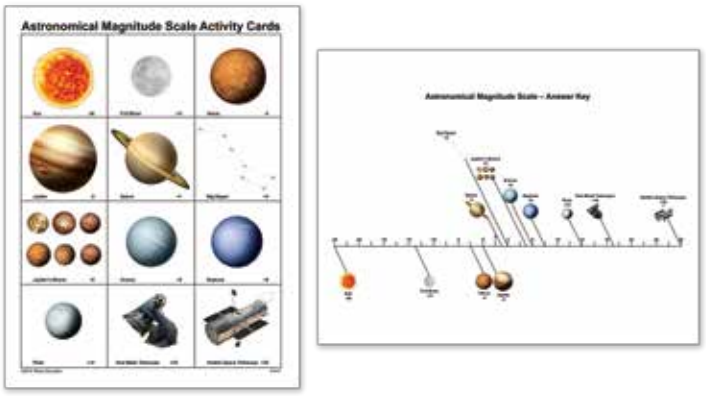
A Pitsco Exclusive

Take your students on a journey through medieval times. The EZ Trebuchet is a quick, easy build – no gluing and no tools required. The trebuchet is counterbalanced by small washers and uses a lightweight bead on a string as the projectile. Students can experiment with various counterweight masses, different lengths of strings on the projectile, and beads with different masses as the projectile.

Ages 9+

QX41014 —$6.95

Solar System Activities



NEW!

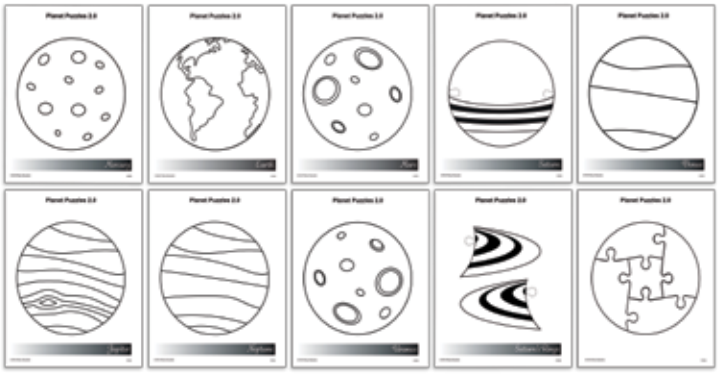
ASTRONOMICAL MAGNITUDE SCALE ACTIVITY

A Pitsco Exclusive

In this design challenge, students chart a number line to represent the astronomical magnitude scale. They are then presented with the task of creating their own number line using the included activity cards.

Display boards, scissors, tape, and glue required.

QX41417—$9.95



NEW!

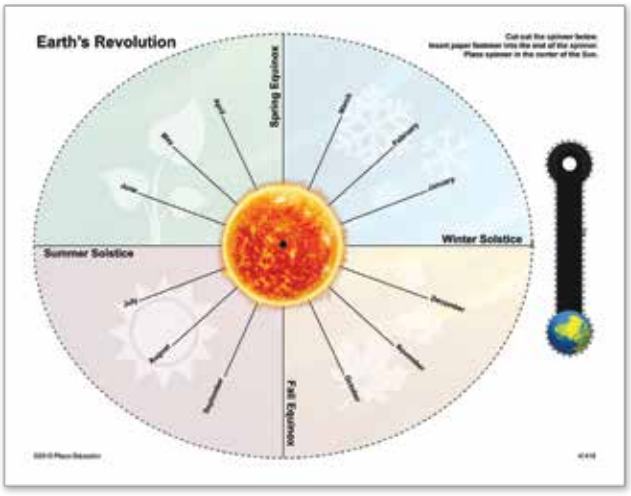
PLANET PUZZLES 2.0

A Pitsco Exclusive

Students create their own puzzles of the planets. Color one side, then flip it over and write facts about the planet. Eight planets included, printed on card stock. Students can put together one planet at a time or, for a little more of a challenge, mix all the planets together in one pile and determine which planet facts go together.

Scissors and colored pencils required. Serves 24 students.

QX41415—$24.95



NEW!

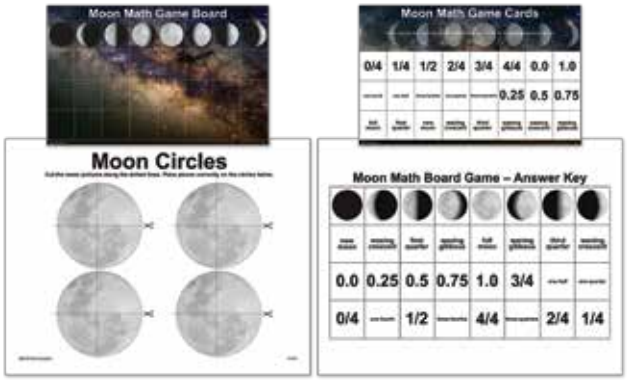
EARTH REVOLUTION MODEL

A Pitsco Exclusive

This model is a great way to teach about Earth's revolution around the Sun and its applications to angles. Students create their own models to calculate the different angles of Earth's position related to the Sun at different times of the year. They measure the angles at each month, equinox, and solstice.

Scissors, a protractor, and a paper fastener are required. Serves 30 students.

QX41416—$19.95



NEW!

MOON MATH GAME

A Pitsco Exclusive

Who knew that you could relate fractions to the phases of the Moon? In this game, students identify the eight main phases of the Moon, their descriptions, and the fraction and decimal equivalents of the phases. Students are challenged to complete fraction problems based on the Moon phases. Scissors are required, sold separately. Serves two to four players.

QX41418—$12.95

Introduce your students to coding.







NEW!

FINCH ROBOT

Developed at Carnegie Mellon for use in education, the Finch Robot will capture the attention of your computer scientists, robot enthusiasts, and everyday learners. Designed to enable students to learn coding through robotics, the Finch Robot features:

- Light, temperature, and obstacle sensors.
- Accelerometers.
- Motors.
- Buzzer.
- Full-color beak LED.
- Pen mount for drawing capability.







The Finch Robot engages students at a young age as they experience hands on what computer science has to offer, including interactive programming. From reacting to stimuli to speaking, drawing, and beyond, the Finch carries out your students' instructions as they witness the fruit of their efforts.

Finch Robot comes pre-built and ready for programming. Can be used on multiple platforms and with 20 different programming languages (see list and grade-level suggestions at http://www.finchrobot.com/software-overview). Coding with the Finch will provide a solid foundation in computer programming and facilitate further learning experiences (including more complex programming) involving TETRIX® PRIME and MAX. Many of the same programming languages available for Finch can also be used with *Arduino*-controlled TETRIX robots.

Connect to USB port.

QX41541—$99



NEW!

HUMMINGBIRD DUO BASE KIT

Build your own robot with the Arduino-based Hummingbird Duo Base Kit.

- 1 Hummingbird Duo controller
- Power supply, USB cable, terminal tool, snap-in stand-offs
- Red, orange, yellow, and green single-color LEDs
- 2 tricolor LEDs
- 2 hobby servos
- 1 servo extension cable
- 1 light sensor
- 1 temperature sensor

Ages 12+

QX41920—$159

STEM Books

Peter Sellwood is known for his practical, hands-on instructional approach resulting in books that are highly relevant, easy to understand, and filled with enlightening and engaging lessons, experiments, and explorations. Written and formatted specifically for elementary students, the Hands-On STEM Learning Series of books teaches everything from the basics of flight and how electricity works to structures, packaging, roads and pathways, and the power of magnets.



K-2 TRAVELING THROUGH AIR COLLECTION

Traveling Through Air is a collection of three student books: *Finding Out About Air*, *Finding Out About Flight*, and *Finding Out About Heated Air*, as well as the *Traveling Through Air Teacher Book*. This set includes cross-curricular learning objectives such as activities and experiments that teach concepts in math, science, technology, and language arts. Student books are available individually.
QX40635—$19.95



K-2 STRUCTURES COLLECTION

The *Structures Collection* is a collection of three student books: *A Home for a Pet*; *Exploring Containers and Packaging*; and *Exploring Roads, Tracks, and Pathways*. It also contains the *Structures Collection Teacher Book*. This comprehensive collection does a fantastic job of introducing students to various elements and uses of structures. Student books are available individually.
QX40636—$19.95

3-5 FINDING OUT ABOUT FLIGHT PACK



The *Finding Out About Flight* teacher's book provides detailed instructions for educating students about the force of gravity, pneumatics, and hydraulics as well as a brief history of aviation and its impact. Cross-curricular objectives for math, science, technology, language arts, and social science are included.

The *Finding Out About Flight* student book, also included, teaches the force of gravity, pneumatics, and hydraulics as well as a brief history of aviation and its impact. A variety of activities and experiments enable students to design, build, and test parachutes, several types of rockets, hot-air balloons, kites, and more.
QX40637—$19.95

3-5 FINDING OUT ABOUT STRUCTURES PACK



Building Structures provides a foundation in the properties of materials and the basics of bridge design. Topics include experimenting with sheet materials, calculating load distribution, and bridge building. Students explore arch structures and build a skywalk.

