Name: \_\_\_\_\_\_\_\_\_\_\_\_\_ANSWER KEY\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 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? \_\_\_Na + H2O\_\_\_\_\_\_\_\_
  2. What are the products in this reaction? \_\_\_NaOH + H2\_\_\_\_\_\_\_\_\_\_\_
  3. What does (s) stand for? \_\_\_\_solid\_\_\_\_\_\_\_\_\_\_
  4. What does (l) stand for? \_\_\_\_\_liquid\_\_\_\_\_\_\_\_\_\_
  5. What does (aq) stand for? \_\_\_\_\_aqueous\_\_\_\_\_\_\_
  6. What does (g) stand for? \_\_\_\_gas\_\_\_
  7. What is the 2 in H2O called? \_\_subscript\_\_\_\_\_
  8. To balance the equation, you would need to add subscripts / **coefficients** / ions / prefixes (circle one)
  9. Balance the equation. **2**Na + **2**H(OH) 🡪 **2**NaOH + H2
  10. What type of reaction is this? \_\_\_\_Single displacement\_\_\_\_\_\_\_\_\_\_\_\_

1. Classify the following reactions:

\_\_DD\_\_ a. \_\_\_2\_\_ NaNO3 + \_\_\_\_\_\_\_ PbO 🡪 \_\_\_\_\_\_\_ Pb(NO3)2 + \_\_\_\_\_\_\_ Na2O

\_\_DD\_\_ b. \_\_6\_\_\_ AgI + \_\_\_\_\_\_\_ Fe2(CO3)3 🡪 \_\_2\_\_\_ FeI3 + \_\_\_3\_\_\_ Ag2CO­3

\_\_C\_\_ c. \_\_\_\_\_\_\_ C2H4O2 +\_\_\_2\_\_\_ O2 🡪 \_\_\_2\_\_\_ CO2 +\_\_\_2\_\_\_ H2O

\_\_DD\_\_ d. \_\_\_\_\_\_\_ ZnSO4 + \_\_\_\_\_\_\_ Li2CO3 🡪\_\_\_\_\_\_\_ ZnCO3 + \_\_\_\_\_\_\_ Li2SO4 already balanced

\_\_DD\_\_ e. \_\_\_\_\_\_\_ V2O5 + \_\_\_5\_\_ CaS 🡪 \_\_5\_\_\_\_ CaO + \_\_\_\_\_\_\_ V2S5

\_\_S\_\_ f. \_\_\_2\_\_H2 + \_\_\_\_\_\_O2 🡪 \_\_\_2\_\_H2O

\_S\_\_ g. \_\_\_16\_\_Na + \_\_\_\_\_\_S8 🡪 \_\_\_8\_\_Na2S

\_\_D\_\_ h. \_\_2\_\_\_NaHCO3 🡪 \_\_\_\_\_\_Na2CO3 + \_\_\_\_\_\_CO2 + \_\_\_\_\_\_H2O

\_\_SD\_\_ i. \_\_2\_\_\_Al + \_\_3\_\_CuO 🡪 \_\_\_\_\_\_Al2O3 + \_\_\_3\_\_Cu

\_\_S\_\_\_ j. \_\_\_\_\_\_K2O + \_\_\_\_\_\_H2O 🡪 \_\_2\_\_\_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: \_\_SD\_\_\_
   2. Ammonium nitrate breaks into dinitrogen monoxide and water Type: \_\_\_D\_\_\_
   3. Reactions where two ionic compounds switch ions Type: \_\_DD\_\_\_\_
   4. In a \_\_\_\_\_combustion\_\_\_\_\_\_\_ reaction, a hydrocarbon and reacts with oxygen to make carbon dioxide and water
   5. Two reactants combine into one product Type: \_\_S\_\_\_
2. Predict the products of the following synthesis reactions. Balance the equations.
   1. 4Al + 3O2 🡪 2Al2O3
   2. 6Li + N2 🡪 2Li3N
   3. H2 + Cl2 🡪 2HCl
   4. 2Mg + O2 🡪 2MgO
3. Predict the products of the following combustion reactions. Balance the equations.
   1. CH4 + 2O2 🡪 CO2 + 2H2O
   2. C3H8 + 5O2 🡪 3CO2 + 4H2O
   3. C5H12 + 8O2 🡪 5CO2 + 6H2O