Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class Period:\_\_\_\_\_\_\_\_\_

How Do you like your kool-aid?

We will be making 5 different concentrations of Kool-Aid (0.1 M, 0.3 M, 0.5 M, 0.7 M, and 1.0 M). You will taste the Kool-Aid solutions you make to determine how you like your Kool-Aid.

Pre-Lab Questions: *Show your work for each calculation and write your final answer on the line. Use correct units.*

1. Kool-Aid is mostly sugar (C6H12O6) with added color and flavorings. You can assume the molar mass of Kool-Aid is that of sugar. Calculate the molar mass of Kool-Aid.

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

1. Calculate the mass (in grams) of Kool-Aid needed to make 0.1 L solutions of the following concentrations:

0.1 M\_\_\_\_\_\_\_\_\_\_\_\_\_

0.3 M \_\_\_\_\_\_\_\_\_\_\_\_\_

0.5 M \_\_\_\_\_\_\_\_\_\_\_\_\_

0.7 M \_\_\_\_\_\_\_\_\_\_\_\_\_

1.0 M \_\_\_\_\_\_\_\_\_\_\_\_\_

1. When Kool-Aid is dissolved in water, what is the solute and what is the solvent?

Solute: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Solvent: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Safety

Normally in the chemistry laboratory there is no eating or drinking. However, for this lab we will taste Kool-Aid solutions in order to learn about concentration. Special care must be taken so that nothing becomes contaminated.

* If at any time you do not want to taste the solutions, you do not have to!
* Do not pour the Kool-Aid powder back into the container if you pour out too much. Dispose in the trashcan.
* If any Kool-Aid powder touches the lab bench or balance, dispose of it.

Procedure

1. Obtain 6 cups. With the Sharpie marker, label each of 5 the cups with the following concentrations: 0.1M, 0.3 M, 0.5 M, 0.7 M and 1.0 M. The 6th cup is for water.
2. Each group member will be responsible for making at least one solution. Decide who is making which solutions. If you have less than 5 people in your group, someone will make 2 solutions.
3. Weigh out the correct amount of Kool-Aid powder in each cup by putting your cup on the balance, taring the mass to zero, and putting the correct mass of Kool-Aid powder into the cup.
4. Fill cups to the top line. This is exactly 0.1L of water.Stir with the stick.
5. Observe and taste the solutions you have made. You can have a "designated taster" or you can pour a little of the solution into separate cups for each group member to taste. Record how each solution looked, smelled, and tasted. Rate the taste of the solution on a scale of 1 to 5. *(5 being the best)*



Post-Laboratory Questions

1. Which concentration of Kool-Aid did you prefer the most? What was wrong with the other solutions that you made?
2. How is taste related to concentration? Why are they related in this way?
3. Calculate the molarity of Kool-Aid as prepared using the directions on the back of the container. The directions read: Add 88 grams (3/4 cup) of Kool-Aid powder to 1 quart of water. *(1 quart=946.35 mL)*

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1. Calculate the grams of Kool-Aid needed to make 2.3 L of 2.0 M solution.

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1. You prepared 10 liters of 0.7 M Kool-Aid for a meeting at work. Your boss comes up to you and says, "Nope we only serve 0.4 M Kool-Aid around here." How much water must you add (Final Volume minus Initial Volume) to fix the Kool-Aid you made so that it is 0.4 M without starting over?

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