The *Finding Out About Structures* teacher's book features a rather comprehensive exploration of building structures, cantilever and arch structures, and suspension brides. It includes everything you need to introduce students to the design process and teach them how to build various structures, including a suspension bridge.
QX40638—$19.95

FINDING OUT ABOUT ELECTRICITY – TEACHER BOOK



The basic objectives of *Finding Out About Electricity* are learning about electricity, discovering different types of electricity, making a simple battery, and making an electrical current. Students also get to make their own simple, electric-powered balsa wood vehicle. Paperback/Spiral-bound, 72 pages.
QX60164—$19.95

FINDING OUT ABOUT MAGNETISM – TEACHER BOOK



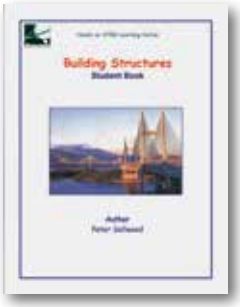
This study begins with the history of magnets, dating back to 1200 B.C. *Finding Out About Magnetism* is full of fun and engaging activities, experiments, and games that enable students to create a magnetic field, study magnetic poles, and make their own magnets and compasses. Paperback/Spiral-bound, 63 pages.
QX60165—$19.95

FINDING OUT ABOUT STATIC ELECTRICITY – TEACHER BOOK



The key objectives of *Finding Out About Static Electricity* include teaching students about static electricity, experimenting with static electricity, understanding positive and negative static electricity, and exploring uses for static electricity. Students investigate through a variety of experiments. Paperback/Spiral-bound, 48 pages.
QX60166—$19.95

BUILDING STRUCTURES – STUDENT BOOK



Building Structures provides a foundation in the properties of materials and the basics of bridge design. Topics include experimenting with sheet materials, calculating load distribution, and bridge building. Students explore arch structures and build a skywalk.

The *Finding Out About Structures* teacher's book features a rather comprehensive exploration of building structures, cantilever and arch structures, and suspension brides. It includes everything you need to introduce students to the design process and teach them how to build various structures, including a suspension bridge. Paperback/Spiral-bound, 47 pages.
QX60168—$6.95

EXPLORING CONTAINERS AND PACKAGING – STUDENT BOOK



Beginning with a fundamental lesson about the various types of packages that are used in our daily lives, *Exploring Containers and Packaging* examines why a variety of materials are used in packaging. Students learn to design, decorate, and make their own package. Paperback, stapled, 12 pages.
QX60174—$3.95

3-5 FINDING OUT ABOUT FLIGHT – STUDENT BOOK



Finding Out About Flight teaches the force of gravity, pneumatics, and hydraulics as well as a brief history of aviation and its impact. A variety of activities and experiments enable students to design, build, and test parachutes, several types of rockets, hot-air balloons, kites, and more. Paperback/Spiral-bound, 81 pages.
QX60170—$6.95

FINDING OUT ABOUT AIR – STUDENT BOOK



Finding Out About Air is a basic study of the importance of air to all living things. Experiments include fundamental studies in gravity and lift. Students make drawings from what they observe in nature and make a whirly flyer that will hover like a seed on the air. Paperback, stapled, 16 pages.
QX60176—$3.95

A HOME FOR A PET – STUDENT BOOK



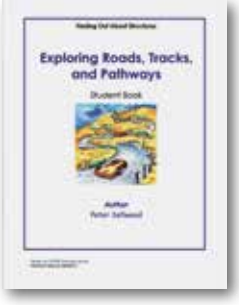
In addition to finding out some basics about structures, *A Home for a Pet* enables students to do several experiments and activities, including designing and building four tall structures from different materials. In addition, they will build a bird's nest as well as a home for a pet. Paperback, stapled, 12 pages.
QX60172—$3.95

FINDING OUT ABOUT HEATED AIR – STUDENT BOOK



Exploring how the Sun works is the basis for *Finding Out About Heated Air*. Students will study heat sources such as living creatures and friction, and they will create and launch their own hot-air balloon using a plastic laundry bag, some modeling clay, clear tape, and a hair dryer. Paperback, stapled, 14 pages.
QX60177—$3.95

EXPLORING ROADS, TRACKS, AND PATHWAYS – STUDENT BOOK



The *Exploring Roads, Tracks, and Pathways* student book begins with a visual study of directing structures – or pathways that lead or direct someone or something – such as roads, rivers, and pipelines. Students learn about movement, time, and angles as they study theme park rides and roller coasters. Paperback, stapled, 18 pages.
QX60173—$3.95

K-2 FINDING OUT ABOUT FLIGHT – STUDENT BOOK



Finding Out About Flight takes a look at why and how birds can fly. Hands-on experiments include building basic and advanced paper gliders using copy paper, a paper clip, scissors, a pencil, and a ruler. Students will also learn how to build and fly a balsa wood glider. Paperback, stapled, 14 pages.
QX60178—$3.95

Professional Development

A Professional Development Series for STEM Integration in Elementary Classrooms

Elementary teachers have little time in their day to insert another initiative. Everyday STEM Units guide teachers in connecting STEM concepts within their everyday lessons and activities.

- Each unit is a 90-minute local workshop.
- Each unit includes a facilitator's handbook, slideshow, samples of activities and classroom resources, and reproducible handouts.
- Developed by Ginger Whiting, author of the highly acclaimed *Children's Engineering Handbook*
- Perfect for both new and seasoned teachers who want to integrate STEM

"I really liked the fact that students can make connections to things they see and use every day. This aspect will make the learning process much more enjoyable for them as they come to understand the 'why' of these activities."

STEM Professional Development participant, Duplin County Schools, Kenansville, NC



Unit 1

UNIT 1: HIGHLIGHTING THE T & E IN STEM – A CHILDREN'S ENGINEERING SERIES

A Pitsco Exclusive

This is the starting point for the Everyday STEM program. This unit provides detailed professional development plans, including tools to help students understand how technology affects their daily lives. Educators come away from this workshop understanding the differences between technology and science, the vital part that technology and engineering play in our lives, and that the *T* & *E* in STEM fit naturally into all academic areas. This unit was developed specifically by teachers to help educators understand that STEM is more than just science and mathematics.

Includes a slide show, facilitator plans and guide, *Children's Engineering: A Handbook for Elementary Educators*, and many classroom resources. Extra copies of *Children's Engineering: A Handbook for Elementary Educators* – one per workshop participant – are recommended.

QX37124—$395

UNIT 1: WORKSHOP HANDOUTS

A Pitsco Exclusive

Save yourself the trouble of photocopying from the unit handbook. This pack includes 25 sets of all the handouts for Unit 1.

QX59936—$59.95



Unit 2

UNIT 2: USING THE DESIGN PROCESS – A CHILDREN'S ENGINEERING SERIES

A Pitsco Exclusive

This unit builds teachers' understanding of the technology and engineering design process by providing hands-on experiences to help teachers teach the design process. Activities include creating geometric creatures, words, and moving parts using paper engineering. The text helps teachers learn to tie into unexpected subjects – such as reading and history – to teach engineering to young children.

Includes a facilitator guide, CD, and slide show; *Children's Engineering: A Handbook for Elementary Educators*; materials for paper engineering activities; and more.

QX37414—$395

UNIT 2: WORKSHOP HANDOUTS

A Pitsco Exclusive

Save yourself the trouble of photocopying from the unit handbook. This pack includes 25 sets of all the handouts for Unit 2.

QX59983—$59.95



MOVING PARTS PACK

A Pitsco Exclusive

Creating moving parts in paper engineering is easy with these circles and large and small rectangles prepunched with linkage holes. There are 30 sheets, each with four prepunched shapes used in the Everyday STEM Unit 2.

QX37977—$14.95



CARD STOCK SHAPES – UNCUT

A Pitsco Exclusive

A more affordable option for teachers wanting to do paper engineering, these Card Stock Shapes are printed but uncut. You or students cut them out and cut the cost at the same time.

Same as the Bag of Card Stock Shapes, these have 600 preprinted pieces to start your students in paper engineering with mechanical linkages. Includes a variety of colors in 30 different shapes (20 of each shape). Colors may vary. Requires making small holes for linkages – we recommend the Push Pin Paper Drill Kit. Also requires brads for assembling, sold separately.

QX60107—$17.95



BAG OF CARD STOCK SHAPES

A Pitsco Exclusive

Ready to take on students making their own holes for paper engineering with mechanical linkages? This pack delivers 600 pieces of card stock to get your students started. Includes a variety of colors in 30 different shapes (20 of each shape). These are materials for Unit 2 Focus Lessons, and colors may vary. Requires making small holes for linkages – we recommend the Push Pin Paper Drill Kit. Also requires brads for assembling, sold separately.

QX37976—$69

About the Author:
Ginger Whiting is an experienced elementary teacher who has long supported the use of hands-on activities. She is one of the founders of the Children's Engineering Educators, LLC, providing workshop sessions and graduate classes that show teachers how to incorporate technology and engineering into regular lessons. When the economic climate made in-person development difficult for schools to budget, Whiting reconfigured the material so it could be used without hiring an outside consultant to facilitate the sessions – giving birth to the Everyday STEM Professional Development Units.



