



A SHOCKING EXPERIENCE

RYAN JONES

Time Frame:	Standards:
60 Minutes 5 th Grade	5.S.1.6.2 Conduct scientific investigations using a control and variable 5.S.1.8.1 Read and follow technical instructions
Objectives:	
Students will learn about, experiment with, and observe the effects of static electricity.	
Background Information:	
<p>Static electricity is created when there is an imbalance of protons and electrons, giving a material an electric charge near its surface. Materials that accumulate static electricity are non-conductors – materials that don't conduct electric current well, such as plastic, hair, nylon, and glass. Static electricity may be positive or negative and will attract to an object with an opposite charge or repel an object with the same charge.</p> <p>A statically charged object induce a neutral object to become charged if the two are close enough together; like a balloon sticking to a wall. Static charges can accumulate by rubbing two different nonconductors together, like the “fly away” hair style you get when your comb and hair become charged.</p> <p>Static electricity is a tiny, sudden flow of electricity; not usually dangerous – except in the situation of refueling a vehicle and lightning. Lightning is a dramatic example of static electricity, a very large and sudden flow. A household electric current, which is not static electricity, is a sustained and usually controlled flow of electricity.</p>	
Materials:	
<ul style="list-style-type: none">• 2 Nylon combs• 2 wool cloths• 4 nylon cloths• 3 inflated balloons – 2 on strings• Scraps of paper• Salt and Pepper• Water faucet• Nylon stocking• Copies of <i>Shocking Experience and Observations</i>	

Procedure:

1. Set up six different experiment stations that the students can rotate through in groups.
 - a. Nylon comb, wool cloths, bits of paper
 - b. Nylon comb, Balloon, wool, water faucet
 - c. Nylon stocking, nylon cloth
 - d. Nylon cloth, an inflated balloon
 - e. Wool, Inflated balloon, salt & pepper
 - f. 2 nylon cloths, 2 inflated balloons on strings
2. Ask the students if they've ever shocked someone after walking across a carpet, or rubbed a balloon in their hair and made it stay, or watched a lightning storm. These are examples of static electricity. Discuss static electricity and how things can have a positive or negative charge by gaining or losing an electron. This charge creates energy and can push and pull things, or attract and repel.
3. Give the students each a copy of *Shocking Experiments and Observations* to complete as they rotate through the experiments in groups.
4. Discuss the experiments and the students' observations.
 - a. The bits of paper were attracted to the comb.
 - b. The fine stream of water was deflected by the charged comb.
 - c. A crackling sound was heard
 - d. The balloon stuck to the wall
 - e. Salt & Pepper jumped to the balloon
 - f. The balloon repelled each other

Assessment:

Discuss the students completed *Shocking Experiments and Observations* worksheets. Do students understand the negative charge will transfer to the positive charge? Did they have fun doing the experiments? Can they think of additional experiments to demonstrate static electricity?



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Additional Content:

See attached *Shocking Experience and Observations* sheet.

References:

References

National Energy Foundation-Resources for Educators
Energy Fun-Integrated Learning Activities-Primary
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