Dalton’s Atomic Theory:

In a Chemical Reaction atoms can be separated, combined, or rearranged

**Chemical Bonding**

Chemical bonds occur when atoms share, donate, or accept electrons from other atoms.

Metals bond with other Metals = Metallic Bonding

Non metals bond with other Nonmetals = Covalent Bonding

Metals bond with Nonmetals = Ionic Bonding

**Ionic Bonds**

Ion: an atom or molecule that has either gained or lost electrons; a charged particle.

Cation: an atom or molecule that has lost electrons- positively charged particle

Metals form cations- electron donors

Anion: an atom or molecule that has gained electrons – negatively charged particle

Nonmetals form anions – electron acceptors

**Review:**

Atomic # = Protons

Atomic Mass= Protons + Neutrons

Neutrons = Atomic # - Atomic Mass

In a neutral atom electrons and protons are equal

**Examples:**

**Carbon- Atomic # 6 charge = 0 (P=6 e=6)**

*In a Cation protons are greater than electrons (overall positive charge)*

**Magnesium- Atomic # 12 charge= +2 (P=12 e=10)**

**Calcuim – Atomic # 20 charge= +2 (P=20, e=18)**

*In an Anion, electrons are greater than protons (overall negative charge)*

**Chlorine- Atomic #17 charge = -1 (P=17 e=18)**

**Oxygen- Atomic # 18 charge = -2 (P=18, e=20)**

\*Worksheet: Parts of an Atom

**Review:**

Atomic Symbol = A short way of writing an element

Atoms combine to form molecules

Chemical Formula- A short way of writing a molecule

The number after the atomic symbol is the number of atoms. No number after that atom means only 1 atom of that element is present.

**Examples:**

**NaCl –** one atom of sodium, one atom of chlorine

**H2O –** 2 atoms of hydrogen, one atom of oxygen

*Elements in parenthesis represent a unit, the number on the outside of the parenthesis represents the number of units.*

**Cu(NO3)2 –** one atom of copper, 2 units of NOs (2 atoms of nitrogen, 6 atoms of oxygen)

\*Worksheet: Number of Atoms in a Formula