

How a Flashlight Works

Action

Students will be able to see how and why a flashlight works.

Grade Level

Grade 4 - Forms of Energy

Grade 6 - Atoms and Reactions

Materials

- An empty can
- 4 "D" batteries
- Masking tape
- Aluminum foil
- Set of Christmas tree lights (trim plastic insulation away from the ends of the wires to expose the copper wire underneath)

Instructions

- In a small can, push several layers of crumpled aluminum foil into the bottom.
- Look at the batteries and observe how the flat end is marked "-" and the pointed end is marked "+". Place the four batteries in the can. Stand the "-" end up on two of the batteries and the "+" end up on the other 2.
- Touch the end of your light wire to one end of a battery. Now touch the other end of the wire to another battery. Do the lights light up? If not, try another battery.

Safety

Take care of stripping the wire and do not cut yourself on the exposed wire.

Make sure that students do not stick the wire ends into the light sockets.

Hints

Check to make sure the lights work beforehand. You do not need all the lights to light up; only 2 or 3 required. If you want the lights to keep burning, tape the ends of the wire to the battery with masking tape. Be aware of not leaving it too long so you do not drain the battery.

Science Principle

Electricity is the flow of electrons. Electrons are tiny, negatively charged particles that spin around in atoms. Electricity can only work if it travels in a complete circle, or circuit. The electrons have to come back to where they started, that is why the positive and negative ends of the battery are important. Batteries are the source of electrons. The bulb will light because the electrons flow in a complete circle out of the battery and back again. As they flow through the bulb, they make it light up.