**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Molarity of Iced Tea**



Guiding Question: What molarity of iced tea is the tastiest?

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

Pre-Lab Questions:

1. In your own words define Molarity.
2. In this lab, identify the solute and solvent.
3. You will make **500.0ml** of iced tea for the trial you have. 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 white board.
4. Calculate the number of **grams** of ice tea you will need for each trial. The molar mass of iced tea is **180.0g/mol**. Show an example calculation for your trial. Record your answer below and on the white board.
5. Taste SMALL amounts of each iced tea solution, Copy the moles and mass from each trial and rate the solution: 1 dilute, 10 concentrated.

| **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 |  |  |  |

Questions:

1. Which of your trials was the most concentrated? Which was the most dilute?
2. Were any of the solutions supersaturated? How would you know?
3. Use particle diagrams to represent the difference between the concentrations of trials 1 and 7.



Trial 1 Trial 7

1. A total of 20.0mL of trial 7 iced tea is left over. A student prefers the concentration of trial 4. How much water should the student add to the trial 7 iced tea to create a concentration of trial 4? Show work.
2. Trial 1 was too watery and not many students tried it. A total of 350.0mL of trial 1 is left over.
   1. What **options** do we have to increase the concentration of iced tea in trial 1 to make it drinkable?
   2. If the water was evaporated from the left over of trial 1, how many grams of iced tea mix would be recovered?

6. Compare the molarity of a sip of trial 7 iced tea solution, versus the full cup, versus the full pitcher.

