



Curiosity Guide #402

Pulleys

Accompanies Curious Crew, Season 4, Episode 2 (#402)

Rolling-Pin Pulley

Investigation #4

Description

Make a pulley out of a surprising object!

Materials

- Rolling pin
- String
- Bucket with handle
- Friend

Procedure

1. Tie the string to the handle of the bucket.
2. Hold the handles of the rolling pin and face your friend.
3. Ask your friend to loop the string over the rolling pin.
4. Can you hoist the bucket by pulling down on the string?
5. How could you support the rolling pin, so you don't have to hold it?

My Results

Explanation

Some rolling pins act like a wheel that can rotate around the pin's fixed handle, just like the wheel of the pulley rotating on its axle. Laying the string over the top of the rolling pin makes hoisting the bucket off the ground possible. This pulley does not have a mechanical advantage because the pulley just changes the direction of the rope, but pulling down on something to hoist it is easier than to pull up.

Think about this: Have you ever wondered how people get things safely into tree houses? A pulley system is the perfect solution! Just select a branch higher than the tree-house platform. The branch should be strong and easy to reach. Thread a small bit of rope through the fixed part of a pulley, then tie the loop around the branch over the platform. Now thread a long rope through the pulley and let one end of the rope dangle to the ground. Tie the other end of the rope to the railing. Climb down and tie the dangling rope to the handle of a bucket, and you're now ready to go up and hoist up your treasures! Don't you just love pulleys?

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