

FAMILY
ENGINEERING
ACTIVITYTEAM UP TO BUILD A
BALLOON-POWERED CAR

In class, we've been exploring math and engineering concepts. We've learned that sometimes it takes a few tries to engineer an invention, and that's OK—we keep trying! We've also found that teamwork is a great way to learn, so let's build something together!

DIRECTIONS

- 1 Trace a rectangle or similar shape and four circles on the cardboard or foam trays using the following dimensions: 7" x 3" rectangle; 1.5 to 1.75" circles (four total). Optional: Decorate with markers or other materials.
- 2 Blow up the balloon, then let the air out to make it easier to blow up later.
- 3 Tape the opening of the balloon around the short end of the flexible straw so that no air can escape. Cut a ¼" hole in the rear of the car and insert the long end of the straw into the hole. Pull through until the flexible area of the straw is in the hole.
- 4 Tape the long end of the straw to the bottom of the car with the open tip hanging off the back.
- 5 Push the pins through the center of the wheels and then into the edges of the body of the car. Leave a tiny bit of space between so the wheels can rotate.
- 6 Blow up the balloon through the straw and then pinch the end of the straw closed.
- 7 Place your Balloon-Powered Car on the floor and watch it go! Measure the distance the vehicle traveled by marking where it started and ended.
- 8 **Keep Moving Forward!** Figure out a way to add a seat in the car for each member of your family. Try a few different types of household materials. Which materials work well? Which materials slow the car down? Why might this be?

THE SUPER-HERO SCIENCE AT WORK: When air exits the balloon in one direction, it forces the car to move in the opposite direction. You're seeing Newton's Third Law of Motion: Every action (in this case, when the air escapes the straw) has an equal and opposite reaction (your Batmobile moves in the other direction). This is the same principle that allows The Joker to make his air-powered escape in the movie.



Download a template to build a car like this one at:
scholastic.com/bat-math/template

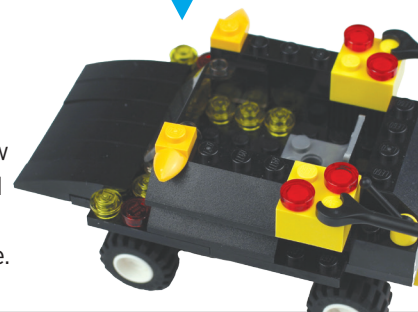
MATERIALS

Find the tools below in your trusty Batcave (or at a store nearby):

- Markers and ruler
- Scissors and tape
- 1-2 sheets of cardboard or foam trays
- Balloon (any size, but the bigger it is, the farther the car will travel)
- Flexible straw (any size)
- Straight pins (about 1 ¼" long)

BRICK CHALLENGE

Use LEGO® bricks or other building materials to construct an even sturdier balloon car!



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[SCHOLASTIC.COM/
BATCARD-
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IN THEATERS
FEBRUARY
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