Ginger Whiting
Everyday STEM Series Author



Unit 3

UNIT 3: STRUCTURES FOUND IN EVERYDAY LESSONS – A CHILDREN'S ENGINEERING SERIES

A Pitsco Exclusive

This unit helps elementary educators understand that they already teach about structures in many of their lessons. Teachers learn to identify and classify structures in their daily lessons and how to integrate discussions of structures without changing what they teach. The *Children's Engineering: Beyond the Basics* book also provides 12 cross-curricular activities.

The unit includes a facilitator guide, CD, and slide show; *Children's Engineering Beyond the Basics*; poster set; Everyday STEM Structures Rummy Game; Structures Card Sort; and Classifying Structures Card Sort – Venn Diagram.

QX37415—$395

UNIT 3: WORKSHOP HANDOUTS

A Pitsco Exclusive

Save yourself the trouble of photocopying from the unit handbook. This pack includes 25 sets of all the handouts for Unit 3.

QX59938—$59.95

Professional Development



Unit 4

UNIT 4: TOOLS – MAKING CONNECTIONS WITH EVERYDAY LESSONS – A CHILDREN'S ENGINEERING SERIES

A Pitsco Exclusive

Go beyond the hardware store idea of tools so your students can fully understand that there are all kinds of tools they use – scissors, stopwatches, and even saxophones – to accomplish tasks every day.

This professional development unit also shows you how to draw out answers and ideas from your students, as well as how to facilitate active discussions that help them understand the link between the tools from the lessons and those in the real world.

The unit includes facilitator plans, slide show, and facilitator guide; *Children's Engineering: A Handbook for Elementary Educators*; classroom resources; *Simple Machines Big Book*; *Six Simple Machines Big Book*; *Jim and the Beanstalk*; two sample lessons; Is It a Tool? Card Sort; Whose Tool Is It? Card Sort; Simple Machine Venn Diagram Card Sort; and craft sticks and paper fasteners.

QX38731—$395

UNIT 4: WORKSHOP HANDOUTS

Save yourself the trouble of photocopying from the handbook. Includes 25 sets of all the handouts for Unit 4.

QX59939—$59.95



Unit 5

UNIT 5: MATERIALS – MAKING CONNECTIONS WITH EVERYDAY LESSONS – A CHILDREN'S ENGINEERING SERIES

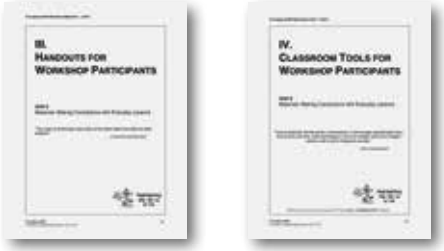
A Pitsco Exclusive

Continuing to build on previous units that focused on the design process, structures, and tools, Unit 5 takes a close look at materials. Learn how materials have been used and developed throughout history, the scope of materials available to us and how important they are, and how to identify different materials.

Then, discover how to apply this information in the elementary classroom using studies of ancient civilizations, modern communities, a Curious George storybook, and word connections as well as science, math, and design activities.

The unit includes a facilitator guide, CD, and slide show; *Children's Engineering: A Handbook for Elementary Educators*; *Properties of Materials Big Book*; 6 *Curious George Builds a Home* and *Adaptation* storybooks, *A Short History of Materials & Structures* book; the Technology Design Loop poster; Materials for Focus Lesson Implementation; and the Natural or Manufactured Card Sort.

QX39956—$395

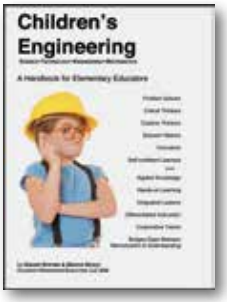


UNIT 5: WORKSHOP HANDOUTS

Get the handout materials you need from the Materials unit handbook without standing at the photocopier. This pack includes 25 sets of all the handouts for Unit 5.

QX59940—$59.95

Everyday STEM Elements for Schoolwide Classroom Implementation

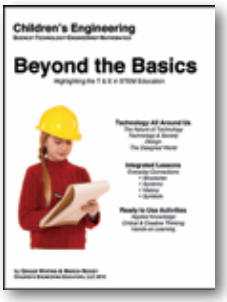


CHILDREN'S ENGINEERING: A HANDBOOK FOR ELEMENTARY EDUCATORS

A Pitsco Exclusive

Learn to include basic engineering in the elementary classroom. *Children's Engineering* offers six engineering activities by tying into topics such as reading (the garden tools and materials in the *Tale of Peter Rabbit*, for example). It details how to implement engineering and the design process. Includes teacher procedures, reproducible student pages, and national standards addressed. Paperback, 111 pages.

QX59874—$24.95
10 or more—$23.70 each

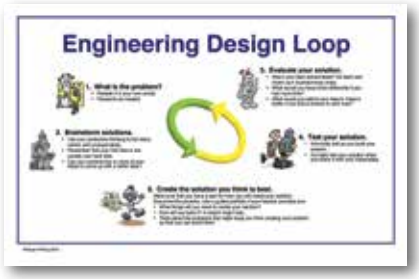


CHILDREN'S ENGINEERING: BEYOND THE BASICS

A Pitsco Exclusive

A follow-up to *Children's Engineering: A Handbook for Elementary Educators*, this guide helps educators recognize the technology already in their curriculum. Includes 12 activities that tie into other studies, such as Little Red Riding Hood (design a pop-up card of the story) and Abacus Math (create an abacus). Paperback, 141 pages.

QX59888—$24.95
10 or more—$23.70 each



INTERMEDIATE ENGINEERING DESIGN LOOP POSTER

Need a simpler version of the engineering design loop displayed in your classroom? Then check out this one with slimmed-down text and fun graphics. Gloss poster is 11" x 17".

QX60161—$2.95



TECHNOLOGY DESIGN LOOP POSTER

A Pitsco Exclusive

A great complement to the *Children's Engineering* book, this laminated poster brings the five-step technology design loop used in the book into full view for your students. Full color. Size: 11" x 17".

QX59884—$2.95

SCIENCE AND TECHNOLOGY POSTER SET

Features two vertical posters that graphically illustrate what technology and science really are, plus two horizontal posters focus on showing the different purposes and emphases of the two subjects. These posters reinforce lessons being taught with the Everyday STEM Structures Card Sort. Each is 11" x 17".

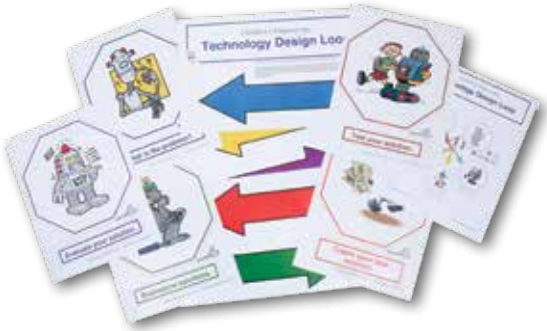
QX59943—$11.95



TOOLS & RULES SAFETY POSTERS

We all know safety is of utmost importance – especially with young children. This set of six posters will remind students of key safety messages as they use tools. Each full-color poster is 11" x 17" and laminated for years of use.

QX59973—$14.95



DESIGN LOOP BULLETIN BOARD

Cut out these colorful laminated parts to create a visual reminder of the five steps of the technology design loop in your elementary classroom. The loop features cute robot characters to interest young children.

Supports Everyday STEM Units and *Children's Engineering: A Handbook for Elementary Educators* or can be used to help students problem-solve your own technology challenges.

QX59974—$9.95



STEM-Integration Elements in Everyday Lessons



NATURAL OR MANUFACTURED? CARD SORT

A Pitsco Exclusive

Help young students learn how to differentiate between things that are man-made or nature made. Showing manufactured items (such as aluminum foil, glass, and a bucket) and natural items (such as coal, trees, and sand), children will soon master the difference. Also includes cards explaining the difference between these materials. This card sort is part of the Everyday STEM program. Includes 27 cards.

QX60114—$7.95



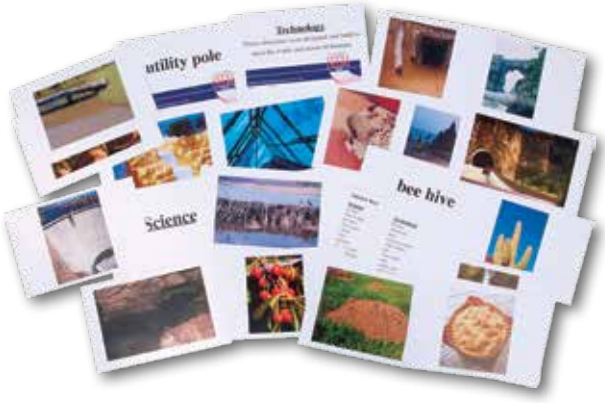
EVERYDAY STEM CARD SORT – SCIENCE OR TECHNOLOGY?

A Pitsco Exclusive

With this fun and simple activity, students start to look at the world around them differently. Looking at basic items – a microscope, medicine, a fossil, beetles, and such – students decide if the items belong under the category of science or technology.

Includes 27 cards.

QX59944—$7.95



EVERYDAY STEM STRUCTURES CARD SORT – SCIENCE OR TECHNOLOGY?

A Pitsco Exclusive

Help students understand the difference between structures classified under science versus technology with this game. From beaver dams and canal locks to natural bridges and beehives, students are challenged to determine the proper place for each of the 22 cards.

