

Metals — They're Electrifying!

Electricity can flow through some materials but not others. If electricity flows through a material, the material is said to “conduct” electricity. In this activity, you can use batteries, an aluminum foil wire, and a light bulb from a flashlight to see if aluminum is a good conductor.

What you'll need

- 2 batteries (D cell)
- Traditional flashlight bulb (available at most hardware stores - not LED)
- Tape
- Aluminum foil
- Scissors
- Popsicle stick
- Coins
- Metal spoon
- Plastic spoon

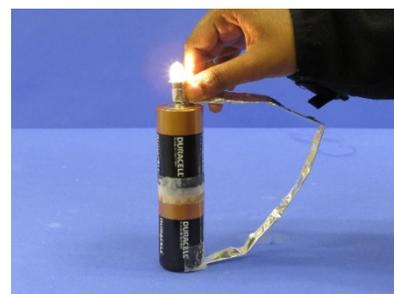


Be safe

Batteries are a safe source of low-voltage electrical power. Follow the directions exactly as written and do NOT use household electricity in this activity. Always work with an adult partner to supervise and guide you.

Here's what to do

1. Use your tape to tape the batteries together as shown. Ask your adult partner to cut a piece of aluminum foil about 6 centimeters (cm) wide and about 30 cm long.
2. Fold the foil in half length-wise and repeat until you have a piece that is 30 cm long and about 1/2 – 1cm wide (3 folds).
3. Tape one end of the foil to the flat end of the bottom battery. Wrap the other end around the bulb casing so that the aluminum foil is securely wrapped around the casing as shown.
4. Hold the foil firmly against the bulb casing and touch the bottom tip of the bulb to the top of the battery.



What to expect

The bulb should light.

What's happening in there?

The flow of electricity depends on the movement of extremely tiny particles called electrons. The electrons move from the bottom of the battery, through the aluminum wire, through the bulb, and into the top of the battery. The path that the electrons take is called a circuit.

What else could you try?

You could do an experiment to see what other materials are good conductors. You could try wood, plastic, and other metals to see which materials let the electricity flow!

Be safe

Be sure to review the safety instructions on page 1 before proceeding.

Here's what to do

1. While holding the bulb in one hand, put popsicle stick on the top of the battery and then touch the bottom of the bulb to the popsicle stick.
Did the bulb light?
2. Now try placing a coin on top of the battery and touching the bottom of the bulb to the coin.
Did the bulb light?
3. You could try a plastic spoon and a metal spoon.

What's happening in there?

You have seen that some materials are good conductors of electricity and some are not. Metals are generally good conductors, but some materials such as wood, rubber, and plastic are not good at conducting electricity. These materials are called “insulators”. Electricity does not move well through an insulator. Rubber, plastic, glass, and wood are all good insulators since electricity does not travel through them easily.

