

## ACTIVITY NO. 15 – IS IT ATTRACTION OR REPULSION?

|                           |                               |
|---------------------------|-------------------------------|
| <b>Subject</b>            | <b>Science</b>                |
| <b>Class</b>              | <b>VIII</b>                   |
| <b>Chapter/Unit</b>       | <b>Some Natural Phenomena</b> |
| <b>Topic</b>              | <b>Make a charge detector</b> |
| <b>Time</b>               | <b>30 minutes</b>             |
| <b>Nature of Activity</b> | <b>Group</b>                  |

### What will I learn (Learning Outcome)?

Will experimentally detect and measure the charge on the object and the nature of the charge.

**Skills:** Applying, Analyzing and Creating

### What I have to do?

To construct a simple charge detector.

### What do I require?

Cork, sewing needle, soda straw (drinking straw), cloth and a plastic ruler.

### What do I need to know?

Some objects can be charged by rubbing with other objects. There are two kinds of charges — positive charge and negative charge.

#### ➤ Teacher's Activity

Teacher will-

1. explain the importance of electroscope.
2. arrange the materials for the activity.
3. make pairs of the students and will explain the steps of the activity.
4. ensure that each participant of the pair performs the activity on his/her own.

### How will I proceed?

#### ➤ Student's Activity

1. Take a cork and fix a common sewing needle in it such that its pointed end is in the upward direction.
2. Take a soda straw (drinking straw) and balance it on the needle such that it is free to rotate.
3. Bring a charged plastic ruler near its end A or end B.
4. Record your observations. Repeat the activity with uncharged plastic ruler.
5. Charge the soda straw (drinking straw) by rubbing it with a cloth and again repeat the activity.

### What have I observed?

| S. No. | Situation                                                                    | Straw moves away/ towards the plastic ruler |
|--------|------------------------------------------------------------------------------|---------------------------------------------|
| 1.     | When a charged plastic ruler touch the end A or B of the uncharged straw.    |                                             |
| 2.     | When an uncharged plastic ruler touch the end A or B of the uncharged straw. |                                             |
| 3.     | When a charged plastic ruler touch the end A or B of the charged straw.      |                                             |
| 4.     | When an uncharged plastic ruler touch the end A or B of the charged straw.   |                                             |

### What have I learnt?

Like charges \_\_\_\_\_ and unlike charges \_\_\_\_\_ each other.

### What am I curious to learn?

- Let us conduct another activity to observe the interaction of charges. - Open a water tap. Adjust the flow so that it forms a thin stream. Charge a refill. Bring it near the water stream. Observe what happens. Write a short report on the activity.
- Let us make a simple electroscope and to detect the charge on the objects.

### Let me evaluate myself

1. How can charging take place when the substances are rubbed?

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2. If a charged plastic straw is brought near another uncharged plastic straw, what will happen?

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3. Plastic straws A and B are rubbed with dry cotton cloth. What will happen if they are brought near each other?

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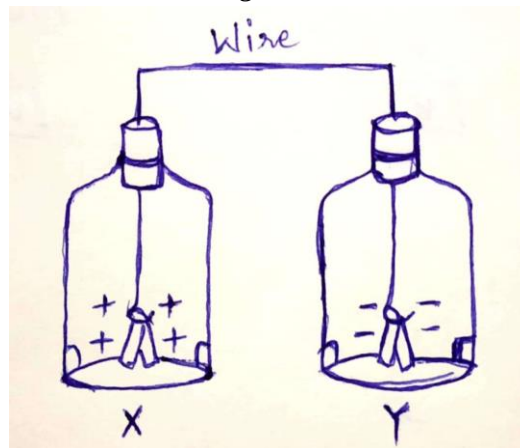
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4. Explain why a charged balloon is repelled by another charged balloon whereas an uncharged balloon is attracted by another charged balloon?

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5. Two electroscopes, one positively charged (X) and other negatively charged (Y) are connected with a copper wire as shown in the figure. In which direction will the charges will move?



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