Electricity

Electrostatics

An object is charged when it has either more electrons than protons OR more protons than electrons.

An object becomes charged when it loses or gains electrons.

There are three ways to charge an object:

1. Friction: Friction charges an object because the object can lose electrons because the electrons are rubbed off.

Ex: Rubbing a PVC pipe with a woolen cloth

1. Conduction: When a charged object touches a neutral object, the neutral object becomes charged.
2. Induction:

Charging an object without touching. A charged object is brought near a neutral object, the object becomes **polarized** (charges separate), and the neutral is grounded, a transfer of electrons occurs, and neutral object is now charged.

**Conductor:** Allows the transfer of electrons easily. Electricity passes through these materials easily.

**Insulator:** Does not allow the transfer of electrons easily.

When an object is charged, it creates an electric field around it.

How do charges react?

When charges are the same they repel.

When charges are opposite, they attract.