District-Wide Success

Corpus Christi, Texas, teachers share their secrets to lab success

Build a Career Path Through

A STEM LAB

SYNERGISTIC MISSIONS, MODULES, AND SUITES
FROM SYNERGISTIC LEARNING SYSTEMS

SYNERGISTIC
LEARNING SYSTEMS
A DIVISION OF PITSCO, INC.

Hands-on. Real World. Proven Success.

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Dancing with the staff – page 7

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Synergistic Modules Facilitator Matt Hitchner hit on a new and successful fundraiser when he put on a "Dancing with the Staff" event at Hopewell Crest School in Bridgeton, New Jersey, last spring.

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On the cover - *Principal Carla Villarreal observes a student at work in the* Practical Skills *Module at Grant Middle School in Corpus Christi, Texas.*
Photo by Creative Advisor Rod Dutton.

The Pitsco NETWORK
Information for Synergistic Learning Systems Facilitators

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SYNERGISTIC LEARNING SYSTEMS
A DIVISION OF PITSCO, INC.

Heed these 'strong suggestions'

Teacher Education

Mark Maskell
Teacher Education Specialist

It's ironic, isn't it, that teachers can spend the majority of their day enforcing rules and guidelines while at the same time be averse to following them in their professional pursuits.

If you want to make the hair on the average teacher stand on end, just tell them point blank, "This is how you need to do it!" The immediate response will undoubtedly be, "What if I modify it to fit my classroom?" Or the ever popular, "That won't work with my kids, so I'm going to (insert procedural deviation here)."

So, having learned from working directly with teachers over the course of 19 years, the last thing I want to do is provide a list of rules you must follow to make your lab successful. In fact, I'm going to take a page out of the teaching bible and use language you often use with students. I have compiled a list of "strong suggestions" that relate directly to operating a successful Systems lab. Hopefully this compilation will prove beneficial as you fire up your lab for the fall semester.

> ***I have compiled a list of "strong suggestions" that relate directly to operating a successful Systems lab.***

- **Emphasize ambulatory interaction:** A key characteristic of a successful facilitator in our labs is the tendency to move around the room and engage students. Even though much of our content is delivered via the computer, the use of probing questions and maintaining a sharp "eye for activity" will ensure the students stay on task. Exert your proximity control to its fullest extent through constant motion while students are in the room. (Yes, you'll need a new pair of shoes this year!)
- **Embrace the beast:** Depending on your background and personal taste, technology can be your enemy or your best friend. As it relates to Systems lab facilitation, we strongly suggest you take advantage of the power technology affords you. In most of our rooms, content is presented by the computer. Incorporating this fact into your management mind-set will make you more efficient and ultimately more effective. Structure your class time so that you are supplementing the content and redirecting student attention to the task and information at hand, rather than attempting to re-teach on the spot. Many teachers find this approach liberating as it allows them to spend extra time with struggling students without diminishing the experience of the other class members.
- **Begin with the end in mind:** We know how we want the class to operate and what we want the students to know and be able to do. This result is often determined during the first couple weeks of class. Orientation is where you have to reframe the students' understanding of what the class is, what it isn't, and how things will operate day to day. Use the built-in materials provided with your lab to create a custom overview that incorporates boundaries, strategies, and procedures. Orientation should be a "work in progress" throughout the entire time you teach this class.
- **Shake hands with the devil:** It's been said that "the devil is in the details." If that's the case, then he should take up permanent residence in our Systems labs! We have found that you can't be over prepared for the moment when students grace your presence. There are a multitude of small elements to plan and prepare for with your lab including consumable supplies, worksheets, workstation equipment, and rotation schedules. We encourage you to utilize SIM and PIM to identify, station by station, what needs to occur in preparation for the start of class.
- **Teach to the test of life:** Most teachers despise the concept of "teaching to the test." In a Systems lab, however, there is one situation you may find where it's appropriate. Cooperation is a common theme across all of our Systems. Students are asked to work together with partners and groups to complete tasks and projects and brainstorm solutions. You have the distinct opportunity – and challenge – of introducing your students to the importance of people skills as they move forward in life. Even today we are bombarded with feedback from business and industry bemoaning the fact that workers too often lack this important set of skills. As we attempt to identify for our students the points of class activities that intersect with the real world, we can hold up cooperation as a shining example.

You're a 21st century teacher

21st Century Skills

Tim Cannell
Education Specialist

At all costs, avoid being included among the 10 percent labeled 'stabilizers'

I recently attended a conference where the speaker was throwing out statistics concerning the current population of teachers in the United States. To be honest, I have forgotten the majority of the statistics, but one caught my attention. She said that 10 percent of all teachers will not change their current teaching methods regardless what type of intervention or staff development is presented to them. She referred to these teachers as "stabilizers."

I thought about what she said and determined that if you are teaching in a Synergistic Learning Systems lab, you are more than likely *not* a stabilizer. As a matter of fact, you are closely aligned to the outcomes of a 21st Century Skills classroom. According to the Partnership for 21st Century Skills, students in today's classroom should be learning skills, knowledge, and expertise needed to succeed in work and life in the twenty-first century.

The Partnership has identified specific elements students need to succeed in the twenty-first century and placed these elements into four categories:

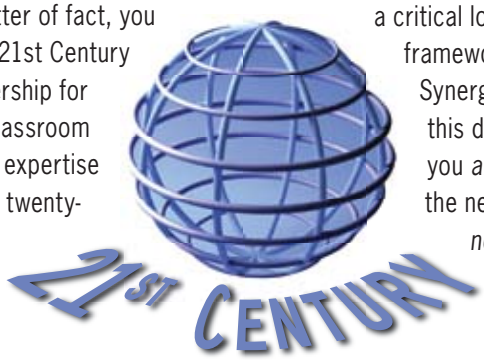
- Core Subjects and 21st Century Themes
- Learning and Innovation Skills
- Information, Media, and Technology Skills
- Life and Career Skills

The framework for twenty-first century skills employs an innovative support system as well helps ensure student success. The Partnership has identified five vital support systems:

- 21st Century Standards
- Assessment of 21st Century Skills
- 21st Century Curriculum and Instruction
- 21st Century Professional Development
- 21st Century Learning Environments

Stop and take a moment to reflect upon the components of twenty-first century learning as identified by the Partnership. The next step is to make connections of these components to your Synergistic Learning Systems lab. I hope you find this an easy task to complete. The twenty-first century skills and opportunities you are providing students in your lab are not dependent upon the curriculum itself but on the elements embedded within the Synergistic Learning System.

Over the course of this school year, I'll be taking a critical look at the relationship between the framework for 21st Century Learning and the Synergistic Learning System. My hope is that as this develops you'll be confident in the fact that you *are* a twenty-first century teacher meeting the needs of twenty-first century learners and *not* a stabilizer.



By Tom Farmer, *Editor* tfarmer@pitsco.com

Social science background serves Roberts well

Barb Roberts, Curriculum Specialist

New curriculum specialist also taps into experience teaching at alternative high school

Her entire professional teaching career serves as a learning experience from which Barb Roberts gleans knowledge in her new position as Pitsco Curriculum Specialist. But she looks back at the first half of 2000 when she taught at an alternative high school as the best preparation for developing multimedia-based curriculum software.

"When I taught alternative school, I used a couple of the other curriculum software programs, and Synergistic is by far the best, most interesting for the kids and the most interactive," Roberts said.

Alternative school students need interactivity and often respond better to hands-on activities than to traditional textbook-lecture delivery, which is what Roberts attempted to avoid when she taught

(continued page 30)

Pitsco Systems Essay Contest

Students' STEM Stories

Fifth Annual Pitsco Systems Essay Contest an opportunity to 'write across the curriculum' and win a TETRIX™ robotic design system

Tom Farmer
Editor

Ask your students what STEM is, and they'll probably say something like, "It's a part of a plant." Ask your administrators what STEM is, and they'll probably say, "An acronym for science, technology, engineering, and math – areas where we need to improve student performance, NOW!"

Both answers are correct, but the latter is where we want to get everyone focused, including students. That's why we've shifted the theme of our annual Pitsco Systems Essay Contest to STEM. Whether they realize it or not, Synergistic Learning Systems students learn every day about science, technology, engineering, and/or math through the cross-curricular content they explore in the lab. And on any given day, several will utter to themselves, "Wow, I never knew math (or science or technology or engineering) could be so interesting (or fun or relevant)!"

Isn't that what every educator strives to achieve – those "ah-ha" moments? The fifth annual essay contest aims to extract those moments in students' words.

Essay topic: *Describe something you learned about science, technology, engineering, and/or math in a Mission/Module/Suite/CareerPort that surprised you, and explain how you might use that knowledge in other classes or a future career.*

Conduct the essay contest any way you like: Discovery Day, writing across the curriculum, extra credit. Simply follow the rules listed (see page 5). Select the top three essays from those your students submit, and, if you want to make it a truly cross-curricular exercise, employ the help of an English teacher.

Submit the essays before the deadline, December 1, 2008, and you and your students will be in the running for some outstanding prizes. A panel of Pitsco writers and editors will select the winners. The top two students – and their teachers – will be rewarded for their effort, and all finalists will receive a personalized certificate of achievement.

Teachers of the students who finish first and second in the judging will receive a $100 Pitsco gift certificate. The second-place student will receive a collection of educational games, kits, and puzzles valued at $150. The overall winner will receive a TETRIX™ Robotic Design System (see page 5) valued at nearly $500. TETRIX is the official new building system of the FIRST Technical Challenge and can also be used to create a unique remote-controlled robot in any design the student can create.

Give your students a chance to exercise their creative writing skills, possibly win a cool robot system, and learn the *other* definition of STEM.

Prizes

1st
A TETRIX™ Robotic Design System

2nd
Collection of educational games, kits, and puzzles

Teachers
$100 Pitsco gift certificate

Pitsco Systems Essay Contest Rules

Topic: *Describe something you learned about science, technology, engineering, and/or math in a Mission/Module/Suite/CareerPort that surprised you, and explain how you might use that knowledge in other classes or a future career.*

- **Eligible participants:** Current Synergistic Learning Systems students.
- **Length:** Up to 250 words (one page of double-spaced, 12-point type); essays may be handwritten initially, but final entries must be typed before being submitted.
- **Deadline:** Entries must be received by December 1, 2008. Mail your top three entries to Editor Tom Farmer, *The Pitsco Network*, P.O. Box 1708, Pittsburg, KS 66762, or send them via e-mail to tfarmer@pitsco.com (preferred method).
- **Prizes:** A TETRIX™ Robotic Design System valued at approximately $500 for first place and a collection of educational games, kits, and puzzles valued at $150 for second place. Teachers of winning students will receive $100 gift certificates.
- **How:** Complete the essay contest as a writing exercise that could be conducted as a Discovery Day, a Real-World Activity, an extension activity, or an extra-credit assignment.
- **Finalists:** Teacher selects the top three entries from a school and submits them to Pitsco for final consideration.
- **Judges:** Essays will be judged by Pitsco writers and editors.

Published: The winning essay and the runner-up will be published in *The Pitsco Network*, and the top five essays will be posted on the pitsco-network Web site.

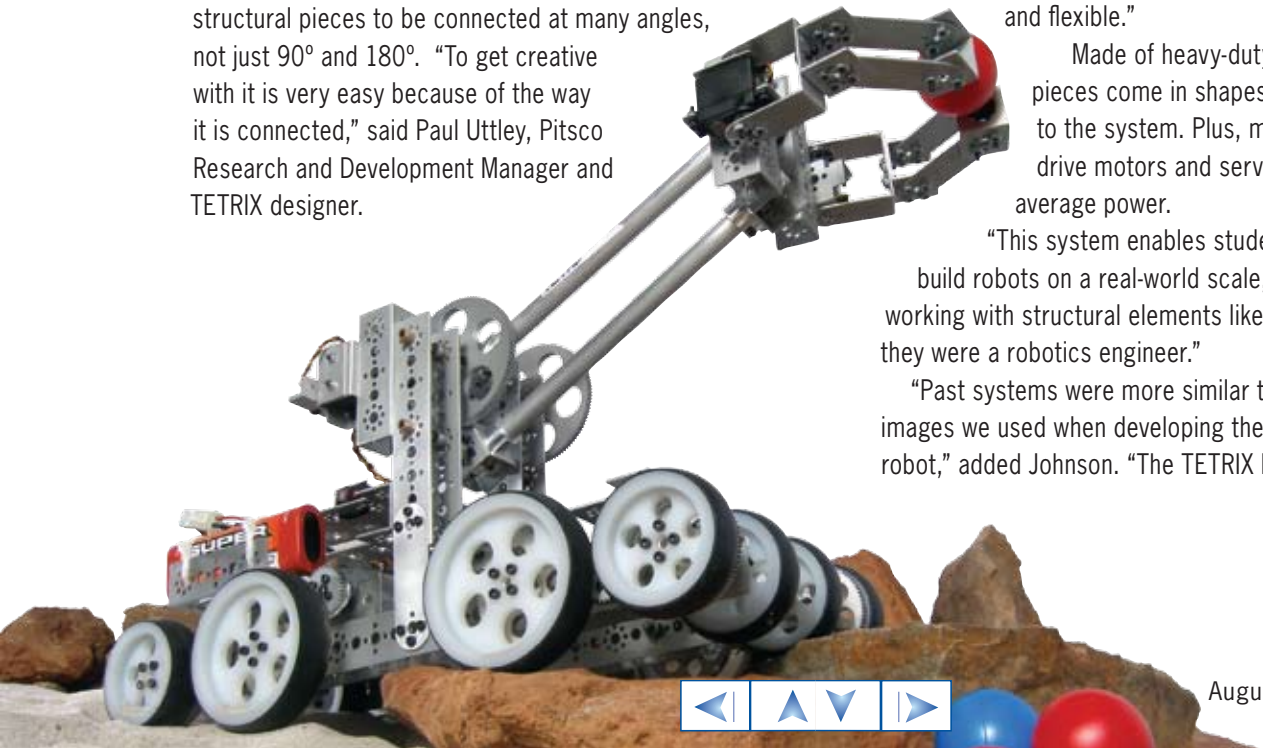
By PJ Graham, *Technical Writer*
pjgraham@pitsco.com

Building Dream Robots with TETRIX™

New system for FIRST enables students to work as if they were robotics engineers

What gives the TETRIX™ Robotic Design System by Pitsco an edge over other robot building systems is – of all things – its holes.

