

# 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, and create a powerful matchup capable of moving mountains!

## What You Need:

- 2 chairs (The kind with ladder blocks on the back of the seat.)
- Broom
- String
- Bucket with a handle
- Paper tape
- Scissors
- Ruler
- Pennies or marbles

## What You Do:

1. Have your child place the two chairs back-to-back, with about 1' of space between them.
2. Ask him to rest the handle of the broom across the tow level slats.
3. Tie a 1' piece of string to the handle of the bucket.
4. Have him tape the free end of the string to the center of the broom stick.
5. Pour some pennies or marbles into the bucket to slightly increase the weight.
6. Ask him to turn the broom handle with his hand to begin raising the bucket high into the air, then turn the handle the other way to lower the bucket.
7. Tape the ruler parallel on top of the broom, near the broom handle. The ruler should overlap so it's slightly beyond the broom handle.
8. Now, have him turn the broom handle again using the ruler to lift the pail. What was different?
9. Ask him if the ruler made it easier, or more difficult to lift the pail. The ruler, which symbolizes the "wheel," helps to turn the handle, or "axle," with less exertion.
10. Explain to him that his hand would have to move farther using the ruler, but he exerted less force to make the bucket lift. This shows that the larger the wheel, the easier it is to lift a heavy load, which helps conserve energy and makes work go faster.

