Chemical Reactions You Need to Know and Practice

Combination Reactions - Two atoms or compounds (reactants) that combine to form one compound (product).

Reactions to Know:
Metals and Oxygen Gas →
Solid Calcium and Oxygen Gas →

Nonmetals and Oxygen Gas →
Hydrogen gas and Oxygen Gas →

Nonmetals and Hydrogen Gas →
Nitrogen Gas and Hydrogen Gas → Ammonia

Metal Oxide and Water →
Sodium Oxide and Water →

Nonmetal Oxide and Water →
Carbon Dioxide Gas and Water →

Decomposition Reactions – One compound (reactant) that breaks down to form two or more products.

Reactions to Know:
Metal Oxide →
Magnesium Oxide →

Metal Peroxide →
Hydrogen Peroxide →

Metal Carbonate →
Calcium Carbonate →

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Single Replacement or Oxidation-Reduction Reactions – One atom and a compound (reactants) produce a compound and an atom (products) where the one atom replaces another atom.

Reactions to Know:
Solid Zinc is placed in a Copper Chloride Solution
Net Ionic Reaction:

Solid Magnesium is placed in a solution of Hydrochloric Acid
Net Ionic Reaction:

Double Replacement or Precipitation Reactions – Two compounds (reactants) produce two different compounds (products) where the one atom replaces another atom. These reactions make a solid called a precipitate.

Reactions to Know:
A Silver Nitrate Solution is mixed with a Sodium Chloride Solution
Net Ionic Reaction:

A Lead (II) Nitrate Solution is combined with a Potassium Iodide Solution
Net Ionic Reaction:

A Barium Chloride Solution is mixed with a Sodium Sulfate Solution
Net Ionic Reaction:

Combustion Reactions – An organic compound ($C_xH_yO_z$) is combined with oxygen gas (reactants) to produce carbon dioxide and water vapor (products). These reactions also produce large amounts of heat.

Reactions to Know:
Propane and Oxygen Gas →
C_3H_8 (g) + O_2 (g) →

Cellular Respiration
Glucose and Oxygen Gas →
$C_6H_{12}O_6$ (s) + O_2 (g) →