The system's patented hole pattern enables structural pieces to be connected at many angles, not just 90º and 180º. "To get creative with it is very easy because of the way it is connected," said Paul Uttley, Pitsco Research and Development Manager and TETRIX designer.



Pitsco designed the new system for the FIRST Tech Challenge (FTC), which includes TETRIX in its 2008 competition kit.

"We wanted a true robotics prototyping platform that would allow us to challenge teams with problems faced by real-world robotics designers," said FIRST Tech Challenge Director Ken Johnson. "The strength of the building materials, the ability to configure and reconfigure the kit multiple times, the metal gears, all work together to form a kit that is tough and flexible."

Made of heavy-duty aluminum, the structural pieces come in shapes that lend extra strength to the system. Plus, metal gears and strong drive motors and servos provide above-average power.

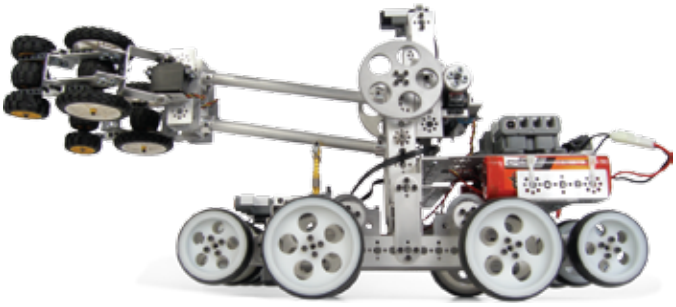
"This system enables students to experiment and build robots on a real-world scale," Uttley said. "They are working with structural elements like those they would use if they were a robotics engineer."

"Past systems were more similar to toys. One of the visual images we used when developing the kit was a 'throwable' robot," added Johnson. "The TETRIX kit is tough enough so that

teams can build robots that can take a lot of abuse, operate in various terrain, and be reused many times over."

Students can operate a TETRIX robot by remote control or can add other electronics to create an autonomous robot. The TETRIX Base Set comes with approximately 600 parts, including structural pieces, servos, motors, wheels, and hardware. The included user's guide covers building robot subcomponents, leaving students' imagination to discover how to combine and reconfigure these into their own unique robot design.

And in January 2009, robot builders can use the unique TETRIX hole pattern to attach the LEGO® MINDSTORMS® NXT Intelligent Brick, sensors, and any other LEGO Technic element to the TETRIX system via a custom connector.



The TETRIX™ Robotic Design System enables students to experiment and build robots on a real-world scale.

To learn more about TETRIX, visit www.shop-pitsco.com or call 800-835-0686. For more information about the FIRST Tech Challenge, visit www.usfirst.org.

Let's engage, not enrage!

Integrated Technology

Jack Hemenway
VP of Systems Sales & Marketing

We know that most members of the younger generation – your students – embrace technology. We see them every day working on computers, using cell phones, texting, listening to music, and surfing the net on smartphones. They love it, they embrace it, they have grown up with it, and they expect it to be available anytime and anywhere.

Therein lies the challenge for educators. How do you capitalize on this natural love of technology as part of the learning process? At Synergistic Learning Systems and Pitsco, we have been very successful using technology to engage students of all ages in the learning process.

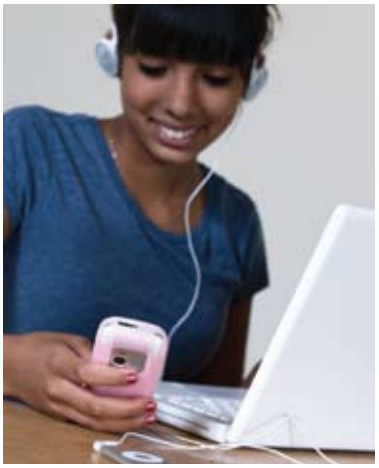
If we intend to prepare our younger generation for the continuing integration of new technologies in our everyday lives regardless of whether we are at home or at the office (wherever that may be), we have to engage them early and prepare them to use these technology tools in the classroom. This is a no-brainer.

Applied learning, for most students, is the one experience that may last them a lifetime. Technology can and will keep them engaged in a relevant learning process regardless of the content being offered to them.

Using the computer as one tool in the delivery of content is now expected when students walk into a classroom. Adapting this process along with problem solving, team activities, applying knowledge learned, and the integration of the other aspects of STEM, science and math have a profound effect on today's student.

We have heard the battle cry "engage me or enrage me." Synergistic Learning Systems' goal for more than 15 years has been and continues to be one in which the learner is self-directed and engaged in his or her learning process from kindergarten until graduation.

The Synergistic Learning Systems classroom excites students. From computers to robots to wind tunnels and from rocket launchers to earthquake simulators, students experience the application of math and science in a relevant, real-world setting using the technology they love. SLS is dedicated to research and development, constantly looking at new ways to help students and teachers in the learning process. Using Web browsers, streaming video and audio, wireless networks, and state-of-the-art software coupled with hands-on activities, students are "awakened" to the experiences of future careers.



Today's students are natural multi-taskers, simultaneously listening to music, working on the computer, and sending/receiving text messages on their phone.

The future of education will include collaborative video, social learning Web sites, mobile learning, and a more prolific exchange of content and data as Web 2.0 advances. Technology is a part of our lives and will continue to be a big part of every career choice available to students in school today. Synergistic Learning Systems is dedicated to providing relevant, meaningful experiences using the very latest technology for students to learn and for teachers to teach.

By Tom Farmer, *Editor* tfarmer@pitsco.com

Dancing with the Staff

Fundraiser sells out quickly, helps teacher purchase new computers for lab

Forget bake sales, candy sales, decal sales, and the like. At Hopewell Crest School in Bridgeton, N.J., Synergistic Modules Facilitator Matt Hitchner put a new twist on raising funds for the school's Science and Technology Foundation.

Tapping into the "Dancing with the Stars" craze, he organized a "Dancing with the Staff" event in May that helped bring in $4,500, which was applied toward the purchase of 17 new computers for the school's Synergistic lab.

What triggered the idea for this unique adventure? Already fans of the popular reality television program, Hitchner and his wife Melissa attended a "Dancing with the Stars" tour stop in Atlantic City in January. "During intermission, I said to her, 'This would be a great idea for school,'" Matt recalled. And it was.

All 160 tickets to the dessert theater/coffee-house-type production quickly sold out. "We had to turn away 15 to 20 people due to the number of tables we were able to get," Hitchner said.

A 50-50 drawing was conducted during the intermission, and advertisements in the program were sold to businesses and anyone wanting to wish the dancers good luck. On top of that, several crowd members agreed to purchase "wish list" items. Tangibly, the evening was a financial success, and intangibly it helped bring the school and the community closer together.

Five couples, including the Hitchners, performed a fast dance and a slow dance during the competition. "The staff members involved really had an extreme amount of fun doing this. We practiced once or twice a week with a local dance instructor who used to attend Hopewell Crest," Matt said. "We are already talking about songs for next year, ways to improve, and how to add more tables."

Synergistic Modules Facilitator Matt Hitchner hit on a new and successful fundraiser when he put on a "Dancing with the Staff" event at Hopewell Crest School in Bridgeton, New Jersey, last spring. Fans of the hit television program Dancing with the Stars, Hitchner and his wife, Melissa, below center, joined other school officials in entertaining a sellout crowd with their dance moves.

By Tom Farmer, *Editor* tfarmer@pitsco.com

STEM growth

Pitsco endorses efforts of national STEM Education Coalition

STEM is more than just an acronym for an educational undertaking in support of science, technology, engineering, and math. It's a fast-growing movement with a powerful national organization that is "dedicated to ensuring quality STEM education at all levels."

The STEM Education Coalition is composed of advocates from more than 40 diverse groups representing all sectors of the technological workforce including education, scientists, engineers, and technicians.

Active in shaping STEM-related legislation, the coalition works aggressively to raise awareness in Congress, the Administration, and other organizations regarding the critical role that STEM education plays in helping the U.S. remain the economic and technological leader of the global marketplace. Visit the coalition's Web site, www.stemedcoalition.org, to learn more.

Pitsco's role

As an education company with deep STEM roots and curricular solutions that fit squarely in the middle of the STEM education movement, Pitsco endorses the efforts of the STEM Education Coalition. To shed some light on our Synergistic Learning Systems STEM solutions, we will focus on one branch of STEM in each of the next four issues of *The Pitsco Network*:

- **October-November**: Science
- **December-January**: Technology
- **February-March**: Engineering
- **April-May**: Math

If you desire a more comprehensive look at how our Systems (Missions, Modules, Suites, and CareerPorts) address STEM standards from elementary through high school, visit www.synergistic-systems.com or phone 800-828-5787.

The method assures the content!

President's Perspective

Harvey Dean
President and CEO

It is with great excitement that we distribute this first issue of *The Pitsco Network* for the 2008-2009 school year. One of the topics we're covering is STEM. While we have always included the S and M (Science and Math) elements in the Synergistic Learning Systems technology curriculum, we can now provide Synergistic Learning Systems STEM programs.

- **Science** focused on Earth, Life, or Physical; or a combination of these
- **Technology** using your choice from more than 50 options
- **Engineering** in areas such as aerospace, civil, and physics
- **Math** including a series of 28 Modules comprising Pre-Algebra and Algebra solutions

For your STEM program – or for any of our content selected for a course – we provide a detailed report in chart form (or a 2" thick detailed version if chosen) that describes how your state standards are addressed by the curriculum you select.

I am also excited to inform you that we have completed our initial year of tests on Pre-Algebra. Success in STEM courses will require students to successfully engage in and complete algebra. Great results have been gleaned from the field test sites with students finding success, many for the first time, in working with basic algebraic principles.

It heartens me to report that our Synergistic Learning Systems curriculum method has moved from being technology education-focused to use as a means of reigniting family and consumer science classes, to use as geo-physical science curriculum, to use as health curriculum, to use as discrete courses in science, and now as Pre-Algebra and Algebra I core curriculum.

As a facilitator/teacher in a Synergistic program, you see students succeeding daily as they experience this great learning method. Keep up the good work and thanks for all you do for young people. Your passion for their success will always be remembered – and appreciated.

STEM key to math, science solution

Education Perspective

Matt Frankenbery
Director of Education

> ***A very real crisis for educators, employers, and ultimately all America is the lack of knowledge and motivation in the areas of math and science. This challenge will continue to impede our ability to compete in the global marketplace.***
>
> **- Missouri Governor Matt Blunt**

It's no secret that the United States has been losing ground the past decade to other countries in the areas of math and science achievement. We have been bombarded with statistics by the media (and even here in *The Pitsco Network*).

When we've written about the trends shown in the TIMMS, PISA, NAEP, and other studies, we've always mentioned how Synergistic Learning Systems (SLS) can inspire your students to focus on math and science courses and increase their scores on state, national, and international assessments.

This time around, I'm going to introduce you to two states' answers for solving the sagging scores in math and science, and I'll show you how SLS was implemented in one of the states as part of the solution.

TSTEM and METS

The Texas Science, Technology, Engineering, and Math Initiative (TSTEM) was launched by Governor Rick Perry so Texas would "remain at the forefront in the battle for 21st century jobs."

The main focus of the initiative is "increasing the number of students who study and enter science, technology, engineering, and math careers."

The initiative is a component of the $180 million Texas High School Project (THSP) committed to increasing high school graduation rates and college enrollment rates. The TSTEM arm of the THSP accounts for $80 million of the total project.

Directly impacted by the TSTEM initiative, Synergistic Learning Systems was fortunate to be part of a solution in Irving, Texas, when The Academy of Irving ISD added the Advanced Technology Studies small learning community. Students in Grade 9 who enter the Advanced Technology program experience Synergistic Suites for their Technology Systems course. In this one-year course, students experience topics such as computer maintenance, Web design, and engineering.

