



e-SMARTkids



EXPERIMENT TIPS

Build an electrical circuit

The experiment appears in the section *Learn about energy*.

Materials Students will need the materials listed on their activity sheet:

- A printed copy of this activity
- A pencil to write their answers
- 2 pieces of insulated wire with 1 inch stripped on each end
- Masking tape
- D-cell battery
- A 1.2-volt light bulb with matching base

Objective

Students will build a circuit and gain an understanding that in order for electricity to travel where we need it, there must be a complete circuit of electricity. Students should realize that a complete circuit is like a circle. Students will learn that electricity is produced at one place, travels around the circuit, and returns to the starting place.

Safety first

- Students should be supervised by an adult while doing this experiment.
- A teacher or another adult should be responsible for stripping insulation.
- Explain to students that electricity can be dangerous if it is not handled correctly, and emphasize that they should never experiment with the electricity that comes from a wall outlet. It's much more powerful than the electricity made by small batteries and could seriously injure or even kill someone.

Experiment tips

Teachers should strip the wires ahead of time and make sure the batteries are fresh. Use tape to stick the wires to the ends of the battery.

Getting it across

Have students read the information and follow the steps on the page. Make sure they are able to identify the circuit electricity travels from the battery to the light bulb and back, and the circuit electricity travels from power plants to homes and back. They should be able to equate the wires in the experiment with power lines and electrical wiring in the electric distribution system.

Questions and answers

1. Ask students to share their predictions and results after building a complete circuit from the battery to the light bulb and back again. Were the results the same? If not, why not? (Answers will vary. Be sure the experimental setup was not at fault.)
2. Ask students to share their predictions for what would happen when adding 10 or more light bulbs to the circuit. (Answers will vary.)
3. What adjustments would you have to make to be sure that all the bulbs would light up? (You would have to add more batteries.)