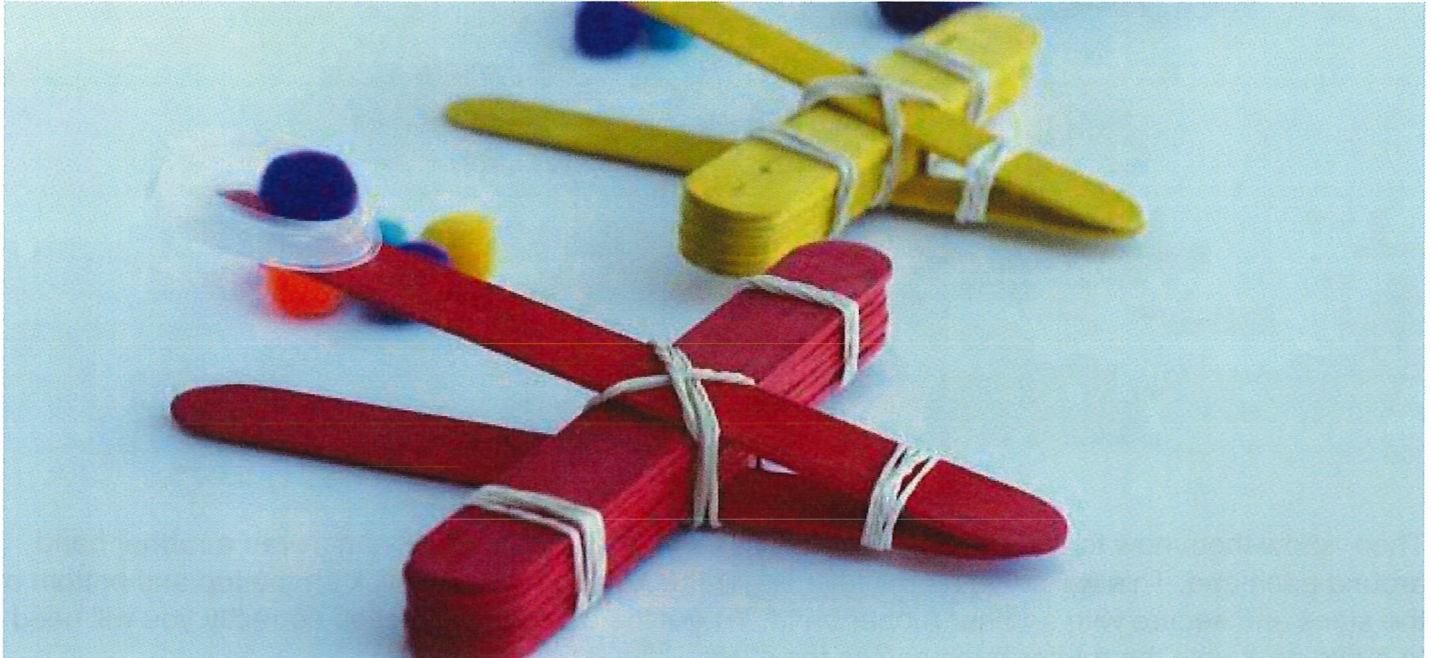


Critical Thinking with a Catapult

BY [MEGAN SHEAKOSKI](#), MAY 13, 2015



Force is a STEM concept we all use every day. It's what is needed to move objects from one place to another. When you push or pull on an object you are exerting force. The force that is exerted is called work. Teach kids how to make work easier with the use of simple machines!

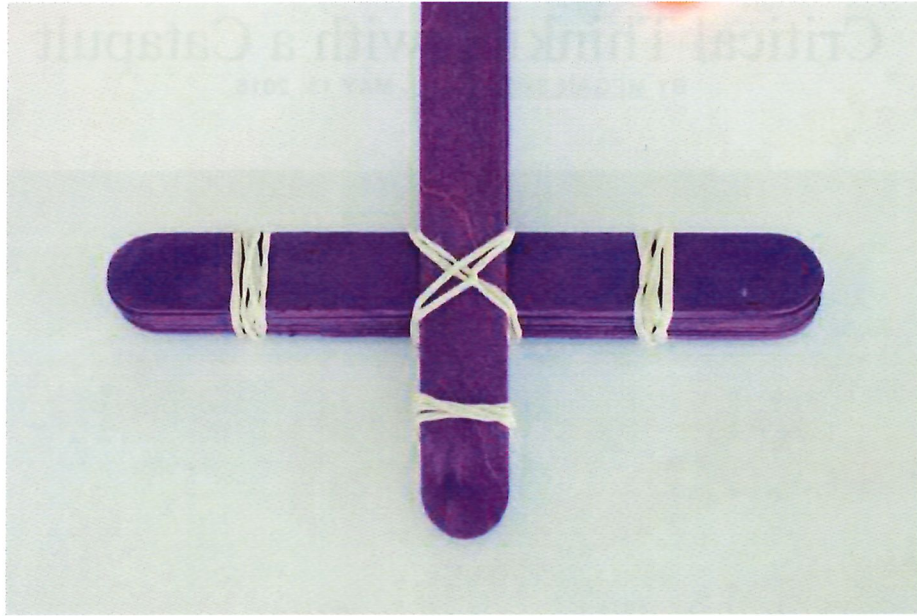
A lever is a simple machine that makes work easier with the help of a fulcrum. Kids can explore levers and the properties of force and work by making their own catapults—building something and then using it to send things flying in the air is a hands-on way to get kids thinking critically.

In this project, the STEM (science, technology, engineering and math) concepts are used to design simple catapults that make the work of moving pompoms easier. In the process, kids get the chance to problem solve and experiment with force and levers.

Supplies needed:

- Jumbo craft sticks (we started with 10 per catapult)
- Rubber bands
- Pompoms or mini-marshmallows
- Bottle caps
- Hot glue gun (low temp ones work too if you have one)

Before making the catapult, talk to your kids about what a lever is using a see saw as an example. Explain how much work it would take to lift a child up in the air and how much easier the lever and fulcrum make it. They can use the craft sticks to act out how this works if they are having trouble visualizing it.



Then, show them how to make a simple catapult. Take 8 of the craft sticks and wrap a rubber band around each end. This will serve as the fulcrum for the lever. Put a craft stick on the top and bottom of the stack and secure with another rubber band. To get the catapult to function correctly you will need to make an X with the rubber band across the sticks.

Wrap the last rubber band around the ends of the two stick so the other end is in the air. Use a hot glue gun to glue the bottle cap to the top of the catapult. Depending on the age of your kids, you may want to have an adult do this part. Now it's time to do some work! Give them a handful of mini-marshmallows or pompoms and let them start catapulting them.

Ask them questions to get them thinking critically. How can you make the pompoms go farther? What would happen if you pulled the top back farther? How would the force change if you took out some of the craft sticks in the middle? How would it change if you added more craft sticks to the middle? Changing and modifying the design and type of force helps kids gain a deeper understanding of STEM skills and encourages them to be critical thinkers.

Once your catapult is constructed, they will have loads of fun forcing the marshmallows or pompoms across the room! What other small items around your home could your child use with the catapult?