



# BALLOON ROCKET LAUNCH

Project created by Brian Fies, 2014  
USS Hornet Sea, Air & Space Museum

## OVERVIEW

A basic law of science is that “every action has an equal and opposite reaction.” This means that air blowing out of a balloon one way moves the balloon the other way.

This is exactly how a rocket works, except instead of air a rocket blows out much more powerful burning fuel. Long ago, some people thought that rockets wouldn't work in space because there is no air out there to push against. But rockets (and balloons) don't need to push against anything! The exhaust going out the back (action) is all they need to propel them forward (reaction).

## GOALS

- Learn about the physics of movement.
- Trying to get your balloon to fly the fastest or the farthest distance possible!

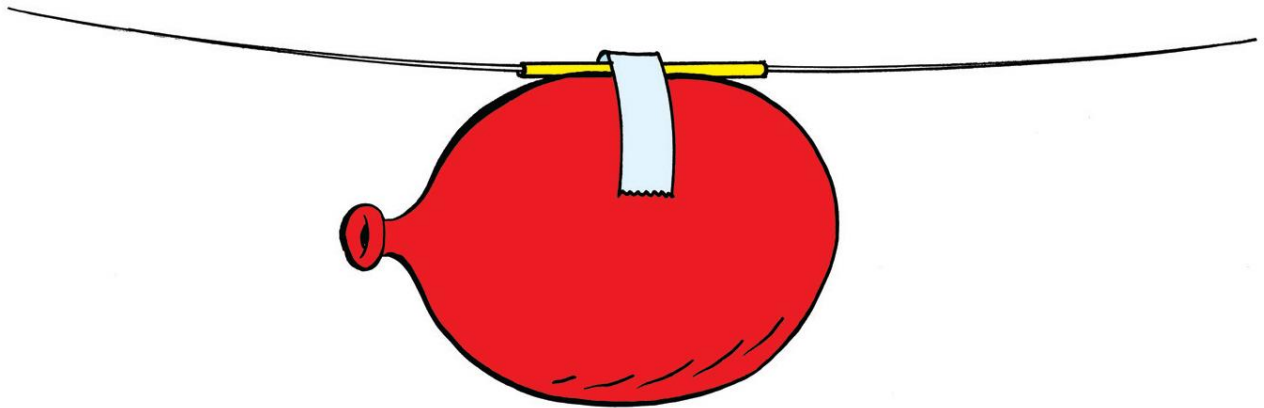
## SUPPLIES

- 20 feet of string
- A straw
- A balloon
- Tape

## STEPS

1. Put a string through a drinking straw and attach the string at both ends to something so it is straight and about 20 feet long.
2. Blow up a balloon, but don't tie it shut.
3. With one hand holding the mouth of the balloon tightly closed, tape it to the straw (much easier if you have an assistant to help you!).
4. Put the string through the straw so it looks like this:





5. Count down "5...4...3...2...1...Lift-off!" and let go of the balloon. What happens?

## WHAT DID YOU NOTICE?

Try changing the experiment to see what difference it makes. Write down your results!

- What happens if you blow up the same balloon even bigger? Does it go any faster? Slower? Farther? Shorter?
- What happens if you use a bigger balloon? A smaller balloon?
- Is your string too long or too short? What happens if you tilt the string up or down?
- What happens if you don't use the string at all? (You might want to try this outside!)

