

Activity Name: Making an Electrical Circuit

Activity Description: Students will be provided with an Electrical board, a 6-Volt battery, insulated wire, and two 5-Volt light bulbs. Students will be asked to create an electrical circuit that will light the light bulbs.

Suggested Grade Level / Age Range: 4-6

Science Content Covered (just provide keywords - *example - heat, light, energy*): electric energy when heat, light, sound and chemical changes are produced

Time needed to complete the activity: 10-15 minutes

Materials Required (per student):

- Electrical board
- one 6-Volt battery
- insulated wires of various lengths (6.5 cm, 12.0 cm, 14.5 cm, 20.5 cm, and 25.0 cm)
- two 5-Volt light bulbs
- worksheet
- white board w/marker

Directions as well as Activity Success Tips for Parents and Teachers:

To introduce the concept, demonstrate a closed electrical circuit and an open electrical circuit. If necessary to complete a circle, have students and teacher make a circle holding hands. Have one person squeeze a hand. Once that student's hand is squeezed, have him or her squeeze the next person's hand and so on. Now remove one student from the circle so there is a gap; have them try squeezing hands. Have students sit back down and discuss open vs. closed circuits. (Note: Have hand sanitizer available for this activity).

Explain the following:

An OPEN CIRCUIT is an electrical circuit that does not have a complete path between the positive (+) and negative (-) terminals of its power source.

A CLOSED CIRCUIT is an electrical circuit that has a complete, unbroken path between the positive (+) and negative (-) terminals of its power source.

Focus Phase:

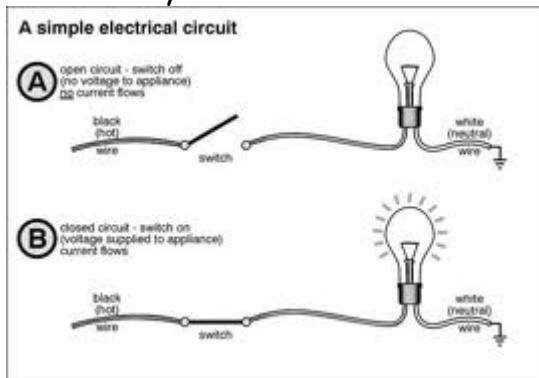
Present the group with a set of materials (electrical board, battery, insulated wire, and light bulbs). Ask students, "Do you think that you could make a light bulb light with two wires and a battery? What if you followed the pictures on your worksheet, and set up the wires like the wires on the diagrams? Which setups do you think would light up the light bulb?" Ask them to test their hypotheses by constructing a circuit, which would light the light bulb with the materials.

Allow students to build the circuits while observing and asking them thought provoking questions. Give subtle suggestions to those that are becoming frustrated. Ask questions to those that have successfully constructed their circuit.

After students have had time to successfully construct their electrical circuits, ask them to discuss why the light bulb lit. After a short period of discussion, ask a student or a group of students to draw a diagram of their circuit on the white board. Ask the following discussion questions:

- What made the light bulb light?
- What was the power source?
- Is this circuit open or closed?
- Did electricity flow through the wire when the circuit was open?
- Did electricity flow throughout the wire when the circuit was closed?

Insert Any Images / Photos / Drawings needed to help describe or explain the activity:



Possible follow-up, extension activities or ideas for children and parents to explore (with references or urls):

When asked a question regarding the circuit, were students able to respond to the questions? Did students demonstrate an understanding of electrical circuits during discussion?

Safety comments / considerations:

- Hand sanitizer for proper hygiene during hand holding
- Do not allow any water near the electrical circuit
- Caution when using any type of electrical circuit or device as it can get hot.

If your activity should be credited to any specific source or citation - indicate that here: N/A

So we can make sure your organization gets credit for your participation and we refer people accurately to your organization:

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