

Electrical Charge Lab Activity – Student Edition

Investigating Static Electricity

Background Information:

Static electricity is the build-up and transfer of charge from one object to another. It usually occurs when objects are rubbed together and generate friction. This lab activity will allow you to investigate the effects of static electricity in everyday objects.

There will be several mini experiments to carry out and record observations on.



Aim: To investigate the effects of static electricity.

Pre-lab Questions:

1. Define the term electrical conductor.

2. Define the term electrical insulator.

3. Describe what happens when two objects with like charges are close to one another.

4. Describe what happens when two objects with opposite charges are close to one another.

Lab set up:

Time allowance: 40 minutes

Grouping: Pairs or threes

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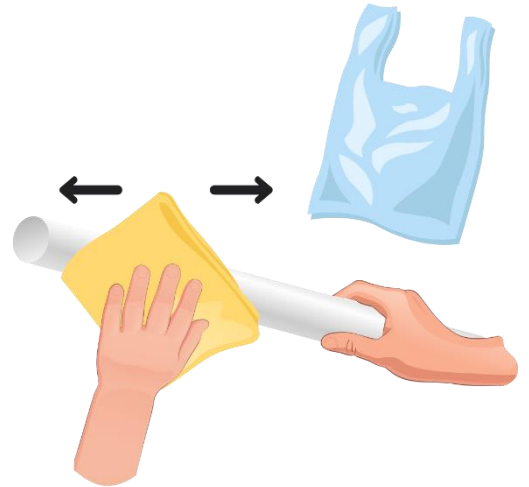
Activity 1: The Flying Plastic Bag

Equipment needed:

- Plastic bag
- Piece of cloth
- Plastic rod

Method:

1. Rub the surface of the plastic rod with the cloth for 30-40 seconds.
2. Lie the plastic bag flat on the table and rub the cloth against its surface for 40 seconds.
3. Wave the plastic rod over the bag.
4. Record your observations in the space below.



Observations:

Activity 2: The Rolling Can

Equipment needed:

- An empty aluminum can
- Piece of cloth
- Plastic rod

Method:

1. Rub the surface of the rod with the cloth for 30-40 seconds.
2. Place the can on a flat, smooth surface such as the floor or a tabletop.
3. Hold the cloth close to the can without touching it.
4. Record your observations in the space below.



Observations:

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Activity 3: Separating Salt and Pepper

Equipment needed:

- Salt and pepper (1 teaspoon of each)
- Plastic spoon
- Piece of cloth

Method:

1. Mix a teaspoon each of salt and pepper in a Petri dish thoroughly.
2. Rub the plastic spoon with a cloth for 30-40 seconds.
3. Slowly move the spoon back and forth over the mixture.



Observations:

Activity 4: Bending Water

Equipment needed:

- Running water
- Piece of cloth
- Plastic rod

Method:

1. Rub the surface of the rod with the cloth for 30- 40 seconds.
2. Turn the tap on to create a steady stream of water.
3. Put the rod near the water.



Observations:

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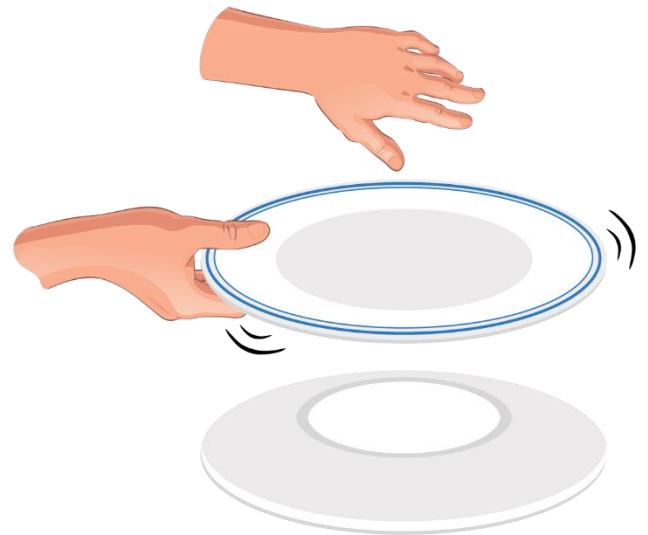
Activity 4: Hovering Plates

Equipment needed:

- 2 polystyrene plates
- Piece of cloth

Method:

1. Rub the base of a plate with the cloth
2. Place the plate, upside down on a flat surface, such as a table.
3. Place the other plate, right way up on top of the inverted plate.



Observations:

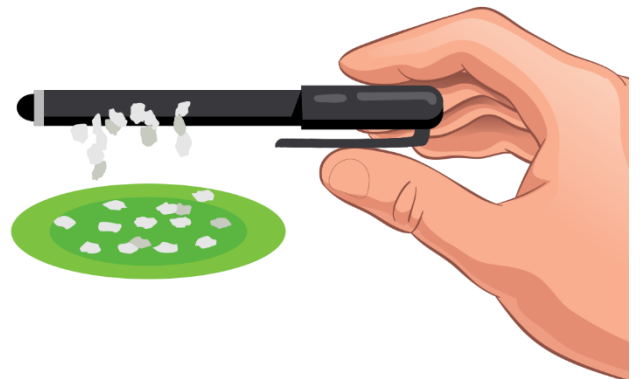
Activity 4: Magic Paper

Equipment needed:

- Piece of cloth
- Plastic rod or pen
- Small (0.5 x 0.5cm approx) pieces of paper

Method:

1. Tear or cut up paper into small flat pieces and lay out in a pile on a smooth, flat surface.
2. Rub the surface of the plastic pen or rod with the cloth for 30- 40 seconds.
3. Hold the pen/rod over the pieces of paper.



Observations:

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Post-Lab Tasks:

1. Which objects repelled each other?

2. What does this tell you about the charges they had?

3. Which objects attracted each other?

4. What does this tell you about the charges these objects had?

5. Name the particle that able to move from object to object.

6. What was the role of the cloth?

7. Describe what you expect to happen if you were to rub place the charged cloth near your hair. Explain why this occurs.
