

It's Electric

Activity 1

Atoms/Static Electricity

1. What are atoms comprised of?
 - Nucleus: containing two kinds of particles- protons (positively charged), neutrons (no charge/neutral)
 - Electrons (negatively charged) orbiting the Nucleus

Protons and neutrons in the nucleus are held together very tightly, and normally do not change/move; however, the outer electrons are held very loosely and can move from one atom to another. An atom that loses electrons has more positive charges (protons) than negative charges (electrons), vice-versa if it gains electrons. Static electricity, therefore, is the imbalance of positive and negative charges.

2. Chose two groups of 3 students each to come to the front of the class. These are our protons within the nucleus of two atoms.
3. Then, chose two more groups of 3 students each to come to the front of the class. These are our electrons orbiting the nucleus of the two atoms.
4. Have three protons and three electrons parcel off into two atoms.
5. Ask the three protons of each atom to hold hands tightly, then, ask the three electrons of each atom to encircle their protons. Have the three electrons stand/orbit the nucleus of the atom without holding hands.
6. Now that you have two neutrally charged atoms, ask one atom to move next to the other simulating the rubbing of two materials.
7. Have one atom steal an electron from the other, making its overall charge negative.

Activity 2

Van de Graaff Generator

1. How does it work?
2. What does the static electricity moving from the Van de Graaff dome to the discharge wand look like?
3. What happens when different materials come into contact with the Van de Graaff?

Activity 3

Static sticks

1. What happens when you rub the static stick against an article of clothing? Record observations and questions.

2. What happens when you scroll your finger along the side of the static tube? Record observations and questions.

Activity 4

Balloons

1. Hand out a balloon to each student.
2. How can you generate static electricity with a balloon?
3. What happens when the balloon is statically charged?
4. What materials will the balloon stick to? Record observations and questions.
5. What materials will the balloon not stick to? Record observation and questions.