



Electricity!... grades 4-8

A program designed and presented by The Health Adventure

Program Objectives

- Students will learn concepts related to static and current electricity, conductivity, and charges.
- Students will learn the workings of a battery and serial and parallel circuits.
- Students will assemble a working circuit.

Suggested Classroom Activities:

- 1) Ask the students to read about the lives of pioneers in the study of electricity: Thales, Luigi Galvani, George Ohm, Benjamin Franklin, Andre Ampere, Alessandro Volta.
- 2) Ask the students to read “Ben and Me” by Robert Lawson, grade 3 – 5, or “The Autobiography of Benjamin Franklin”, grade 6 – 8.
- 3) Ask students to make a lightning safety brochure for their school including these tips:
 - a) If possible, go inside a building or vehicle.
 - b) If outdoors, avoid water, the high ground, open spaces, and avoid metal objects including electrical equipment. Unsafe places include underneath canopies, small picnic or rain shelters, or near trees. Find shelter in a substantial building or a vehicle with the windows closed.
 - c) If outdoors, crouch down, don’t lie down, and stay at least 15 ft. from other people.
 - d) If indoors, unplug and stay away from appliances, computers, cordless phones and TVs. Stay off the telephone. Avoid water.
- 4) Try your own experiments with static electricity!

Take two pieces of polyethylene (e.g. Saran Wrap), about three by six inches each. Wrap each of the poly sheets around a pencil so it hangs down like a flag. Rub each sheet with your hands or against your clothing. Bring the “flags” close together so the sheets would normally touch. But they don’t. On the contrary, they pull away from each other.

According to atomic theory, when you rubbed the pieces of poly you pulled off some electrons from plastic. Since you did the same to both, they remained with the same positive charge – proving that like charges repel each other.

Rub one of the poly sheets with a piece of wool. The wool now picks up electrons from the plastic sheet. This illustrates that unlike charges attract each other.

Now, rub one sheet briskly against yourself, or against a piece of wool or fur. Place the poly against the wall of your room. It sticks and will stay there until the charge leaks away into the air. The reason is that the plastic will stick to any uncharged (neutral) body. You can do the same thing with an inflated rubber balloon.

- 5) Ask students to draw a circuit diagram of the circuit they made at The Health Adventure.

Remember the circuit symbols: Switch:

Energy Source:

Resistor:

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