

# GOODTIMES AT HOME

## CATAPULTS

We're going to discover the magic of a simple machine – the lever – and how it helps us launch things in to the air! Follow the instructions below or watch our video.

### Materials

- Popsicle sticks
- Elastics
- Projectiles (think marshmallows, cotton balls, coins, beads)
- A target course!

### Instructions

1. Set up some targets for your projectiles to hit – do you want them to clear a water feature? Are there three points we want to try and hit? Do you want to try and knock something over? Clear a river of lava? Hit a bullseye on a target?
2. We're going to use a lever system to create a catapult: we'll need a fulcrum, load, and arm
3. To create our fulcrum, stack up 7 or 8 popsicle sticks. Tie the popsicle sticks together near both of the ends with elastic bands
4. To create our arm, take two popsicle sticks and tie them loosely together near one end
5. Take the stack of popsicle sticks and slide them in between the two sticks tied together so that you're pushing the stack towards the tied off end of the two sticks
6. Take an elastic and wrap it around the arm and the stack so that they are connected together. The best way to do this is to criss cross the elastic band
7. To create the basket for your load, you can either tie a plastic spoon to the load arm or glue a bottle cap to the end of the arm
8. Your catapult is ready! Load something into the basket, hold the base of your catapult down with one hand and pull down on the load arm with the other and fire!
9. Some questions we can ask:
  - a. What happens when we make our stack of popsicle sticks smaller? Bigger?
  - b. What happens when we move our stack of popsicle sticks closer to our basket?
  - c. What goes further: a heavy or light projectile?



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