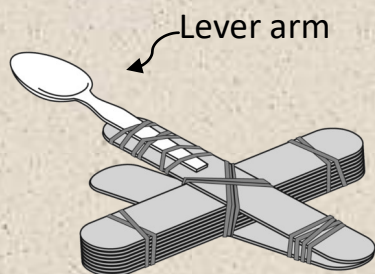




STEM Challenge: Craft Sticks

Catapults, like this one, were used to hurl large objects without the use of gunpowder or other explosives. They used the sudden release of stored energy to propel the objects great distances. Catapults were used by Ancient Greek, Roman and Chinese militaries.



When you pull down the lever arm all that potential energy gets stored up. Release it and that potential energy gradually changes over to kinetic energy. That's what makes the object fly!

Using the directions on the next page, build your own catapult and try it out. Make predictions about which items will fly the farthest, then test them. Why do you think one object flew further than another? Let other family members try and use a measuring tape to see who can catapult something the farthest! Try firing the same object ten times in a row. What happened? Try this with different types of objects.

For more catapult fun, or if you don't have any craft sticks, try using [Legos](#), [pencils](#) or [spoons](#) to build your catapult.

We'd love to see your finished catapults and hear how well they worked. Take a photo and send it to us at eplyouthservices@gmail.com!



What you need:

10 Craft Sticks (jumbo works better, but regular is fine)

3-4 Rubber Bands

Bottle Cap

Glue

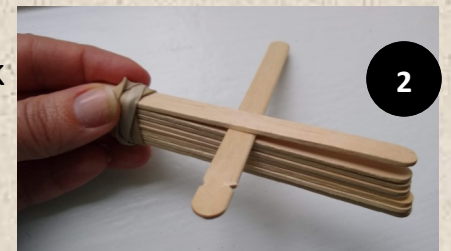
Firing Power (marshmallows, pompoms, pencil top erasers, other small objects)

Plastic Spoon (optional)

1. Take 8 sticks and stack them, one on top of the other.
Place a rubber band around one end of the stack.



2. Push one of the two remaining sticks through the stack going under the top stick only. Place a rubber band around the other end of the stack.



3. Flip over the stack so the single stick is on the bottom.



4. Lay the other single stick on the stack, lining up the ends. Use a rubber band to secure them at one end.



5. Glue the bottle cap to the end of the top stick farthest from the rubber bands. You can also use a rubber band to attach a spoon if you don't have a cap.



You can change how much energy is stored (which affects how far objects will fly) by moving the stack of sticks closer to, or farther away from, the rubber band on the notched sticks. Experiment with this by setting up targets at different distances to see if you can hit them all while staying in the same spot!