SNC 1D Lab

Charge It! Intro to Static Electricity

Teacher notes:

- Static electricity labs only work when the weather is cool and dry. This unit is best done in the winter months.
- Inquire about student allergies (i.e. latex balloons, animal fur). If allergies are present, these material needs to be removed from the lab, or the student can perform an alternate assignment in another location.

Curriculum Links:

Academic:

- E2.2: conduct investigations into the transfer of static electric charges by friction, contact, and induction, and produce labeled diagrams to explain the results.
- E2.3 predict the ability of different materials to hold or transfer electric charges (i.e. to act as insulators or conductors), and test their predictions through inquiry.

Material:

- Balloons
- Strings for balloons
- Ebonite rods
- Wool
- Cereal bits
- Lucite rods
- Silk
- Running water
- Acetate Strips
- Plastic
- Fluorescent light tube
- Metal spatulas

SNC1D

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Learning Goal: At the end of this experiment, I will know how neutral objects respond to charged objects and how charged objects respond to each other.

Question: How do neutral objects respond to charged objects? How do charged objects respond to each other?

Procedure:

1. Move to a station and complete the activity described below.
2. Record your observations and possible explanations in the spaces provided.

Station	Instructions	Observation/ Explanation
1	Rub two balloons with wool. Hold both balloons by their strings and try to bring them together.	
2	Try to stick the balloon to the wall.	
3	Rub a black ebonite rod with wool. Bring the rod close to some bits of cereal.	
4	Rub a balloon on your hair. Pull the balloon away from your hair.	
5	Rub a Lucite rod with silk. Bring the rod near a small, steady stream of water, without getting the rod or silk wet.	
6	Rub two strips of acetate with plastic. Bring the acetate strips close to each other.	
7	Gently try to light up the fluorescent light tube using one of your charged objects.	
8	Rub two metal spatulas together. Determine if a charge is produced.	

Analysis:

1. How did identically charged objects respond to each other? For example, how did the two balloons react when you tried to approach them to each other?

2. How did oppositely charged objects respond to each other?

3. How did charged objects respond to neutral objects? For example, the balloon and the wall or the Lucite rod and the water stream.

4. Which two objects did not create a charge at all? Why do you think that is?

Conclusion:

Explain why you were able to light up the fluorescent bulb.