DEMO 1 Marshmallow Madness

Procedure

1. Write down your hypothesis and your justification. What will happen to the mass of the marshmallow after burning and why?
2. Record the mass of the glass Petri dish.
3. Record the mass of the Petri dish + a marshmallow (before burning).
4. Subtract the mass of the Petri dish from the mass of the Petri dish + the marshmallow to obtain the initial mass of the marshmallow.
5. Set the Petri dish with the marshmallow on the desk away from any pieces of paper.
6. Using the metal tongs, hold the marshmallow over a lit candle to ignite it.
7. Quickly put the marshmallow back in the Petri dish. Record your observations.
8. After the marshmallow is finished burning, allow the Petri dish to cool for two minutes.
9. Record the mass of the Petri dish + the burned marshmallow.
10. Subtract the mass of the Petri dish to obtain the final mass of the marshmallow.

DEMO 2 Combustion of Steel Wool

Procedure

1. Write down your hypothesis and your justification. What will happen to the mass of the steel wool after burning and why?
2. Record the mass of the glass Petri dish
3. Fluff the piece of steel wool so that it just fits in the Petri dish
4. Add the steel wool to the Petri dish and record the mass of the Petri dish + the steel wool
5. Subtract the mass of the Petri dish from the mass of the Petri dish + the steel wool to obtain the initial mass of the steel wool
6. Set the Petri dish with the steel wool on the desk away from any pieces of paper
7. Light the steel wool on fire
8. Record your observations
9. After the steel wool has been extinguished, allow the Petri dish to cool for two minutes
10. Record the mass of the Petri dish + the burned steel wool, then subtract the mass of the Petri dish to obtain the final mass of the steel wool

LAB 1 Mixing Copper Sulfate & Sodium Carbonate

"Rien ne se perd, rien ne se crée, tout se transforme."

"Nothing is lost, nothing is created, everything is transformed."

– *Antoine Lavoisier 1789*

Materials

1	laboratory balance
1	50 mL graduated cylinder
2	125 mL Erlenmeyer flasks
1	piece of filter paper
1	plastic funnel
1	plastic weighing tray
	copper sulfate solution
	sodium carbonate solution

Procedure

1 Place a clean, dry 50 mL graduated cylinder on the balance and press "zero." This cancels out the mass of the graduated cylinder so that we can measure only the liquid that we put into it.

2 Carefully add about 20 mL of the copper sulfate ($CuSO_4$) solution to the graduated cylinder and record the mass in your data table.

3 Pour the copper sulfate solution into a 125 mL Erlenmeyer flask. Get as much of the solution out of the graduated cylinder as you can.

4 Clean out the graduated cylinder in the sink and dry it using a paper towel. Make sure there is no water left inside.

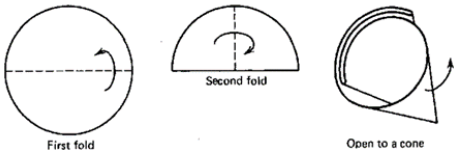
5 Put the graduated cylinder back on the balance and zero it again. Then add about 20 mL of the sodium carbonate (Na_2CO_3) solution to the cylinder and record its mass.

6 Add the sodium carbonate solution to the same Erlenmeyer flask. Record your observations in the space provided.

7 Swirl the contents of the flask to ensure that they are thoroughly mixed together.

8 Record the mass of the other 125 mL Erlenmeyer flask.

9 Record the mass of a piece of filter paper.



10 Fold the filter paper as shown in the diagram above (ask a SciTrek volunteer for help!) and place it into the plastic funnel. Place the plastic funnel and filter paper in the second Erlenmeyer flask.

11 Carefully pour the contents of the first Erlenmeyer flask through the filter paper. Make sure that all of the solid ends up in the funnel.

12 While the solution is draining, place the plastic weighing tray on the scale and press "zero."

12 Allow the solids to drain until there is no more liquid in the funnel, then remove the filter paper and place it in the plastic weighing boat. Record the mass of the filter paper + solids in the data table.

13 Record the mass of the Erlenmeyer flask + the drained liquid.

LAB 2 Mixing Baking Soda & Vinegar

Introduction

Yesterday, you performed an experiment to see if the mass of the reactants in a chemical reaction was equal to the mass of the products. You also identified possible sources of error in your measurements.

At the end of the lab, you came up with a theory about chemical reactions. An important test of any theory is its applicability to a range of problems. Today, you will attempt to gather evidence to support your theory by using a different chemical reaction, but by keeping the general procedure the same.

If you get stuck, refer to Lab 1 from yesterday for help.

Materials

1	laboratory balance
1	50 mL graduated cylinder
1	125 mL Erlenmeyer flask
1	100 mL beaker
1	plastic funnel
1	plastic weighing tray
	baking soda
	vinegar

Procedure

1 Use the graduated cylinder, the balance, and the "tare/zero" button to carefully measure the mass of 20 mL of vinegar.

2 Record the mass of the 100 mL beaker.

3 Add about 2 grams of baking soda to the beaker, then record the mass of the beaker + the baking soda.

4 Place the beaker with the baking soda on the table and *slowly* add the vinegar. Record your observations. If the solution bubbles over, you will need to start again from step 1.

5 While the reaction is finishing, write down your hypothesis in your handbook. Will the mass decrease, stay the same, or increase? Provide a brief explanation.

6 When the reaction is done, weigh the beaker and products.