Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period: \_\_\_\_

**Soda Molarity Lab**

**Learning Target:**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Objective:**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Pre Lab Questions:**

1. Determine the molar mass of fructose (C6H12O6).
2. Using the Nutrition Facts below and calculate the molarity of each of the unknown sodas.

|  |  |  |  |
| --- | --- | --- | --- |
| Nutrition Facts\* all Nutrition Facts are for 20 oz. bottle. |  |  |  |
|  | **Image result for 20 oz Coca-cola cherry nutrition facts** |  |
| **Grams of Sugar**  |  |  |  |
| **Moles Sugar**  |  |  |  |
| **Liters of Solution**  |  |  |  |
| **Molarity (M)** |  |  |  |
| **Show Work** |  |  |  |

**Procedure:**

1. Get your sample of unknown soda from Mr. Schultz.
2. Find the mass of an empty 50 mL beaker. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Determine how many mL of soda are in your sample using graduated cylinder. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mL soda
4. Pour your 15 mL sample of soda into a 50 mL beaker.
5. Set up your Bunsen burner and start evaporating your water.
6. Heat your soda until NO MORE STEAM OR CONDESATION IS OBSEVERED.
7. Allow your beaker to cool off.
8. Record the final mass of your beaker and contents. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ grams
9. Find the mass of the contents (sugar) in your sample of soda. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ grams
10. Fill your beaker half full of water and reheat the solution until all the sugar is dissolved in solution. (SHOULDN’T HAVE TO BRING IT TO A BOIL)
11. Pour the contents down the drain and rinse your beaker.
12. Clean up your lab station.

**Calculations:**

1. Calculate the molarity (M) of your sample of soda.
2. Based on the data provided in the table above and your experimental calculation of molarity which soda did you have? Explain how you determined the answer.
3. Copy down the class data for your unknown only.

|  |  |  |
| --- | --- | --- |
| **Unknown #1** | **Unknown #2** | **Unknown #3** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
| AVG | AVG | AVG |

1. Based on your calculations and the nutritional facts calculate your percent yield.



1. Using the known molarities of the soda and your results calculate the percent error for the experiment



1. What are 3 possible causes for your calculated Molarities to be incorrect?

**Challenge Question**



Fountain soda doesn’t come pre mic