DeSTEMber

SNOWBALL LAUNCHERS

Experiment with simple machines and energy as you create a catapult that can launch a snowball across the room!

MATERIALS:

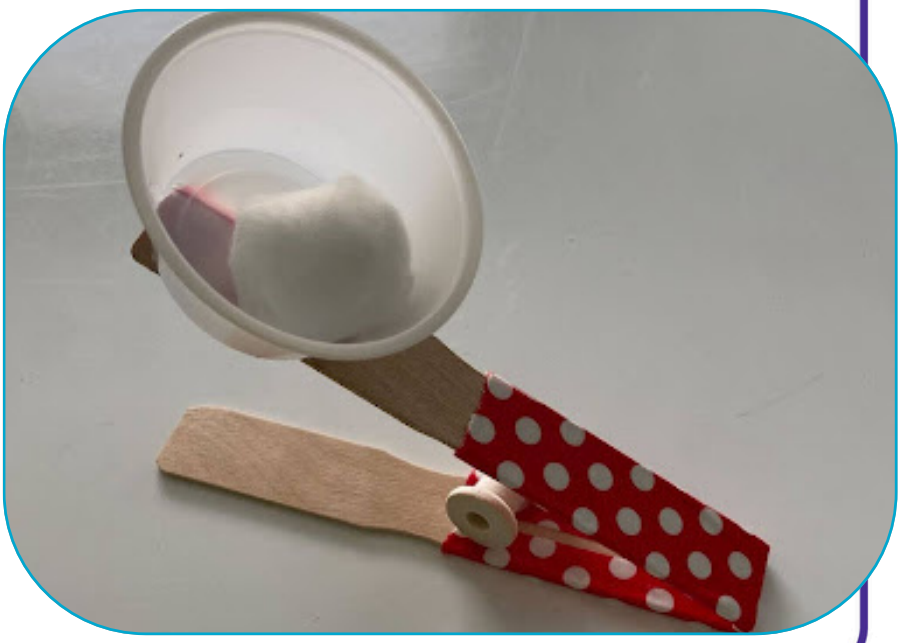
- 2 craft sticks, paint stirrers, or tongue depressors
- Small paper or plastic cup
- Tape
- White pom pom
- Wooden spool

TEKS:

SCI 4/5.4 A: The student is expected to explain how scientific discoveries and innovative solutions to problems impact science and society.
SCI 4.8 A: The student is expected to investigate and identify the transfer of energy by objects in motion, waves in water, and sound.
SCI 5.7 A: The student is expected to investigate and explain how equal and unequal forces acting on an object cause patterns of motion and transfer of energy.

HOW TO:

1. Stack the two craft sticks, paint stirrers, or tongue depressors on top of each other.
2. Use a strip of masking or duct tape to secure one end of the tongue depressors together.
3. Spread the tongue depressors apart and insert a wooden spool between them.



4. Make sure the wooden spool is wedged between the tongue depressors as close to the duct-taped end as possible.
5. Grab a portion cup and attach it to the top tongue depressor on the side furthest from the duct tape.
6. Rest the white pom pom on the non-taped end of the catapult. Pull down on the tongue depressor and release. Your snowball should launch through the air!

STEM EXPLANATION

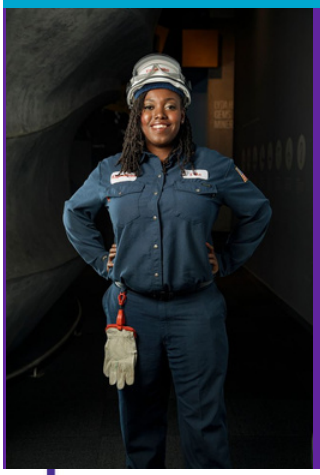
Catapults typically use levers to launch objects. A **lever** is a very important type of simple machine, and it makes moving objects easier. Levers are all around us! Examples include tweezers, see-saws, shovels, and even our own arms. All levers contain a long, sturdy beam that rests on a support called a fulcrum.

In this Snowball Launcher activity, the tongue depressors represent the beam and the wooden spool represents the fulcrum. When effort, or **force**, is placed on one side of the fulcrum and then released, that end of the beam is launched upward.

The lever that you created makes launching the pom pom much easier and faster than simply throwing it. You applied a force to the catapult by pushing on the tongue depressor. When you released the tongue depressor, this force caused the pom pom snowball to launch into the air!

CAREER: MECHANICAL ENGINEER

Mechanical engineers create machines and tools that move and work, like cars, robots, and engines.



MEET ERIKA ANDERSON!

Erika Anderson is a mechanical engineer who received her degree–with honors!--from Georgia Tech. During her studies, she gained hands-on experience as a math tutor, researcher, and intern at organizations like NASA, where she analyzed data on liquid hydrogen tanks and plane engines. Erika later worked as a Mechanical Engineer at ExxonMobil, ensuring refinery equipment operated safely to produce essential products like gasoline, jet fuel, and even plastics!

Learn more about Erika!

RESOURCES

https://www.ccmr.cornell.edu/wp-content/uploads/sites/2/2016/10/Levers-Catapults-Reading.pdf
www.ifthencollection.org/

