**More About Chemical Reactions, Word & Chemical Equations**

**Terms:**

**Element –** a pure substance made of atoms; elements cannot be broken down ex. Iron, Helium

**Compound –** a pure substance composed of 2 or more atoms chemically combined ex. NaCl

**Molecule—**a group of atoms bound together by sharing one or more pairs of electrons ex. H2O, N2

**\*\*Diatomic molecules –** Eight elements exist in nature as diatomic molecules—they always pair up, instead of existing as single atoms. **These molecules form the “Magic 7+1”. H2, N2, F2, O2, I2, Cl2, Br2, At2**

**Chemical Reactions** – a chemical reaction has a change in  **.** (change in heat, light) and a will form. Some chemical reactions  **energy** (**ENDOTHERMIC**), and some  **energy (EXOTHERMIC)**.

**EX 1. ENDOTHERMIC** reaction: Ammonium thiocyanate reacts with barium hydroxide and thermal energy (heat) to produce nitrogen trihydride (ammonia), barium thiocyanate, and dihydrogen monoxide (water).

***Word Equation:***

a*mmonium thiocyanate + barium hydroxide + ENERGY 🡪 ammonia + barium thiocyanate + water*

***Chemical Equation:***

\_\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_ 🡪 \_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_

**EX 2.** **EXOTHERMIC** reaction: Dihydrogen dioxide decomposes to produce dihydrogen monoxide, oxygen gas, and thermal energy.

***Word Equation:*** dihydrogen dioxide *🡪 dihydrogen monoxide + oxygen gas + ENERGY*

***Chemical Equation:***

\_\_\_\_\_\_\_\_\_\_\_\_ 🡪 \_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_

**Practice:**  A reaction in plants involves energy from the sun reacting with carbon dioxide and dihydrogen monoxide to produce glucose (C­6H12O6) and oxygen gas.

*Word Equation:*

*Chemical Equation:*

*Type of reaction:* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chemical Equations Practice

Write each equation. Make sure that you write the formula for each compound correctly.

*Example:* Barium sulphate and sodium chloride produce barium chloride and sodium sulphate

Word Equation: Barium sulfate + Sodium chloride 🡪 Barium chloride + Sodium sulfate

Chemical Equation: BaSO4 + NaCl BaCl2 + Na2SO4

1. Aluminum reacts with iron (II) oxide to produce aluminum oxide and iron

Word Equation:

Chemical Equation:

2. Magnesium sulfate and sodium react to produce sodium sulfate and magnesium

Word Equation:

Chemical Equation:

3. Sodium hydroxide and hydrogen sulfate yields sodium sulfate and water

Word Equation:

Chemical Equation:

4. Challenge! Work backwards…Turn the Chemical Equation into a Word Equation!

Chemical Equation: Cu + HNO3 🡪 Cu(NO3)2 + NO2 + H2O

Word Equation: