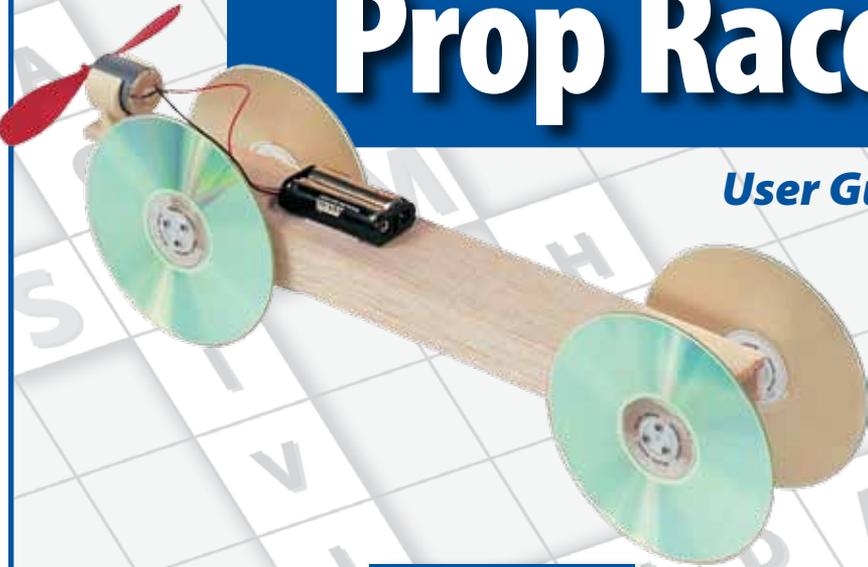


Electric Energy Prop Racer

User Guide



PITSCO
EDUCATION

Cautionary and Warning Statement

- This kit is designed and intended for educational purposes only.
- Use only under the direct supervision of an adult who has read and understood the instructions provided in this user guide.
- Read warnings on packaging and in manual carefully.
- Safety glasses required when soldering.
- Always exercise caution when using soldering iron.
- Do not mix old and new batteries.
- Do not mix alkaline, standard (carbon-zinc), or rechargeable (nickel-cadmium) batteries.

Soldering Iron Safety Tips

- Always get permission from an adult before using a soldering iron.
- Be sure to read and follow all of the manufacturer's instructions provided with your soldering iron.
- Never touch the element or tip of the soldering iron.
- Always return the soldering iron to its stand when not in use.
- Turn unit off or unplug it when not in use.

Electric Vehicles

How can you get 20 to 30 more miles out of each gallon of gas and help prevent pollution in the atmosphere? Drive an electric car! Since 1997, car buyers in America have been able to purchase hybrid vehicles, which combine the use of fuel and batteries to make the car run.

Although electric vehicles look like regular cars, they operate much differently. To see for yourself, gather this kit's materials and get ready to make your own Electric Energy Prop Racer!

Materials Included

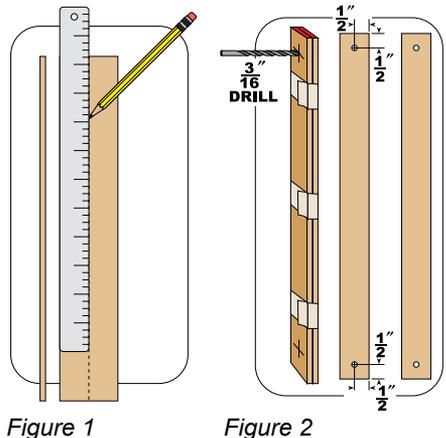
- 3 – 3/16" x 2" x 12" balsa wood strips
- 4 clear CDs
- 2 – 1/8" axles
- CD hub/bearing set
- Motor
- 5" plastic propeller
- Battery holder
- 2 alligator clips
- Motor mount
- Screw
- Washer
- Wing nut

Items Required (not included)

- Utility knife
- Metal straightedge
- Soldering iron
- Drill
- Glue
- Wire strippers
- Double-sided tape
- Small screwdriver
- AA battery (2)
- Transparent tape
- Pencil

Building the Racer

1. Locate the three balsa wood pieces. Use a straightedge and pencil to draw a straight line down the middle of one piece (Figure 1). Use a utility knife to cut it in half. These will be the side rails of the vehicle.
2. Using the tape, put the two halves together back-to-back (Figure 2). On each piece, make a mark 3/4" from each end, centered in the middle. Drill a 3/16" hole at each point. Remove the tape and separate the pieces.



3. Use glue to connect the two pieces to a second strip of balsa wood (Figure 3). The pieces should be glued to each side of the wood at a 90° angle.

