CONCEPT: TYPES OF CHEMICAL REACTIONS

- Chemical Reactions: Processes where _____ are broken down and reassembled into new _____.
  - □ Types of chemical reactions are based on the changes reactants undergo and the types of products formed.
  - □ Redox Reactions: Any chemical reactions that involve the transference of _____ between reactants.

Types of Chemical Reactions

Combination

Multiple reactants combine to form ____ product(s).

Na (s) + ClO (aq) ⟶ _____

Decomposition

One reactant splits into _____ product(s).

H_2O (l) ⟶ _____ + _____

Combustion

(C & H) or (C, H & O) compound + O_2 produces ____ and ____.

CH_4 + O_2 (g) ⟶ _____ + _____

CH_3OH + O_2 (g) ⟶ _____ + _____

Single Displacement

A _____ element replaces another element within a nearby compound.

Zn (s) + $CuSO_3$ (aq) ⟶ _____ + _____

Double Displacement

Ions from two reacting compounds _____ places with each other.

$Ba(NO_3)_2$ (aq) + Na_2SO_4 (aq) ⟶ _____ + _____

EXAMPLE: Balance the following equation and indicate the type of chemical reaction it represents.

$$\_\_\_\ NH_4NO_3\ (s) \longrightarrow \_\_\_\ N_2O\ (g) + \_\_\_\ H_2O\ (l)$$

a) Combination b) Decomposition c) Combustion d) Combination

PRACTICE: Ibuprofen is used as an anti-inflammatory agent used to deal with pain and bring down fevers. If it has a molecular formula of $C_{13}H_{18}O_2$, determine the balanced combustion reaction when it is subjected to high temperatures.

CONCEPT: TYPES OF CHEMICAL REACTIONS

PRACTICE: Indicate the type of chemical reaction taking place from the following equation:

$$3\ Mg\ (s) + Fe_2O_3\ (aq) \longrightarrow 2\ Fe\ (s) + 3\ MgO\ (aq)$$

a) Combination b) Combustion c) Single Displacement d) Decomposition

PRACTICE: Indicate the type of chemical reaction taking place from the following equation:

$$3\ Ca(OH)_2\ (aq) + Al_2(SO_4)_3\ (aq) \longrightarrow 3\ CaSO_4\ (s) + 2\ Al(OH)_3\ (s)$$

a) Decomposition b) Double Displacement c) Combination d) Combustion

PRACTICE: Indicate the type of chemical reaction taking place from the following equation:

$$3\ H_2\ (g) + N_2\ (g) \longrightarrow 2\ NH_3\ (g)$$

a) Single Displacement b) Combustion c) Redox Reaction d) Decomposition