Unit 5 – Ch 10: Describing and Balancing Chemical Equations

CHEMICAL REACTION:

- A substance (_____) is *chemically* _____ into _____ substance(s) (_____).

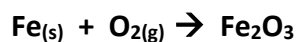- **General Expression:**   **Arrow:**

    - Ex) _____

        - Reactant " + " = _____

WORD EQUATIONS: $Fe_{(s)} + O_{2(g)} \rightarrow Fe_2O_3$

- **How do we write this?** $\rightarrow$

- **Chemical Equation:** _____

    - **Word Equation** $\rightarrow$

CHEMICAL EQUATIONS:

- **Skelton Equation** $\rightarrow$

    - _____ indicate *relative* _____ of each atom.

        - Equation is _____.

    - Ex) Chemical Equation: _____

        - Reactants: _____   Products: _____

BALANCING CHEMICAL EQUATIONS:

- 1. Balance with _____ .

    - _____ change formula _____.

- 2. Write _____ chemical _____ .

➢ 3. Determine *initial* _____ of _____ *reactant(s)* and *product(s).*

➢ 4. Balance _____ .

    o 4A. Count all _____ polyatomics as _____ unit if on _____ sides.

    o 4B. If _____ the same polyatomic on both sides, *MAY* break into _____ atoms.

➢ 5. Balance _____ subscripts first with _____ coefficient.

➢ 6. Generally balance _____ and _____ last.

➢ 7. _____ **RATIO**: **MUST** _____ **ALL** _____ **IF** possible.

LAW OF CONSERVATION OF MATTER (MASS):

➢ _____ atoms of _____ = _____ atoms of _____

    o Total _____ of reactants = Total _____ of products

PRACTICE EXAMPLES:

Ex #1) _____ Al_2O_3 → _____ Al + _____ O_2

Ex #2) _____ $KClO_3$ → _____ KCl + _____ O_2

Ex #3) _____ $Al_2(SO_4)_3$ + _____ $Ca(OH)_2$ → _____ $Al(OH)_3$ + _____ $CaSO_4$

Ex #4) _____ $Ca(OH)_2$ + _____ H_3PO_4 → _____ $Ca_3(PO_4)_2$ + _____ H_2O

Ex #5) _____ $Hg(OH)_2$ + _____ H_3PO_4 → _____ $Hg_3(PO_4)_2$ + _____ H_2O

Ex #6) _____ $HClO_4$ + _____ P_4O_{10} → _____ H_3PO_4 + _____ Cl_2O_7

Ex #7) _____ N_2 + _____ O_2 → _____ H_2O + _____ HNO_3