Build a Circuit

GOAL: Learn about saturated solutions

Materials
Cardboard to use as a platform
Tape
Tin foil
Brass fasteners
Scissors
A 9-volt battery
Christmas lights

Methods
1. Cut several tin foil strips about ½-1 inch wide and as long as you like
2. Place your lights on to the cardboard
3. Connect them using your strips of foil, but leave two gaps, one for the switch using brass fasteners and one for the battery.
4. Stick the foil down with tape, ensuring it touches exposed wires of the lights.
5. Place the 9v battery with the circles down at one of the gaps in the tin foil – with the two circles of the battery touching the foil.
6. For the other gap, bend the brass fastener to connect the tin foil end of the second gap. What do you think will happen when the fastener bridges the gap? Write your predictions in your Laboratory Notebook.
7. Bridge the gap with the fastener. What happened? Write your observations in your Laboratory Notebook.
8. You can change the design of your circuit as much as you want! You can include more lights or more gaps to be bridged by the brass fastener! Make sure you document what changes you make in your Laboratory Notebook!
**What’s Happening?**

An electric circuit is an unbroken path along which an electric current exists and/or is able to flow. A simple electrical circuit consists of a power source, two conducting wires (one end of each being attached to each terminal of the cell), and a small lamp to which the free ends of the wires leading from the cell are attached. When the connections are made properly, the circuit will “close” and current will flow through the circuit and light the lamp.

**Who Uses This in Real Life?**

*Electrical engineers* are engineers who develop (think and make) different things that use electricity in a helpful way. They fix or design new and better ways of using devices that use electricity.

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**Edith Clarke** was the first woman to be professionally employed as an electrical engineer in the United States, and the first female professor of electrical engineering in the country. She was the first woman to deliver a paper at the American Institute of Electrical Engineers, and the first woman named as a Fellow of the American Institute of Electrical Engineers. She specialized in electrical power system analysis and wrote *Circuit Analysis of A-C Power Systems.*