

Experiment: Make a Simple Pulley

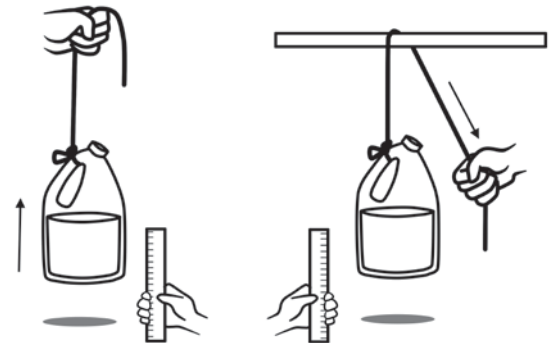
In this experiment, you will find out if a pulley makes it easier to lift a load.
A broom handle will act as the pulley.

What You Need

- A plastic jug with a screw-on lid, half-full of water
- A broom handle
- A piece of thin rope or very strong string, 100 cm long
- Two chairs with seats the same height
- Duct tape
- A 30 cm ruler

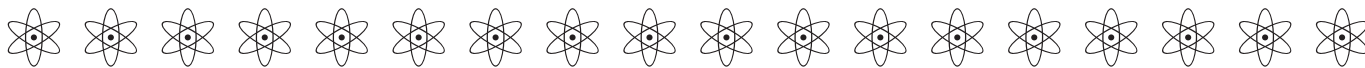
What You Do

1. Tie the rope to the handle of the jug.
2. Place the two chairs 50 cm apart.
3. Use the duct tape to attach the broom handle to the chair seats.
4. Have a partner hold a ruler on the floor beside the jug. Stand the ruler up, as shown. Pull the rope to lift the jug 30 cm.
5. Put the jug under the broom handle and place the rope over the broom handle as shown. Pull the rope down to lift the jug 30 cm.
6. Decide which method of lifting the jug was easier.



Think About It!

1. The rope and broom handle function as a pulley. Is it a fixed or movable pulley? Why do you think so?



Experiment: Make a Movable Pulley

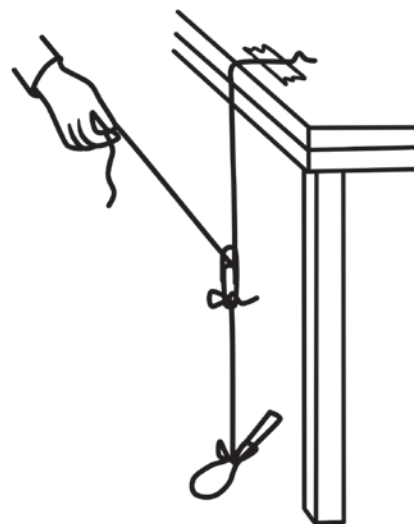
Try this experiment to see how a movable pulley works.

What You Need

- A metal spoon
- A large, sturdy paper clip
- Two pieces of string, one 30 cm long and the other 1 m long
- Masking tape
- A table

What You Do

1. Tie one end of the 30 cm piece of string to the spoon.
Tie the other end to the paper clip.
2. Tape one end of the 1 m piece of string to the edge of the tabletop. Run the other end of the string through the paper clip.
3. Pull the string to lift the spoon.
4. Notice what happens to the position of the paper clip as you pull the string.



Think About It!

1. What happened to the position of the paper clip as you pulled the string? Why?

2. Imagine you wanted to lift a heavy book. What would you change in this experiment? Why?
