Make Your Own Electricity

By now, your fifth grader has probably heard of atoms. They're the smallest particle of a chemical element that can take part in a chemical reaction without being permanently changed. They're also made up of protons and neutrons in a central nucleus surrounded by electrons. Sound familiar?

Sometimes, a large number of atoms in an object will gain or lose electrons (negatively charged subatomic particles that are found at varying distances from an atom's nucleus). When this happens, the entire object takes on an electric charge. The term static electricity describes situations where objects carry electric charge. And by using static electricity generated from her body, a child can cause a small fluorescent lamp bulb to light up!

What You Need:

- Plastic comb
- Small fluorescent lamp

What You Do:

Step 1 Tell your child to rub a comb through her hair. The friction between her hair and the comb will cause electrons to "jump" from her hair to the comb.

Step 2 If your child then touches the comb to the end of a fluorescent light bulb, the charged comb will discharge into the light bulb causing the bulb to emit small pulses of light. This action will generate a great deal of excitement especially if conducted in a darkened room.

What Happened?

More than likely your child will want know why this happens. Tell her that static electricity occurs, for example, when she rubs a balloon on her shirt (you might wish to actually try this). The friction between the cloth and the balloon causes negatively charged particles (electrons) to transfer from her shirt to the balloon. The shirt then has an overall positive charge because it has more protons than electrons. The balloon takes on a negative charge because it has extra negative charges (electrons). The balloon will then stick to the shirt or to another surface, such as a wall.

Static electricity has many uses in homes, businesses, and industries. For example, the copying machines found in most offices are electrostatic copiers. They make duplicates of pictures or written documents by attracting negatively charged particles of toner (powdered ink) to positively charged paper.

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