Name: _____ Period: _____

Lab 16B: Chemical Formulas (25 points)

An element's oxidation number indicates how many electrons are lost or gained when chemical bonding occurs. The oxidation number is equal to the charge of an atom when it ionizes, that is, gains or loses electrons to become an ion.

Answer the following questions:

1. Why do elements in the same groups on the periodic table have similar chemical properties?

2. Why do elements in group 2 have an oxidation number of 2+?

3. Why do elements in group 17 have an oxidation number of 1-?

A binary compound is composed of two different elements. Predict the chemical formulas of the following binary compounds. Assume the ending compound is neutral. To name the compounds, write out the element with the positive oxidation number first followed by the root word of the negative element with "-ide" on the end.

Element 1	Element 2	Ox. # 1	Ox. # 2	# of tiles of 1	# of tiles of 2	Chemical Formula	Chemical Name
Hydrogen	Fluorine	+1	-1	1	1	HF	Hydrogen Fluoride
Magnesium	Sulfur						
Calcium	Bromine						
Aluminum	Oxygen						
Potassium	Chlorine						
Lithium	Argon						
Rubidium	Sulfur						

Get in groups of 4-5. Now take out the element tiles. Deal out 30 tiles to your group. Build a crossword of compounds that utilizes as many of the tiles as possible. When I call time, draw the crossword you have built. Write the oxidation number you used in the tiles as well. Count up the points of your crossword…do this by using the atomic numbers. You can count a tile more than once if it's used in more than one compound! The winning team will receive 5 points extra credit.

Lab 17C Classifying Chemical Reactions (25 points)

Type	General Equation
Addition	A + B → AB
Decomposition	AB → A + B
Single-displacement	AX + B → BX + A
Double-displacement	AB + CD → AD + CB
Combustion	Carbone Compound + O_2 → CO_2 + Water

To the left are the five major chemical reaction types you will learn in this class. In this investigation, you will explore patterns in chemical reactions that will help you make predictions of products.

Using the above table, predict the products of these chemical reactions:

a. The addition of magnesium and iodine: Mg + I2 → _____

b. The decomposition of mercury oxide: HgO → _____

c. In potassium nitrate, the potassium is replaced by lead: KNO3 + Pb → _____

d. The reaction between hydrochloric acid and potassium hydroxide: HCl + KOH → _____

e. The combustion of liquid hexane: C6H12 + O2 → _____

$Mg + H_2O \rightarrow Mg(OH)_2 + H_2$	

Is this equation above balanced? In the empty box above, write the same equation, but balanced.

Now practice balancing the following equations given only the reactants. Remember, conservation of energy!

a. $Al + Br_2$ → _____

b. $KBR + Cl_2$ → _____

c. $HCl + K_2SO_4$ → _____

d. $C_2H_6 + O_2$ → _____

e. Al_2O_3 → _____

f. $ZnSO_4 + SrCl_2$ → _____

g. $Mg + HCl$ → _____

h. $CaCl_2$ → _____

i. $C_5H_{12} + O_2$ → _____

j. $Sb + I2$ → _____