***IDENTIFYING REACTION TYPES***

***Questions you can ask yourself to identify reactions as the following types (+ general formulas):***

* Synthesis: *do my reactants combine to produce 1 product or a more complex product?*
* Decomposition: *does my reactant break apart into more than 1 product?*
* Combustion: : *is O2 a reactant? If O2 combines with a hydrocarbon (CxHy), do I produce CO2 + H20?*
* Single displacement: *Are my reactants a compound and a single element? Does the single element replace one of the elements in the compound?*
* Double displacement: *Do I have 2 compounds as reactants? Is there an exchange of elements between the 2 compounds?*
* ***A + B → AB Synthesis***
* ***AB → A + B Decomposition***
* ***AB + O2 → AxO + ByO Combustion***
* ***AB + C → CB + A Single Displacement***
* ***AB + CD → CB + AD Double Displacement***

**Identify the following reactions as either: *synthesis, decomposition, combustion, single displacement or double displacement***

1. 2K + 2H2O → 2KOH + H2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. BaCl2 + 2Na2SO4 → 2NaCl + BaSO4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. 2SO2 + 2O2 → 2SO3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. C6H6 + 15/2 O2 → 3H2O+ 6CO2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Pb(NO3)2 + 2H2S → PbS + 2HNO3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. 2KClO3 → 2KCl + 3O2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. SO3 + H2O → H2SO4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Day 10 HW: Writing Chemical Equations

27)

A.) Write balanced equations and list the reaction type for each of the following word equations. *Please put these on a separate piece of paper.*

1. potassium chloride plus silver nitrate yields potassium nitrate plus silver chloride.

2. aluminum nitrate plus sodium hydroxide yields aluminum hydroxide and sodium nitrate

3. iron metal plus copper (II) sulfate yields iron (II) sulfate plus copper metal.

4. aluminum metal plus copper (II) chloride yields aluminum chloride plus copper metal.

5. sodium chlorate yields sodium chloride plus oxygen gas.

6. calcium carbonate yields calcium oxide plus carbon dioxide gas.

7. zinc metal plus oxygen gas yields zinc oxide.

8. chlorine gas plus sodium metal yields sodium chloride.

9. aluminum sulfate plus barium chloride yields aluminum chloride plus barium sulfate.

10. Copper (II) chloride reacts with Iron metal yielding Iron (II) chloride and copper metal

11. Sodium hydroxide plus hydrochloric acid yields sodium chloride plus water.

12. Potassium iodide plus silver nitrate yields silver iodide plus potassium nitrate.

B.) Predict the products and write a balance equation on *separate piece of paper*.

**I.) Synthesis reactions**

1. calcium reacts with oxygen

2. aluminum reacts with nitrogen

3. sodium reacts with sulfur

4. magnesium reacts with excess oxygen

**II.) Decomposition reactions**

5. silver oxide is heated

6. water is decomposed by electricity

**III.) Single replacement reactions**

7. zinc metal reacts with copper (II) nitrate

8. sodium iodide reacts with chlorine gas

9. potassium metal reacts with water.

10. magnesium reacts w/ copper (II) chloride.

11. Bromine reacts with sodium chloride.

**IV.) Double replacement reactions**

12. aluminum sulfate reacts with calcium phosphate

13. magnesium chloride reacts with silver nitrate

14. copper (II) oxide reacts with sulfuric acid.

15. silver nitrate reacts with hydrogen sulfide

16. lead (II) nitrate reacts with potassium chromate

# V.) Combustion reactions

17. octane reacts with oxygen

18. decane reacts with oxygen

19. propane reacts with oxygen

20. methane reacts with oxygen