



Homeschool Learning Network

Electric Circuits Experiments

Materials Needed:

Socks, carpeted floor, and another person
Size D flashlight battery
Flashlight bulb
Insulated electrical wire
Large 6-volt square lamp battery
Aluminum foil

Experiment 1: Static Electricity

This is a good experiment to do on a dry windy day.

1. Wearing socks, scuff your feet back and forth on a carpeted floor.
2. Touch another person's skin.

Did he or she jump? Did you feel a shock? If you did, it's because you created a mini electrical generator with your socks on the carpet. Your body became a sort of battery and when you touched the other person, a circuit was completed. The electricity flowed out of you and into him or her, causing a small shock.

Experiment 2: Simple Circuits

For electricity to flow, there has to be a complete circuit!

For this experiment you will need to cut two 4"-6" lengths of electrical wire and strip about 1/2" of the insulating plastic off both ends of each piece. Be careful not to break the wires when you strip the ends.

1. Using a size D flashlight battery, connect one wire to the center of each end of it with tape. Make sure the wire is touching the battery, metal to metal.
2. Touch the end of one wire to the bottom of a flashlight bulb and one to the rim that sticks out on the side.

What happened? Did the bulb light up? If it did light up, then you have created a simple circuit with the electricity in the battery. What happened when you pulled the wire away and broke the circuit? The light went out, didn't it? Remember, for electricity to flow, there has to be a complete circuit.

Experiment 3: Fuses & Overheating

When electricity flows through a wire, the wire heats up. If too much electricity flows through, the wire can even catch on fire. The first electrical wiring was known for causing fires when a circuit was overloaded. To prevent this and to make electricity



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safe for people to have in their homes, Thomas Edison invented the fuse. This device contains a short piece of wire that has a low melting point. When the wires the fuse is connected to heat up too much, the fuse melts and breaks the circuit and the electricity stops flowing, preventing a fire from breaking out.

For this experiment you will need your two pieces of wire from Experiment 2, the big 6-volt lantern battery and the aluminum foil. Do this experiment in a ventilated area such as near your stove exhaust fan or near an open window.

1. Connect one end of each wire to the two leads on the top of the battery.
2. Stretch the other two ends out parallel about half an inch apart. Longer wires may need to be supported by something.
3. Cut the aluminum foil into strips, about a 1/16"-1/4" wide and 1" long.
4. Roll some up between your fingers so that they form little wires.
5. Lay the strips one at a time across the wires making sure that they are touching the wires.
6. Take notes about what happens to them.

Do some melt or burn away? Which ones? Do the flat ones or the rolled up ones hold up better? Please pay attention to your wires in this experiment. If your "fuse" is too strong, the wires may heat up and the plastic insulation could start to melt.