Name: _____Per. _____Date: _____

Chemical Equations Study Guide

Part 1: Label these parts of an equation

$$Zn_{(s)} + 2HCl_{(aq)} \text{ ---> } ZnCl_{2(aq)} + H_{2(g)}$$

1. The substances on the left are called this.
2. The substances on the right are called this.
3. There are this many states of matter represented in the equation.
4. What does the "aq" mean?
5. Which elements are aqueous?
6. If something on top of the arrow, what does it mean?
7. What law states that matter cannot be created or destroyed?

Part 2: Balance the following equations and state the type of reaction.

1. $Zn + HCl \text{ ---> } ZnCl_2 + H_2$
2. $KClO_3 \text{ ---> } KCl + O_2$
3. $S_8 + F_2 \text{ ---> } SF_6$
4. $Ca(OH)_2 + H_3PO_4 \text{ ---> } Ca_3(PO_4)_2 + H_2O$
5. $C_3H_8 + O_2 \text{ ---> } CO_2 + H_2O$
6. $C_2H_6 + O_2 \text{ ---> } CO_2 + H_2O$

Part 3: For each word equation, write the balanced chemical equation.

1. potassium chloride + silver nitrate --> potassium nitrate + silver chloride

2. aluminum hydroxide + sodium nitrate --> aluminum nitrate + sodium hydroxide

3. iron metal + copper(II) sulfate -->iron(II) sulfate + copper metal

4. aluminum metal + copper(II) chloride --> aluminum chloride + copper metal

5. potassium bromide --> potassium metal + bromine

6. calcium carbonate --> calcium oxide + carbon dioxide gas

Part 4: For the following problems, predict the products, balance the equations, identify the type of reaction and, when applicable, determine if the reaction will or will not happen.

REACTANTS	Type of Reaction	Balanced Chemical Equation	Will it Happen?
1. $MgBr_2 + K_2CO_3$			
2. $NaCl + Br_2$			
3. $Ag_2S + SrCl_2$			
4. $Mg + PbSO_4$			
5. combustion of butane (C_4H_{10})			
6. lead (II) nitrate and potassium iodide			
7. silver and hydrochloric acid			
8. combustion of propene (C_3H_6)			
9. copper (I) chloride and lithium nitrate			
10. iron (II) nitrate and aluminum bromide			