Electricity - Grades K-2

Nebraska Science Standards

Objective: The objective of this activity is to Demonstrate methods of producing static electricity.

Materials:

- balloon, construction paper
- Worksheet
- A Comb, Salt, Pepper, Cloth or material that can create a strong static charge, preferably wool
- Inflated balloon (optional)
- hard rubber, or plastic comb, or a balloon
- thread, small pieces of dry cereal (O-shapes, or puffed rice)

Questions:

- What types of things need electricity to work?
    - Lamp, camera
- What does electricity often need to work?
    - Socket, battery(exception lightning)

Pass out worksheet

- What are types of energy?
    - **Current electricity** goes from one place to another.
    - **Static electricity** stays in one place

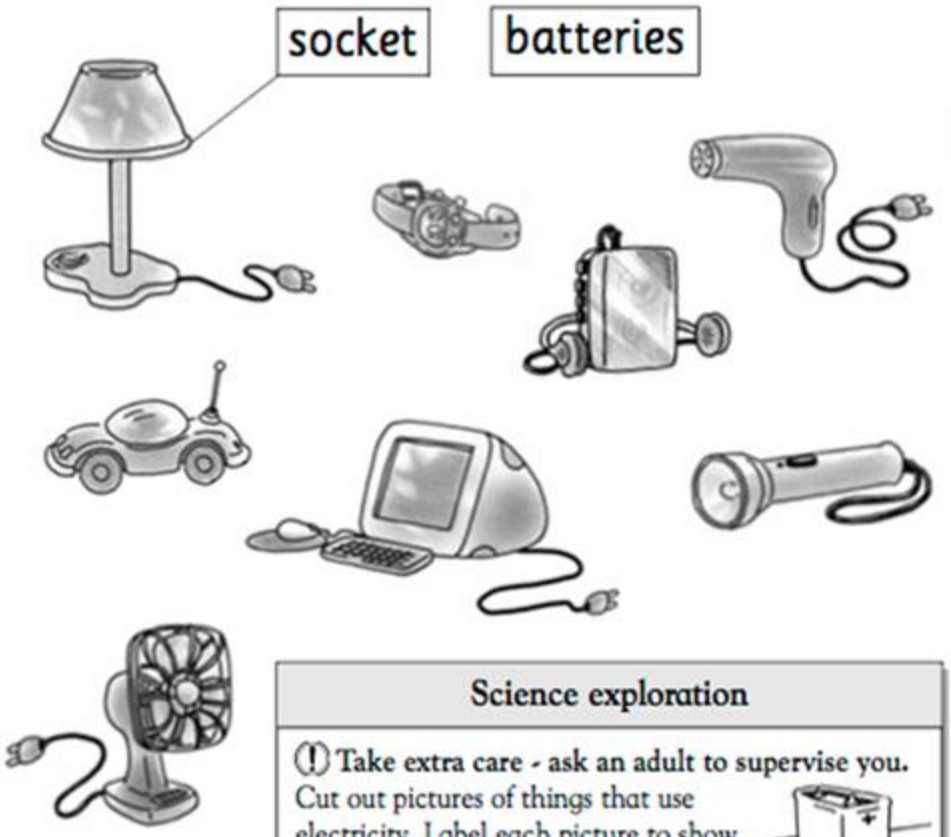
It's electric!

Observations

Many things need *electricity* to work. *Batteries* are one source of electricity. Electricity can also be obtained by plugging things into a socket in the wall. This electricity comes from wires that go into your home. Never place anything but an electrical plug into a socket or you can receive an electric shock that can kill or badly hurt you!

Science activity

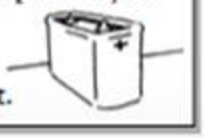
Which of these things work when they are plugged into a wall socket? Which ones work with batteries? Draw a line joining each one to the correct word. The first one is done for you.



Science exploration

(!) **Take extra care - ask an adult to supervise you.**

Cut out pictures of things that use electricity. Label each picture to show if it uses batteries or plugs into a socket.



EXPERIMENT 1 – Balloon Electricity Fun

You Need:
balloon, construction paper
thread, small pieces of dry cereal (O-shapes, or puffed rice)

What to do:

The students begin the experiment with balloons and construction paper. They then need to tear up the construction paper into little pieces and once they have done that they may begin the experiment which consists of them rubbing the balloon on their hair and then holding the balloon above the tiny pieces of construction paper.

What happened: Charge a balloon by rubbing it in someone's hair or by rubbing it with a piece of wool. ... First, the paper will be attracted to the negative charge on the balloon so it will jump up and stick to the balloon. But by coming into contact with the balloon the paper picks up some of the negative charge.

EXPERIMENT 2 – Salt and Pepper

You need:
A Comb, Salt, Pepper, Cloth or material that can create a strong static charge, preferably wool, Inflated balloon (optional)

What to do:

1. Shake some salt onto a flat surface with a table cloth..
2. Shake some pepper over the salt.
3. Mix the salt and pepper together with your fingertips until there is an even mixture of salt and pepper.
4. Set your comb with a static charge by rubbing it against some cloth or your inflated balloon (if you have one).
5. With your comb charged slowly lower it above the salt and pepper mixture, teeth side down until it's about 1 inch away.
6. Like magic the pepper particles separate from the salt particles and cling to the comb!

What happened:
When the comb is rubbed against the cloth or balloon, it becomes negatively charged. The salt and pepper are both positively charged, which means they will form a natural attraction to the static from the comb. When the comb is slowly placed above the mixture, the pepper particles fly up and attract. Why do the pepper particles attract while the salt doesn't? Pepper particles are much lighter than the

salt, so they're quicker to attract to the comb. If you were to bring the comb closer to the mixture, the heavier salt would eventually cling to it as well.

EXPERIMENT 3 – Swinging Cereal

You need:
hard rubber, or plastic comb, or a balloon
thread, small pieces of dry cereal (O-shapes, or puffed rice)

What to do:

1. Tie a piece of the cereal to one end of a 12 inch piece of thread. Find a place to attach the other end of the thread so that the cereal does not hand close to anything else. (You can tape the thread to the edge of a table but ask permission rst.)
2. Wash the comb to remove any oils and dry it well.
3. Charge the comb by running it through long, dry hair several times, or vigorously rub the comb on a wool sweater.
4. Slowly bring the comb near the cereal. It will swing to touch the comb. Hold it still until the cereal jumps away by itself.
5. Now try to touch the comb to the cereal again. It will move away as the comb approaches.
6. This project can also be done by substituting a balloon for the comb.

What happened:
Combing your hair moved electrons from your hair to the comb. The comb had a negative static charge. The neutral cereal was attracted to it. When they touched, electrons slowly moved from the comb to the cereal. Now both objects had the same negative charge, and the cereal was repelled.