

What is static electricity?

Remember that atoms have charge:

- Protons are +ve (in nucleus)
- Electrons are -ve (orbiting around nucleus)

A neutral (no charge) atom has equal numbers of protons + electrons

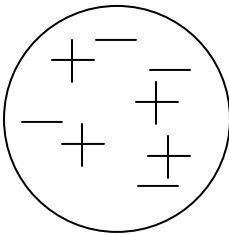
Remember that electrons can move. **Only electrons can move!** (Protons & neutrons are locked in a very stable nucleus)

If # electrons > # protons, then the atom is negatively charged.

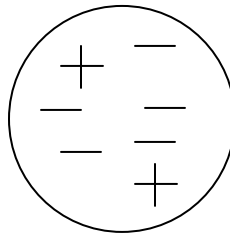
If # protons > # electrons, then the atom is positively charged.

This idea can be expanded to larger objects.

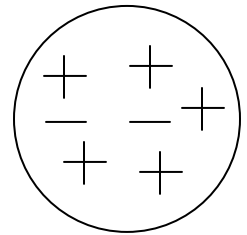
An object can be positively charged, negatively charged or neutral.



Neutral



Negatively charged



Positively charged

We say

an object with an **excess** of electrons is negatively charged

an object with a **deficit** of electrons is positively charged.

Law of Electric Charges

- #1. Like charges repel (+ and +) (- and -)
- #2. Unlike charges attract (+ and -)
- #3. Neutral objects attract charged objects (+ and neutral) (- and neutral)

** Google '**phet**' and look at the physics simulation if you missed it in class. 'Balloons and Static Electricity' will help you visualize all 3 laws of the 'Law of Electric Charges'. I will also put this link on the website.

Application

= electrostatic painting

If the body of a car is negatively charged and the paint being sprayed onto the car is positively charged, then the paint attaches to the car better!

There is also less waste.

<http://www.youtube.com/watch?v=zTwkJBtCcBA>