

Galena Creek Visitor Center
At-Home Learning Activity

BALLOON ROCKETS

via Discover Explore Learn



This activity teaches kids how to make a balloon rocket, demonstrating concepts like gravity, force, and inertia. This activity is perfect for indoors, and requires limited parent supervision; this activity will work best for kids 8-14, but can be altered to work well for other ages. The materials are common household items that can be reused to make several rockets. This project teaches kids about physics and engineering.

Objective: The goal of this activity is to teach kids about physics concepts like gravity and force and engineering concepts through a fun, rocket-building project. The end of this activity will result in a rocket toy and an understanding of how reciprocal forces and inertia work.

Discipline or Subject Covered: Physics, engineering

Grade Level: best for grades 3rd-8th

Materials:

- Balloons
- Yarn (cut to about 6 feet)
- Straw
- Tape
- Scissors
- 2 chairs

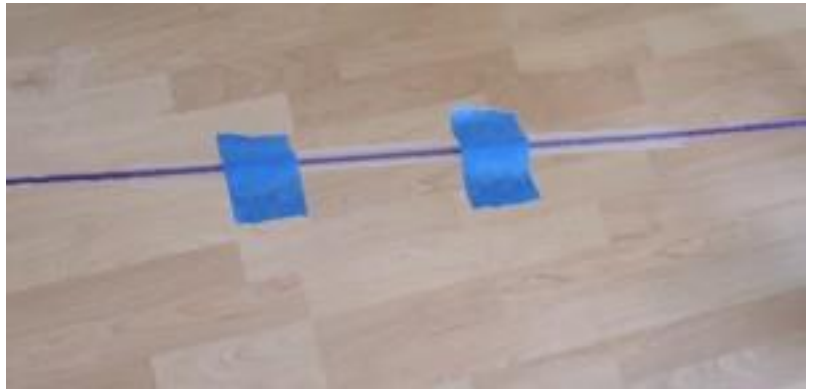
Procedure:

1. Begin by tying one end of the yarn to the back of a chair.

2. Next, thread a drinking straw onto the other end of the yarn, and tie it to the second chair.



3. After attaching two pieces of tape (about 2 inches in length each) to the center of the straw, the real fun to begins.



4. Inflate the balloon (leaving the end untied), hold onto the opening so the air won't escape, and carefully attached it to the straw using the tape.

5. Finally, pull the balloon to one end of the yarn (touching a chair), and let go of it. The balloon will shoot across the yarn to the other side.



Discussion:

Discussion Questions:

- What parts of this balloon rocket are similar to real space rockets? What parts are different?
- Since real rockets don't have a string to keep them on track, how do you think they maintain the correct direction?
- Try connecting the string from the ground straight up to a doorframe or other structure. Does the rocket successfully go straight up? If so, is it slower or the same speed? If not, at what angle does it stop working?
- Make the string twice as long. Does the rocket still reach the end of the string?

How does it work?

These Balloon Rockets provide a meaningful example of action and reaction. It's a simple concept – to make an object move one way, a force must work in the opposite direction. In this case, the balloon is full of air. When you let go of the balloon, causing the air to rush out of the opening, it creates a pushing force in the opposite direction. This results in the balloon moving rapidly across the yarn. Real rockets work in a similar way. A rocket engine is powered by exploding fuel inside of a chamber that is open at the bottom. The force of the explosion creates an opposite force that pushes the rocket up and into space. This homemade version may not have quite as exciting as a real-life rocket, but it sure provided a memorable and enjoyable learning experience for all.

Further Information and Activities:

[Learn more](#) about rockets from NASA

Try making a [Bottle Rocket](#)