Also includes four cards for directions, definitions, and answers.

QX59975—$7.95



SIMPLE MACHINES VENN DIAGRAM CARD SORT

A Pitsco Exclusive

By sorting 27 tool cards under the six simple machines, students learn that many tools belong under more than one category. Seeing the intersection of these categories helps them begin to understand compound tools. Includes instructions.

QX60021—$7.95



WHOSE TOOL IS IT? CARD SORT

A Pitsco Exclusive

Students sort tools by whether they are used by one of six professionals. The 27 tool cards have the tool's name on one side and its picture on the other. Includes instructions and answers.

QX60022—$7.95



IS IT A TOOL? CARD SORT

A Pitsco Exclusive

With this card sort game, students answer the simple question for each of 23 picture cards: Is it a tool – or not? Includes instructions and an answer card.

QX60023—$7.95

STEM Tools for Everyday Lessons



PUSHPIN PAPER DRILL KIT

A Pitsco Exclusive

Make holes for paper engineering linkages in a snap. Includes a 1"-thick foam piece measuring 8-1/2" x 11", a giant pushpin drill, and full-color instructions for making holes for mechanical linkages on card-stock parts.
QX37676—$5.95



BRADS

These 3/4" paper fasteners are ideal for making paper-craft moving parts.
QX38021—$2.95

LONG-REACH HAND PUNCH

Perfect for paper engineering and other hole punch-intensive activities. Featuring a six-inch reach, this gadget has a sliding function selector to choose from eyelet setting, 1/8" hole punch, and 3/16" hole punch. It can be used for a variety of materials including paper, plastic, chipboard, thin tin, fabric, and leather.
QX38560—$65





JUMBO CRAFT STICKS

6" x 3/4" x 1/16" craft sticks. Use to create many different items.
QX53725 (pkg of 75)—$3.50

HEAVY-DUTY HAND PUNCH

This hand punch puts the rest to shame! With its strong and durable construction, you can easily punch 1/8" and 3/16" holes through leather, plastic, wood, chipboard, and more. Also handy for setting eyelets, eyelet/washer combos, and flat snaps.

The punch features a sliding measuring guide for precisely placed holes, and the soft-grip handle makes it easy to use.
QX38842—$55





ELEMENTARY-SIZE SAFETY GLASSES

Getting young students started in hands-on activities is a great idea, but so is safety! These glasses are properly sized for children to protect their eyes while the anti-scratch lens can be used for years.
QX38809—$5.50

STEM Books

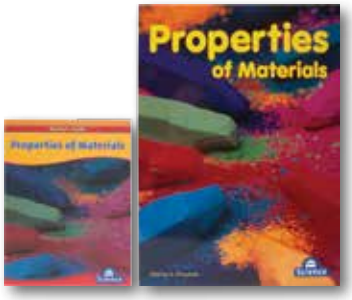


STRUCTURES POSTER SET

A Pitsco Exclusive

These six color posters reinforce to students the different types of structures with images of real-life examples. Includes sheltering, transporting, containing, directing, and supporting structures as well as science versus technology structures. Each poster is 11" x 17" and laminated for years of use.

QX59969—$16.95



PROPERTIES OF MATERIALS BIG BOOK & TEACHER'S GUIDE

QX37062—$38.25



MADE BY HAND BIG BOOK & TEACHER'S RESOURCE BOOK

QX37063—$38.25

EVERYDAY STEM STRUCTURES RUMMY GAME



A Pitsco Exclusive

Play rummy while learning to classify five different types of structures: containing, supporting, directing, transporting, and sheltering. Students put together a set of three cards of the same structure type – the player with the most sets wins the game! Includes 64 cards, including instructions.

QX59972—$9.95

CURIOUS GEORGE BUILDS A HOME



Follow along as perennial favorite Curious George puts his curiosity to work building a roost for his pigeon friend. Like many engineers, George has to experiment with materials and design to achieve success.

QX39955—$6.50

CLASSIFYING STRUCTURES CARD SORT – VENN DIAGRAM



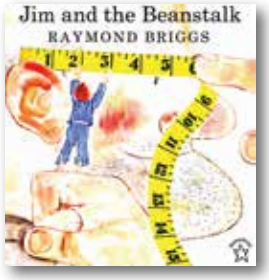
A Pitsco Exclusive

Understanding structures is taken up a notch with this card game, which has students sort objects on the cards as a supporting, sheltering, transporting, or containing structure. But that's not all – some cards have items that fit more than one category, and students must figure out where they overlap.

Includes 26 cards.

QX59976—$7.95

JIM AND THE BEANSTALK



This clever sequel to the familiar story is used within the Everyday STEM Unit 4 program as part of design brief. Using the brief and this book, students experience the design process as they design helping items for the giant (who has grown old and infirm).

A Library of Congress Children's Book of the Year. **Note:** This book contains references to the giant drinking beer and shows a beer bottle within the illustration.

QX38800—$10.95



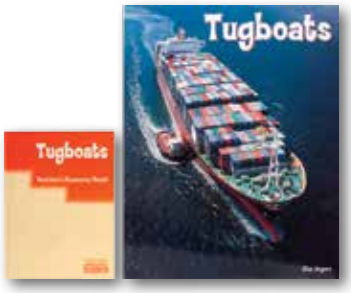
WHAT IS TECHNOLOGY? BIG BOOK & TEACHER'S GUIDE
QX37050—$38.25



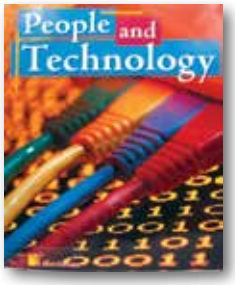
SCIENCE TOOLS BIG BOOK & TEACHER'S GUIDE
QX37060—$38.25



SIX SIMPLE MACHINES BIG BOOK
QX37065—$38.25



TUGBOATS BIG BOOK & TEACHER'S RESOURCE BOOK
QX37059—$38.25



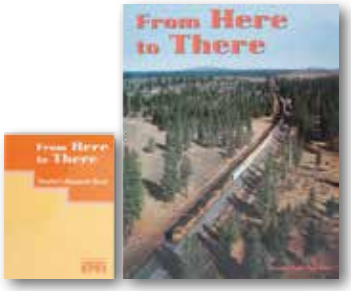
PEOPLE AND TECHNOLOGY BIG BOOK
QX37051—$38.25



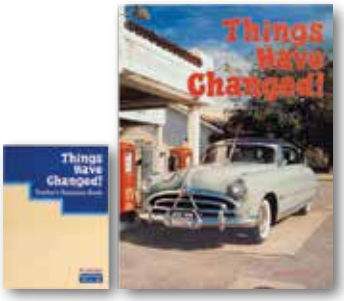
A WORLD OF TOOLS BIG BOOK & TEACHER'S GUIDE
QX37061—$38.25



INVENTIONS BIG BOOK & TEACHER'S GUIDE
QX37055—$38.25



FROM HERE TO THERE BIG BOOK & TEACHER'S RESOURCE BOOK
QX37058—$38.25



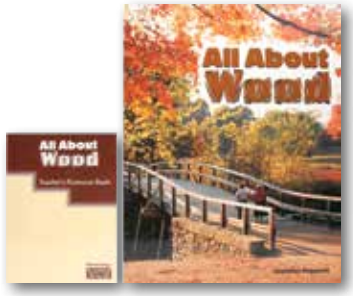
THINGS HAVE CHANGED! BIG BOOK & TEACHER'S RESOURCE BOOK
QX37053—$38.25



MACHINES BIG BOOK & TEACHER'S GUIDE
QX37067—$38.25



DESIGN IT! BUILD IT! BIG BOOK & TEACHER'S GUIDE
QX37054—$38.25



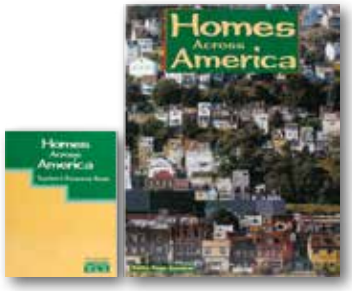
ALL ABOUT WOOD BIG BOOK & TEACHER'S RESOURCE BOOK
QX37064—$38.25



THEN AND NOW BIG BOOK & TEACHER'S RESOURCE BOOK
QX37052—$38.25



SIMPLE MACHINES BIG BOOK & TEACHER'S GUIDE
QX37066—$38.25



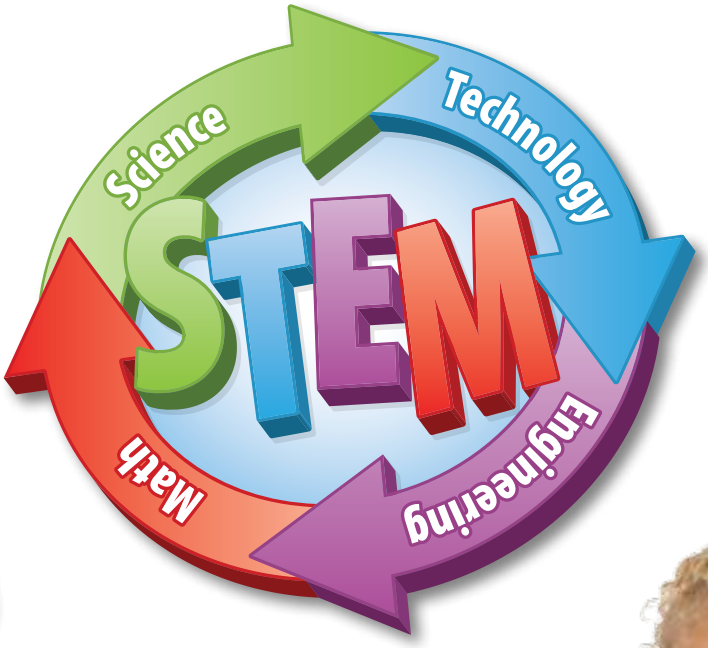
HOMES ACROSS AMERICA BIG BOOK & TEACHER'S RESOURCE BOOK
QX37056—$38.25

STEM in the Gym™

What is STEM in the Gym?