Missouri is also aggressively focusing on the areas of math and science education. Missouri's program, called METS, is anchored by a coalition of 180 business, education, and government leaders. This METS Alliance has outlined five challenges for the governor and the state to tackle in an attempt at growing and keeping

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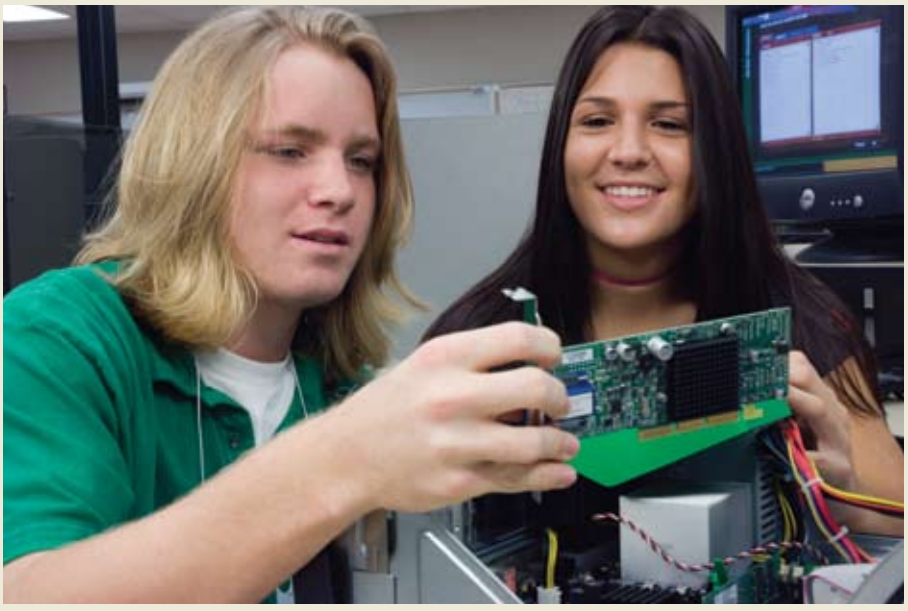


Synergistic Learning Systems can inspire your students to focus on math and science courses and increase their scores on state, national, and international assessments. There's no substitute for hands-on STEM learning in a real-world context.

By Billy Field www.edbookings.com

Make a movie

Former Hollywood screenwriter turns camcorders into educational, fun project-based learning tools

Former Hollywood screenwriter Billy Field has turned his attention toward teaching students how to make movies based on what they're learning in the classroom and what's going on in their community.

Project-based learning works. It worked for me. I did not like sitting in the classroom listening to the teacher, reading a chapter out of a book and then giving some of it back on a test.

Projects were another thing

I could pursue the goal of a science fair project and learn science. Believe me, my goal was not to learn anything. I just did. The project was fun and the learning was a natural by-product. I never heard the term "project-based learning" until I started teaching fifth graders to make movies about history and character education many years later.

When I was 12 I had this huge desire to make movies. I have no idea where it came from. I got my mother's 8 mm movie camera and was hooked. Eleven years later I was on my way to Hollywood where I worked in camera, lighting, and sound, and eventually became a screenwriter for MGM, 20th Century Fox, and Warner Brothers.

When I brought my son back to Alabama to raise him around family, I sat down on our apartment floor and asked myself, "What am I gonna do now?" It was the best thing to raise my son here, but how was I going to make a living? The only thing I had ever done was make movies. Then it dawned on me that, because of technology, camcorders were everywhere. Any kid could "make a movie" if he or she had one thing – desire.

I sat down on that apartment floor and wrote the book *Make a Movie that Tells a Story*. I took everything I learned in Hollywood and put it into the book in simple, nontechnical, easy-to-follow steps. Knowing that following the visual concepts of movie making in text might be difficult, I supplemented the book with video. With a borrowed camcorder, a reading lamp, and $5 worth of videotape, this training program could teach any child in the world to make a movie that tells a story.

Because movie making was not required in the schools, and principals love this thing called "the curriculum," I decided to teach movie making across the curriculum – make a movie about history and learn history in the process; make a movie about a science fair project and learn science in the process.

It worked!

Students loved making movies, and learning came with the territory. I was working with a group of fifth graders, making a movie about Lewis and Clark. In their story, a member of the expedition had died. A fifth-grade girl was trying to direct her young actor to look sad. He wasn't pulling it off. Finally she barked, "Think of social studies and of how sad that makes you." I thought, how ironic! They were learning social studies in a way that they were having fun (the clue that they're having fun is when they fight over who is using the camcorder next), but the whole time it never occurred to them that they were learning social studies.

Making movies in the classroom is fun. When students are having fun, they come to school. When students are having fun, they learn and retain what they learn.

Active and collaborative learning works! One of the most effective ways to do it is through the exciting process of making movies in the classroom – learning writing, history, science, interview techniques, technology, use of the Internet, character building, and community building – all subjects that blend perfectly with "the curriculum."

And if a student ends up wanting to go to Hollywood, he or she can even do that!

Who is Billy Field?

Billy Field teaches documentary production and screen writing through the Honors College at the University of Alabama. He also travels the world speaking at seminars, conferences, and classrooms about making movies across the curriculum. Consider allowing your students to make a movie as part of a writing initiative, social studies fair, community service project, special activity or career exploration adventure. Learn more about Billy at www.edbookings.com.

By Deborah Muse, *Editing Coordinator*
dmuse@pitsco.com

KaZoon Kite flies high with students

Getting Started Package has everything you need to carry out inspiring activity

Looking for something different to complement your Systems lab? Pitsco's catalog division has a line of products that can help you. For instance, the *KaZoon Kite Getting Started Package* has activities that will inspire any student – and teacher.

Developer Bill Holden, a.k.a. Dr. Zoon, commented that "one of the greatest thrills as a teacher is to watch students be surprised with an unexpected but successful outcome. This is often the case with the KaZoon Kites. Few students ever expect the kite to fly – just for the simple fact that it doesn't look like any kite they have ever seen before. And then, to have four students combine their kites to make an even larger kite – and it flies – absolutely priceless!"

You will discover that the best thing about these activities is that students are engaged and enjoying themselves while they are learning key math, science, and engineering concepts. Just imagine how well this would work along with your *Flight Technology, Alternative Energy, Gravity, Package Design,* or *Research & Design* Modules.

This package comes with materials and instructions focused on the following:

- **Constructing** – Students work in cooperative learning pairs or in small groups to design and construct a tetrahedral and a non-tetrahedral kite.
- **Testing** – Students use an altimeter to test for altitude and a wind gauge to test for wind speed as they attempt to create the kite that can fly the highest in the class.
- **Calculating** – Students use mathematical applications to find the surface area, volume, and density of their kites.

In addition to providing teachers with activities for both middle school and high school students, there are also teacher and student instructions, a Dr. Zoon KaZoon Kite Video, reproducible pages, pretests and posttests, resource pages, puzzles, and materials to build 30 kites. All of the Getting Started guides contain NSTA, NCTM, and ITEA standards addressed.

iPod winner at ASCD

Synergistic Sales Consultant Dan Petersen, right, presents an iPod to drawing winner Michelle Dillon at the Association for Supervision and Curriculum Development Conference in New Orleans last March. Dillon is a sixth grade math and science teacher at Orange Beach School in Foley, Alabama. She was attending her second ASCD Conference.

Bubble gum and victory gardens

Perhaps having weathered the shortages of World War II as a child stimulated the following observations in me regarding the deleterious effects of the slowing economy, escalating gas prices, problems in the housing market that diminish tax revenues for education, and the rising price of food stuffs and other goods.

During WWII, the government found it necessary to ration food, gas, sugar, and even clothing. Americans were asked to conserve everything, but it was the sugar that was most disconcerting because no sugar meant an absence of bubble gum. For some to overcome their challenges, they would plant "Victory Gardens," but no such avenue existed for an absence of bubble gum.

Funding Opportunities

Pat Forbes
Education Liaison

With this lesson in mind, we should seek to create financial victory gardens used to secure the funds for the acquisition of the "bubble gum," i.e., the addition of technology and curriculum for laboratories and various kits and consumables. This is a formidable challenge because technology programs are particularly vulnerable to budget cuts. In addition, the fuel crisis instigates a domino effect as there are increases in the price of goods and services, possibly limiting other education expenditures.

Take the group approach

One of the major points of emphasis today is the group approach signifying that grant seekers will collaborate with other entities in their communities and get support that extends over a multitude of interests. The variety of the constituency could be a major selling factor for your project. In particular, consider wooing those with environmental interests.

Bringing attention to products that teach green concepts offers many educational lessons that enable students to design and learn about these ideas. For example, through interaction with our alternative energy kits, recycling kits, and green architecture curricula, students learn about green concepts while completing hands-on activities. The business and industry arena is a major source as well because of the hands-on and collaborative nature of all Pitsco curricula.

State your case clearly

Regardless of your approach or the goal you seek, clearly state your objective and make it easily understood. State specifically what you desire and convey that information clearly. Present the purpose of the funds and how they will be used.

Place yourself in the chair of the judge and relate to how your request resonates with reasonableness and places your desire on the pinnacle when compared to other requests. Should your request draw the approval of the judges, then consider it your personal economic success in the "victory bubble gum" conflict.

Collaborating entities that seek to support technology education can achieve the goal of implementing Synergistic solutions and upgrades, thereby allowing students to learn twenty-first century skills.

Go - where else? - online for assistance

To address the current dilemma, we posted on our Web sites (for example, www.shop-pitsco.com) a step-by-step process for creating grant proposals and a limitless array of granting agencies that enumerate the areas the grantors emphasize, in addition to any geographic limitations. The applications are available online and detail the information necessary to qualify for consideration.

In addition, each of our sales representatives receives monthly a listing of new or closing grant opportunities through a newsletter, "Grant Funding Leads." This correspondence is posted to the "Grant Search" page as well, assisting you in your search for funding assistance. All federal grants are listed along with the private offerings.

The new-look Synergistic Web site

On the Web

Ruthie Gaddy
Teacher Education and PR Coordinator

If you have not visited the revamped Synergistic Learning Systems Web site, you need to take a look. Not only can you read top stories such as "Synergistic Modules Take Test Scores Higher" and "Solving the Algebra Problem" but you can also hear and read testimonies from real customers.

Through audio and video clips, you can hear teachers and administrators describe their successes as well as praise the customer service they receive from Synergistic Learning Systems support staff. You also have the opportunity to meet our customer service representatives who go above and beyond to ensure student and teacher success. Synergistic Learning Systems has always striven to provide quality customer service and lead educational change. These words from our customers, teachers, and administrators prove our dedication.

Teacher Ronna Peterman parallels the support of Synergistic Learning Systems with family in one video clip and explains how Synergistic Sales Representative Gail O'Quinn was in her lab helping with setup the night before classes started. Principal Aaron Chawning speaks of how labs bring power of ownership and responsibility to the students. There are a variety of real world-real word links from other teachers and administrators to view.

In addition, teachers and administrators can use the search and browse tools to quickly find the information they need – from K-12 curriculum to consumables. Search capabilities also enable the user to filter information by grade level, STEM content area, career cluster, and individual Synergistic Learning System.

Visit www.systems-pitsco.com to experience this site for yourself!

Grilling vs. barbecuing – it's all good!

Dan Petersen
Sales Consultant

Summertime is grilling time. The average household grills out five times per month during the summer, maybe even more this year with the price of gas skyrocketing. In any case, there is a difference between barbecuing and grilling. Purists say grilling is cooking meat directly over the coals at high temperatures and barbecuing is low, slow cooking using the indirect method.

Depending on the part of the country you live in, barbecue could be either pork or beef with either tomato- or vinegar-based sauce. Typically, Texas barbecue is beef, whereas in Georgia and Tennessee it's pork. Kansas City, because of its history with the stockyards, utilizes a combination of the two. I hope you enjoy this surefire recipe for grilling/barbecuing.

Fall-off-the-bone ribs

"... there is a difference between barbecuing and grilling."

– Dan Petersen

Ingredients:

3 racks of baby back or pork ribs (back strap removed – the backside of the ribs has a thin membrane that should be removed by cutting at one end and using a paper towel to pull off the membrane)

Dry rub consisting of your favorite herbs and spices; I use the following:

- *3 tbs paprika*
- *2 tbs black pepper*
- *2 tbs chili powder*
- *2 tbs garlic powder*
- *2 tbs onion powder*
- *1 tsp salt*
- *1 tsp thyme*

1 qt water
1 qt apple juice
1 qt BBQ sauce

Directions:

Rub spice mixture on both sides of ribs, wrap in plastic, and refrigerate overnight.

Heat grill to medium high and take ribs out of refrigerator and allow to come to room temperature. Sear the ribs for four to five minutes per side. Remove ribs and turn grill to low. Add water and apple juice to heavy-gauge aluminum foil roasting pan. Add ribs and cover tightly with aluminum foil. Cook on grill for about 90 minutes without opening the grill cover. Remember, if you're lookin', you ain't cookin'.

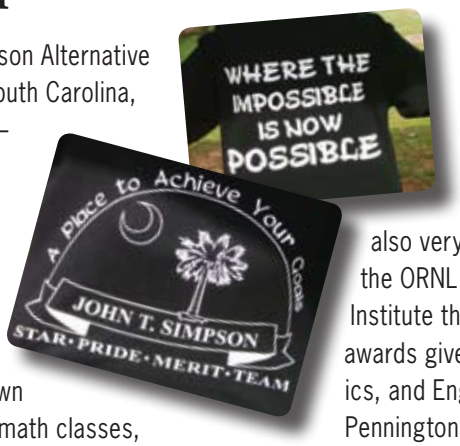
After 90 minutes, the meat should start to pull away from the bones (if not, cook a little longer). Remove the pan with ribs, set aside and turn heat to high. Brush ribs with your favorite BBQ sauce and return to grill for another five minutes per side. Be careful not to burn as the BBQ sauce has sugar in it, and we don't want to burn the sugar. Enjoy!

