



# Build Your Own Catapult!

(suggested age: 5 and up)

## Gather

- 2 big popsicle sticks or 1 plastic spoon
- 3 or 4 small popsicle sticks
- 1 bottle cap
- Glue, glue dots, or tape
- 1 pom pom, cotton ball, or payload
- 3 rubber bands

## Let's Experiment!

1. Take about 3-4 smaller popsicle sticks, stack them, and rubber band them together on each end...
2. Stack your two larger popsicle sticks and wrap a rubber band around the end.
3. Place your stack of small popsicle sticks in between the two big sticks.
4. Glue or tape a bottle cap on the top end of one of the big popsicle sticks (skip this step if you are using a plastic spoon.)
5. Press down until you feel a little resistance and test your catapult. Add a payload, like a pom pom or cotton ball, and see how far it goes!

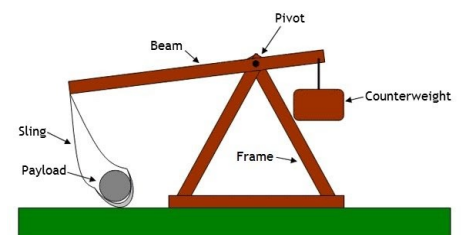


## How Does it Work?

Energy is the ability to do work, which means applying force to move an object. Catapults work by turning potential (stored) energy into kinetic (moving) energy. The catapult has potential energy when the payload end is pressed down - the energy is stored in the tension created. When you let go, this potential energy is converted into kinetic energy - the arm of the catapult moves back to its original resting position and the payload is released into the air!

## Take it Further!

Trebuchets are another version of catapults that function a little differently than the catapult we just made. The popsicle stick catapult uses the tension from being pushed down. A trebuchet has a beam that has a counterweight on one end. When the counterweight is pulled down by gravity, the beam tilts around the pivot and the payload rises and flies into the air! Can you build a trebuchet? Will you use different materials to make your trebuchet?



For more information, visit:

<https://www.youtube.com/watch?v=W5RFoowvGkw>