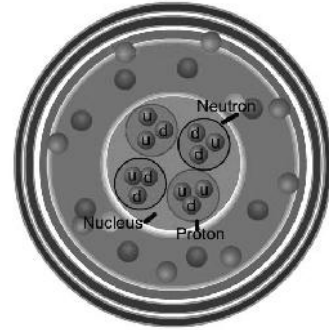


ELECTROMAGETISM-GRADE 3



OBJECTIVES:

1. Compare static and current electricity.
2. Understand how magnetism and electricity are related.

VOCABULARY:

Circuit - an apparatus with conductors through which an electric current passes.

Current - water or air moving in a certain direction.

Electricity - a form of energy occurring in certain particles.

Electron - a particle of matter with a negative electric charge.

Magnet - a piece of iron or steel that points north or south when suspended.

Parallel Circuit - circuits placed continuously at the same distance from each other.

Series Circuit - circuits that are connected to one another.

Static - electricity is present but not flowing as a current.

PROCEDURE:

Activity 1: Static Electricity

Materials: *Electricity* slideshow; balloon; confetti; plastic straw; fluorescent tube

1. Go through slides 1-7 of the *Electricity* slideshow.
2. Blow up a balloon. Without rubbing it, try to stick the balloon to the wall. Does it work? NO.
3. Next, rub the balloon on your hair or clothing for at about 15 seconds. Quickly place the balloon on the wall. Does it stick? YES. Ask students why it stuck this time.
4. Place the plastic straws and a small pile of confetti onto desk or table. Have students rub their balloons again and hold over the confetti. Does it attract or repel? Why?

There are two basic kinds of electricity: static electricity and current electricity. Static electricity is uncontrolled electrons passing from one body to another in sudden, momentary movements. Examples include clothes from the dryer that stick together; or getting a shock after walking on a carpet and then touching something. Static electricity is usually a nuisance and a hazard that can cause fires.

Activity 2: Current Electricity

Materials: *Electricity* slideshow; UFO ball

1. Go over slides 8-12 to discuss the difference between current electricity and the difference between a parallel circuit and series circuit.
2. Separate students into groups of 4 or 5 and give them a UFO ball. Have them figure out how they can make a human series circuit to make the ball light up and make noise. By forming a circle joining hands, two of the students should each have a finger on one of the electrodes. The current will pass through every one in a series circuit.
3. On page 3 of their workbooks, have students draw a series circuit and a parallel circuit.

Current electricity is controlled. The electrons are moving in one direction along the same path. The path is usually a conductor of electricity.

Activity 3: Electromagnetism-how are electricity and magnetism related?

Materials: Iron filings; logo magnet; steel nail

1. Put the nail on the bag of iron filings (instruct students to be very careful not to spill or take any of the iron filings out of the bag). Do the iron filings stick to the nail?
2. Rub the end of nail with the magnet for several seconds and put it back in the bag of iron filings. What happens this time? (Be sure to have the students make sure all the filings are off the nail when taking it out of the bag).
3. Inform students that they have just made an electromagnet.

An electromagnet is a magnet that employs electric currents to generate its magnetic field. By rubbing the nail on the magnet, electrons are forced to move in the same direction making the nail temporarily magnetic. This is similar to static electricity. When electricity flows through a wire, the electricity produces a magnetic field

Electromagnets are temporary magnets that can be turned on and off just by removing one of the connections to a battery. They can be made very strong by wrapping more coils around the electromagnet. They are found in doorbells, door chimes, telephone receivers, telegraphs, relays, loudspeakers, electric clocks, fans, refrigerators, washing machines, generators, circuit breakers, and many other electrical items. Electromagnets are temporary magnets that can be turned on and off just by removing one of the connections to a battery. They can be made very strong by wrapping more coils around the electromagnet. They are found in doorbells, door chimes, telephone receivers,

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