Nothing is impossible

Star Academies
Kelly Reddin
Educational Services Manager

Boyles' star shines brightly, helping her students find the right path

There are many stars at Simpson Alternative Center for Education in Easley, South Carolina, but one star shines very brightly – Sonya Boyles. She teaches math with passion. In fact, she seems to do everything with passion.



Last year Boyles divided her Star Academy students into three groups based on academic achievement and her own instincts. Within each of her four math classes, she found students who could excel past Algebra I. She talked with each of these students and their parents and convinced them that if they were willing to stay after school and spend some Saturdays with her, they could master geometry after completing Algebra I. She believed. Then, they believed.

At the end of the school year, eight students left the Star Academy with Algebra I and Geometry credits.

Next, she had to convince the high schools that these kids were ready for 11th grade math coursework. It was another success for Boyles and her students. She even helped students do service projects such as help in the soup kitchen or tutor elementary school students. She wanted them to learn about helping others. Four of her students earned service awards.

Sonya really believes in the Star Academy students. She told them nothing is impossible, and they chose "The Impossible" as their theme song. She contacted singer Joe Nichols' agent, his music studio, and the song's writer. After months and months of contacts, pleading, explaining (correspondence filling a two-inch binder), the impossible became possible. Joe Nichols agreed to visit the school and sing for the students. Unfortunately, his touring schedule wouldn't allow him to come before the end of the school year. However, he did send each student a CD with the song and a promise to come in the fall. Boyles knows the impossible is possible. She will bring those students back to see Joe Nichols when he comes.

She and the students designed a T-shirt for the Simpson Alternative Center that reads "Where the Impossible is Possible."

However, if Joe Nichols couldn't come at the end of the year, Sonya wasn't going to let her students go without a great field day. She raised money and sought donations for a climbing wall, air-filled slides, Dippin' Dots, and more – all free for the day. The students had a blast, which made Boyles' efforts worthwhile.

She also arranged an award night followed by a talent show for the Star Academy students and their parents. Five students had perfect attendance and one student made the A/B honor roll all year. Another student was recognized for going to Columbia, South Carolina, earlier in the year to receive the citizenship award from the governor. Boyles was also very proud of two students for being chosen to attend the ORNL 2008 Summer Math and Science Technology Institute this summer in Oak Ridge, Tennessee. Other awards given were for best attitude, director's award, athletics, and English. Two students, Brandy Bearden and Trevor Pennington, were given Star Awards. The Star Award is given to a male and a female who have shown true leadership abilities. These students have gone above and beyond what was expected of them.

The parents and students appreciated the extra time Boyles puts into her work. She is convinced these students can and will succeed.

Yes, Sonya Boyles is a very bright shining star who goes above and beyond for her students every day. She makes the seemingly impossible possible. Right, Joe?

Star Academy Math Instructor Sonya Boyles doles out lots of one-on-one attention, often coming in early and staying after school to help students who want to go beyond course requirements.

By Dale Bryan, *Curriculum Specialist*
dbryan@pitsco.com

Series I and the 'Three Billy Goats Gruff'

Missions form a natural bridge for K-1 students to explore, learn

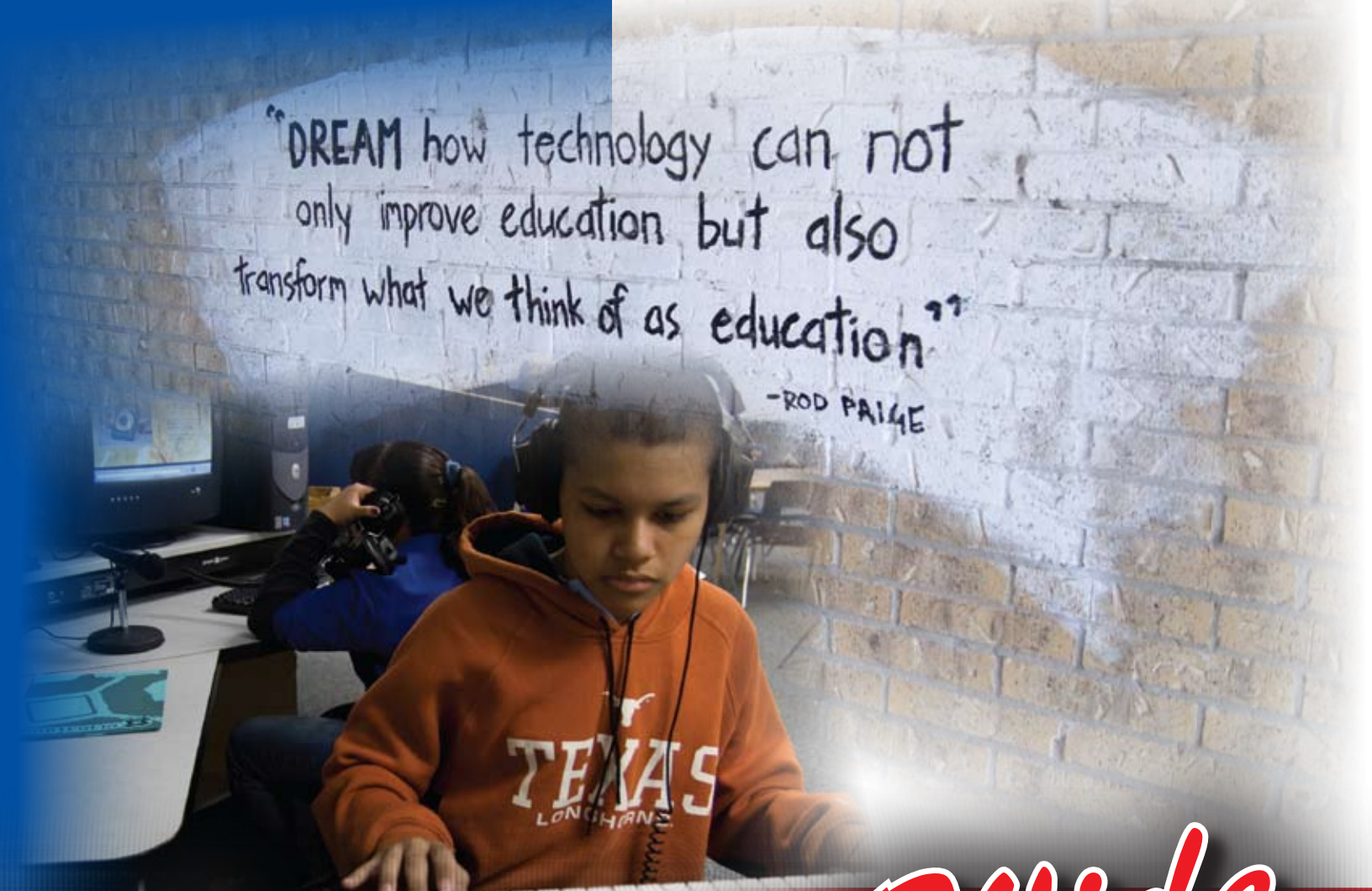
Kindergartners reenact the *Three Billy Goats Gruff* while building the troll's bridge with blocks. A first grader finds a caterpillar on the playground, and the class watches it eat. We've all witnessed the power of play and seen young children learning through the process. Their concentration is amazing as they balance the blocks or experiment to see that the caterpillar prefers leaves, not rocks.

As children play they learn more in a few minutes than they are likely to learn from even the most dedicated teacher and the best textbooks. Children learn by doing, and the child's natural ability to learn through hands-on activities is a cornerstone concept behind Synergistic Series I Missions.

Series I Missions are geared toward kindergarten and first-grade students.

- *Science Tools* introduces children to the importance of measurement, comparison, and record keeping in science investigations.
- In *Sink or Float*, students practice by setting up experiments to help them discover how weight, shape, and size affect whether things sink or float.
- Experimentation and comparison are key concepts reinforced by *Magnets* and *Rocks and Soils*.
- In *Construction*, students test LEGO® structures for balance, strength, and stability and learn about trial and error.
- Other Mission topics correspond with a young child's natural interests.
- In *Color and Light*, students use mirrors, flashlights, lenses, color paddles, and spectrum glasses to experience color and light in new ways.
- *Living Things* teaches students the difference between living and nonliving as they observe creatures. They also learn about life cycles and animal adaptations.
- *Community* and *Use and Reuse* stretch the students' thinking beyond themselves to the world around them.
- They learn about neighborhoods and community services in *Community*. They are also introduced to the social responsibility of recycling.
- That concept is reinforced in *Use and Reuse* as students learn where materials come from. They find out about renewable and limited resources and play a game to learn how they can help with the problem at home and school.

Just as the troll's bridge helped the goat kids get to greener pastures, Series I Missions and their hands-on activities provide the perfect means for kindergarten and first-grade students to learn many basic skills and concepts.



District-Wide Success

Corpus Christi, Texas, teachers and administrators make the most of their labs

By Tom Farmer, *Editor* tfarmer@pitsco.com
Photos by Rod Dutton, *Creative Director* rdutton@pitsco.com

Modules a link between CTE and core content

Introduction: Thelma Salinas has served as the Career and Technical Education Coordinator for the Corpus Christi (Texas) ISD since 1987 and has overseen the installation of Synergistic Module labs in 10 of the district's middle schools. A former family and consumer sciences teacher, Salinas recently sat down in her office for a question-and-answer session to share her thoughts on a variety of topics related to the district's Module labs and CTE in general.

Administrators' Corner

Thelma Salinas
Career and Technology Education Coordinator
Corpus Christi ISD
Corpus Christi, Texas

TPN: The Pitsco Network
TS: *Thelma Salinas*

TPN: How is core content being integrated into the Corpus Christi CTE program?
TS: "The word technology can mean so many things to so many people. Some people think technology must be something other than core academics. But math and science definitely are interwoven into all the Modules. That's tremendous. We aim to incorporate the core academics into any of the curriculum that we teach. When we can use the modular lab to incorporate the math and the science, then the kids are learning a lot of concepts. They're not even aware that's what they're learning down the hall in their math class."

TPN: What other steps is your department taking to implement cross-curricular learning?
TS: "Technology is actually bringing in the core. We're saying we want to be part of the solution. How can we be of assistance to you? We have a math and CTE initiative to link more to core curriculum. Modules are a great means of reinforcing what students learn in core courses."

TPN: Why do you continue to utilize Synergistic Modules 13 years after the first lab was installed in Corpus Christi?
TS: "Synergistic is really different to me because, as pioneers in their field, they have the whole package. It's not just fragmented. It's all together, it's very organized, it's well developed. We have every tool to get the concepts across – even abstract concepts. They've distilled a lot of those abstract concepts to the essence of what they are and 'How can we impart that to the next level? How can students process it to the point where it makes sense?'"

TPN: What has the No Child Left Behind Act brought to bear on CTE?
TS: "We're accountable now. Students in CTE classes are accounted for, and they want to know whether those kids passed TAKS (Texas Assessment of Knowledge and Skills). If not, what are you as a CTE teacher doing to make that happen?"

TPN: How are you dealing with the issue of limited CTE funding?
TS: "Really and truly, what has happened is we've seen a dichotomy. We have federal and local funds. One of the federal rules is that you cannot supplant; you can only supplement. Federal has said you cannot buy any consumables with our money. That's a fairly new regulation. So it has come to be on the local budget, which is fine. It lands on the budget of the principal. That's why it becomes incumbent on the teacher to sell their program and constantly be on the forefront like Freddy [Ortiz, teacher at Grant Middle School, see page 18 for related story] does. Basically, you're marketing your program."

TPN: What type of teacher does it take to successfully lead this program?
TS: "We need someone who's willing to change, be flexible, be a lifelong learner, be someone who's innovative in their thinking. 'How can I use this product to fit the needs in our school?' You have to have that innovative spirit, that pioneering spirit, that pride. You have to have pride in what you do. To get that intrinsic feeling like you're doing something very worthy."

TPN: How important is the teacher to the success of the Synergistic program?
TS: "The teacher has to be on track and buying into the program. It all goes back to mind-set, flexibility, attitude, classroom management, embracing new technologies."

TPN: How would you describe your group of Synergistic teachers on the whole?
TS: "We count our blessings every day because we feel we have that core group of teachers that make everything negative disappear. We have to look at the good people running the programs and continue to help the teachers that come onboard. It's an incremental process. To break down those walls and those paradigms takes time."

Your principal is your friend

At the very least, your ally for securing what you need

The best teachers are certainly talented and knowledgeable, but there's often more to the mix, an ingredient that separates them from their peers. In some cases, the ingredient isn't really secret; it's obvious to any discerning eye.

At Grant Middle School in Corpus Christi, Texas, Synergistic Module Facilitator Freddy Ortiz runs a top-of-the-line lab. There's a waiting list of students eager to land a spot in his 15-Module elective course. Is it Ortiz' resourcefulness, dedication, enthusiasm, and passion for teaching technology education that set him apart? Yes, but there's something else.

Freddy Ortiz, Synergistic Modules Facilitator

He does *whatever it takes* to keep his lab up-to-date and outfitted with the materials and equipment needed to teach topics such as flight, electronics, computers, engines, and practical work skills. And he enlists the help of Principal Carla Villarreal, the local PTA, and anyone else willing to contribute to the cause.

