

Marshmallow Catapults

Author: David Kujawski

Unit: [Technology and Engineering](#)

Course: 6th grade science

Subjects: Science, Science Skills, Physical Science, Technology and Engineering, Differentiation, Special Education, English Language Learners, Science, Science Skills, Physical Science, English Language Learners, Differentiation, Special Education, Technology and Engineering

Grade Level: Middle School (5-8)

Objective: YWBAT: Apply the technological design steps to build a marshmallow catapult that uses the allotted materials to launch a marshmallow at least 5 meters in the air and within a 1/2 meter wide area.

Length: 120 minutes

Assigned Files: [catapultrubric](#) [designprocess](#) [graphpaper](#) [microsoftword catapults](#) [microsoftword researching](#) [Catapult Picture](#) [Catapult Picture](#) [Trouble-shooting journal picture](#) [Technological System Drawing.JPG](#)

Marshmallow Catapult Design Challenge Description

THIS WILL TAKE ABOUT A WEEK FROM START TO FINISH

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

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.

Day 1: Assign activity and partners, discuss rubric, answer questions and allow students time to brainstorm a solution with their partner. Students should individually design a solution and then share their design.

Day 2: Students should design a final solution and create orthographic projections of their design HW: Draw their catapult as a technological system.

Day 3: Students will be given the materials above and will construct their catapults, leave about 5-10 minutes for clean-up and wrap-up. Students should be recording their updates and redesigns in their journal (a few pieces of paper where they will identify constraints, trade-offs, modifications, etc.).

Day 4: Final construction and test!

Tips for test day:

Have students move the desks to the side of the room facing inward. Designate a launch area and measure out a 5-meter line and a half a meter wide span. This designates the acceptable landing area.

Safety: Everyone should wear safety goggles! There will be flying marshmallows and rubberbands might come loose or snap--state these dangers to your students.

Have the rubrics laid out with a pen ready to record the grades. Remember: you'll be judging the quality of the construction before launching. This will allow you to discard the catapults after the launch occurs.

Don't forget to purchase marshmallows. If you do forget, a piece of paper rolled into a ball will work.

Rubric and other worksheets, including graph paper, are attached to this lesson.

Enjoy!