Chemistry in the Community
2019-2020

Name: _____
Date: ____/____/____
Period: _____

Unit 5
Law of Conservation of Mass Balloon Project

Do Now:

1. What is the law of conservation of mass/matter/energy? Use your notes from yesterday to help you.

2. When you mix vinegar and baking soda, a chemical reaction occurs. When you heat up ice to change it to liquid a physical reaction has occurred. Write some similarities and/or differences in these two processes:

Vinegar + baking soda

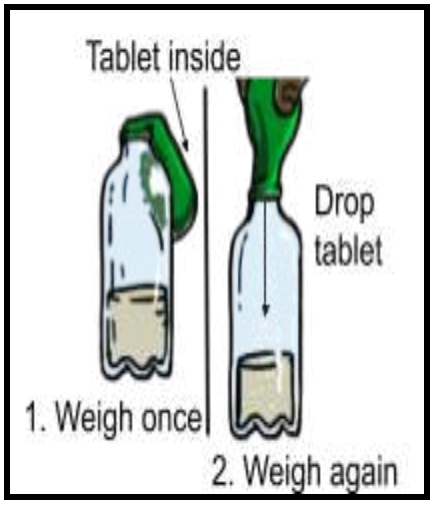

melting ice

Learning Target: I can verify the law of conservation of mass during chemical reactions.

Hypothesis: (Circle one) If Alka Seltzer is dissolved in water, then the mass will *increase/decrease/stay the same*.

Materials: Scale, e-flask, graduated cylinder, water, balloon, Alka Seltzer

A portion of your grade will be how well you set up and clean up your experiment, the other portion is how thoroughly you fill in this handout!



Procedure (10 pts)

1. Obtain a balloon and an alka seltzer tablet. Place the alka seltzer tablet **inside** the balloon. You will only get one tablet of alka seltzer, so be very careful!

2. Weigh* the balloon/tablet and record the value within the first box of the table: **Mass of the Balloon and Tablet (g)**. in the data table

on the next page. **Weigh - 1. Zero out the scale. 2. Place the item on the scale. 3. Make sure it's in grams (not ounces or Newtons) 4. Record the mass in grams (g)*

3. Place 100 mL of water in a graduated cylinder. CAREFULLY, turn on the water *first*, and then place the graduated cylinder underneath it.

4. Obtain an erlenmeyer flask and pour the 100 mL of water into it.

5. Weigh* the flask/water and record the value within the table in the box **Mass of Flask (g)** *(You are NOT weighing the graduated cylinder!)* in the data table on the next page.
6. Place the balloon around the mouth of the flask. Weigh the balloon and flask together as one object. Record in the box **Total Mass before … (g)**. When it is secured, very, very gently crush the tablet being careful not to let any of it fall into the water. Your tablet does not need to be complete broken up, just enough for it to gently pass through the neck of the e-flask.

7. Once the tablet is significantly crushed, allow the tablet to fall through the balloon into the water below.

8. Record your observations in the box below (Remember! Scientific observations talk about all the senses...how does it look? Is it changing color? Is it hot/cold to touch? Does it smell? Does it let off smoke? etc). :

Observations:

9. After the reaction is complete weight the entire apparatus (flask with the balloon still attached) and record the value in the table below in the box labeled: **Total Mass after the reaction (g)** in the data table below. Calculate the *difference* in masses.

**Weigh - 1. Zero out the scale. 2. Place the item on the scale. 3. Record the mass in grams (g)*

Mass of the Balloon and Tablet (g)	**Mass of e-flask and water wn(g)**	**Total Mass *before* the reaction (g)**	**Total Mass *after* the reaction (g)**	**Difference in Mass (g)**

10. Rinse out your e-flask with water and then scrub briefly with the test tube brush.

11. Place your e-flask and graduated cylinder in the drying rack on the wall furthest from the door.

12. Return your scale to cabinet by the window.

13. Answer the questions in the next section. Use the word bank to help you formulate complete sentences for answers.

WORD BANK			
supports/ refutes the hypothesis	I thought … , while actually ….		conserves mass
demonstrates a chemical reaction	comparing the masses		the difference in mass
was	the total mass would be	the balloon creates	before/ after
the reaction			

Data Analysis (10 pts).

1. Does your data support your choice in the hypothesis on the first page of the lab? Why or why not?

2. What evidence of a chemical reaction did you see in this experiment?

3. Would the total mass after the reaction be more or less than the mass before the experiment started if we had **not** sealed the e-flask's opening with the balloon? Give a short explanation for your answer.

4. Why did we need to make sure that the balloon was tightly secured over the opening of the e-flask?

5. How did this experiment demonstrate *the law of conservation of mass*?