

Name _____
Date _____ Per. _____

Conservation of Mass Lab

Question: How will changing the state of matter of a substance affect its mass?

Hypothesis # 1: _____

Materials:

- Balance
- Paper towel
- Ziploc bag
- Ice cube

Section 1: Ice Cube to Water

1. Make *observations* and describe your ice cube in your data table.
2. Put your ice cube in the Ziploc bag. Seal the bag tightly.
3. *Measure* the mass of the sealed Ziploc bag and ice cube and record it in the data table.
4. Carefully set your Ziploc bag with the ice cube aside. When your ice cube has changed from a solid to a liquid, find the mass again and record it in the data table.

Description of Ice Cube	
Mass of Ziploc Bag and Ice Cube (g)	
Mass of Ziploc Bag and Water (g)	

1. Did the mass of the ice cube in the Ziploc bag change as it changed state? _____
2. Was your hypothesis # 1 supported? What is your evidence?
(Use *quantitative data to support your answer.*)

Sections # 2 – 4

Question: How will changing the shape of matter affect its mass?

Hypothesis # 2: _____

Materials:

- Piece of construction paper
- Ziploc bag
- Balance
- Piece of clay
- 2 crackers

Section 2: Construction Paper

1. Make *observations* and describe your piece of construction paper in the data table.
2. *Measure* the mass of your piece of construction paper and record it in the data table.
3. Crumple your piece of construction paper, then *measure* the mass and record it in the data table.
4. Tear the paper into smaller pieces, then *measure* the mass of all the pieces together and record it in your data table.

Description of Construction Paper			
Shape of Paper	Flat	Crumpled	Small Pieces
Mass of Paper (g)			

1. Did the mass of the construction paper change as its shape changed? _____

Section 3: Clay

1. Make *observations* and describe your piece of clay in the data table.
2. Roll your piece of clay into a ball and *measure* the mass; record the mass in the data table.
3. Break your piece of clay into 4 smaller pieces; find the mass and record it in the data table.
4. Make the clay into a shape of your choice; find the mass and record it in the data table.

Description of Clay			
Shape of Clay	Large Ball	Small Pieces	Your Choice _____
Mass of Clay (g)			

1. Did the mass of the clay change as its shape changed? _____

Section 4: Crackers

1. Make *observations* and describe your crackers in the data table.
2. Put one cracker in a Ziploc bag. Keep it in the bag for the entire section.
3. *Measure* the mass of each cracker. (this will include the bag for one cracker)
4. Break each cracker into smaller pieces. (without removing it from the bag)
5. Find the mass of each broken cracker. (this will include the bag for one cracker)

Description of Crackers			
	Mass of Whole Cracker (g)	Mass of Broken Cracker (g)	Difference in Mass (subtract smallest from largest)
Cracker in Ziploc	Ziploc	Ziploc	Ziploc
Cracker - Plain			

Summary:

1. Did the mass of the cracker in the Ziploc bag change when it was broken apart? _____
2. Did the mass of the plain cracker change when it was broken apart? _____
3. Was your hypothesis # 2 supported? What is your evidence?
(Use quantitative data to support your answer.)

4. Does the mass of a substance change when it changes shape? _____
5. Does the mass of a substance change when it changes from one phase of matter to another? (solid to liquid) _____
6. What is the difference between an open system and a closed system?

Open System: _____

Closed System: _____

Conservation of Mass: _____