"My principal is very supportive. She has backed me up 100 percent, has gone to the PTA, has made our proposals," Ortiz said of efforts to secure PTA minigrants used to purchase new Modules and equipment. "I do all the bids, the purchase quotes, and I pass it on to her."

And Villarreal gladly carries out her duty to help an eager teacher reach eager students in a totally Synergistic way.

"Freddy's really organized. This has been his labor of love, a work in progress," Villarreal said. "We have to deny kids from taking this class because we don't have the manpower or space to get more (Modules) in here. His classes are packed, 30 to 32 in every class."

Carla Villarreal, Principal

Ortiz and Villarreal comprise a formidable tag team when approaching the PTA for financial support, which recently led to the purchase of three new Modules (*Engines*, *Practical Skills*, and *Computer Technology*) that further students' knowledge in foundational areas.

When a facilitator and a principal join forces, the winners are students such as these seventh graders in Freddy Ortiz' Modules lab at Grant Middle School.

"I invite the PTA over to see what we're doing. Whoever the new members are at the beginning of the year, that's where I start," Ortiz said. "I say, 'Hey, let me show you what I have. Let me show you what it takes to run this class.' The majority of the PTA members, their kids go through my class. 'Do you want your child to have the best? If so, we need you to help us out.'"

Villarreal takes over and helps submit the minigrant applications. She also supports Ortiz' other fundraising efforts including candy/soda/pickle sales after school, which can generate more than $2,500 during the course of the year.

"It takes work, it takes creativity, and it takes time after our business hours to get the ball rolling, to get going," Villarreal said.

The students are the benefactors of this two-pronged effort to make the Synergistic lab the best it can be.

"The lab is very motivating for the kids," Villarreal said. "They are intrigued with what they can design, what they can come up with, and then see the end result. They're focused. It's almost like the Wii, if you will. We have that here at school."

Q: What do students want? A: Structure and discipline (really!)

David Zeller, Synergistic Modules Facilitator

Whoever said children secretively crave structure and discipline – despite their adamancy otherwise – might be on to something.

Modules Facilitator David Zeller is proud of the orderly, military feel of his lab at Browne Middle School in Corpus Christi, Texas. Neither a pencil out of place nor a part missing from any equipment, his lab is meticulous. A pre-programmed alarm signifies cleanup time, and students stand in pairs at quiet attention before being dismissed to the class seating area at the end of each day's work.

Not exactly the type of environment the typical middle school student enjoys, huh? Well, not so fast. Zeller's elective classes are filled to capacity, his students lock in on the technology-based activities, and he has a waiting list of eighth graders who want to be OPEX (Office Practical Experience) workers in the lab after having taken the course as seventh graders.

Engaging curriculum and challenging activities, such as robot manipulation, keep students focused on their work in David Zeller's lab at Browne Middle School.

"I could have worked in the library, helped math teachers run copies, take up attendance, deliver slips for counselors, but I picked this," eighth grader Daniella said of her choice to serve as an OPEX worker in the Modules lab. "I really like Mr. Zeller. He's not mean. He's a little strict but he's really cool. He knows how to have fun."

Zeller, a former second lieutenant in the U.S. Army, sees his job as more than a teacher of content. He's preparing students for the rest of their lives.

"Out in the real world, that's what they're going to have to learn – discipline," Zeller said. "I've been in the real world. I've worked at a bank, I've worked as a store manager, I've worked as an electrician's helper, I've worked construction. You have to have structure and be on time to be successful."

And just like at any well-run business, there's a chain of command students must quickly learn. Zeller is the CEO, OPEX workers are directors, lab managers are managers, and Module students are the core workers.

"I hardly ever go to the workstations," Zeller said. "I supervise to make sure everything's running smoothly. Before

(continued page 33)

Girl Power!

Times have changed. Learning to cook isn't just for girls anymore, and figuring out how to fix a sink isn't just for boys. Girls in David Zeller's Synergistic lab break down barriers – at first because they have to when assigned randomly to Modules such as *Practical Skills* and *Research & Design*, and then because they realize they can.

As a seventh grader, Daniella learned how to build a car, make a rocket, and fix a sink. "I didn't think I could do it because I'm a girl, and only guys do that, but I did it," she said. "After I learned how to do it, I felt confident."

Then, as an eighth grade OPEX (Office Practical Experience) worker in the lab, she helped convince other girls not to shy away from Module challenges previously believed to be boys' domain.

"The girls in this class are like, 'I don't know how to do this. I don't want to do this. It's a guy thing,'" Daniella said. "I tell them, 'Look, do this step first and then this.' And they're like, 'Oh my gosh, that's so easy.' You can do anything if you read directions and have confidence in yourself."

Girls in Synergistic labs, such as these working at the Electronics Module at Browne Middle School, feel empowered to tackle challenges traditionally viewed as reserved for males.

Teacher taps into competitive juices

Cars, structures, and rockets take center stage at end of semester

Many middle schoolers love attention, enjoy competition, and strive to be the best. Equipped with this knowledge – and the motivational Synergistic Module curriculum – veteran facilitator Ron Mendleski has modified the time and place for the most-anticipated activities in his lab.

Instead of allowing Module partners to race their CO_2 cars merely head-to-head or launch their water bottle rockets in pairs, or test their bridges and towers together at the conclusion of each rotation, he turns the events into productions that attract school-wide attention to his eighth-grade elective course.

"We'll set up the equipment, and the other classes can come and watch, mainly sixth and seventh graders, who can come and see what these guys do," said Mendleski, who is in his 10th year facilitating the Synergistic lab at Kaffie Middle School in Corpus Christi, Texas. "It's no fun to break your bridge against one person. How fun is it to beat your one partner? It's better to have a crowd."

When students finish building their structures in *Engineering Bridges* and *Engineering Towers*, they go on display atop book cases in the school library, instigating a buzz among younger students. Mendleski increases the intrigue at every opportunity.

Ron Mendleski, Synergistic Modules Facilitator

"When I cover a sixth grade class, I'll bring 'em into the lab and put them in the Modules on demo mode. They go to *Critter Cross* or *Bloop!*, and they don't realize that you can play a game and you can do enrichments and have fun at it and learn," he said. "Everybody wants my class. That's why I have 150 kids."

Nothing motivates students more than competition. A Kaffie Middle School student shows off a CO_2 dragster designed and built in Ron Mendleski's Synergistic Modules lab.

Racing to be the best

Instead of students finishing their CO_2 cars at the *Research & Design* Module, they must wait until the end of the semester when they work as a large group to cut out their designs, fine-tune the bodies, and prep the vehicles for race day.

"It's about the culmination of the activities," Mendleski said. "There's a lot of camaraderie. Instead of two people building a car, I've got eight to 10 in a class. Other kids are working on other projects. We do it all at once."

On race day, the competition track is set up in the gym and approximately 90 cars are in the running for the big prize, a sport drink or some other such palate pleaser. "Even a kid who doesn't build a car gets to race someone else's car so he could have the same excitement as a kid who built a car. As we get near the end, I'll pull the winners from class, and they'll actually be there for the final races."

Competition at every turn

Mendleski encourages students to lead by example, and he believes they learn best from competition, so he carries out Discovery Day challenges such as "Marshmallow Towers" and "Paper Towers," where students use a limited amount of materials to build the biggest and strongest structures.

"He had us do towers with 25 sheets of paper, so we had to figure out how to make the braces. We gave up height for stability and we still won," said eighth grader Erin Adams. "When we did the marshmallows and toothpicks, it looked like a jungle gym. We didn't win that one."

Even at the end of a class period, after Module work has been completed, Mendleski engages students in a random trivia contest until the bell sounds for dismissal. "How much is a CO_2 car supposed to weigh? What forces help a plane get off the ground? . . ." The student who is first to answer a question correctly is rewarded with a food or drink prize. As always, the competition is keen.

Two labs, two schools, one teacher

Running a Synergistic Modules lab smoothly and effectively requires a lot of work and effort. This kernel of knowledge probably doesn't come as a surprise to veteran facilitators. Imagine, though, the work and logistics involved for a single teacher to run two Module labs – at two different schools.

J.D. Darnell doesn't need to imagine the scenario. He's lived it every school day for the past five years at Cullen and Hamlin Middle Schools in Corpus Christi, Texas.

After teaching three classes of 20 students at Cullen in the morning, Darnell spends what normally would be his planning period driving a few miles to Hamlin, where he leads two classes of 26 students in the afternoon.

"It's been a challenge, but I enjoy doing it," he said.

Having two principals who support the Module labs and realize their cross-curricular value makes the split duty worthwhile, according to Darnell. "Both principals are aware of what goes on here, the science and math value as well as the language arts. The administration provides pretty good support."

Embracing change

Darnell entered the teaching field 23 years ago at the age of 36. In the middle of his teaching tenure, he made the transition from industrial arts to technology education, and he's quick to point out that the change has been positive and productive for students.

"When I saw this setup at other schools in the district, plus all the equipment that comes with every Module, I kept bugging them downtown, 'When are we going to install this at Hamlin?'" Darnell said. "In those old classes I taught, we did some science and math but for the most part not. Kids like (Synergistic). They go for it. They don't have to wait to use equipment. There's no waste of time. They stay engaged."

Not all industrial arts teachers took a "bring it on" attitude to the new form of teaching. "I think they were just afraid of computers. Basically, they had never used computers or learned to mess with computers, didn't pursue getting computers in the classroom back in the old days whenever they had the old Apple IIe's and everything. I did," he said. "They were good shop teachers, but they weren't willing to make the switch."

The right system

Darnell wouldn't be able to put forth the extra effort to keep two labs going at two schools unless the system was designed in a facilitator- and student-friendly manner.

"The Synergistic lab takes a lot of the humdrum, everyday tasks out of teaching, such as averaging grades," he said. "Not only that – it's the whole setup. I'm impressed with how the whole setup works synergistically to relieve the teacher of a lot of stuff and, at the same time, keeps students engaged."

Looking ahead, Darnell wouldn't mind the two-school duties continuing.

"I have a lot of students who are passionate about what they're doing at these workstations. It's just such a cool way of learning," he said. "I can't imagine getting back up in front of a class and lecturing for 30 minutes. Kids learn a lot more in here than what I was trying to teach them with their focus on me. They need to get their focus off the teacher and into the work. That's what this type of lab does so well."

When technology education changed a couple decades ago, J.D. Darnell did, too. No longer an industrial arts teacher who relies on power tools such as a drill press to teach, Darnell enjoys facilitating a high-tech Modules lab that boasts cross-curricular benefits for students.

An alternate-route teacher

Career change has brought about long-sought intrinsic reward

Abraham Sims, Synergistic Modules Facilitator

After more than a decade of bouncing around from the Navy to college to bank manager to electrical lineman, Abraham Sims looked across the dinner table one night and found exactly what he was seeking – the satisfaction evident on his wife's face.

A third-grade language arts teacher, she was truly making a difference in the world.

"I realized that, in most of the other jobs I held, what I had accomplished at the end of the day is made a shareholder more money, made somebody else more wealthy," Sims said. "I got to thinking about my wife. When she comes home from work and thinks about what she's accomplished, she probably can't even fathom it. Touching children's lives and the ripple effect that can have on a child and the people in that child's life, what an awesome thing to accomplish. That intrinsic reward was something I was seeking."

So he became an alternate-route teacher, working as a sixth-grade math instructor for one year under a mentor in Alice, Texas. Following this self-described "baptism by fire," Sims was recruited last fall to take over the Synergistic Modules program at Martin Middle School in Corpus Christi, Texas.

"They found my name, my educational background, and figured there was a way to get me into this class," he said. "They set this up as a career investigations course, so as a business major I could teach under emergency certification for business education, 6 through 12."

Sims received formal training from Synergistic officials, which was all he needed for a successful start. "I was taught so well at the training, and the course is so well put together, I haven't needed to have a lot of extra support. When I've needed technical support, it's just a phone call away and I get hold of Pitsco, and there's somebody there right away to answer questions."

The hands-on, interactive program that introduces a new topic every seven days appeals not only to his students but also to him.

"I'm a little bit adult attention deficit disorder myself so this course has been awesome for me. Teaching this course, I'm basically teaching 15 different courses at once," Sims explained. "If I get bored with one subject matter, it's no problem. I've got 15 different subjects. I can move right on to the next one and dive deeper into each one of them. It makes me a better teacher to know more about the subjects for the students. Plus, it keeps my curiosity up."

Assistant Principal James Davenport says Sims' extensive and varied work experience makes him a perfect fit for the Modules careers course.

"I think his experiences add to what he's able to do in there because he has so many different things he's done

(continued page 33)

Students are tuned in at the Music & Sound Module in Abraham Sims' lab at Martin Middle School.

Modules stimulate career connections

Martin Middle School students choose the elective Modules course as an introduction to career pathways they might explore in Corpus Christi high schools. Eighth grader Ashley Mcarthur is leaning toward theater arts and dance as her high school electives after exploring the *Video Production* Module.

"I probably wouldn't have chosen those if I didn't know about those careers from the Module," Mcarthur said.

Classmate Reggie Moreno says the freedom to explore careers with a Module partner is unlike anything else he's done in school. "Usually, teachers tell you you have to be quiet, but here, you help and teach each other. You learn and get to have fun at the same time."

