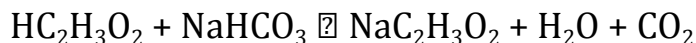


Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Purpose:** In this experiment, you be validating the law of conservation of mass. The law of conservation of mass states that the mass of all reactants before a reaction should be the same as the mass of the products after the reaction.

You will be observing the chemical reaction of vinegar and baking soda:



By creating a closed system, we will ensure that no matter—even gases—can escape and affect the mass of the experiment.

**Materials:**

<ul style="list-style-type: none"><li>• 1 plastic weigh boat</li><li>• 1 Erlenmeyer flask</li></ul>	<ul style="list-style-type: none"><li>• 1 balloon</li><li>• 1 graduated cylinder</li></ul>
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**Pre-Lab:**

1) What does the law of conservation of mass mean?

2) Why would it be hard to prove that mass is conserved in a chemical change if a gas is released?

3) How does a “closed” system differ from an “open” system?

**Safety:** We will be working with acetic acid (a weak acid) and glassware—wear your goggles at all times to ensure that no liquids or broken glass gets into your eyes.

If you have a latex allergy, **AVOID CONTACT WITH THE BALLOONS!**

### Procedure A

- 1) Gather materials and safety equipment.
- 2) Pour a scoop full of baking soda into the Erlenmeyer flask.
- 3) Measure 20 mL in a graduated cylinder.
- 4) Zero a scale. Place the filled Erlenmeyer flask and the graduated cylinder with the vinegar on the scale together. Record the mass.
- 5) Carefully transfer the vinegar into the Erlenmeyer flask. After 1 minute, record the mass.
- 6) Thoroughly clean your Erlenmeyer flask. Wash out your graduated cylinder.

### Procedure B

- 1) Put a scoop of baking soda into the balloon.
- 2) Measure 20 mL of vinegar. Then, transfer this to the inside of the Erlenmeyer flask.
- 3) Zero a scale. Place the filled Erlenmeyer flask and the balloon with the baking soda on the scale together. Record the mass.
- 4) Carefully place the balloon over the top of the Erlenmeyer flask and invert a few times to mix the baking soda and vinegar. After 1 minute, record the mass.
- 5) Thoroughly clean your Erlenmeyer flask. Throw away your used balloon.

### Data - Procedure A

<b>Mass, before mixing (grams)</b>	
<b>Mass, after mixing (grams)</b>	

### Data - Procedure B

<b>Mass, before mixing (grams)</b>	
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