STEM in the Gym™ is an integrative way to experience and reinforce science, technology, engineering, and mathematics in physical education. It is a fun way to learn core content in the fitness arena and connect to kinesthetic learners. It is a great approach to reinforce learning that children love.









SIMPLE MACHINES PACKAGE CONTENTS

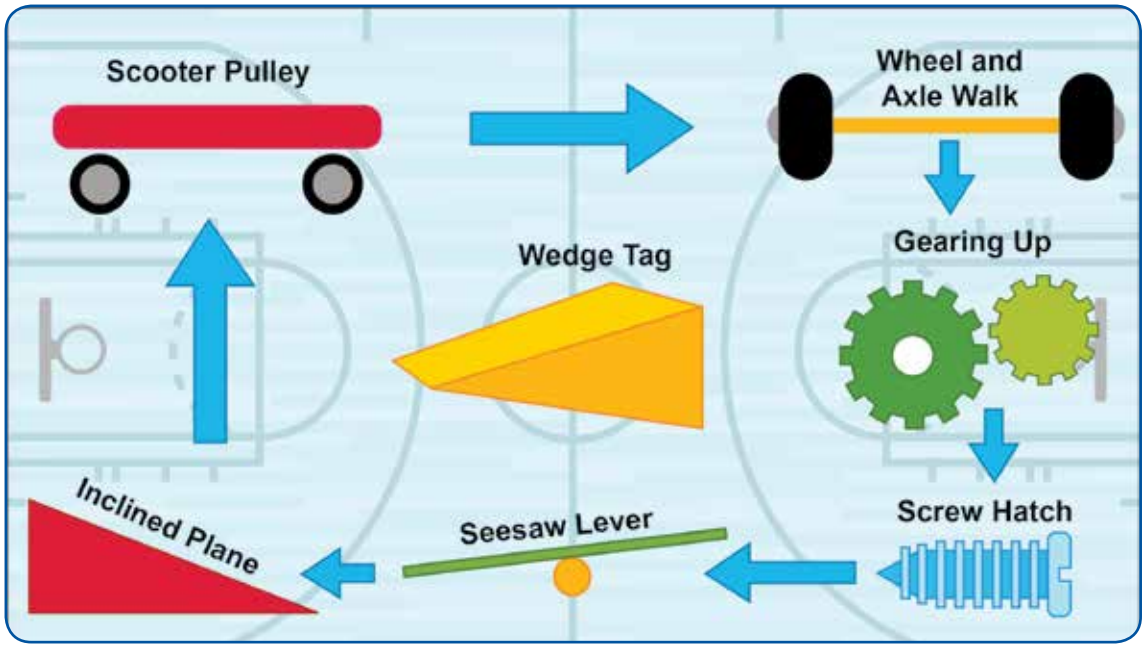
- 8 Soft Wedges
- 8 Seesaw Levers
- 6 Wheel & Axle Demonstrators
- 6 Screw Hatches
- 6 Wall Pulley Packages
- 6 Big Gears Demonstrators
- *STEM in the Gym – Simple Machines* book and DVD to guide teachers through the setup and implementation of seven physical activities that provide students with a kinesthetic lesson in simple machines

STEM IN THE GYM™ – SIMPLE MACHINES PACKAGE

A Pitsco Exclusive

Ready to teach physical science concepts in combination with physical education? The STEM in the Gym™ – Simple Machines Package will help you do just that! With this innovative program geared toward elementary grades, students will actually experience the mechanical advantage of each simple machine while learning about force, load, work, and more. Requires scooters, cones, and floor mats, not included.

QX37579—$2,995

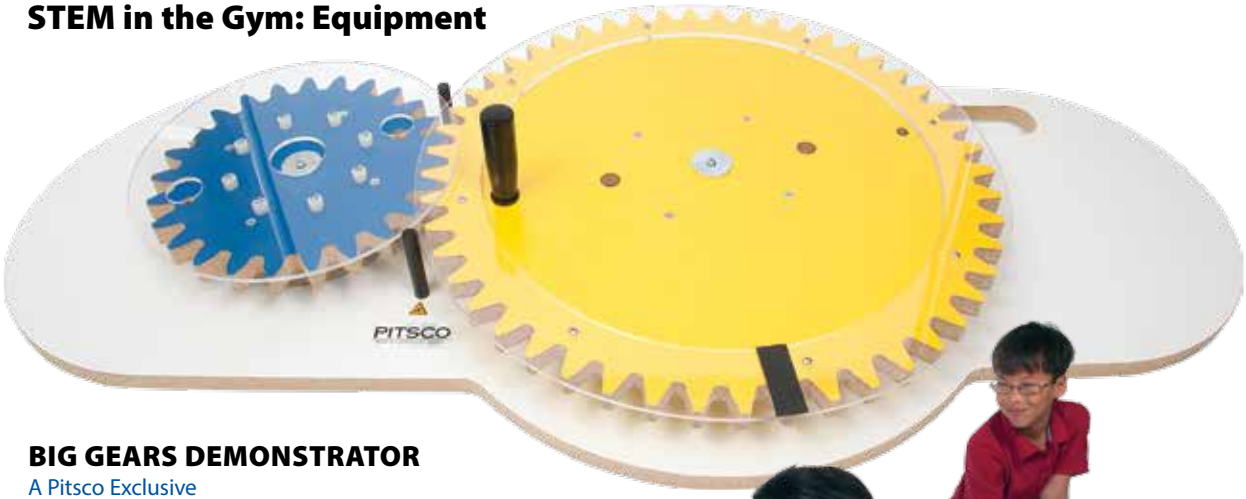


STEM in the Gym™

"We put them in groups and talk to them about, OK, in your terms this is a seesaw, but a seesaw is a fulcrum and lever. We introduce some of those terms and let them get a feel and understand what's being accomplished."

PE Teacher Terry Canova, UMS-Wright Preparatory School, Mobile, AL

STEM in the Gym: Equipment



BIG GEARS DEMONSTRATOR

A Pitsco Exclusive

These large gear mechanisms enable students to feel the mechanical advantage gained by using gears and pulleys. Let students first experience how much force is required to pull a classmate on a scooter across the floor. Then, weave the rope through the large gear train and have the student use the handle to pull in the classmate. Two separate devices provide gearing up and gearing down opportunities.

Requires scooter and cones, not included.

QX37545 (46" x 23" x 6-1/2")—$249

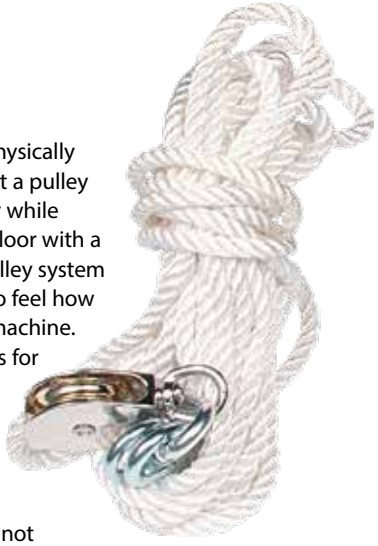




SOFT WEDGE

This soft, durable wedge provides a safe, hands-on experience with this simple machine that makes separating two items or two parts of an item an easier task. Plus, it encourages physical activity with a safe tool.

QX37089—$6



WALL PULLEY PACKAGE

This package enables students to physically experience the mechanical advantage that a pulley system provides. A student rides a scooter while pulling himself or herself across the gym floor with a rope. Next, the rope is run through the pulley system and the student repeats the experiment to feel how much easier the task is using this simple machine.

Includes the following needed items for a wall-mounted pulley:

- Large screw eye
- Latch
- Pulley
- Rope

Requires an 18" to 24" gym scooter, not included.

QX37559—$39





WHEEL & AXLE DEMONSTRATOR

Students use the Wheel & Axle Demonstrator to move across the gym floor – making them human vehicles. This demonstrates the simple machine called the wheel and axle, which provides mechanical advantage due to the difference in the ratio of the wheel's radius and the axle's radius.

Constructed with a steel axle, durable wheels, and foam hand grips, this is a safe device for your elementary students.
QX37525 (25" x 7" x 7")—$49





SEESAW LEVER

A Pitsco Exclusive

Students perform a balancing act as they learn about the lever as a simple machine. By balancing either themselves or with another student on this seesaw device, they feel how a lever can help achieve a task. By being able to move the fulcrum, they can also learn how the fulcrum's position can level the playing field between two different "loads."

