

## ACTIVITY: 3...2...1...Launch!

### Directions:

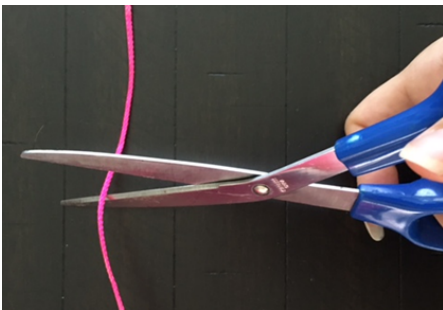
Inflate a balloon so that will generate enough thrust to reach an assigned target. You will adjust the amount you inflate the balloon to reach your assigned target. Over the course of multiple trials you will use trial and error to get the desired result.

### 1. First, you will need these materials:

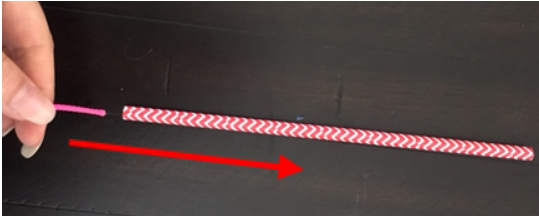
- String, or yarn, cut 5-6 ft in length (1 piece per group)
- Straw (1 per group)
- Tape
- Scissors
- Balloons (1 balloon for each group)
- Measuring tape to record distance



### 2. Cut some string so that it is about 5-6 ft long. Tie one end to a door knob.



3. **Push the string through the straw.**



4. **For your first trial, lightly blow up the balloon. Pinch the balloon's opening so that no air comes out.**



5. **Tape the balloon onto the straw.**



6. **When you are ready, let the balloon go for your first trial. What happened to the balloon? How far did it travel along the string?**



7. **You have a total of three attempts to reach your target.** Now test the balloon by half-way inflating it and then fully inflating it. Be sure to measure the distance traveled for all three trials.
  
8. Record your three trials and outcomes in the table:

	Trial 1	Trial 2	Trial 3
Distance traveled			
Amount of inflation (light, medium, fully inflated)			
Target not reached, reached, too short, too far?			

What did these tests teach you about rocket design/ aircraft design?

How did the four forces of flight come into play?

In what ways did you see Newton’s laws of motion working in your challenge?