

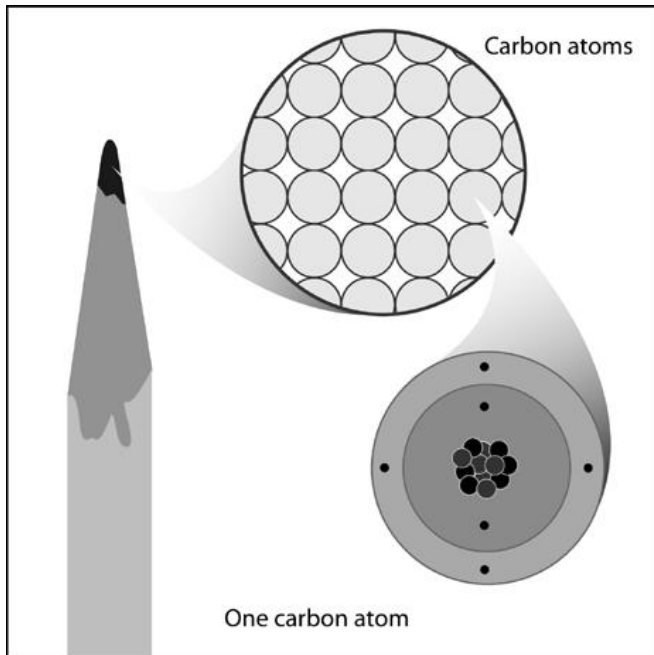
Protons, Neutrons and Electrons - Activity Sheet

Objectives:

1. To be able to explain, in terms of protons and electrons, why a charge object is attracted or repelled by another charged object.
2. To be able to explain why a charged object can even be attracted to an uncharged object.
3. To be able to explain that the attraction between positive protons and negative electrons holds the atom together.

INTRODUCTION

If you look closely at the tip of a sharpened pencil, you will see it is made of graphite. Going deeper, graphite is made of carbon atoms. Deeper still, each carbon atom is made of protons, neutrons, and electrons. In this lesson, you will explore these subatomic particles and their charges.



1. Label the nucleus (protons, neutrons) and electrons in the drawing of a carbon atom above.
2. Draw a line between the subatomic particle and its charge.

protons
electrons
neutron

no charge
positive charge
negative charge

3. Would the following subatomic particles attract each other or repel one another?

Two protons _____

Two electrons _____

A proton and an electron _____

ACTIVITY

Question to investigate

What makes objects attract or repel each other?

Materials for each group

- Plastic grocery bag
- Scissors

Procedure, part 1

Charged plastic and charged skin

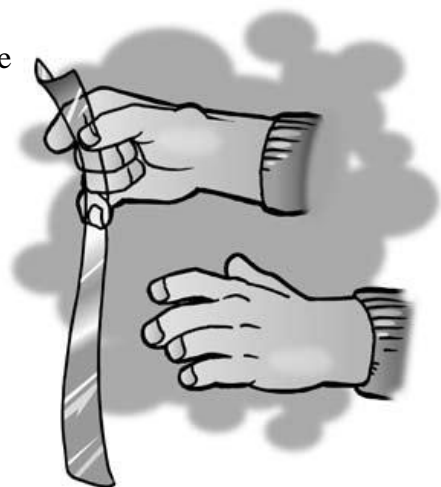
1. Cut 2 strips from plastic grocery bag so that each is about 2-4 cm wide and about 20 cm long.

2. Hold the plastic strip firmly at one end. Then grasp the plastic strip between the thumb and fingers of your other hand as shown.

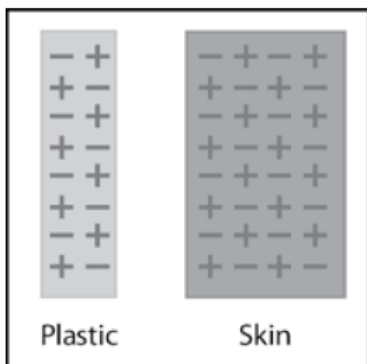
3. Quickly pull your top hand up so that the plastic strip runs through your fingers. Do this three or four times.

4. Allow the strip to hang down. Then bring your other hand near it.

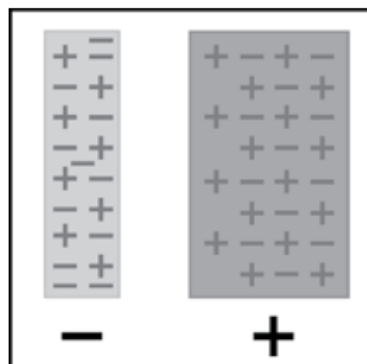
5. Write attract or repel in the chart on your notes sheet.



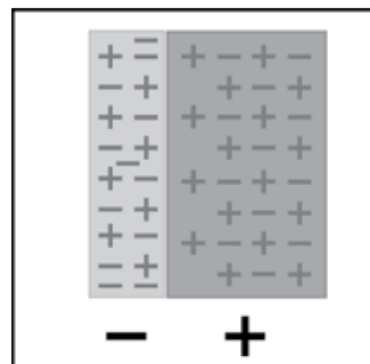
Protons and electrons
before rubbing



Protons and electrons
after rubbing



Opposites attract



Procedure, part 2

Charged plastic and neutral desk

1. Charge one strip of plastic the same way you previously.
2. This time, bring the plastic strip toward your desk or chair.
3. Write "attract" or "repel" in the chart on your notes sheet.