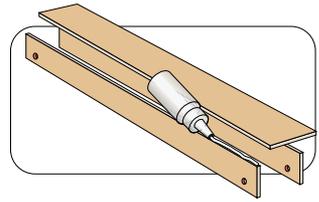


Figure 3

4. Take the third piece of wood and cut a 5" piece off one end (Figure 4). Then, use the knife and straightedge to cut 1/2" off the side of the 5" piece so its dimensions are 5" x 1-1/2" (Figure 5).

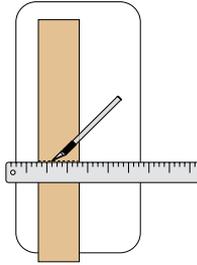


Figure 4

5. Make a mark 1/2" from one end of the piece and drill a 1/8" hole in that spot. The hole should be centered in the middle of the piece.

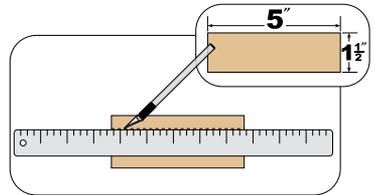


Figure 5

6. Glue the 1-1/2" x 5" piece of wood onto the end of the body (Figure 6). Be sure the piece hangs over the end at least 2" and that the hole in the piece hangs over the body.

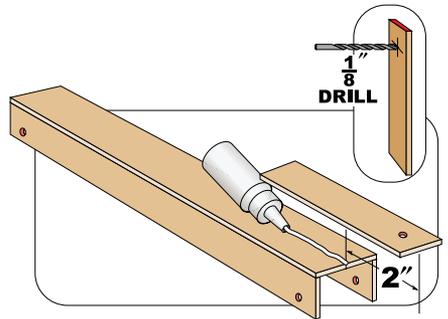


Figure 6

7. While the glue dries, find the four CDs and CD hubs. Using the small screws with the hub set, screw the hubs into the center holes of the CDs (Figure 7 corner).

8. Place four bushings from the hub set into the holes of the side rails. Locate the 1/8" axles and push them through the bushings (Figure 7). Push the CDs onto the ends of the axles to make the wheels.

9. Find the black battery holder and the two alligator clips. You might need to strip the insulation back a little to expose the wires on the tip. Using a soldering iron, solder the wires to the ends of the alligator clips.

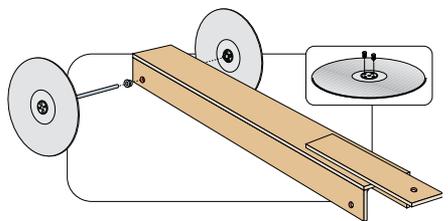


Figure 7

10. Using the screw, washer, and wing nut, attach the plastic motor mount through the hole on the 1-1/2" x 5" piece (Figure 8). The screw should be inserted into the center of the mount, and the washer should be placed between the bottom of the balsa wood and the wing nut to prevent the wing nut from grinding into the wood.

11. Secure the battery holder about 1/2" behind the small strip of balsa wood by placing double-sided tape on its base (Figure 8). Push the propeller onto the front shaft of the motor and slide the motor into the mount. The two leads should be pointed toward the battery holder.

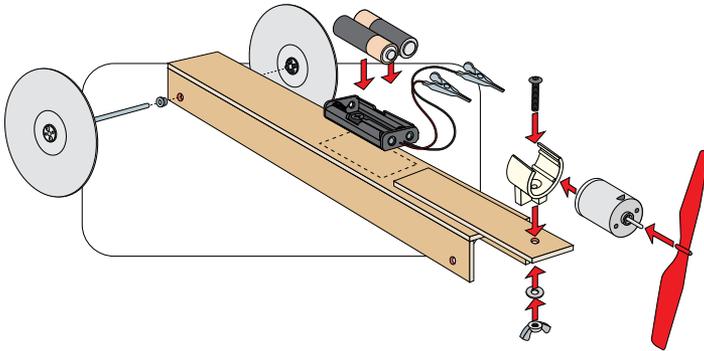


Figure 8

12. Use two AA batteries in the battery holder. To activate the racer, crimp the alligator clips to the leads of the motor.

Caution: When the batteries are inside the holder, keep the alligator clips from touching. Designate a specific area to attach one of the alligator clips (on the front wheel or the side rail) so they do not touch one another. Allowing them to touch will result in a heat transfer that could cause burning.

Your Electric Energy Prop Racer is ready to roll! To change the direction of the racer, switch the alligator clips to crimp onto the opposite leads.

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E D U C A T I O N

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