

Balloon Derby Cart



What you need:

- Large milk carton, cleaned and dried
- Utility knife (X-Acto™) or scissors
- Large long balloon
- 2 jumbo drinking straws
- Tape
- 2 wooden BBQ skewers or narrow drinking straws
- 4 Styrofoam balls



What you do:

- Step 1:** Cut out one side of the milk carton to form the cart's sitting area.
- Step 2:** Cut a small hole in the bottom, center, of the carton. The hole should be just big enough to fit the mouth of the balloon.
- Step 3:** Turn your cart on its back. Cut the jumbo drinking straws to the width of the cart. Tape one straw near the back of the carton, and the second straw near the front of the carton to form the cart's wheel axles.
- Step 4:** Fit the BBQ skewers through the jumbo drinking straws. Stick the Styrofoam balls onto the ends of the skewers to form your wheels.
- Step 5:** Turn your cart onto its wheels. Put a balloon inside the cart's sitting area and push the mouth of the balloon out the hole in the bottom of the carton.
- Step 6:** Blow up the balloon and twist the end to keep the air in. Place your derby cart on the ground and release the balloon. How far does it go?



What's going on:

You made an air propelled derby cart! The air rushing out of the balloon pushes the balloon in the opposite direction of the airflow. This is called propulsion. A scientist named Newton wrote a law to explain this movement. Newton's Third Law of Motion says "Every action has an equal and opposite reaction." The escaping air is the action and the movement of the car in the opposite direction is the reaction.

Now try this:

Does changing the type of wheels or the placement of the axles affect how far your cart travels? Try it and see!

