



Grando Electro Show Pre-Visit Activity Sheet

This sheet contains some information to prepare you for the demonstration's contents and some science concepts. Please be aware that these activities might not be appropriate for all grades and groups. Feel free to modify as required to meet the needs of your students.

Attraction

Concepts:

1. Static electricity is when a charge accumulates and stays at rest.
2. A static electric charge does not immediately and continuously flow away.
3. Static electricity can discharge if the built-up charge becomes too great, or another object comes into contact with the charged object.

Materials:

1. Hard plastic or rubber combs
2. Silk ties or pieces of wool
3. Ping pong balls

Directions:

1. Give a comb, piece of cloth and ping pong ball to each student.
2. Place the ping pong balls in a line across a table. The ping pong balls should not touch each other.
3. Have the students rub the pieces of cloth against the combs.
4. Hold the back of the combs near the ping pong balls.
5. Use the comb and race pulling the ping pong balls across the table.

Explanation:

1. Rubbing the comb causes a static charge to build-up on the comb.
2. The charge stays on the comb and can affect the ping pong ball.

Repulsion

Concepts:

1. Static electricity forms when two different objects rub together.
2. Electrons are one of the particles that make an atom.
3. When the objects rub together, the electrons from one object are transferred to the other object.
4. Electrons have a negative charge.

Materials:

1. Two straws
2. Scotch tape
3. Hard plastic or rubber comb
4. Silk tie or piece of wool

Directions:

1. Tape the straws to the table so that they are flat on the table and extending about four inches over the edge. Make sure the straws are parallel to each other and about one foot apart.
2. Stick two pieces of tape together, sticky side to smooth side.
3. Quickly pull the two pieces apart.
4. Stick one piece of tape on one straw and the other piece on the second straw to make two tape flags.
5. Vigorously rub the comb on the cloth.
6. Hold the comb next to the pieces of tape and watch what happens.

Explanation:

1. When you pull apart the pieces of tape, one piece pulls electrons from the other piece.
2. One piece of tape will have more electrons than the other piece of tape.
3. The piece of tape that has more electrons will have a more negative charge.
4. The piece with fewer electrons will have a more positive charge.
5. Since the tapes have different charges, the charged comb will affect them differently.

Charges

Concepts:

1. Objects have either a like (same) charge, or an opposite (different) charge.
2. Like charges repel, opposite charges attract.

Materials:

1. Hard plastic or rubber comb
2. Silk tie or piece of wool

Directions:

1. Turn on a faucet so that the stream of water gently flows.
2. Vigorously rub the comb on the cloth.
3. Hold the comb near, but not in, the stream of water.
4. Observe what happens to the stream of water.

Explanation:

1. The rubbed comb has a different charge from the flowing stream of water.
2. Since the stream of water has an opposite charge from the comb, the water is attracted to the comb.

Other Sources for Information:

1. [The Exploratorium Science Snacks: Snacks About Electricity](#)
2. [Van de Graaff Electrostatic Generator Page](#)
3. [How Van de Graaff Generators Work](#)
4. [History of the Van de Graaff Generator](#)