

# OH WOW!

## Catapults



### Standards :

**4 .PS3 .4 :** Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.

**4 .PS .2 :** Energy can be transferred from one location to another or can be transformed from one form to another.

**6 .PS .3 :** There are two categories of energy: kinetic and potential.

### Objectives :

The student will be able to build a catapult that will launch a projectile.

### Academic Language :

**Kinetic energy:** Energy in motion

**Potential energy:** Energy that is stored and ready to be used

**Catapult:** A machine that launches projectiles

**Projectile:** An object that is launched or thrown by a force

**Force:** A push or pull on an object

**Motion:** A change in position

### Materials :

- Plastic spoons
- Masking tape
- Rubber bands
- Popsicle sticks
- Mini marshmallows
- Pom Poms

### Procedure :

1. Lay out materials on the tables.
2. Students will build a catapult that will be able to launch a projectile.
  - a. There must be some kind of lever that is pushed or pulled to begin the conversion of energy.
  - b. They are able to view examples to provide inspiration.
3. When the students have finished building their catapults, each group will be given a mini marshmallow. They will test to make sure that their catapult works.

**Extension Activities :**

1. Test accuracy using cotton balls and a bowl. How many times can the cotton ball make it into the bowl in 5 attempts?
2. Test power using mini marshmallows and masking tape. Launch a marshmallow 3 times, and mark its stopping point using tape. Which ones went the furthest? How far?

**Talking Points :**

- Kinetic energy is energy in motion
- Potential energy is energy that is stored, or has the potential to be used
- Before a projectile is launched, the object has potential energy because the energy is stored within the projectile
- After a projectile is launched, the energy is converted into kinetic energy because the projectile is in motion

**Discussion Questions :**

1. What other objects could be used as projectiles? Would they go as far as a marshmallow? What would be different?
2. What else could catapults be used for?
3. Can you identify what other forms of energy are used when using a catapult?

**Additional Resources :**

<https://gosciencegirls.com/catapult-stem-project/>

<https://littlebinsforlittlehands.com/popsicle-stick-catapult-kids-stem-activity/>

<https://frugalfun4boys.com/popsicle-stick-catapult/>

<https://www.teacherspayteachers.com/Product/Leap-Day-Catapult-STEM-Challenge-2390092>

