Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_

**Summative 6.2 Study Guide**

**Concepts:**

* The five types of reactions: single displacement, double displacement, combustion, synthesis, and decomposition (know generic equations for each)
* Writing Chemical Reactions as Chemical Equations *(review Basics of Chemical Reactions Notes you took with the sub!)*
  + Be able to identify products, reactants, states of matter
  + What are the signs a chemical reaction has occurred?
* Predicting Synthesis (ionic formulas – cross over & down) & Combustion Reaction Products

**Practice Problems:**

1. Using the following reaction, answer the questions below:

\_\_\_\_\_\_\_ Na (s) + \_\_\_\_\_\_\_ H2O (l) 🡪 \_\_\_\_\_\_\_ NaOH (aq) + \_\_\_\_\_\_\_ H2 (g)

* 1. What are the reactants in this reaction? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  2. What are the products in this reaction? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  3. What does (s) stand for? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  4. What does (l) stand for? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  5. What does (aq) stand for? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  6. What does (g) stand for? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  7. What is the 2 in H2O called? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  8. To balance the equation, you would need to add subscripts / coefficients / ions / prefixes (circle one)
  9. Balance the equation.
  10. What type of reaction is this? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Classify the following reactions:

\_\_\_\_\_\_\_ a. \_\_\_\_\_\_\_ NaNO3 + \_\_\_\_\_\_\_ PbO 🡪 \_\_\_\_\_\_\_ Pb(NO3)2 + \_\_\_\_\_\_\_ Na2O

\_\_\_\_\_\_\_ b. \_\_\_\_\_\_\_ AgI + \_\_\_\_\_\_\_ Fe2(CO3)3 🡪 \_\_\_\_\_\_\_ FeI3 + \_\_\_\_\_\_\_ Ag2CO­3

\_\_\_\_\_\_\_ c. \_\_\_\_\_\_\_ C2H4O2 +\_\_\_\_\_\_\_ O2 🡪 \_\_\_\_\_\_\_ CO2 +\_\_\_\_\_\_\_ H2O

\_\_\_\_\_\_\_ d. \_\_\_\_\_\_\_ ZnSO4 + \_\_\_\_\_\_\_ Li2CO3 🡪\_\_\_\_\_\_\_ ZnCO3 + \_\_\_\_\_\_\_ Li2SO4

\_\_\_\_\_\_\_ e. \_\_\_\_\_\_\_ V2O5 + \_\_\_\_\_\_\_ CaS 🡪 \_\_\_\_\_\_\_ CaO + \_\_\_\_\_\_\_ V2S5

\_\_\_\_\_\_\_ f. \_\_\_\_\_\_H2 + \_\_\_\_\_\_O2 🡪 \_\_\_\_\_\_H2O

\_\_\_\_\_\_\_ g. \_\_\_\_\_\_Na + \_\_\_\_\_\_S8 🡪 \_\_\_\_\_\_Na2S

\_\_\_\_\_\_\_ h. \_\_\_\_\_\_NaHCO3 🡪 \_\_\_\_\_\_Na2CO3 + \_\_\_\_\_\_CO2 + \_\_\_\_\_\_H2O

\_\_\_\_\_\_\_ i. \_\_\_\_\_\_Al + \_\_\_\_\_\_CuO 🡪 \_\_\_\_\_\_Al2O3 + \_\_\_\_\_\_Cu

\_\_\_\_\_\_\_ j. \_\_\_\_\_\_K2O + \_\_\_\_\_\_H2O 🡪 \_\_\_\_\_\_KOH

1. Name the type of reaction for each of the following:
   1. Aluminum oxide and iron react to form iron (II) oxide and aluminum Type: \_\_\_\_\_\_\_\_
   2. Ammonium nitrate breaks into dinitrogen monoxide and water Type: \_\_\_\_\_\_\_\_
   3. Reactions where two ionic compounds switch ions Type: \_\_\_\_\_\_\_\_
   4. In a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ reaction, a hydrocarbon and reacts with oxygen to make carbon dioxide and water
   5. Two reactants combine into one product Type: \_\_\_\_\_\_\_\_
2. Predict the products of the following synthesis reactions. Balance the equations.
   1. Al + O2 🡪
   2. Li + N2 🡪
   3. H2 + Cl2 🡪
   4. Mg + O2 🡪
3. Predict the products of the following combustion reactions. Balance the equations.
   1. CH4 + O2 🡪
   2. C3H8 + O2 🡪
   3. C5H12 + O2 🡪