Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_

**Lab: Concentration of Lemonade**

***Background Information:***We will be making 5 varying concentrations of lemonade. You will make observations regarding the lemonade, such as: color, taste, smell, etc. You will also taste and rank the lemonade solutions to determine how you like your lemonade.

**\*\*SAFETY\*\***

* Normally in the chemistry laboratory there is NO eating or drinking. However, for this lab we will taste lemonade solutions in order to learn about concentration. Special care must be taken so that nothing becomes contaminated.
  + If at anytime you do not want to taste the solutions, you do not have to!
  + Do NOT pour the lemonade powder back in the container if you pour out too much. Dispose of it in the trash can.
  + If any lemonade powder touches the lab bench or balance, dispose of it.

***Pre-Lab Questions:***

1. Purpose Statement: What is the purpose of this lab?

2. When lemonade mix is dissolved in water, what is the solute and what is the solvent?

3. Draw a particle picture of a dilute solution. Explain, using your picture why this solution is considered dilute. 

4. Draw a particle picture of a concentrated solution. Explain, using your picture why this solution is considered concentrated. 

***Procedure:***

1. Obtain 5 cups. With a sharpie marker, label the cups with the letters A-E

2. Each group member will be responsible for making at least one solution. Decide who is

making which solutions. At least one person will get to make two solutions.

3. Mark the 0.1 L mark on the cup by measuring 4.0 cm from the bottom of the cup and drawing a line with the marker.

4. Weigh out the correct amount of lemonade powder in each cup by putting your cup on the balance, taring the mass to zero, and putting the correct mass of lemonade powder into the cup.

5. Add water to the cup until you have 0.1 L of solution (fill it up to the line you drew).

6. Stir with straw.

7. 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).

***Data Table:***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Solution** | **Mass of Powder (g)** | **Color** | **Smell** | **Taste** | **Rank**  **(1-5)** |
| **A** | 1.80 g |  |  |  |  |
| **B** | 5.40 g |  |  |  |  |
| **C** | 9.00 g |  |  |  |  |
| **D** | 12.60 g |  |  |  |  |
| **E** | 18.00 g |  |  |  |  |

***Questions:***

1. a) Which concentration(s) of lemonade did you prefer the most? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b)What was wrong with the other solutions that you made?

2. a) How is taste related to concentration?

b) How is color related to concentration?

c) How is mass related to concentration?

3. a) Draw particle pictures representing the lemonade and water found in solutions A and D. 

Solution A Solution D

b) Which solution above has a higher concentration? Use your particle picture to explain.

c) Which solution is more dense? Use your particle picture to explain.

d) What is the relationship between concentration and density?

***Conclusion:*** Write a one-paragraph (at least 5 sentences) conclusion on the backside if this paper. Include ideas such as: What did you learn? How did you find out? What was the procedure? What type of lemonade did you like best? How did you decide? How are color, taste, smell, mass, and/or density related to the concentration of the lemonade?