Name: _____ Date: _____ CP: ___

# Conservation of Matter Lab

**Pre-Lab:** What does the Law of Conservation of Matter state? _____

**Predict:** Why is it hard to prove the Law of Conservation of Matter when a gas is produced? _____

**Directions:**

1. Fill one cup halfway with vinegar.
2. Fill a second cup halfway with baking soda.
3. Put both cups in a plastic bag. Take care NOT to spill the contents of either cup.
4. Mass of the cups, contents of the cups, and the plastic bag. Complete data table provided.
5. Seal the plastic bag.
6. Without opening the bag, pour the vinegar into the cup of baking soda (Shake bag if needed). Observe.

**Data and Conclusion:**

1. Complete the table below:

| *Initial Mass (g)* | *Final Mass (g)* | *Change in Mass (g)* |
|---|---|---|
| | | |

2. Describe what happens when the vinegar was poured into the cup of baking soda.

3. Was the reaction a chemical or physical change? Explain your reasoning.

4. The gas produced in this reaction can put out fires. Make an educated guess about the identity of the gas produced? (Use your BYOT to check yourself.)

5. Look at the initial mass before the reaction occurred and the final mass after the reaction occurred. Explain how this activity relates to the Law of Conservation of Matter?

6. When wood burns, a small amount of ash is left. Why is the mass of the wood before the fire not equal to the mass of the ashes after the reaction?

7. How does the Law of Conservation of Matter apply to a burning candle?

8. Reactants are the substances that enter into a chemical change. List the reactant(s) in this activity.

9. Products are substances that are formed as a result of a chemical change. List the product(s) in this activity.

10. In the following reaction: $2NaN_3$ decomposes to form $2Na + 3N_2$. If 500 grams of $NaN_3$ decompose to form 323.20 grams of $N_2$, how much Na is produced?

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## Conservation of Matter Lab

**Pre-Lab**: What does the Law of Conservation of Matter state? _____

**Predict:** Why is it hard to prove the Law of Conservation of Matter when a gas is produced?_____

**Directions**:

1. Fill one cup halfway with vinegar.
2. Fill a second cup halfway with baking soda.
3. Put both cups in a plastic bag. Take care NOT to spill the contents of either cup.
4. Determine the mass of the cups, contents of the cups, and the plastic bag. Complete data table provided.
5. Seal the plastic bag.
6. Without opening the bag, pour the vinegar into the cup of baking soda. Observe and complete data table
7. Develop another way to test conservation of matter with the Alka-Seltzer, balloons, and flask. Complete the data table.

**Data and Conclusion**:

1. Complete the table below:

| Test | Initial Mass (g) | Final Mass (g) | Change in Mass (g) |
|---|---|---|---|
| 1. Vinegar and Baking Soda | | | |
| 2. Alka-Seltzer and Balloon | | | |

2. Describe what happens when the vinegar was poured into the cup of baking soda.

3. Was the reaction a chemical or physical change? Explain your reasoning.

4. The gas produced in this reaction can put out fires. On the line provided predict the identity of the gas produced? _____. (Use your BYOT to check yourself.)

5. Look at the initial mass before the reaction occurred and the final mass after the reaction occurred. Explain how this activity relates to the Law of Conservation of Matter?

6. On the back of this paper, draw a bar graph showing the initial and final mass of test 1 and 2?

7. Which test, 1 or 2, worked best to prove the Law of Conservation of Matter? Why?

8. When wood burns, a small amount of ash is left. Why is the mass of the wood before the fire not equal to the mass of the ashes after the reaction?

9. How does the Law of Conservation of Matter apply to a burning candle?

10. Reactants are the substances that enter into a chemical change. List the reactant(s) in this activity.

11. Products are substances that are formed as a result of a chemical change. List the product(s) in this activity.

12. In the following reaction: $2NaN_3$ decomposes to form $2Na + 3N_2$. If 500 grams of $NaN_3$ decompose to form 323.20 grams of $N_2$, how much Na is produced?(When answering, remember the Law of Conservation of Matter.