

Title

Popsicle Stick Grabber

Activity Overview

Description: Students will create a grabbing tool and in the process learn about an important simple machine, the lever!

Topic Area(s)

Mechanical Engineering,

Grade Level: P-4

Duration 30 minutes

Learning Outcomes:

Learn about mechanical advantage

Learn about forces

Understand simple machines (levers)

Hook

Improve your reach with a popsicle stick grabber!!

Background Information

Mechanical advantage refers to the notion that force can be increased with the use of a mechanical device or tool. The law of the lever is a big part of today's activity! A lever is a movable bar that pivots on a fulcrum which is attached or positioned on or across a fixed point. Think of a teeter totter- the middle part is the fulcrum!

The lever operates by applying forces at different distances from the fulcrum. Points on the lever further from the fulcrum move faster than points closer to the fulcrum. Similarly, points on the lever further from the fulcrum will have a bigger force output.

Materials

- Tape
- Popsicle sticks
- Skewers

- Scissors
- straws

Safety Considerations

Avoid poking yourself with the skewers and be careful using scissors!

Procedure

- 1) Lay down 2 popsicles end touching end and leave a slight gap
 - 2) Use pieces of straws to hold the sticks together (feed the ends of the popsicle sticks through the straw piece)
 - 3) Poke a hole in the straw and tape covered gap and leave a skewer in place. Tape a piece of skewer over the straw to reinforce it and make it extra strong.
 - 4) Repeat 4 times.
 - 5) Connect the 4 pieces as shown as the picture below (you'll only need 4 skewers, but can cut them down).
 - 6) Tape small popsicle stick pieces on the end end to complete the grabber
- *Grabbers with only 1 pivot point can be made depending on how good the group is at building things

Wrap-Up/Debrief

Discuss the benefits and uses of mechanical advantage

Additional Resources



<http://www.instructables.com/id/Extending-Grabber/>