The Seesaw Lever is constructed of durable wood parts and is appropriately sized for young students.
QX37522 (23-3/4" x 8" x 2-3/4")—$29





SCREW HATCH

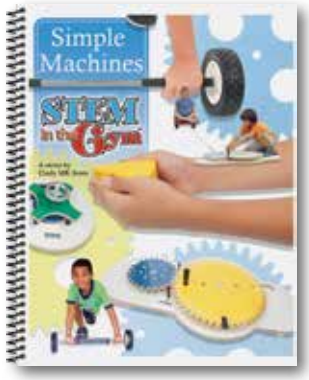
A Pitsco Exclusive

Astronauts practice using hand wheels to secure hatches in their vehicles. Students can also practice this with the Screw Hatch – and they learn about the advantage of torque. Using this device provides students a hands-on connection to two simple machines: wheel and axle and the screw.
QX37534 (16" x 16" x 6-1/2")—$99

STEM IN THE GYM™ – SIMPLE MACHINES TEACHER GUIDE

A Pitsco Exclusive

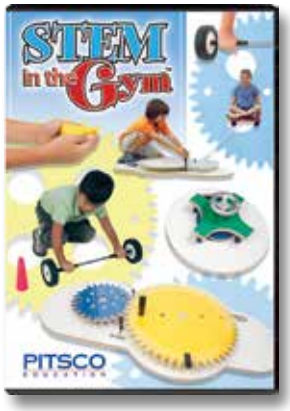
Written by an award-winning physical education teacher, this guide shows you how to use the STEM in the Gym™ equipment to teach simple machines with a kinesthetic approach. Covers the setup; organization; lesson plans for using the Wedge, Seesaw Lever, Wheel & Axle Demonstrator, Wall Pulley, Big Gears Demonstrator, Screw Hatch, and inclined plane; and correlated national standards. Paperback/Spiral-bound, 39 pages.
QX59965—$29.95



STEM IN THE GYM™ – SIMPLE MACHINES VIDEO

A Pitsco Exclusive

This video presents an engaging and motivating way to learn about simple machines while applying the principles of force, load, and work. Both teachers and students will enjoy a STEM in the Gym™ adventure. The program complements the unit's teacher guide and includes two sections: the first is directed to the students and teaches them a kinesthetic lesson with Simple Machines in the Gym, and the second visually demonstrates and guides students and teachers through the activities. Cindy Jones, STEM in the Gym creator, leads students in a demonstration of simple machines at work in the gym. Closed-captioned. Time: 30 minutes.
QX60020 DVD—$39.95



CLASSPhonics

"Animals in Motion"



From the creator of STEM in the Gym™!

Phonics: Animals in Motion is a way to teach and reinforce phonics through kinesthetic activities. Just like the STEM in the Gym™ program, students are out of their seats and on their feet!

It incorporates a video with upbeat music, a *PowerPoint* presentation, animated animal actions, flash cards for both phonics and math, a workbook, and even sign language. This innovative program provides your students with mind-body connections to core concepts. Students learn as they exercise, providing physical education and a fresh approach in the classroom.





CLASS PHONICS PACKAGE

A Pitsco Exclusive

Get students out of their seats and use the mind-body connection for learning. Similar to Gym Phonics, Class Phonics: Animals in Motion covers the same subjects with the flash cards but adapts it for classroom use.

Features student and teacher flash cards focusing on science, math, sign language, phonics, and blends. Teacher flash cards are an 11" x 17" format – easily visible by students – while student flash cards can be used in teams or in centers. The teacher flash cards are held by a wire rack that can be set on a desk or countertop, enabling easy flipping. The rack also helps to store the teacher flash cards and other program components.

The colorful *Phonics Workbook* provides letter-by-letter connections to writing, math, language arts, reading, science, and social studies. Additionally, the teacher guide provides ideas for classroom implementation, including activities such as Animal Alphabetize, Volleying Vowels, Animal Classification, and many more. Even in the classroom environment, many of the exercises can be done following the *Phonics* DVD or using the background music from the *Phonics Music* CD.

Correlations to Common Core Math and English and Next Generation Science Standards are provided. The package features 12 sets of student flash cards, a set of teacher flash cards, *Class Phonics Teacher's Guide*, 24 *Phonics Workbooks*, Workbook Companion *PowerPoint*, *Phonics Music* CD, *Phonics* DVD, and a 23" tall wire rack. Serves 24 students.

QX39967—$995
QX60152 Class Phonics Workbook—$4.95

GYM Phonics
"Animals in Motion"





GYM PHONICS PACKAGE

A Pitsco Exclusive

Reinforce phonics, science, and mathematics for young students by bringing it into the gym.

Through the Animals in Motion theme, movement and music can act as mnemonic devices to help students retain information while they are active and staying fit. From Alex the Alligator to Zane the Zebra, students will have fun while working through the flash cards, DVD, challenges, and activities.

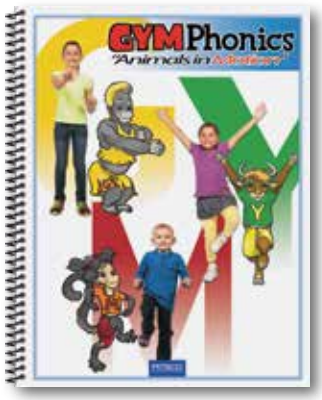
Features student and teacher flash cards focusing on science, math, sign language, phonics, and blends. Teacher flash cards are in an 11" x 17" format – easily visible to students as they exercise. The teacher flash cards are held by a tall wire rack, enabling easy flipping. The rack also makes storing the flash cards and other program components easier. Student flash cards can be used in teams or at stations in the gym environment.

The *Phonics* DVD provides a visual guide to the exercises and sign language option. You can choose a specific letter so students can learn and practice that exercise. When students know all the letter exercises, the complete workout option can be used, providing visual cues for the students as well as the 60 beats-per-minute music. A *Phonics Music* CD provides the opportunity to play the same phonics workout music from an ordinary CD player in the gym environment. Includes correlations for American Alliance for Health, Physical Education, Recreation and Dance; Common Core Math and English; and Next Generation Science Standards.

Includes the *Gym Phonics Teacher's Guide*, the *Phonics* DVD, teacher flash cards, student flash cards, *Phonics Music* CD, and a 47" wire rack. Serves an entire gym class.

QX39969—$249





GYM PHONICS TEACHER'S GUIDE

A Pitsco Exclusive

Leads you through the Gym Phonics: Animals in Motion activities. Activities require components of complete package, sold separately. Spiral-bound, 65 pages.

QX60150—$24.95



Phonics
"Animals in Motion"



COMPLETE SET OF PHONICS FLASH CARDS

A Pitsco Exclusive

These five sets of flash cards are available as student flash cards (3.5" x 5.5") or teacher flash cards (11" x 17"). Teacher flash cards are punched and bound with split rings that can also support the cards as you flip through them.

QX39968 Complete Set of Flash Cards - Teacher Version—$99
QX39970 Complete Set of Flash Cards - Student Version—$39.95



ANIMAL ALPHABET FLASH CARDS

A Pitsco Exclusive

From alligator arms and lion lunge to turtle tuck and zebra zigzag, these fun illustrations will get students moving while they learn phonics. 11" x 17" teacher cards are punched and bound with split rings for easy flipping. These flash cards are for the Gym Phonics and Class Phonics programs. Includes 27 cards.

QX60147 Animal Alphabet Flash Cards - Teacher Version—$24.95
QX60141 Animal Alphabet Flash Cards - Student Version—$8.95

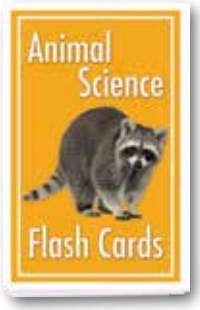


ANIMAL MATH FLASH CARDS

A Pitsco Exclusive

Students will have fun learning to count from 1 to 20 with these colorful cards (1 panda, 2 bears, 3 fish, and so on). Plus, there are add, subtract, multiply, divide, and other mathematical-function cards. 11" x 17" teacher cards are punched and bound with split rings for easy flipping. Includes 33 cards.

QX60144 Animal Math Flash Cards - Teacher Version—$24.95
QX60138 Animal Math Flash Cards - Student Version—$8.95



ANIMAL SCIENCE FLASH CARDS

A Pitsco Exclusive

An A-Z deck with fun facts about colorful critters! The Animal Science Flash Cards provide the class, diet, habitat, and location of creatures such as the clown fish, jaguar, octopus, yak, and more. 11" x 17" teacher cards are punched and bound with split rings for easy flipping.

QX60143 Animal Science Flash Cards – Teacher Version—$24.95
QX60137 Animal Science Flash Cards – Student Version—$8.95



PHONIC BLENDS FLASH CARDS

A Pitsco Exclusive

Consonant blends (or clusters) take a fun turn with these animal-inspired cards. Each card features an animal illustrating a word that includes a common blend: *bl-* is blowfish, *pl-* is platypus, *sq-* is squirrel, and so forth. On the back of the card are 10 more words that use the blend. 11" x 17" teacher cards are punched and bound with split rings for easy flipping. Includes 28 cards.

