Kool-Aid Lab

**Question:** What combination of water and kool-aid powder tastes the best?

**Procedure:**

1. Grab a Dixie cup and put your name on it.
2. Weigh your Dixie cup and record the mass of the empty cup on your table.
3. Next, fill about ½ the cup with water (use water jugs), weigh the cup with water and record the mass on your table.
4. Then, put kool-aid powder in your cup with the spoons. Stir your water and kool-aid with your straw. **\*Make sure all the powder dissolves. If it does not dissolve, start trial over\***
5. Weigh the cup with the water and kool-aid and record mass.
6. Taste kool-aid and rate from 1 to 10 (1 being the worst, 10 being the best) AND qualitative observational data \*there may not be a repeated number\*
7. Repeat steps 2-6 and do a minimum of 3 trials.

**Data Table:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Trial #** | **Mass of Cup** | **Mass of Cup + Water** | **Mass of Cup + Water + Kool-Aid Powder** | **Taste test value + qualitative observational data** |
| **1** |  |  |  |  |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |

**Analysis:**

**Data Table (this will be completed by answering the questions below)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Trial #** | **2. Grams of kool-aid used** | **3. Grams of water used** | **4. mL of water used** | **8. Concentration** |
| **1** |  |  |  |  |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |

1. Which trial was the best tasting? Why?
2. Determine how many grams of kool-aid were used for each trial. Show work and record on table.
3. Determine how many grams of water were used for each trial. Show work and record on table.
4. Determine how many mL of water were used for each trial. (Note: 1 g of water = 1 mL of water) Show work and record on table.
5. Which trial **do you think** has the greatest concentration of kool-aid and how do you know?
6. To determine the concentration of your kool-aid mixtures, we must take the mass of the kool-aid used and divide it by the amount of water used (g/mL). Calculate the concentration of each trial. Show work and record on table.
7. Extra Credit: The kool-aid company suggests that the correct concentration for kool-aid is 17 g of kool-aid to 236.59 mL of water (8 oz water) = 0.0718 grams kool-aid per mL of water. Calculate your percent error for your best tasting trial. (Note: Look at board for percent error equation)

**Conclusion**: Discuss what you think concentration is and why it is an important idea to learn. What foods and drinks do you encounter every day that may also use this idea? In Chemistry, instead of the word concentration, we use the term “molarity”. In your own words, what do you think molarity is? Mole (mol) is at the start of this word, instead of grams, we use moles. Why do you think chemist would do that?