

## Marshmallow Catapult:

### Potential and Kinetic Energy

GRADE LEVEL: K-6

#### Objective:

Build a catapult to learn about converting potential energy to kinetic energy by getting your marshmallow to go the farthest before hitting the ground.

#### Background Information:

Stretch a rubber band, without letting it fly. Explain how potential energy is stored energy, like the stretched rubber band. Then, let it fly! When the rubber band flies through the air, the potential energy is converted to kinetic energy. Kinetic energy is energy in motion.

#### Literacy Extension:

Discuss your plan and write/draw about it. What's your plan? Using complete sentences, describe how you'll build your catapult. Draw a picture of your design. Research YouTube videos or educational articles about catapults and their history.

#### Materials:

- Five wooden sticks per catapult (tongue depressor size is best)
- One rubber band or hair tie per catapult
- One pop bottle cap (sports drinks, or plastic soda bottle tops work best)
- Mini-marshmallows, cotton balls or any soft, light projectile
- Hot glue gun with glue sticks
- Masking tape

*Note: Straws, pencils, chopsticks, building blocks, etc. will work if you don't have wooden sticks. Tape, rubber bands or any other binding agent will work if you don't have hot glue or a glue gun. If you don't have any bottle caps, just go without.*

#### Procedure:

1. For the catapult's body, stack three wooden sticks and secure the ends with rubber bands or glue.
2. Take two wooden sticks and attach one together using a rubber band. Don't glue these as they need to be flexible.
3. Slide the three sticks inside the two secured with a rubber band. Push it down to near the bottom to make a T-shape.



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4. On the end opposite from the rubber banded end, attach your bottle cap using hot glue, but don't glue it all the way at the top. Leave about an inch so your finger can push the catapult down.



5. Put a marshmallow in the cap, push the catapult down, and let it fly!

6. Use masking tape to mark where each marshmallow lands.



## The Science Behind It:

When the catapult is pulled back, before you launch the marshmallow, you have potential energy. Once you let the marshmallow fly, you've converted potential energy to kinetic energy.

Our powerlines and the wires in your home have potential energy stored in them. When we plug things into our outlets, such as a blender, and turn it on, we convert the potential energy to kinetic energy and can see the motion.

Remember, electricity travels through any conductor. Electricity wants to get to the ground, and it's always looking for a path. This is why it's so important you never put anything into an outlet that's not designed to handle electricity. Metal, wires, trees, plants, water, animals and people all conduct energy! Putting any of these things into an outlet causes electricity to flow into them and potentially into you!

When an outlet isn't being used, insert a safety cap to prevent children from putting anything into the outlet. Never plug more than two things in unless you're using a power strip with a surge sensor to protect you and prevent fire.