Algebra I: Module preview

To better acquaint you with the content of the 14 Algebra I Modules, we are featuring them in The Pitsco Network. *On the pages that follow, you will find descriptions of the seven Phase II Modules. The seven Phase III Modules* – Climate Change, Factoring & Polynomials, Lenses & Optics, Population Perspectives, Projectile Motion, The Universe, *and* Where in the World – *will be featured in the October-November issue of the magazine. To request additional information, visit www.synergistic-systems.com or phone 800-828-5787.*

By Jeanne McCready, *Curriculum Specialist*
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Nuclear Energy

Nuclear energy is a renewable energy source capable of providing power for all types of homes and businesses. Knowledge of physics, chemistry, and algebra can be used to understand the concepts behind nuclear energy. In the *Nuclear Energy* Module, students explore the various components of nuclear energy.

The main piece of equipment in this Module is the graphing calculator. Students utilize the calculator to graph equations related to the theory of relativity, rational functions relating to Coulomb's Law, graph equations and analyze inequalities, graph binding energies per nucleon, graph equations containing powers and roots using nuclear fission generation times and ratios, and finally, graph rational equations relating to radioactivity.

Students use the *Nuclear Power Plant* software to run a reactor simulation. The goal of the simulation is to not have a nuclear meltdown.

Students explore the contributions made to the nuclear energy field by famous scientists such as James Prescott Joule, Albert Einstein, Charles Augustin de Coulomb, Dmitri Mendeleev, Otto Hahn, Fritz Strassman, Lise Mietzner, Otto Frisch, William Arnold, and James Chadwick.

Math Objectives

- Learn about linear equations in the slope-intercept form and graph them on a graphing calculator.
- Write linear equations given slope and the y-intercept.
- Explore rational expressions and equations.
- Graph and solve inequalities with a graphing calculator.
- Use the graphing calculator to create tables for various equations.
- Evaluate, solve, and graph inverse functions with a graphing calculator.
- Evaluate, solve and graph exponential equations with a graphing calculator.

By Dale Bryan, *Curriculum Specialist*
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Algebra, Glorious Algebra!

"Food, glorious food,
We're anxious to try it,
Three banquets a day,
Our favorite diet!"

Even if a middle school student doesn't know the lyrics of the musical *Oliver*, they can relate to the message; especially now, when they are bombarded daily with food-related advertisements. It is estimated that students see 20,000-40,000 commercials a year, and 50 percent of those are about food.

Considering this statistic along with the fact that as growing, active youngsters, eating is a high priority on students' lists, it makes sense to present math concepts by way of students' stomachs.

The *Math Behind Your Meals* Module introduces basic information about algebra through discussions of food history, food production, nutrition, consumption, and overconsumption. In the first sessions, students learn basic algebra terms and apply concepts such as using properties and order of operations to solve equations. They also calculate percents of change while learning how changes in society and technology led to the fast food industry.

Students use food-related formulas when figuring body mass index or BMI, waist-to-hip ratios, and total calorie requirements. They learn about proportions while exploring how portion sizes have grown in the last 20 years. They decipher nutrition labels and charts, which is a skill they can use in their daily lives. In later sessions, students learn about food-related issues such as overweight and obesity, body image, and the influence of the advertising industry.

Hands-on activities include using clay to represent food and weighing it on a nutritional scale. In an early session, the clay is a loaf of bread and students figure the portion a farmer can claim as profit. In a later session, the clay becomes hamburger patties and students compare the size of patties in the '50s to present-day patties.

Another activity included in several sessions is the Algebots game. Students answer food-related questions based on Module content to review skills. The game also encourages healthy eating and adequate physical activity as ways of balancing calorie intake.

"... Oh! Food, wonderful food, marvelous food, glorious food!" It may not be a Broadway musical, but *Math Behind Your Meals* whets students' appetites for algebra.

Math Objectives

- Give examples of elements of the real number system including integers, rational numbers, and irrational numbers.
- Learn basic algebra language.
- Evaluate expressions by substituting values for variables.
- Evaluate expressions with variables on both sides of the equation.
- Use the properties of real numbers including commutative, associative, and distributive to simplify expressions.
- Explore ratios and proportions.
- Find percents of change.

By Aaron Locke, *Curriculum Specialist*
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Gravity of Algebra

The laws of gravity haven't changed, but the technology students use to study it sure has

You've probably heard the saying, "What goes up must come down." However, as we continue to explore our universe and the laws that govern how it works, it is easy to see that this saying does not always hold true. What goes up may not necessarily come down.

In the *Gravity of Algebra* Module, students explore the concept of gravity and how it affects the way things move and interact on Earth. Galileo studied gravity by using an inclined plane to slow down the speed at which things fell and used his own pulse as a timer to time an object's rate of descent. While the technique for studying gravity has changed little since the time of Galileo, the technology used to study gravity has dramatically changed.

The Synergistic Picket Fence and *Gravity Guru* software is a precise timing mechanism that can measure an object's time of fall to within one-millionth of a second. Students use this technology to drop objects of varying mass to determine the rate at which objects accelerate toward Earth and what factors affect this rate.

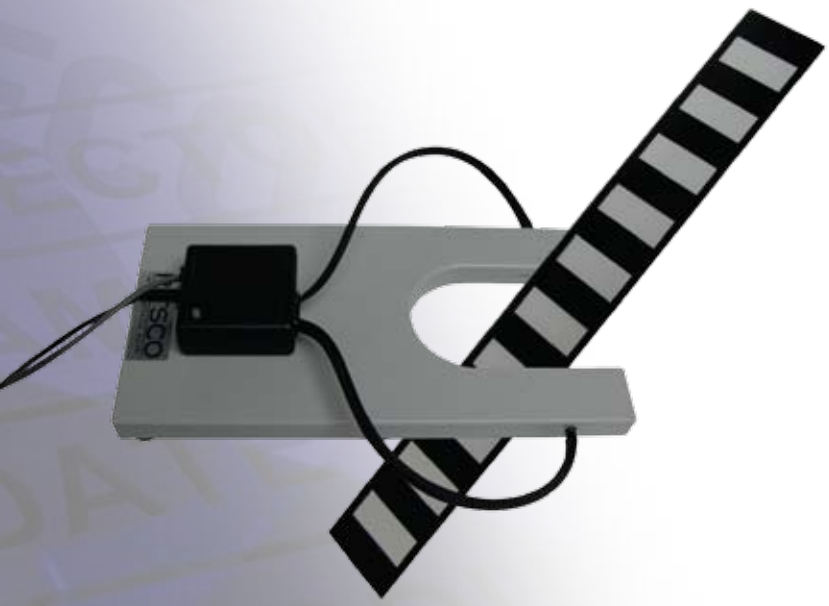
Students learn and apply algebra concepts such as direct and indirect variations, graphing linear relationships, slope as a rate of change, and solving linear equations to help gain an understanding of the force that holds them to Earth. Students also use the slope-intercept and point-slope forms of a line to model data they collect.

Students analyze the law of conservation of energy and use algebra to model an object's kinetic and potential energy as it falls. From this model, students can determine how much of each type of energy the object has at any point during its fall.

As students progress through *Gravity of Algebra* and experience the hand-in-hand connection between algebra and science, one thing is certain: their knowledge and understanding of algebra concepts will likely go up and not come down.

Math Objectives

- Explore direct and inverse variations.
- Create scatter plots and determine types of correlations.
- Explore slope as well as x- and y- intercepts.
- Write linear equations in slope-intercept and point-slope form.
- Graph linear equations.



$$F = \frac{m_1 m_2 G}{d^2}$$

By Aaron Locke, *Curriculum Specialist*
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Supply & Demand Module

I went to the local ice cream shop the other day to get a scoop of chocolate chip cookie dough ice cream, only to be told, "We're out of cookie dough ice cream." In all my years of eating cookie dough ice cream, I can't recall once ever getting the first scoop out of a new container. It seems that the workers are always scraping the bottom of the barrel to barely get enough ice cream to compose a scoop. Yet, the mint chocolate chip container seems to always be full.

In our town, chocolate chip cookie dough is in much higher demand than mint chocolate chip. What's more, our local ice cream store's supply can't seem to keep up with the demand. Perhaps the people who run our local ice cream store should take a quick run through the *Supply & Demand* Module.

In *Supply & Demand*, students run a simulated airplane business throughout the Module where they explore some of the factors that shape our economy. Students learn how economists use algebra to model supply and demand to better determine the price and quantity of their products to sell.

The overriding goal of *Supply & Demand* is to help students develop an understanding for how to solve systems of equations. Various methods of solving systems including substitution, elimination, graphing, and using graphing calculators are presented to help students achieve this goal.

Students construct and present graphs that represent the supply and demand of their company's product and use these graphs to analyze the equilibrium quantity and price at which to sell their product.

As a culminating experience, students play a supply and demand game in which they try to make the largest profit possible. Students evaluate various factors that affect the demand of the product and use market research tools to help them in running a successful business.

Math Objectives

- Solve linear equations for one variable.
- Graph linear equations.
- Solve a system of linear equations by graphing.
- Use substitution to solve a system of equations.
- Use elimination to solve a system of equations.
- Explore solving a system of equations with a graphing calculator.

By Jeanne McCready, *Curriculum Specialist*
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Unsolved Mysteries

Third forensics-based Module challenges students to solve mysteries while practicing algebra skills

Unsolved Mysteries is the third in a series of forensics-based Modules. The first two Modules include *Forensic Science* and *Forensic Math*. In *Unsolved Mysteries*, challenges continue to plague the students and teachers at Running Well High School. Students must solve the mystery of who committed a robbery in the office of the school secretary. The secretary's cell phone, debit card, and cash are missing.

In this Module, students use coordinate graphing and functions in determining who committed the robbery. Using cell phone records and coordinate graphing, students identify an area in which the stolen cell phone was last operated. Students also use functions to estimate the time of the robbery as well as the approximate height of the suspect. Students link algebra skills to a real-world career in forensic science.

Finally, using deductive and inductive reasoning, students must identify the person they believe committed the robbery based upon all the information collected and experiments performed. Students must provide the evidence and documentation as the basis of their determination.

Will there be a fourth forensic Module in the future? The jury is still out, but we'll keep you posted.

Math Objectives

- Use algebraic concepts to solve a simulated crime.
- Use coordinate graphing to graph locations of calls made from the stolen cell phone on a map of the city.
- Explain the terms equation, function, and relation.
- Identify functions and relations.
- Determine equations for functions.
- Using the graphing calculator, create a graph of collected data.
- Create models, graphs, and diagrams to represent algebraic relationships.
- Identify x- and y-intercepts.
- Determine the cooling rate of a liquid and relate it to the slope of the line on a time versus temperature graph.

By Erin Wilson, *Curriculum Specialist*
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Learning algebra through sports

In a movie, a math professor admits to his wife that he doesn't like baseball. Astonished, she tells him that he would like baseball if he gave it a chance because it's based on math. She was right, and by the end of the movie, he developed a passion for watching the game.

The professor was likely in the minority – many people aren't fans of sports because of math. In the new *Sports Statistics* Module, the goal was the opposite effect – that students who are fans of sports might gain a new appreciation for math.

In the Module, students explore the role of mathematics in sports statistics. The primary goal for the integration of the sports statistics element is to show students the relevance of statistical devices because we realize it is difficult for students to retain information that has no real context for them. Aside from the fact that sports are entertaining and engaging for students, they are an excellent example of how statistics serve a real purpose.

For example, in Session 1, students learn how matrices are structured and see how baseball and football statistics can be written as matrices. After students are introduced to why and how matrices are used, they create their own matrices using data from the table football activity. In Session 2, students use data from their table basketball game to construct a scatter plot and then analyze it. In Session 4, students see how box-and-whisker plots can be used to analyze professional football stats.

Students also learn about the fundamental counting principle, factorials, combinations, and permutations using sports data. Students combine statistics from the table sports of earlier sessions to learn how these concepts are used. In Session 5, students participate in a pentathlon to use the fundamental counting principle. In Session 6 and 7, collect data from their own tabletop sports and complete analyses on the data to understand how combinations and permutations are used.

Math Objectives

- Learn the definition of and the parts that make up a matrix.
- Learn to add, subtract, and multiply matrices.
- Create a scatter plot and determine the line of best fit.
- Create frequency tables and histograms and then use the histograms to interpret statistical information.
- Create a box-and-whisker plot by calculating the range, quartiles, median, and outliers.
- Explore and learn to apply the fundamental counting principle to sports-related issues.
- Explore factorials, permutations, and combinations concepts to sports-related issues.

By Erin Wilson, *Curriculum Specialist*
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Water, Water, Everywhere

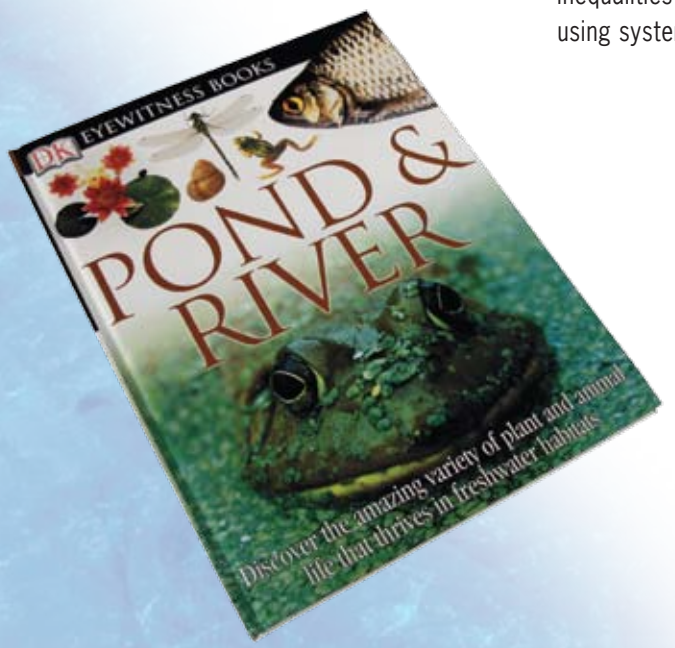
In the *Water Quality* Module, students complete an internship with Scientific Laboratory Services. As part of their internship, students analyze various standards and regulations relating to water quality and use. Water quality is often an issue in the news with regard to flooding and overpopulation, among other issues, and the use and conservation of water is also a newsworthy topic.

