Name _____ Date _____

Chemistry 1 Hour ___

Conservation of Mass Activity

Discussion: A fundamental rule of chemical reactions is that the mass of the reactants before a chemical change must be equal to the mass of the products after the chemical change. This concept is called the **Law of Conservation of Mass**. This is why it is necessary to balance equations in order to understand chemical reactions.

Example 1: Look at this chemical "reaction" $AC + B \rightarrow AB + C$.

a. If 12 g of AC react with 2 g of B and produce 8 g of AB, how many grams of C are also produced?

b. A reaction produced 20 g of C and 5 g of AB. If 15.5 g of AC were used, how much B was used?

Let's Try It!

1. Add some vinegar into an empty soda bottle as shown below.

2. Tear off a SMALL piece of aluminum foil and place a small amount of baking soda on the foil. The piece of foil must be small enough to fit into the bottle. Notice the bottle cap in the picture for reference.

3. Fold up the corners of the foil <u>slightly</u> as shown below.

4. Place the foil packet *and* CAPPED soda bottle on the lab balance and record the mass on the data table.

5. Remove from balance. Place the foil packet into the bottle and QUICKLY cap the bottle. Swirl the bottle so the vinegar and baking soda react. Record the mass of the bottle when the reaction has completed.

Trial 1	
Total mass before reaction (g)	
Total mass after reaction (g)	
Change in mass (g)	

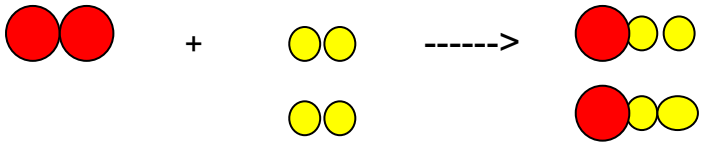
6. Repeat the process a second time and record the data.

Trial 2	
Total mass before reaction (g)	
Total mass after reaction (g)	
Change in mass (g)	

Conclusions:

1. Did your results support the law of conservation of mass? If not, suggest a reason for your results.

2. We often use particle diagrams to show atoms in chemical reactions. Look at the particle diagram below for the reaction.



This reaction illustrates this reaction $H_2 + \underline{2}O_2 \rightarrow \underline{2}H_2O$. Do the underlined numbers represent atoms or molecules?

3. Use CER to answer the following question, does the following particle diagram represent a balanced chemical reaction?