In the circus, many acts included a teeter board where performers jump on one end to send performers on the other side flying through the air. A homemade catapult uses the same forces as a circus teeter board: acceleration, velocity and tension.

Unknown Maker, Sparks Circus "The Show You Know": Teeterboard Act, 1946. Ink on paper, 28 x 21 in. Tibbals Circus Collection. ht2000988

**CIRCUS CATAPULT**

**MATERIALS:** 10 POPSICLE STICKS, RUBBER BANDS, BOTTLE CAP, GLUE, MEASURING TAPE, FIRING POWER!

**DIRECTIONS**

1. Stack 8 popsicles together and tightly bind with a rubber band on one end. Push one of the remaining popsicle sticks perpendicular between the bottom and 7th popsicle stick. Rubber band the open end of the stack.

2. Lay the last remaining popsicle stick on top of, and perpendicular to, the stack, creating a “V” shape. Rubber band the short end of the “V” together tightly.

3. Using glue, attach a small bottle cap to the topmost end of the catapult, creating a launching basket.

*Continued on the next page!*
TEST YOUR CATAPULT!

1. To test your catapult, put a small object like a cotton ball in the bottle cap, steady the catapult and pull the bottle cap back and release to send the test object flying.

2. Assemble several small objects from around your home. Create a hypothesis chart for each object, estimating how far each object will travel when projected from the catapult. Use the chart below as an example for your hypothesis chart.

3. Set up your catapult and test objects on an open area of floor. Test each object, measuring how far it travels and recording the data on your chart to determine which object works best.

<table>
<thead>
<tr>
<th>OBJECT</th>
<th>ESTIMATED TRAVEL</th>
<th>ACTUAL TRAVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>M&amp;M candy</td>
<td>10 feet</td>
<td>??</td>
</tr>
<tr>
<td>Cotton ball</td>
<td>2.5 feet</td>
<td>??</td>
</tr>
</tbody>
</table>

EXPLAIN IT

Why do some objects travel further than others?