With this in mind, the *Water Quality* Module was developed in an effort to blend a current issue that students may already be curious about with math concepts that really do apply! For the students who ask how math relates to real life, this Module provides a clear answer as students learn that their health and safety are often protected by inequalities.

Through laboratory testing and Module activities, students experience real-world applications of inequalities and learn to solve and graph simple, multistep, and compound inequalities using a paper-and-pencil approach and a graphing calculator. The hands-on activities in the Module were designed to be relevant for the students, but more importantly the concern was to give them well-rounded experiences that would develop their understanding of inequalities at increasing levels of complexity.

To this end, students use hands-on activities and computer interactions. Students first learn simple and compound inequalities and how to graph them. They use inequalities to solve word problems and learn how to solve inequalities with a variable using addition, subtraction, multiplication, and division. Students then learn how to solve multistep inequalities.

Next, students move from these concepts to learning how to solve inequalities with multiple variables using systems of equations. They also learn how to solve inequalities involving absolute values. In these activities, students learn how to work problems using pencil and paper. However, they also graph by hand and by calculator to reinforce how inequalities can be used in real life. The culminating activity in Session 7 provides students the opportunity to blend their knowledge of water quality issues with their newfound understanding of inequalities in the creation of a trivia game.



Math Objectives

- Identify inequalities and double inequalities.
- Match graphs for inequalities.
- Solve simple inequalities.
- Solve inequalities with two variables.
- Create a T-chart and graph inequalities on a coordinate plane.
- Graph a linear system of inequalities on a graphing calculator.
- Define and graph absolute value inequalities.

By Joel Howard, *Systems Customer Service Manager*
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Tips for ensuring successful Missions

I hope that all of you had the opportunity to enjoy your summer break (assuming you had one), because another school year is upon us. For you Mission veterans out there, hopefully you had a successful experience last year and are looking forward to another great one this year.

If you're new to the program, don't panic. You will get the hang of it and plenty of support is available. No matter what situation you find yourself in, here are some suggestions to help you start the new school year smoothly:

- Check all of the bins and make sure all equipment is accounted for and in good working order.
- If your lab is new, spend some time checking out the components of each Mission. It's not necessary to know every activity, but it is certainly helpful to be familiar with the materials.
- Make copies of any of the worksheets and/or paperwork as needed and distribute to the appropriate Missions.
- Prepare all of your Pretests for orientation.
- If your lab was recently installed, most of the bin prep should have been done for you, but you should check to ensure that all the equipment has been unpackaged and labeled and that all the bins are appropriately labeled.
- If you are a *Prism* user, now would be a great time to delete old students out of your database and start entering the new ones.
- Spend some time developing your orientation. All too often we see students just being turned loose into the Missions without any real instructions or expectations. Students should have fun, but also understand that the Missions are not just toys and should be treated with respect.

Some of the great things about Missions are their ease of preparation, ease of storage, and lack of maintenance required. But take some time to prepare before students arrive, and I think you'll find your entire year will go more smoothly.

Social science background serves Roberts well (continued from page 3)

social science courses at Seneca (Mo.) High School from 2000 to 2007. She often went "outside the box" to create hands-on experiences for her students.

"From my alternative school experience to Advanced Placement Psychology, I have seen many different types of learners and levels and backgrounds. I think this helps me understand where a kid is coming from and how to best impact them."

At the same time, Roberts' years teaching history, sociology, government, and psychology are not irrelevant to her work at Pitsco where she develops primarily science, technology, engineering, and math (STEM) content.

"These subject areas are reading and writing intensive, especially the higher level you go, so that is really helping me at Pitsco," she said. "I have also already used some psychology in updating a Module, some economics in reviewing a new algebra Module, and will use a little of all of these things in English and the Star Academy Social Sciences culminating activity book."

Leaving the classroom for a job developing curriculum was not a move Roberts took lightly. She misses interacting with students but is excited to try her hand at something new.

"What drew me to Pitsco was the opportunity to still be involved with education but in a different way. I enjoy writing and like trying to find a different way to teach students."

By Tom Farmer, *Editor* tfarmer@pitsco.com

Lesson learned

Teacher abandons failing lab in favor of Synergistic Modules

Sometimes, only through trial and error do we discover what's best. Just ask Parker Brady of Edison Junior High School in Rock Island, Illinois.

At neighboring Washington Junior High School, Marty Crapnell was enjoying his Synergistic Modules lab, leading students to success and discovery on a daily basis. But Brady figured he could get a better deal by going with an alternative modular program. He could purchase a few more workstations for the same amount of money, so he did.

It didn't take long for Brady to realize the "better deal" wasn't really better.

"My opinion is that the product was a little soft in how much stress and usage it could take," Brady said. "There was a lot of commercial stuff and things that wear out. My lab was fatiguing to the point where it wasn't operable anymore. A year ago I just shut the lab down. I couldn't run it any longer."

Lesson learned. When he received approval to upgrade the lab, Brady visited Crapnell's lab and soon thereafter opted to switch to Synergistic Modules.

"I'm glad I had the opportunity to do this. I will not buy from that company again. I didn't like the service. The equipment was cheap," Brady said. "Marty, thank goodness, had a program I could sit and study. It turned out to be a no-brainer."

After receiving formal Synergistic training last August, Brady went on to have a highly successful first year with the Modules, which to his and his students' liking are rich in science content. The management system, *Synergy*, was also a vast improvement over the primarily reading-based curriculum in his old lab.

"One thing I fully appreciate over the other one is the delivery system is so nice. The directions, verbal and visual, make it easier for the students," he said. "I like the organization of the scores. *Synergy* really takes care of the organizational problems I had in the past."

Crapnell is now retired, but his replacement at Washington, Dan England, has been a good resource for Brady. With only a few years remaining before he hangs it up, Brady knows which program he'll be teaching the rest of the way. "I'm 60 and will be leaving in a few years. I'm sticking with this lab."

By Tom Farmer, *Editor* tfarmer@pitsco.com

Teacher's grading chart yields peace of mind

Peace of mind is necessary, and no two people seek it exactly the same way. That's why Synergistic Facilitator Jennifer Chiles bypassed SIM and came up with her own spreadsheet to keep track of what every student is doing at every Module in her lab on any given day.

Chiles' spreadsheet gives her peace of mind. "I needed something to keep me and the students on track of what exactly they do each day at a Module. Based on my chart, each day I go by the Modules and tell the students what I expect to see."

As opposed to a SIM report that lists every activity for all the Modules in a lab on any given day, Chiles' "Module Grading Chart" is customized to include only the activity or worksheet she deems most important in each session of each Module. The entire spreadsheet for all seven sessions of 16 Modules prints on a single page.

"Towards the end of class, the students show me the completed activities and earn point coupons," said Chiles, who facilitates the lab at Victory Lakes Intermediate School in League City, Texas. "They keep the coupons in a small baggie stapled inside their portfolio, and at the end of the rotation they attach all earned coupons to all of their paperwork and turn it in."

The points are applied to the students' performance assessment grade. Not only does Chiles enjoy peace of mind, but her students have realized improved scores as a result of the grading chart.

"This has made a big change in what gets accomplished in my room," she said. "Work and activities are getting done because they want the points. Grades have gone up."

Get a copy

Download a copy of Chiles' "Module Grading Chart" from the pitsco-network.com Web site or contact Chiles at jchiles@ccisd.net.

By Joel Howard, *Systems Customer Service Manager*
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Synergy or Colleague: here's your to-do list

At the beginning of each school year, I like to create a "things to do" list for you that hopefully helps get the new school year off to a smooth start. Now that we have labs using both *Synergy* and *Colleague*, each with its own unique situations, I believe I need two separate lists. So if you're a *Colleague* user, check out the *Colleague* section; if you're a *Synergy* user, well, you get the idea!

Synergy

- Check to see what version of *Synergy* you are running. You should be running at least version 1.5.x. If not, contact Customer Service for an update.
- If *Synergy* was updated during the summer, it is important that the browser cache be cleared at each workstation. Check to see if this has been done.
- If you have received any Module updates, ensure that they have been installed. You can refer to the Content Management section of *Synergy* to determine what version of a Module you are running.
- Delete students and classes that you no longer have in your lab and no longer require access to their information.
- Log on to each workstation and ensure that you can access the Student Portal and that you can log in as a student. Any number of changes in the IT world over the summer could have affected your ability to access *Synergy*.
- Both *Firefox* and *Internet Explorer* get frequent updates; it's quite likely you will be prompted to apply these updates when first launching *Synergy*. It's certainly better for you to apply these updates than wait for the students to be prompted to do so.
- Any Module that has third-party software also likely requires students to save their work to a folder on the local drive. Now would be a great time to delete students' work from last year. Normally, files are saved in the following location: c:\files\Module name\Hour 1, 2, etc.

Colleague

- Delete students whom you will no longer have in your class. Remember that deleting classes does not delete the students within the classes.
- Create a test class if one does not already exist, add a few students to it, and schedule them for every Module in your classroom.
- Go to each workstation, log in as the Module user, and ensure that the Module launches.
- Ensure that your test student can log in using the name and PIN you assigned. Once logged in, complete one of the Knowledge Surveys and verify that the grades were recorded in *Colleague*. This will verify that all your Modules, *Colleague*, and network are running properly.
- Once you have completed the preceding steps, run the Compact/Repair utility found under the Colleague/Colleague Database menu. This will compress your database and keep Colleague running faster and more efficiently.
- Create a backup file of your *Colleague* database before you start entering students; this way, if you make an initial mistake you can restore from the backup.
- Any Module that has third-party software also likely has students save their work to a folder on the local drive. Now would be a great time to delete students' work from last year. Normally, files are saved in the following location: c:\files\Module name\Hour 1, 2, etc.
- This is also a good time to ensure that all third-party applications are launching, especially those with peripherals such as cameras, robots, microscopes, etc. It's far better for you to discover problems and remedy them, than to wait for students to find them.
- Take a quick inventory of each Module's components. I've seen many things disappear during the summer due to construction, cleaning, or relocation of the lab.

As always, if you have any questions or concerns, please call us at 800-774-4552 or by e-mail us at Systems_Support@pitsco.com.

By Tom Farmer, *Editor* tfarmer@pitsco.com

Changing the solar system

Teacher modifications yield shorter activity and the need for fewer consumables

The solar system spans hundreds of millions of miles, which is why you might be surprised to learn it can easily be manipulated to fit into a 30-foot area – or even onto a whiteboard. Well, at least a scale model of the solar system fits into these relatively tight spots.

A teacher in Illinois, whose students explore the *Astronomy* Module, has created some new, permanent materials that simplify and speed up the building of a scale model solar system.

In the *Astronomy* Session 5 activity, "Scale Model of Solar System," students are instructed to use yellow stick-on circles and colored tape to measure a model of the solar system on the floor. Facilitator Elaine Lorinczi of Marlowe Middle School in Lake in the Hills, Illinois, needed to abbreviate the activity because of short class periods, and her adaptation resulted in the need for fewer consumable materials.

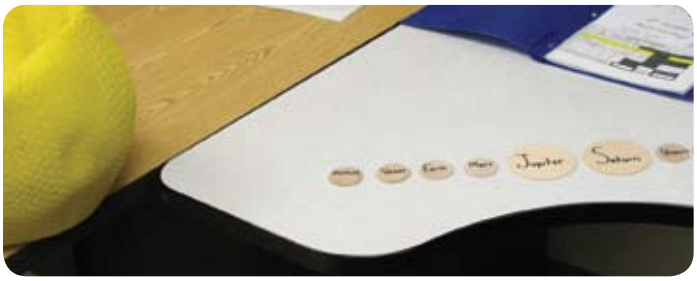
To start, she cut out wooden disks and labeled them with the names of the planets, from the Sun to both Plutos (representing the planet's nearest and farthest distances from the Sun).

"Since we have 42-minute periods, the tape and stickers took too much time," said Lorinczi, who describes herself as very frugal. "This way, the planets are ready to go. Students just have to figure out where to place them."

Which isn't necessarily easy to do. If students use items such as a grapefruit, nuts, and pin heads, it would take nearly a mile to proportionally display the distances between the Sun and the planets. So "distance gaps" are added to keep the activity within a classroom.

"The whole class can see how much room the solar system takes up," Lorinczi said. "And the students in *Astronomy* usually end up fielding questions from their classmates: 'What are you doing? Is that really how big the solar system is? Why are there two Plutos?'"

