Name_____

Lab- **Law of Conservation of Mass**

Introduction: Does mass change in a chemical or physical reaction? In this series of experiments, you will find the answer to this question.

Procedures:
Work in groups of four and follow the directions for each mini-experiment. Use your balance very carefully and remember to mass all the objects at the BEGINNING and END of each experiment.

Lab 1-Mass of Ice
materials: beaker, ice and balance.
prediction: Will the mass change? How?
procedure:
1. Mass the chunk of ice in the beaker.
2. Wait until it melts.
3. Mass again.

1. Mass before_____
2. Mass after _____
3. change in mass_____

Lab 2-Mass of dissolved salt
materials: salt, graduated cylinder, balance, beaker, cup
prediction: Will the mass change? How?
procedure:
1. Place 30 mL of water in a small beaker.
2. Place a spoonful of salt in a cup.
3. Mass the cup of salt and the beaker of water.
4. Mix the salt into the water and stir.
5. Mass beaker with salt water and the empty cup.

1. mass unmixed_____
2. mass mixed_____
3. change in mass_____

Lab 3-Mass of Mixed Solutions
materials: two solutions, two medicine cups
prediction: Will the mass change? How?
procedure:
1. Measure 5 ml of NaCl solution into a medicine cup.
2. Measure 5 mL of $AgNO_3$ solution into a medicine cup.
3. Mass both solutions.
4. Slowly pour $AgNO_3$ into NaCl.
5. Mass the medicine cup with the new solution and the empty cup.

1. mass unmixed_____
2. mass mixed_____
3. change in mass_____

Lab 4-Mass of a Gas

Materials: plastic bottle, balloon, 1/2 of an Alka Seltzer tablet, balance and goggles

Prediction: Will the gas have mass?

Procedure:

1. Fill the plastic bottle with 30 mL of water.
2. Put ½ of the alka seltzer tablet in the balloon and put the balloon over the opening of the bottle without letting the alka seltzer fall in to the water in the bottle.
2. Mass the bottle, water, balloon and tablet.
3. Lift the balloon and let the tablet fall into the water.
4. Mass again.
5. Allow gas to escape (remove balloon) mass again.

1. mass before....._____
2. mass after....._____
3. change in mass._____
4. mass after gas released_____
5. change (#1-#4=)....._____

1. Which experiments were physical changes?

2. Which experiments were chemical changes?

3. Did the mass change in the physical or chemical changes?

3. What kind of molecules are in ice? Water? As ice melts, where do its molecules go?

4. Where do molecules of salt go when they dissolve in water? What happens to their mass?

5. When the two solutions were poured together a new substance forms. What was it made of?

6. The formula for the reaction of NaCl and $AgNO_3$ is: $NaCl + AgNO_3 \rightarrow NaNO_3 + AgCl$
What are the reactants? What are the products?

7. Why did the mass change when the balloon was taken off in Experiment 4?

8. The Law of Conservation of Mass states: Mass is always conserved in a physical or chemical reaction as long as nothing is added or lost. Reword this in a sentence you understand.

9. Do you think our 4 experiments proved this law? Why?