

II. Chemical Reactions

1. **Formation:** A reaction that starts with 2 or more elements and produces 1 compound.
2. **Decomposition:** A reaction that changes a compound into its constituent elements.
3. **Combustion: (complete)** A reaction in which O_2 is added to a compound containing carbon and hydrogen, producing CO_2 and H_2O
Incomplete A reaction in which O_2 is added to a compound containing carbon and hydrogen, producing CO or C and H_2O
4. **Acid-Base** A reaction in which an acid reacts with a base by the neutralization of both or by forming 2 ions.

III. Molarity & Dilution Equation:

Concentration is amount / volume. Examples of concentration units are:

g/ml, g/cm³, mole/ml

In chemistry we often use molarity to measure concentration.

Molarity (M) is the number of moles / # liters of solution.

Chemists usually keep "stock" solutions, which are then diluted for use.

$$M_1 \times V_1 = M_2 \times V_2$$

M_1 is the molarity of the stock solution.

V_1 is the volume of the stock solution.

M_2 is the molarity of the new solution that the chemist wants.

V_2 is the volume of the new solution that the chemist wants.

$$(\text{molarity}) \times (\# \text{ liters}) = \# \text{ moles}$$