Name Date Class

LAB Conservation of Mass

LAB A

Background

Have you ever watched burning logs in a fireplace? If you have, you might have noticed many large logs being burned in the hearth during an evening. At the end of the night, nothing more than a pile of ash remains. The other substances produced were gases that went up the chimney. In this lab, your group will design an investigation to verify the law of conservation of mass.

Question

Is the mass of the antacid tablets conserved after they are dissolved?

Possible Materials

antacid tablets
empty plastic drink bottle
balloon
beaker
water
spatula
balance
mortar
pestle
funnel
weighing paper

Objectives

- **Measure** the total mass of water and antacid tablets before and after the tablets are dissolved in the water.
- **Compare** the total mass of water and tablets before and after the tablets are dissolved in the water.
- **Infer** whether the law of conservation of mass applies to antacid tablets dissolving in water.

Form a Hypothesis

Based on your understanding of mass conservation, form a hypothesis that predicts the total mass of antacid tablets and water before and after the tablets are dissolved.

Safety Precautions

WARNING: ***Do not eat the antacid tablet.***

Make a Plan

- ❑ 1. Read the procedure and safety information and complete the lab form.
- ❑ 2. As a group, agree upon and write the hypothesis.
- ❑ 3. Decide upon any needed safety equipment or safety procedures to ensure the safety of your group during the experiment.
- ❑ 4. Plan an investigation to test your hypothesis. List the steps of your procedure.
- ❑ 5. List the materials that you need to test your hypothesis.
- ❑ 6. Have one group member reread your entire procedure aloud to the group to make certain that you have all the necessary material and that your procedure can be easily followed.

Follow Your Plan

- ❑ 1. Make sure your teacher approves your plan before you start.
- ❑ 2. Use the data table to record measurements.
- ❑ 3. While doing the investigation, record your observations and complete the data table.

LAB (continued)

LAB A

Data and Observations

Data Table

Trial Number	Mass Before Reaction (g)	Mass After Reaction (g)	Percent Error

Analyze Your Data

1. **Describe** the effects of mixing the antacid powder and the water.

2. **Compare** the total mass of the substances before mixing to the total mass after the reaction.

3. **Calculate** the percentage of error in the investigation. Use the following equation:
(mass of the reactants − mass of products) ÷ (mass of reactants) × 100 = percent error

4. **Graph** the mass of the substances before and after the reaction using a bar graph.

5. **Explain** whether your data supports your hypothesis.

Conclude and Apply

1. **Infer** how mass might have been lost or added between the initial and final weighing of the substances.

2. **Summarize** How does this experiment support the law of conservation of mass?

Communicate Your Data

Compare the data your group collected with the data collected by other groups, and discuss possible reasons why percent error might not be zero.