

# Catapults

## What Do I Need?

- wire hanger
- a plastic spoon
- rubber bands
- marshmallows or cotton balls
- measuring tape or ruler

## What Do I Do?

1. First you need to shape the hanger into a base. Place one hand on the center of the hanger and use your other hand to fold the sides up.
2. For the catapult, spread one of the rubber bands over both of the triangular sides. Place the spoon in between the rubber band edges and twist it around and around to tighten the rubber band.
3. Take your second rubber band and place it over the triangular sides. This time, use your fingers to twist one edge of the rubber band over the other. Twist the rubber band over and over. Now you can put the spoon through the edges of the top rubber band and the spoon will stay upright.
4. You are ready to launch! Place one hand on the base of the hanger for balance and put your marshmallow on the concave part of the spoon. Pull it back and release!
5. Use a measuring tape or ruler to measure the distance of the marshmallow.



## Now Try This!

Use the inquiry method of learning. Ask yourself, “what will happen if I...” Then try changing a variable of your catapult by substituting materials. Experiment with the thickness of rubber bands or try winding them tighter. You could also use cups placed at different distances as targets to practice accuracy.

## What’s Going On?

The catapult demonstrates one of six simple machines: a **lever**. The spoon acts as a lever, which is a rigid bar pivoted about a fulcrum. The fulcrum or pivot point is created by the rubber bands, and the load is the marshmallow. You applied a force by pulling back the spoon with your finger.

Source: Mat Vandeneiden, COSI