Name: _____Block: _____

**Unit 4 – Chemical Reactions Worksheets**

Minilab: Is Mass Conserved??

1. Obtain your materials: a small cup filled with HCl, a strip of magnesium, and a plastic bag.
2. Observe the HCl and the Mg. Record observations
3. Place the cup and the Mg in the bag. Do not let the Mg fall into the cup. Seal the bag. Measure the mass of the entire sealed bag.
4. Go back to your desk, without opening the bag, Drop the Mg into the cup. Observe.
5. Measure the mass of the entire sealed bag again when it is done reacting.

Make sure you write your observations down for before and after the reaction.
Answer the questions below in FULL SENTENCES.

1. How do you know a reaction occurred?
2. Did the mass change? How much? If it changed, do you think it was due to an actual change in the mass or due to a gas escaping through the seal of the bag?
3. Did the shape of the bag change? Explain.
4. Do you think mass will change in any chemical reaction? Explain.

**Worksheet 1: Writing formulas and Determining number of atoms.**

Directions: For the first portion, list the number of atoms for each element.

1. $CaO$_____
2. $K_2O$_____
3. $Al_2S_3$_____
4. $NaNO_3$_____
5. $Al_2(SO_4)_3$_____
6. $NH_4NO_2$_____
7. $(NH_4)_2SO_3$_____
8. $Ba_3(PO_4)_2$_____

In the chart below, identify the reactants and the products. Then tell how many atoms of each element are present.

| | Equation – Label reactants and products | Atoms of each element- on reactant side | Atoms of each element- on product side |
|---|---|---|---|
| 9 | $Cd(NO_3)_2\,(aq) + H_2S(g) \rightarrow CdS(s) + 2HNO_3(aq)$ | | |
| 10 | $Zn(s) + 2HCl(aq) \rightarrow H_2\,(g) + ZnCl_2(aq)$ | | |
| 11 | $4\,C + S_8 \rightarrow 4\,CS_2$ | | |
| 12 | $2\,N_2 + 5\,O_2 \rightarrow 2\,N_2O_5$ | | |
| 13 | $2\,H_3PO_4 + 3\,Mg(OH)_2 \rightarrow Mg_3(PO_4)_2 + 6\,H_2O$ | | |

14. In each of the above equations, was matter conserved? Explain.

For each of the following, write the chemical equation.