Ms. Randall
Regents Chemistry
Lab activity: Molarity of Iced Tea

Background: A way of expressing concentration is called molarity**.** Molarity is the number of moles of solute dissolved in one liter of solution. The units, therefore are moles per liter**,** specifically it's moles of solute per liter of solution**.**

Objective: To determine the best tasting concentration of iced tea solution.

Materials: Cups, spoons, ice tea mix, weighing boats, balances.

Pre-Lab:

1. In your own words define:
    a. Concentrated solution: _____
    b. Dilute solution: _____
    c. Molarity: _____
2. In this lab, identify the solute and solvent.

3. You will make 500ml of iced tea for the trial you have. The gfm of iced tea is 180g/mol. Calculate the number of moles of iced tea you need for each trial. Show an example calculation for your trial. Record your answer below and on the board.

4. Calculate the number of grams of ice tea you will need for each trial. Show an example calculation for your trial. Record your answer below and on the board.

Procedure:

1. Weight the amount of ice tea needed for your trial and place it in your big cup. Fill the cup to have a 500mL solution.
2. Stir the ice tea to dissolve all the mix.
3. Pour a SMALL amount of iced tea into your testing cup.
4. Taste it and rate it.(1: practically water, 10: way too strong)
5. Taste a SMALL amount of iced tea from each group and rate it.(Rinse between trials)

Trial	Molarity	Moles of Iced Tea	Grams of Iced Tea	Rating
1	0.10			
2	0.20			
3	0.50			
4	0.60			
5	0.80			
6	1.00			
7	1.20			

Analysis:

1. Which of your trials was concentrated? Which was dilute?

2. Were any of the solutions supersaturated? How would you know?

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Lab conclusion: Molarity of Iced Tea

1. **Write a paragraph summarizing what you have learned about the scientific concept of the lab from doing the lab. Back up your statement with details from your lab experience**.

2. The molarity of an aqueous solution of NaCl is defined as the

A) Grams of NaCl per liter of water
B) Grams of NaCl per liter of solution
C) Moles of NaCl per liter of water
D) Moles of NaCl per liter of solution

3. What is the total number of moles of NaCl(s) needed to make 3.0 liters of a 2.0 M NaCl solution?

A) 6.0 mol B) 8.0 mol
C) 1.0 mol D) 0.70 mol

4. Which preparation produces a 2.0 M solution of C6H12O 6? [Molecular mass = 180.0]

A) 90.0 g of $C_6H_{12}O_6$ dissolved in 500.0 mL of solution
B) 90.0 g of $C_6H_{12}O_6$ dissolved in 1000. mL of solution
C) 180.0 g of $C_6H_{12}O_6$ dissolved in 500.0 mL of solution
D) 180.0 g of $C_6H_{12}O_6$ dissolved in 1000. mL of solution

5. A student wants to prepare a 1.0-liter solution of a specific molarity. The student determines that the mass of the solute needs to be 30. grams. What is the proper procedure to follow?

A) Add 30. g of solute to 1.0 L of solvent.
B) Add 30. g of solute to 970. mL of solvent to make 1.0 L of solution.
C) Add 1000. g of solvent to 30. g of solute.
D) Add enough solvent to 30. g of solute to make 1.0 L of solution.