Densities of Various Sodas Lab Proposal

Lab Day: Thursday, August 30th

Purpose: Find the densities of different sodas. Density is mass/volume. If a graph of mass vs. volume is created for each soda, the slope of the best-fit lines will give the density of each soda (because slope is rise/run).

Materials Needed and Setup: regular soda (carbonated), flat soda, diet soda (carbonated), graduated cylinders, balance

Procedure:

1. Mass a graduated cylinder.
2. Add approximately 10 mL of the first soda and find the mass of soda/cylinder combination.
3. Add 10 mL more of the same soda; mass again. Repeat up to 50 mL (5 trials total).
4. Dump soda and clean the graduated cylinder. Dry the cylinder.
5. Repeat steps 1-4 for the other two sodas (yes, even mass the cylinder alone again just in case it does not get dried completely).

Table Design:

Soda:					
Mass of Dry Cylinder:					
Trial	1	2	3	4	5
Exact Volume of Soda, V [mL]					
Mass of Cylinder/Soda Combination, m [kg]					

(This table should be copied three times, one for each soda).

Data Analysis:

1. Calculate the mass of each soda after each trial by subtracting the mass of the cylinder from the mass of the cylinder/soda combination. Create a table to organize results.
2. Plot the mass vs. the volume for each soda on a single graph, using different symbols to differentiate the sodas (see the sample graph below). Draw a best-fit line for each.
3. Find the slopes of the best-fit lines. The slope is rise/run, which is mass/volume.