

Chemistry: Solutions- What is Concentration?

Recall from the “*Solutions Self-Discovery*” that a **solution** is also known as a **homogeneous mixture**. It is common to think of powdered drink mixes (like KoolAid®) dissolved in water when you think of solutions. The **concentration** of a solution is a measure of the amount of **solute** that is dissolved in a given amount of **solvent**. A dilute solution would contain only a small amount of solute compared to the amount solvent whereas a concentrated solution would contain a large amount of solute compared to the amount of solvent.

In this activity you will be making 3 different solutions all having a different concentration and will gather data for each solution to determine how concentration impacts the color, smell, and taste.

Materials:

Dixie Cups – 3	Ruler
Solute Powder	Straw
Drinking Water	Sharpie Marker

Procedure:

- 1) Obtain 3 small, paper cups. With a sharpie marker, label the cups A, B, and C.
- 2) Mark a **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.
- 3) Measure the following mass of solute into each cup: Use the **same solute** for each of your three cups.

Cup A – Approximately **2 g** of solute

Cup B - Approximately **4 g** of solute

Cup C – Approximately **6 g** of solute
- 5) Add water to the cup until you have 0.1 L of solution (fill it up to the line you drew).
- 6) Mix the solution by stirring with your straw.
- 7) Observe and taste the solutions you have made. You can have a “*designated taster*” or you can each taste with your own straw. Record how each solution looked, smelled, and tasted. Rate the taste of the solutions on a scale of 1 to 5 (5 being the best).
- 8) When you are done tasting your solutions, dump any excess solution down the sink and throw the paper cups in the trash. If you used your straw to drink the solutions, please replace the straw with a new one. Please wipe down your station to make sure there is no stickiness left behind.

Name: _____

Concentration Activity

<i>Cup</i>	<i>Color</i>	<i>Smell</i>	<i>Taste</i>	<i>Rating (1-5)</i>
A				
B				
C				

Questions:

- 1) Which concentration of your solution did you prefer the most? What seemed to be wrong with the other solutions that you made?
- 2) In the solutions you made, what was the **solvent** and what was the **solute**?
- 3) What is **concentration** a measure of?
- 4) Using your understanding of what concentration is a measure of, create a **compound unit** that would measure the concentration of the solutions that you just made.
- 5) **Calculate** the concentration for each solution you made using the **compound unit** you described in **question #4**.

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Solution A = _____

Solution B = _____

Solution C = _____