RAIN GUTTER BOAT EXPERIMENT

MATERIALS

- 2-3 stir STRAWS
- HEAVY TAPE
- SCISSORS
- FOAM HOAGIE CONTAINER
- BALLOON
- RAIN GUTTER BOAT TRACK

THE PROCESS

1. Start off by cutting the foam container in half to make two hulls for your boat.
2. A boat is nothing without a rudder. Use the straws to create a rudder that will supply power for your boat to move.
3. You need to mount the balloon to the straw so that air can flow through it.

4. Attach the balloon and straw to the boat somehow using tape to hold it in place.

5. Inflate the balloon and pinch the straw to keep air inside the balloon. Place the racer on the ground and let it go!

MAKE IT YOUR OWN!

There are a ton of things you can do to personalize and adjust your boat:

- Trim your straw or try different straw sizes to see which exhaust system supplies the most thrust.
- Create a competition with another group. First decide if the fastest boat or the boat that travels the furthest is the winner. Have each group design and construct their own boat for the contest.

HOW DOES IT WORK?

The concept behind the Balloon Powered Boat is pretty simple, but that doesn't make it any less impressive! When you blow up the balloon, set your boat down, and let it go, escaping air from the balloon rushes out of the straw causing propulsion. The principle at work is Newton's Third Law of Motion, which states that for every action, there is an equal and opposite reaction. In the case of the Balloon Powered Car, the action is the air rushing from the straw. The reaction is the movement of the boat!

The moving Balloon Powered Boat has kinetic energy, but even an object that isn't moving has energy. This energy is called potential energy. The potential energy of the boat is in the elastic material of the balloon. As the balloon fills with air, it builds more potential energy. As the air flows from the balloon, it changes to kinetic energy. This is the conservation of energy.

Adapted from: http://www.stevespanglerscience.com/lab/experiments/balloon-powered-race-car#sthash.ThkDbwPl.dpuf