PROFESSOR EGGHEAD SCIENCE ACADEMY

TEACHER CONNECTIONS

LIGHTNING STRIKES

Lightning can be scary, but it is caused by something so small that we can't even see it. That same teeny tiny particle gives us all of our electricity!

K-3RD NGS STANDARDS COVERED:

2-PS1-1 : Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

2-PS1-2: Analyze data from testing different materials to determine which materials have the properties that are best suited for an intended purpose.

3-PS2-3: Ask questions to determine cause/effect relationships of electric interactions between two objects not in contact with each other.

KEYWORDS:

Atom
The building blocks of all matter

Electron
A negatively charged particle in an atom

Electricity
When an electron moves from one atom to another

ASK YOUR CLASS:

Q: What are electrons and how do they create electricity? **A: Electrons** are small particles that make up atoms. Sometimes they jump from one atom to another. When that happens, it creates electricity. If they jump one time, it's called static electricity. If they flow continuously, it's called current electricity.

Q: Current electricity occurs when electrons move continuously using a conductor. What is a conductor? **A:** Anything that allows electrons to move continuously through its atoms is a conductor. Most commonly metal is used as a conductor for electricity because the electrons easily move from one atom to the next.

Q: What objects did we test that had the strongest static charge? Did you test anything that wasn't on the list? **A:** Plastic wrap stuck to itself strongly. The pepper was attracted to the balloon better than the salt. The can was strongly attracted to the balloon. Take ideas from the class of other items they did or could test. (2-PS1-1 & 2-PS1-2)

Q: How did distance affect the static experiments when the two objects were held closer together or farther apart? **A:** Using the balloon and can example: The balloon is charged with electrons, but the can only moves when they are relatively close together. The static charge attracts the can which pulls it, but they have to be close enough together that the electrons can make the jump from one to the other for the experiment to work. (3-PS2-3)

Q: What creates lightning? **A:** Lightning is electrons built up in a static charge jumping on a very large scale. The electricity created from lightning is so strong that the transfer of electrons heats up the air white-hot creating a lightning bolt.