QX60146 Phonic Blends Flash Cards – Teacher Version—$24.95
QX60140 Phonic Blends Flash Cards – Student Version—$8.95





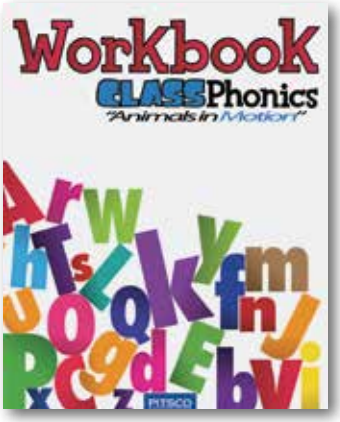
SIGN LANGUAGE FLASH CARDS

A Pitsco Exclusive

Teach your students the building blocks of sign language with these brightly colored cards with images of hands making the signs for each alphabet letter. On the back of the card is the letter the sign represents. 11" x 17" teacher cards are punched and bound with split rings for easy flipping. These flash cards are for the Gym Phonics and Class Phonics programs. Includes 27 cards.

QX60145 Sign Language Flash Cards - Teacher Version—$24.95
QX60139 Sign Language Flash Cards - Student Version—$8.95

CLASS PHONICS WORKBOOK



A Pitsco Exclusive

With this companion to the *Class Phonics Teacher's Guide*, students learn about phonics and animals in each core subject. For each letter, students complete a math, science, social studies, handwriting, and ELA activity. Students learn about animals and their habitats and diets; practice writing uppercase and lowercase letters; and apply principles such as conventions, literacy, print concepts, phonics, and word recognition. Common Core Math and English Standards and Next Generation Science Standards are met. Paperback, 52 pages.

QX60152—$4.95

PHONICS VIDEO



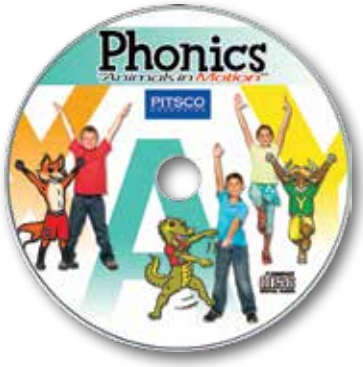
A Pitsco Exclusive

Guide your students through the Animals in Motion phonics program with ease by following this DVD. Watch as students perform the activities, see a sign language version of the letters, and view a teacher-led section by the program's author.

This video works with both the Class Phonics and Gym Phonics programs. Also includes warm-up, workout, and cool-down sections. Features music by award-winning songwriter Barry Dean.

QX60149 DVD—$39.95

PHONICS MUSIC CD



A Pitsco Exclusive

Using the same fun and upbeat background music used in the *Phonics: Animals in Motion* video, this CD provides 60 beats-per-minute music directly connected to the exercises demonstrated on the video. Use it in your CD player in the classroom or gymnasium for an Animals in Motion workout. This is original music written and produced by award-winning songwriter Barry Dean.

QX60157—$4.95

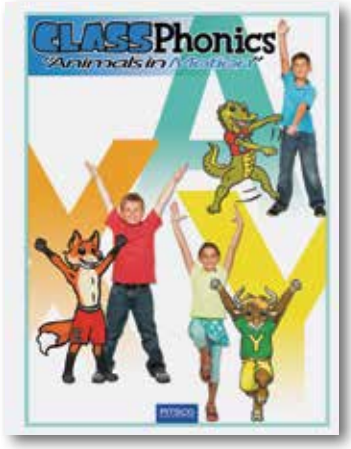


COUNTING FLASH CARDS

Provide your students with counting experiences while they exercise. Note: This set is not included with the Complete Set of Phonics Flash Cards.

QX60148 Counting Flash Cards - Teacher Version—$49
QX60142 Counting Flash Cards - Student Version—$19.95

CLASS PHONICS TEACHER'S GUIDE



A Pitsco Exclusive

This guide leads you through the Class Phonics: Animals in Motion activities that integrate into other subjects. The 20 to 25 hours of lessons correlate to Common Core Math and English standards and Next Generation Science Standards. Activities require components of the complete package, sold separately. Spiral-bound, 95 pages.

QX60151—$24.95



PITSCO MAKER SPACE™

imagine tinker explore learn

Hands on. Minds on. Maker space is the definition of Pitsco products. No two spaces are the same, but they are all filled with potential. Students get down to creativity and critical thinking, and the results are limited only by their imaginations.



The HOT Plan…works with organizations, teams, schools, etc.
See page 1 for info.

"In order to let kids learn, we must let them do. In order to let them do, we must give them the hands-on experiences with relevancy. Students will own their learning if we let them."

– Harvey Dean, CEO, Former Teacher

PITSCO MAKER SPACE™



NEW!

MAKER SPACE TOOLS PACKAGE

Need some tools to get your maker space functioning? How about almost any tool you can imagine? From scissors to a band saw, this package holds almost every tool your students might use to keep the making going.

QX41761—$8,995

NEW!

MAKER SPACE MATERIALS PACKAGE

Your makerspace is almost complete now – except for about 100 materials that you still need. Look no further than the Maker Space Materials Package. This package includes a variety of resistors, motors, dowel rods, valves, decals, and all the other little things that might have been missed but will be appreciated when the making starts.

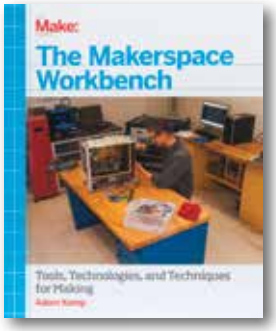
QX41760—$1,995

NEW!

MAKE: THE MAKERSPACE WORKBENCH

Perfect for any maker, educator, or community, this book shows you how to organize your environment to provide a safe and fun workflow and demonstrates how you can use that space to educate others. Paperback, 282 pages pages.

QX41917—$24.95



PITSCO MAKER SPACE™





Jessica Malloy
Christie Elementary, Plano, TX

Elementary school makerspace

Makerspaces can take on different looks depending on the culture and needs of your building and students. For many of our students, their main exposure to technology, electronics, robotics, and coding comes from school and happens in our makerspace. Encouraging our students to embrace their creativity, collaborate, and think critically about real-world problems is a huge part of our makerspace mission. It's filled with hands-on, highly engaging learning stations. It's a mashup of a science museum, a workshop, a tech lab, and a maker faire!

We want to provide an inquisitive, technology-rich environment that invites all students to explore science, technology, engineering, and math. If you give them a space and the tools to tinker with to help their curiosity to thrive, they will be able to continue to be the creative innovators that they are as they discover and explore new concepts through hands-on experiences. Exposing our students to these opportunities for discovery helps to prepare them to be the scientists, engineers, and problem solvers of the future and transform them from consumers to contributors.



NEW!

ELEMENTARY PITSCO MAKER SPACE PACKAGE

A Pitsco Exclusive

Eager to get your elementary classroom involved in the maker movement? The Elementary Pitsco Maker Space Package has everything you need to get your students moving, thinking, creating, and building. With a wide variety of hands-on Pitsco products ranging from straw rockets to roller coasters, their minds will be engaged with endless possibilities.

QX41759—$4,250

PITSCO MAKER SPACE™





Nicole Penn
Kiser Middle School, Greensboro, NC

Middle school makerspace

Makerspaces are ideal because they maximize learning by doing. Use them to introduce a new topic and/or reinforce key concepts each subject has in common: creativity, innovation, problem solving, and decision making. For best results, use makerspaces before teacher instruction to excite learning, similar to how watching a movie trailer motivates potential movie patrons to see a movie. Sometimes, makerspaces might be confused with modules in technology education or a lab in science. However, ideal makerspaces are often themed challenges; consist of the same set number of pieces, which can vary in size and function, in a container given to groups and allow students to make at the same time, in the same room, but in separate teaming spaces. Themed makerspaces enable students to experience success and compare each other's designs to appreciate and understand how multiple solutions can solve a problem; this is creativity in action. Borrowing ideas is encouraged, and sharing ideas is welcomed. From students' making a duck out of LEGO® bricks to making a tower out of geometric blocks to explore 3-D figures, makerspaces provide unlimited opportunities to make learning relevant, nonthreatening, and successful for students whose minds are transitioning from being the former elementary student to the rising high schooler.





NEW!

MIDDLE-LEVEL PITSCO MAKER SPACE PACKAGE

A Pitsco Exclusive

Fill your makerspace with hands-on Pitsco products to get your middle schoolers making. The Middle-Level Maker Space Package will fill your space and stretch the imaginations of your students. Whether they tackle the ChallengePak, explore the dynamics of AP Bottle Racers, soar to new heights with the KaZoon Kite, or take any number of journeys, with all the learning potential in this package, not even the sky can set a limit on where it will take them.

QX41763—$7,995



Makerspace: make technology work for you and your students

Karn Gustafson
Volcano Vista High School, Albuquerque, NM

High school makerspace

It started with the purchase of some Easy Cutters, Easy Miter Boxes, and a whole lot of balsa wood and craft sticks. I rapidly added sandpaper, sandpaper blocks, and a myriad of different shaping and cutting tools. Before I knew it, my students were building truss bridges and Boomilevers that could hold 100+ pounds. Egad, I was onto something! Soon came the tabletop band saw, the reciprocating saw, the benchtop drill press, and power sanders. We were building bigger and cooler things.

