Wire it up

So far, you've only experimented with static electricity made when you brush electrons on or off things. But there is another very useful type of electricity that's made by moving electrons, called current electricity. Electrons move easily through metal. Using a battery, you can push them right through a metal wire. You need to make the wire into a loop, called a circuit, that lets the electrons flow out of the battery, then in again.

OPTIONAL EXPERIMENT A

Bright idea

When a current of electricity flows through this circuit, it lights up a bulb.
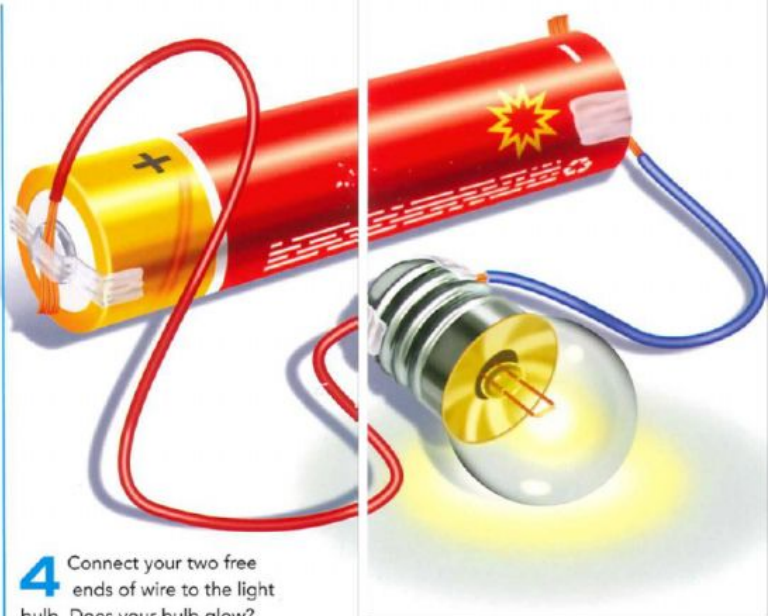
1 Ask an adult to use a sharp knife, wire cutters, or pliers to strip around 3/4 in. (2cm) of plastic from each end of your wires.

2 Using tape, attach the bare end of one wire to the silvery knob on the top of your battery. This knob is called the positive terminal.

3 Using some more tape, attach the bare end of your other wire to the silvery base of your battery. This is called the negative terminal.

4 Connect your two free ends of wire to the light bulb. Does your bulb glow?

OPTIONAL EXPERIMENT B

Bridge the gap

Follow the steps in "Bright idea" again to make your flashlight bulb glow. Ask an adult to cut one of the wires in half to break the circuit. Keep everything else in place. Now ask your adult helper to strip the two free ends of broken wire. Then, using a metal paper clip, touch both free ends of the bare wire at the same time. What happens to the bulb?

You will need:

- A small flashlight bulb (with a maximum voltage of 3 or 4.5v)
- A 1.5-volt, AA battery
- Two insulated wires
- A metal paper clip
- Tape

What's going on?

When you break a circuit, electricity can't flow around it, so the bulb stops glowing. The metal paper clip can bridge the gap in the broken circuit. When you press it against the two bare ends of broken wire, electricity flows through it, from one end to the other. The paper clip completes the circuit, so the bulb glows. In this way, it works as a switch.

DRAW LINES TO COMPLETE THE CIRCUIT

1. Which of these gives the circuit power?

2. Is the circuit static or current electricity?

static

current

NARRATION