

## Explore Wheels and Axles

You don't need to reinvent the wheel to give your kids a lesson in simple mechanics. With this easy activity, find out why wheels and axles go together like Popeye and spinach, to create a powerful matchup that can move mountains!

A wheel is great for spinning around, but you'd have a hard time moving anything with a wheel alone. To move things using a wheel, you also need an axle. Here's how to demonstrate the concept with your kids:

### What You Need:

- 2 chairs with ladder blocks
- broom handle
- string
- pail with handle
- masking tape
- safety scissors
- ruler



### What You Do:

1. Place the chairs back to back, about 1 foot (30 cm) apart. Rest the broom handle across two level slats.
2. Tie a 1 foot (30 cm) length of string to the pail handle. Tape the free end of the string to the middle of the broom handle.
3. Place some pennies or marbles in the pail to make it heavier.
4. Turn the broom handle with your hands to raise the pail into the air. Turn it back the other way to return the pail to the ground.
5. Tape the ruler straight up and down the broom handle near one end, as shown above.
6. Use the ruler, which acts as a wheel, to turn the broom handle and lift the pail.

### What Happened?

You lifted the pail either way, but it saved you effort in lifting the pail when you used the ruler (the wheel) to turn the broom handle (the axle). Your hand had to move further when you used the ruler, but the force you needed was less – the pail seemed lighter. The ruler acted as a bigger wheel, and the bigger the wheel, the easier it is to lift the load. And that is the purpose of this labor-saving device!

*Reprinted with permission from "Mighty Machines," a book that teaches kids the basics about how things work-- from pulleys and levers to screws and wheels. By Shar Levine and Leslie Johnstone (Sterling Publishing Co., 2004).*

*Downloaded from Education.com*