Design Challenge

Each group will design and build a marshmallow catapult using the following materials to achieve the goal:

- 1 meter of Masking tape
- 2 Plastic cups
- 4 Rubber bands
- 2 Plastic spoons
- 2 Paperclips
- 15 cm x 15 cm Piece of cardboard

Launch Large (standard size) marshmallows to launch

Goal: Launch a marshmallow at least 5 meters (in the air) and not outside of a ½ meter width.

Engineering Design Process

Step 1: Identify the need or problem

________________________________________________________________
________________________________________________________________
________________________________________________________________

Step 2: Research the need or problem
- What is a catapult?
- Complete separate form

Step 3: Brainstorm
Draw three different possible solutions on a separate piece of paper.

Step 4: Select the best possible solution
Pick the solution in Step 3 that your team selected. Why did you select that solution?

________________________________________________________________
Engineering Design Process (page 2)

**Step 5: Construct a prototype**
Draw and label a detailed picture of what your prototype looks like. Use a ruler and graph paper. Draw a front, side and top view. Label all measurements; use metric system.

**Step 6: Test and evaluate the solution**
How far does your catapult launch the marshmallow? This test may be performed up to five times. Record the distance each time.

<table>
<thead>
<tr>
<th>Test #</th>
<th>Test 1</th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
<th>Test 5</th>
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</thead>
<tbody>
<tr>
<td>Distance</td>
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What went well during your tests?

What didn’t go well?

What are you going to do to address any challenges you have faced in your construct? Describe.

**Step 7: Communicate the solution**
Present your prototype to the class on test day.

**Step 8: Redesign**
How would you plan to redesign your catapult to make it even better? Discuss alternative materials that would make your catapult even better.