



HANDS-ON STEM

Powered by STEM Careers Coalition



Propellor Car

AT A GLANCE

Get students revved-up about engineering as they construct a paper car powered by a propeller motor. Use adult supervision for this journey—and bring a love of creative design along for the ride too!

BACKGROUND INFORMATION

A battery powered car is an automobile that is propelled by a motor using energy stored in rechargeable batteries. This project will explain the elements used to move the battery powered car which are force, friction and motion.

Force: A push or pull that can cause change in an object's motion. Friction is the force resisting the relative motion of solid surfaces, fluid layers, and material elements sliding against each other.

Motion: The movement of an object from one position to another. An object is set into motion when a force is applied to that object.

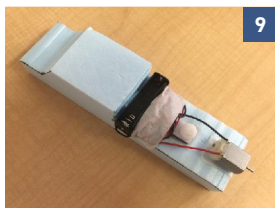
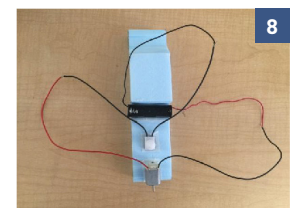
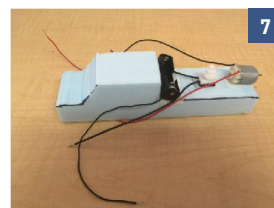
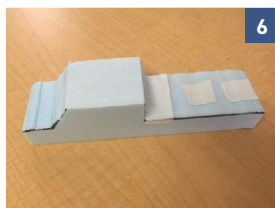
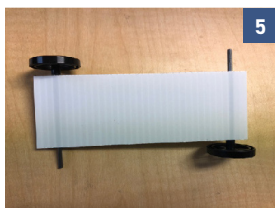
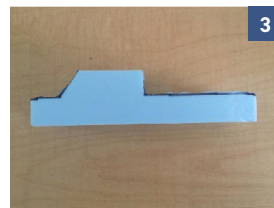
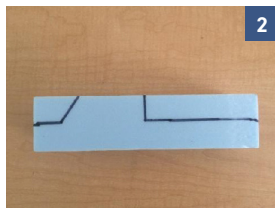
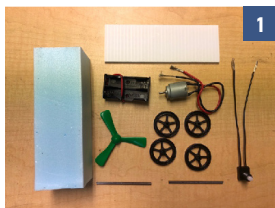
MATERIALS

- 2x2x8 piece of foam
- 4 wheels
- 2 metal axles
- AA battery holder
- Motor
- 2x2x6 piece of corrugated board, switch, and fan blade

PROCEDURE

1. Locate all necessary materials.
2. Draw the outline of your car. Leave enough space to mount your motor, battery, and switch. Car must be 1-inch high.
3. Bring Styrofoam to cutting station to cut out the outline.
4. Fit one of the wheels onto the ends of each axle.
5. Slide the axles through the corrugated board. Then fit remaining 2 wheels onto other sides of axles.

6. Place 3 pieces of masking tape to mount your battery holder, motor, and switch.
7. Glue the motor, battery holder, and switch to your car.
8. Use the red wire of the motor and connect it to the left wire of switch. Connect red wire of battery holder to free wire of switch. Connect the black wire of battery holder to black wire of motor. Cover any exposed wires with electrical tape.
9. Secure wires in place with masking tape.
10. Place 2 pieces of masking tape on bottom of car at front and back. Glue the corrugated board to the bottom of car.
11. Attach the fan blade to the motor, add batteries, and enjoy!



THE SCIENCE

In the battery powered car project given here, the transmission of the force from the motor to a wheel axle is carried through two gears and a rubber band that acts as a belt.

To power up the car, we are using a battery in this experiment and a switch that connects and disconnects the circuit. The chassis of the car is made of plastic board, instead of the plastic wooden piece can be used as a chassis. Make sure the chassis is lighter so that the car moves forward effortlessly.

After completing this project, you will explore many things, including Newtons Laws of Motion, design concepts, a concept of converting stored chemical energy into mechanical energy and a simple electric circuit.