

Marshmallow Slingshot

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Your Challenge: How far can you launch a marshmallow across the room?

Materials:

2 toilet paper tubes

2 thin rubber bands

Duct Tape

Scissors

Marker

Marshmallow

Hole Punch

Golf Pencil



Here's How:

1. Cut one toilet paper tube in half lengthwise. Squeeze the toilet paper tube together so that it makes a tube about half of its original diameter. Tape it closed so that it doesn't uncurl.
2. With your hole punch, punch two holes at the end of the toilet paper tube about half an inch in from one end. Make sure the holes are opposite from each other. The holes should both be on the same end of the tube, just on opposite sides.
3. Push the golf pencil through the two holes. Be careful not to tear the holes! If you do, you'll need to make new ones.
4. On one end of the other toilet paper tube, draw two short lines (about half an inch long each) straight down from the rim, about as far apart as the width of your pointer finger. Cut each line making two slits. Do the same thing on the other side of the same rim, opposite the first set.



5. Push one rubber band onto each set of slits. Try not to bend the cardboard! If they bend open, tape them in place with the rubber band wrapped around them.
6. Slide the smaller tube (the plunger) into the larger tube (the grip) so that the small tube's pencil end is sticking out of the end of the big tube that does not have slits. The pencil should be on the opposite end of the rubber bands.
7. Stretch each rubber band and hook it around the end of the pencil.
8. Load a marshmallow into your slingshot. It should be resting on top of the plunger. Holding the outer tube, pull the pencil back to stretch the rubber bands. Release the plunger and watch your marshmallow fly across the room!

Take It Further:

Do you think your marshmallow would go even farther if you pulled the slingshot back more? Compare how far your marshmallow flies when you pull the plunger back different amounts. Do you think it would make a difference if you used a smaller marshmallow?

How It Works:

Things like slingshots work by storing energy in elastic materials, such as the rubber bands in this activity. The stored energy is called potential energy. The farther the rubber bands are stretched, the more potential energy is stored. When the rubber bands are released, the potential energy that has been stored up is converted into kinetic energy, which causes motion. This is how your marshmallow slingshot works! Some other things that work like this are trampolines, bows-and-arrows, and the shock absorbers on a bike.

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