

Runaway Racecar!

Approximate Time: 1 hour

Stem Topic: Physics – Simple Machines and Air Power

Introduction: Prepare to party with balloon-powered cars! Today we will be creating our own toy car using a bottle, bottle caps, and makeshift axles. Then, we will use the force of air from a balloon to power our cars.

Materials:

- Plastic water bottle
- 4 plastic bottle caps
- 3 Flexible straws
- 2 wooden skewers
- Balloon
- Rubber band
- Tape
- Scissors
- Punch



Procedure:

1. To start, have a responsible adult help you use the punch to make straw-sized hole in the top of the center of the car.
2. Cut 2 of the straws in half so they are a little longer than the width of the bottle.
3. Tape the straws to the bottle so they are parallel to each other and are on the opposite side of the straw hole.
4. To make axles, cut the 2 skewers so they are slightly longer than the straws.
5. Have the responsible adult help you once more as we will be using the punch again. On the bottle caps, cut a small hole in the center of each with the punch.
6. Push a bottle cap onto one of each of the skewers' ends.
7. Push the skewers' ends without a bottle cap through the straw.
8. On the side of the skewers without a bottle cap, push a bottle cap onto the ends. This completes your axles with wheels.
9. Try out your car to see if your axles run smoothly. If the car is getting stuck, make sure your straws are parallel to each other and your wheels are not wobbling.
10. Push the short end of the third straw into the opening of the balloon.
11. To secure the straw, rap a rubber band around the end of the balloon.
12. Check to make sure the balloon has no holes by blowing it up with the straw.
13. Position the free end of the straw inside the hole in the top of the car and have it come out the mouth of the bottle.

14. Tape the straw down to the top of the inside of the bottle so it is pointing backward out of the mouth of the bottle.
15. Inflate the balloon by blowing on the straw and cover the tip of the straw until you are ready to release the car. Then, ready, set, go, and watch the car zoom away.

Tips & Tricks:

- If your car is not moving, make sure the wheels and axles are aligned so the air power can move the car.
- For maximum movement, make sure that your balloon sits forward or straight up. If not, make sure it is securely attached to the straw lower down and that this attachment point remains upright.
- The more inflated the balloon is the farther your car will go.