Lorinczi will take her modifications a step further next year. "I plan to get magnets for the back of the planets. Next year, they will create the solar system on the whiteboard. Since the whiteboard is not long enough, we'll have a modified tape measure with a 'wrinkle in time' to allow for the planets farther out. I'm also going to add stars and asteroids for entertainment value."



Facilitator Elaine Lorinczi added a makeshift Sun (yellow ball) and planets (wooden disks) that help simplify and speed up the building of a scale model solar system in the Astronomy *Module.*

Q: What do students want?

(continued from page 19)

I dismiss the students from the Modules, I make sure they're clean. If there's any markings on the Modules, guess who cleans it up – the students. You leave it the way you found it. That's what I'm trying to teach them."

Having layers of management keeps the lab running smoothly and reduces the rate of breakage and loss. The key difference, Zeller believes, is the OPEX workers, whom he's utilized for the past five years.

"I hand pick 'em," he said. "They have to be responsible and take initiative. More kids want to do it than there are slots available."

Randy, an eighth grader, figured it would be fun to work with Zeller as an OPEX worker, but he's also learned about responsibility along the way.

"I have to tell students what to do, take attendance, hand out calculators, help with call lights and stuff," Randy said. "I don't have that responsibility in other classes."

An alternate-route teacher

(continued from page 22)

before as opposed to someone like me who went straight through the education route," Davenport said.

Sims welcomes opportunities to testify to the ways of the real world. "I think there's some benefit to having a diversified experience, especially in a position like this where there's so many things going on. I can tell the kids something about finance, something about electricity, something about horticulture, all these things from my own personal experience. I can go into more depth and detail. I tell kids, 'OK, here's the experience I had.'"

Best of all, dinner table conversations regarding work are no longer one-sided in his wife's favor. "She's jealous of me now, she honestly is. She sees the size of the class, she sees the program that I run, I mean, the Pitsco system takes away so many of the cumbersome, burdensome administrative duties of the teacher and allows the teacher to teach."

By Aaron Locke, *Curriculum Manager*
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The Suites world is changing

Get ready for content and structural changes to program

The next two years will be an exciting time when it comes to Synergistic Suites. Major changes are on the horizon, including increased, standards-based content, a redesign of the Suites framework, and much more.

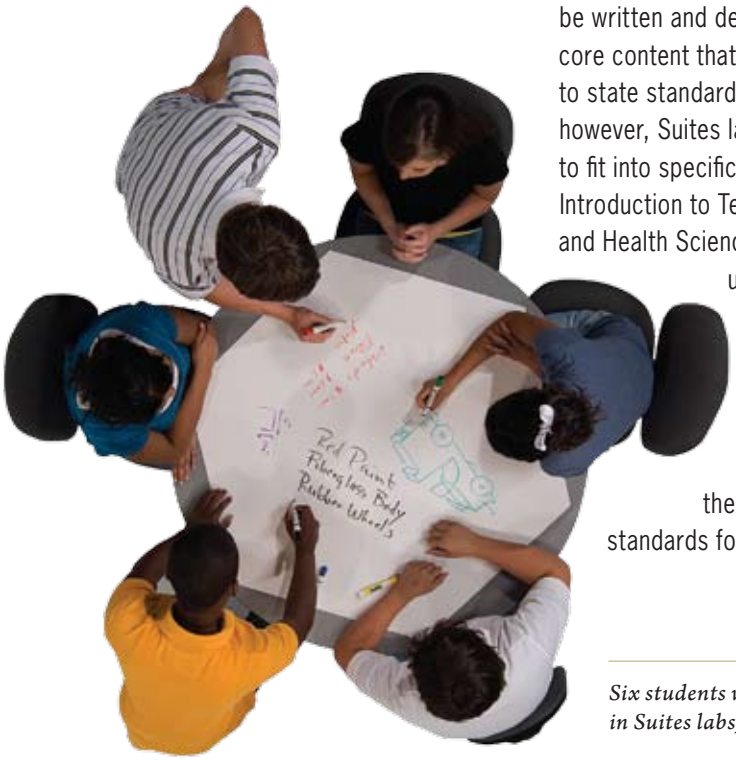
During the past several months, we've been conducting a comprehensive evaluation of the Suites program. We've evaluated where it has been successful and where changes could be made. We questioned its purpose and where and how it fits into today's classrooms. We broke it down piece by piece into its component parts. Then piece by piece, we began to formulate a plan for a complete overhaul.

The concept of the Suite structure will remain the same: six students working in pairs to explore three separate but related content Harbors. After gaining the knowledge and experience provided by each Harbor, the six students gather together as a team to complete a Suite team challenge. When the challenge is complete, students rotate to a different Harbor in the Suite and repeat the process. However, this Suite structure is just about the only piece of the puzzle that will not be altered in some way.

Standards-based core content

The first change will be a major revamp, update, and addition of standards-based core content. In the past, most Suites labs have been set up as an exploratory-type class where students can experience a variety of different topics to help them decided a career path. Career exploration still occurs in the new Suites lab design.

Starting this summer, Suites will be written and designed to deliver core content that will directly correlate to state standards. More than that, however, Suites labs will be designed to fit into specific core classes such as Introduction to Technology, Engineering, and Health Science. With the Suites upgrade, we are starting with the state standards and writing curriculum and activities that directly correlate to them with the goal of meeting all standards for a given class.



Six students working collaboratively at a team table will remain a common sight in Suites labs, but content and framework changes are in the offing.

More details coming soon

The biggest and probably most visible change that will take place in the world of Suites is . . . well, you're just going to have to be patient for that one. For now, all you need to know is that the Suite world is going to be rocked. Look for more information about the Synergistic Suites upgrade in the December-January issue of *The Pitsco Network* magazine.

Harbor framework changing

In order to better meet standards, the Harbor framework will also change. The current framework consists of four knowledge acquisition days where the harbor content is delivered with eight additional days for the team challenge, making a 12-day rotation. In an effort to deliver more content and align to more standards, we will change the Harbor framework to seven knowledge acquisition days with six days allotted for the team challenge.

Other changes on the horizon include a shift in focus almost solely to science, technology, and engineering; modifications in the team projects to align to more state standards; a change in the way students do presentations; and changes in the grading structure.

By David Patterson, *Systems Customer Service*
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Server, software, PIM, help, consumables

Follow a few simple steps and you'll be ready for students

Welcome, new facilitators, and welcome back to our returning facilitators! Hope the summer was enjoyable and restful for everyone. I have put together a list of things to check before starting up; hope you find it useful.

The first step is to verify that your network is functioning properly. You may or may not have much knowledge about networks, but you need to be aware of how your room is set up. Your computers are attached to a shared database on a server somewhere on the network, and that server needs to be powered on and running properly for the lab to function. If you do not know where the server is, contact your IT department to locate it and make sure that it is running. If you know where it is and have access to it, go to it and verify its status. A happy server makes for a happy lab – and that'll make you happy!

With the network verified, we can take a look at *Encompass* on the teacher workstation. As you know from training or from previous years in the lab, without *Encompass* your students can't get to work. So now is the time to get back on the horse and take a look around to see what needs to be done to get the year started. Perhaps you want to start with a clean database. If you wish to start from scratch, you will need a blank data file. If you can't locate one on the teacher workstation, please call and we can get one to you. If you have located one and need assistance getting it set up for use, please call.

> ***"...we are here to serve and assist you in any way that we can."***

With the database reset or if you are just ready to get rolling, here are some quick tips to get your classes entered and scheduled:

1. Create or verify your Suite sets. Without a set you cannot create classes.
2. Create your classes. Make sure that you do not use the time of day in the class hour field. This will cause your folder structure to set up incorrectly.
3. Add students to each class. You can rearrange the fields on this page to match your printed rosters. Simply left-click and hold on a column header and then drag left or right to reposition them. This can allow for faster data entry.
4. Generate your schedules. You can edit them later if necessary, but you must have a least one rotation to create the folders on the server before you start orientation.
5. Run the Folder Manager utility to create the Homes folder on the server. If you forget to do this, the students will not have a place to save their work during orientation.
6. Print your student roster including the PIN. You may not need this if you use customized PINs that the kids can remember, but you will likely need to remind one or two of them during orientation!

Help, supplies, and PIM

The *Encompass* Help file is very useful. It is also context-sensitive, meaning that when you press the F1 key, the file will automatically open to the help for the function that you are currently using.

One of the other critical things to do is check the supply closet. You do not want to start rotations only to discover on the second day that you need x, y, and z and don't know what they are or if you have any of these supplies. If you are new to the lab, this could be a challenge because you may not be familiar enough with what you have to know if it is all there. PIM to the rescue! PIM stands for Pathways Information Manager and that is exactly what this program is, a manager of Pathways information.

This program is also loaded on the teacher workstation and contains Harbor-specific and lab information that you may need on a daily basis. The latest version of nearly all documents associated with any Harbor in your lab should be installed in this comprehensive program. In addition to documents, segment-, field trip-, and activity-specific information is included and gives you a quick summary of what students should be doing and what equipment and materials they need.

There are also different reports that you can run inside PIM. If you are new to the lab, run a report for each Harbor using the Deliverables/Consumables as the criteria type. If you need any assistance with this report or using PIM in general, contact us.

Again, we are here to serve and assist you in any way that we can. Have a great year!

By Ray Grissom, *Curriculum Specialist*
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Students build upon skills in cross-curricular CareerPorts

The virtual internship format of CareerPorts is an ideal way for advanced students or students in a nontraditional situation to have a great learning experience. The virtual internship gives students the opportunity to work in a career area that interests them and at a pace that suits their situation.

The tasks assigned to students are typical of what would be assigned to a person in the working world. Students proceed at a pace that is best suited to their situation. Suggested timelines and due dates allow nontraditional students some flexibility.

Because CareerPorts are accessible through the Internet, students may be able to complete tasks during the weekend, late at night, and basically any time of day. Much like real-world situations, students are given tasks that become increasingly complex and build upon previous experiences. Independent learners and nontraditional students alike can benefit from the freedom and structure of the class.

CareerPorts do not just address one skill or topic. The cross-curricular nature of the CareerPorts is shown in some of the tasks in *Engineering Communication*. Not only are presentations and oral and written reports created but students also must understand and communicate with the customer and with coworkers.

In addition, math concepts are reinforced as students work with budgets, solve a variety of mathematical problems, and work with scaled drawings. The use of multiple software programs to design an aircraft wing that creates adequate lift while meeting the size requirements of the customer provides experience in engineering, science, and technology. To be successful, students cannot be good only at drawing or good only in math; they must demonstrate abilities in all areas.

STEM key to math, science solution (continued from page 9)

valuable math, engineering, technology, and science positions in Missouri.

Prior to the METS initiative taking shape in Missouri, Synergistic Learning Systems was positively impacting students' lives in Missouri. As featured in the February-March 2008 issue of *The Pitsco Network*, a former Jefferson City, Missouri, middle school student used his Synergistic Modules lab experience to propel himself into an engineering career working on space shuttles.

Learn More

National Association of State Science and Mathematics Coalitions:
www.nassmc.org

Missouri METS:
www.missourimets.com

Texas TSTEM:
www.tea.state.tx.us/ed_init/sec/thsp/tstem.html

Teachers' Impact on Future STEM Careers

We make sure to reiterate during our professional development seminars that no one beyond a child's parents has more of an influence on that child's career dreams than a teacher. You can absolutely be a positive influence on your students who are considering future STEM courses and careers. We appreciate what you do for your students and for our country!

Upcoming Events

Pitsco's family of companies will be represented at education shows and conferences across the country in the coming months. If you attend any of these events, stop by the Pitsco booth. Our representatives look forward to meeting you!

September

26-28	TASA/TASB, Dallas, Texas
28	Minnesota Technology Education Association, St. Cloud, Minnesota

October

1-4	National Council for Teachers of Mathematics, Oklahoma City, Oklahoma
14-15	New Jersey Science Convention, Somerset, New Jersey
15-17	National Council for Teachers of Mathematics, Cleveland, Ohio
23-25	National Career Pathways Network, Cincinnati, Ohio
23-25	Florida Association of Science Teachers, Orlando, Florida
28-30	National School Boards Association Technology & Learning, Seattle, Washington
30-N.1	National Science Teachers Association, Charlotte, North Carolina
30-N.1	National Middle School Association, Denver, Colorado
30-N.1	National Association of Gifted Children, Tampa, Florida
30-N.2	California Science Teachers Association, San Jose, California

November

5-7	South Carolina Ed Tech Conference, Myrtle Beach, South Carolina
5-7	National Council for Teachers of Mathematics, Reno, Nevada

Making movies about curriculum builds student interest.

See story on page 10.

Make a Movie with Billy Field

Hollywood veteran Billy Field is passionate about the power of making movies. His unique methods teach students to write and make movies that educate, unite, and inspire, while learning the technical aspects of movie making, cameras, lighting, sound, and editing; and how to share it all on the Internet. (You don't have to own the equipment. Billy brings it all!) When students make a movie about any subject, they are more likely to retain what they learn.

Projects include:

- making a documentary about math behind bridge-building
- starring in a movie about the physics behind the balsa wood dragster competition or the LEGO® robotics contest
- The Hero Next Door™, a documentary about who has made a difference in their community

Billy's versatile program, Make a Movie.Net, works for any class!

www.edbookings.com
866-277-5061

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View back issues of *The Pitsco Network* at www.systems.pitsco.com or www.pitsco-network.com

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