Balloon Powered Car

Your Activity
Use the air from balloon to power a toy car

Materials
- 4 plastic lids from water bottles
- 15 cm x 10 cm rectangle of thick cardboard
- Straight Straw
- Bendable Straw
- Masking Tape
- Colored pencils & decorations
- Hand drill or power drill
- 2 Bamboo Skewers
- 1 Balloon
- Rubber Band
- Scissors
- Clay

Create

1. The plastic lids will be the wheels of the car. Use a hand drill or power drill to make a hole in each lid, just big enough for a bamboo skewer to fit through.
2. Cut the straight straw in half. Tape one half-straw at one end of the cardboard, across the shorter side and tape the other half-straw at the other end.
3. Thread a skewer through each half-straw to make the car axles.
4. Thread the wheels (plastic lids) onto the skewers and use clay to hold the wheels in place.
5. Cut the long part of the bendable straw to the same length as the short part.
6. Blow up the balloon and let it down a couple of times to stretch the rubber.
7. Place the neck of the balloon over one end of the bendable straw and fasten it using the rubber band.
8. Turn the cardboard over and tape the bendable straw along the length of the car so the balloon rests on the cardboard. The straw should poke over the other end.
9. Inflate the balloon by blowing through the straw. Pinch the balloon so the air doesn’t come out.
10. Place the car on a clear, smooth surface and let the balloon go.

Science Topics
Physics, Force and Motion

What’s going on?
After you put the car on a surface and let go of the straw, the air moves out of the straw in one direction and the car moves in the opposite direction. Sir Isaac Newton developed three laws of motion in 1665 when he was only 23 years old. These laws revolutionized how science explained movement by describing how the forces acting on an object are responsible for the object’s motion. Your balloon powered car is a good example of Newton’s third law of motion. It states, “To every action there is an equal and opposite reaction.”
Introduction
In this activity, students learn how to power a cardboard based car using air from a balloon.

Background
The balloon powered car is a good example of Newton’s third law of motion. It states, “To every action there is an equal and opposite reaction.” This means that if object A pushes on object B, object B pushes back on object A with the same amount of force. In the case of the balloon-powered car, the air is pushed out of the straw in one direction and the car is pushed in the opposite direction.

Materials
- See activity sheet for the list of materials
- For the activity, you can drill the holes into the lids prior to the activity

Procedure
- Give out material to each child (can be done in a sequence).
- Put activity instructions in the sign holder.
- Ask kids to follow the steps in the activity instruction.
- This can also be made into a team completion – try to figure out which car goes faster than the another

Takedown
- N/A

Discuss Student Observations
Keep track of how long the car rolls and how far it goes. Try it several times, then try changing the design to see if you can get it to go farther or faster.

- What if you use a bigger or smaller balloon?
- Does the car go farther on linoleum or the sidewalk? Why do you think this might be?
- Will the car go farther if you start it at the top of a ramp?

Source
Questacon Science Squad

Home Science Tools
http://www.hometrainingtools.com/balloon-rocket-car-project/a/1346/