

EXTENSION: CATAPULT DESIGN

Problem: You are an engineer who specializes in designing cool toys and machines for games. You were recently contacted by the SuperFun Toy Company to help design a machine called a catapult for a game that will launch Marshmallows at a series of targets. To ensure that children and adults alike will love the game, you need to make sure the catapult is both accurate and precise.

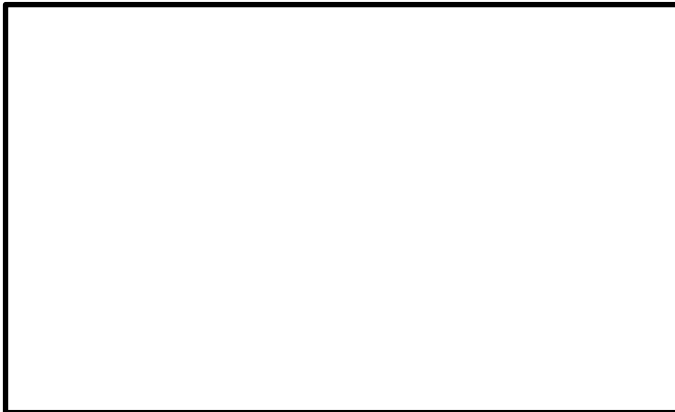
Goal: Work as a team to construct a catapult prototype that will launch a marshmallow from the starting line on the floor and come to a complete stop IN the target.

Constraints: Each group is allotted \$ _____. You may purchase items from the list below.

Materials:

Material	Cost
Regular Popsicle Stick	\$1.00
Large Popsicle Stick	\$2.00
1 Meter Masking Tape	\$3.00
Pencil	\$2.00
Rubber Band	\$1.00
Plastic Spoon	\$5.00
Clothes Pin	\$10.00

Imagine: Brainstorm several ideas you have for how to use the above materials in your catapult. Draw pictures of 2 different catapult designs.



Design: Draw out your **group's** best catapult design. Be sure to label where you will use all of the different materials (Popsicle sticks, tape, plastic spoon, etc.)



Build: List how much of each material you will need to build your catapult. Make sure to not go over your budget! **Once your design and materials list are complete, you may collect materials from your teacher.** Make sure you labeled the materials in your design!

Item	# needed	Cost of each	Total
Regular Popsicle Stick		\$1.00	
Large Popsicle Stick		\$2.00	
1 Meter Masking Tape		\$3.00	
Pencil		\$2.00	
Rubber Band		\$1.00	
Plastic Spoon		\$5.00	
Clothes Pin		\$10.00	
Grand Total			

Test: You will be given 1 marshmallow to launch. Launch your marshmallow. Draw the location of where your marshmallow landed on the picture below. **Pick it up and re-launch 4 more times.**



Points: You get two points if your marshmallow comes to a complete stop in the center box. You get one point if your marshmallow comes to a complete stop in the big outside box. You get no points if your marshmallow doesn't land in any box.

Points: _____ (highest points wins)

Improve: What are two ways you can change your catapult to make it better? List these ideas here.