Super Static Wand

Simple STEM Activity

Purpose:	The purpose of this activity is to explore static electricity.
Standard(s):	**S5P2. Obtain, evaluate, and communicate information to investigate electricity.** a. Obtain and combine information from multiple sources to explain the difference between naturally occurring electricity (static) and human-harnessed electricity.
Materials:	12-24 in. of PVC pipe (½ diameter), a scrap of wool cloth, scraps of paper, confetti, or rice cereal, aluminum can (empty, clean, and dry)
Procedures:	<u>Part 1</u> 1. Rub the piece of PVC pipe vigorously with the wool cloth. 2. Pass the PVC pipe over the scraps of paper/confetti/rice cereal. 3. Observe what happens. <u>Part 2</u> 4. Place an aluminum can on its side on a smooth level surface. 5. Rub the piece of PVC pipe vigorously with the wool cloth. 6. Slowly move the pipe parallel to the can. 7. Observe what happens.
Science Behind It:	Electricity is a form of energy produced when there is an imbalance of electrons in atoms. Atoms are the building blocks of all matter. Atoms consist of protons, neutrons, and electrons. Protons (positive charge) and neutrons (no charge) are found in an atom's nucleus. Electrons orbit the nucleus and have a negative charge (-). When you rub wool over the PVC pipe, some electrons leave the wool and collect on the PVC pipe giving the pipe more negative charges. When you bring the PVC pipe near the paper or cereal, the negative charges repel causing the paper or cereal to become positively charged on one side and attracted to the PVC pipe. This is why we see them "jump" to the PVC pipe. When you bring the charged PVC pipe near the aluminum can, the pipe's negative charges push the electrons to the far side. The near side of the can becomes positively charged and since opposites attract, the can starts rolling toward the PVC pipe.

Questions to Ask:	1. What is static electricity? 2. What happens when you rub the pipe with the wool cloth?