During this time, I applied to be a TAG teacher with Pitsco. I was able to work with and learn from an amazing group of teachers. At our summer summit, I was actually able to experience something I thought was way over my head – 3-D printing and laser cutting. This gave me the courage to take my makerspace to the next level. I now have four 3-D printers in my classroom. I soon realized how easy it is to bring all of this to my classroom. I watched my students smile wider, ask more questions, and want to do whatever it took to get to play in the makerspace. Nobody got hurt, no one cried (I was most worried about myself), and nothing broke that could not easily be fixed.

I can say with all honesty that my classroom is now a brighter, more engaging place for my students to learn. Yes, I still lecture, they still have to read, and they have to do all the other stuff that they would really rather avoid. The difference is they are more likely to do it because they know if they don't build the foundation, the makerspace will be out of their reach. It cost less than I thought and was easier to implement than I could have ever dreamed, and I can't remember what it was like to teach without it – and that was only three years ago. My best advice to anyone who has always wanted to give it a try is, "Go for it!" I think you will be pleasantly surprised by the results. It will make your life as a teacher better because your students will be excited about coming to class.



NEW!

HIGH SCHOOL PITSCO MAKER SPACE PACKAGE

A Pitsco Exclusive

Ready to make the most of the space for your high school students? Immerse their minds in creating and critical thinking with Pitsco's High School Maker Space Package. Science, technology, engineering, and math are all covered with this package, and students' imaginations and creativity take center stage. From catapults, airplanes, and solar ovens to wind generators, magnetic tracks, robots, and more, their minds will be consumed well after class ends.
QX41762—$15,500

PITSCO MAKER SPACE™

Suggested **Maker Space** products

PITSCO MAKER SPACE™

Elementary

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Finding Out About Pop-Ups 307
Invention Explore-A-Pak 279
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Prop Racer – Getting Started Package 110
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Try This: Engineering Sail Car Class Pack 343
Try This: Parachute Kit 342
Try This: Straw Structure Kit 342
Try This: Toothpick Bridge Kit 342
Straw Rockets – Getting Started Package 120
Roller Coaster Track – 40 feet 255
SunEzoon Solar Car 10-Pack 172
Maglev Vehicles – Getting Started Package 192
Making Your Own Ruler – Getting Started Package 312
Packaging Design – Getting Started Package 306
ChutePak II 30-Pack 142
KaZoon Kites – Getting Started Package 146
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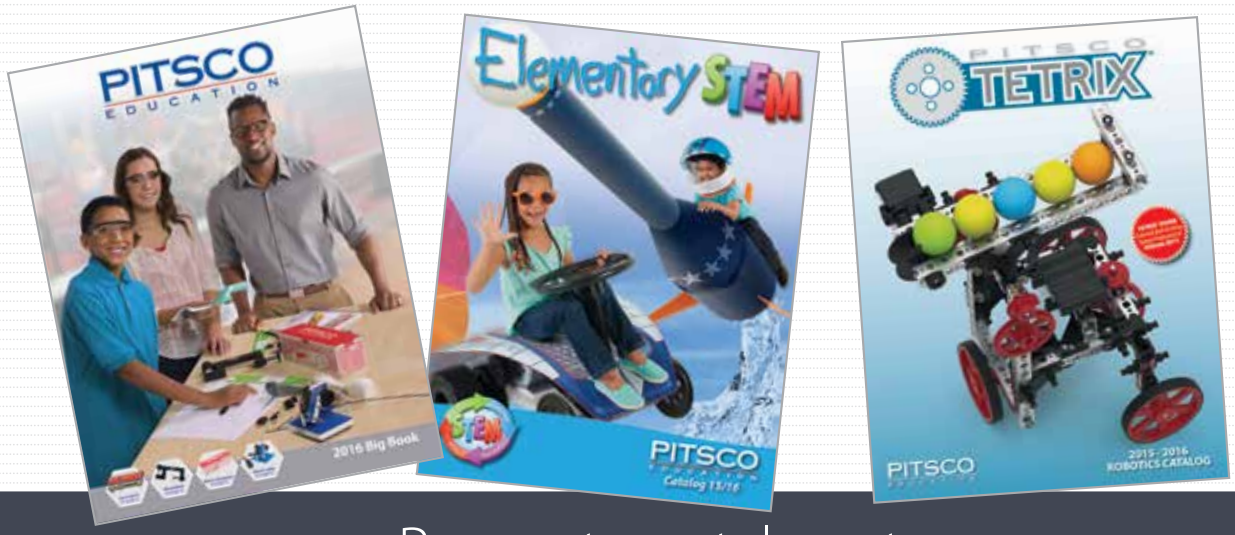
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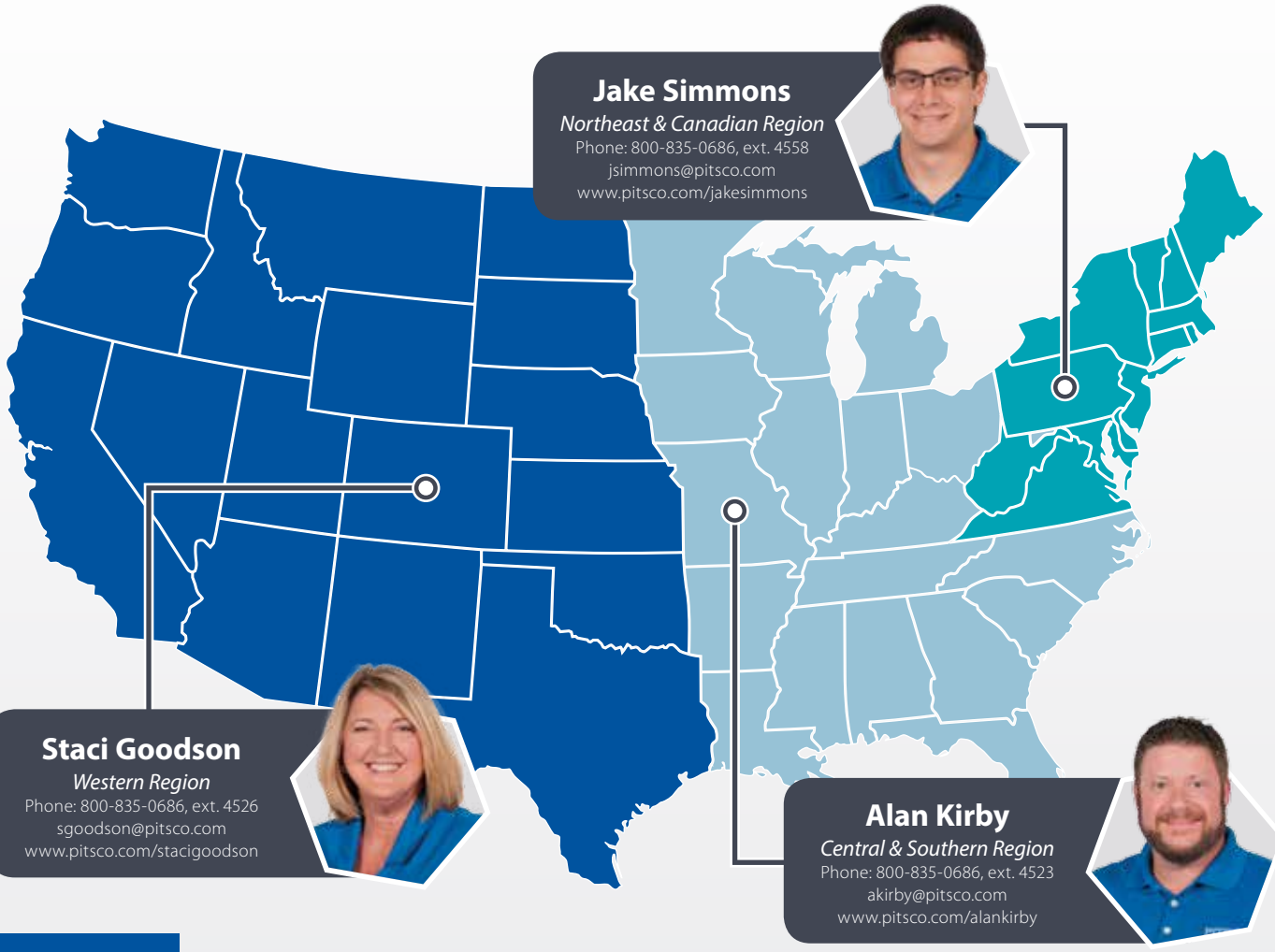
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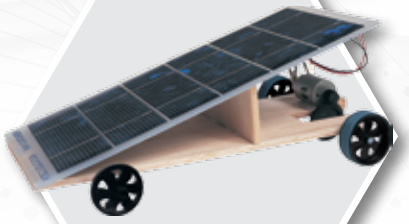
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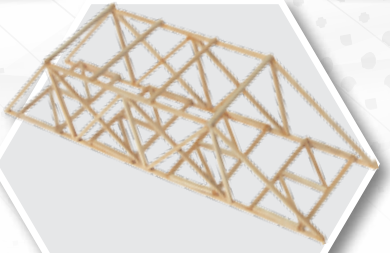
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