

**STE**

**Lab 2.2: Preparing a Solution**

Name \_\_\_\_\_

Sweet, insoluble partner: \_\_\_\_\_

**Purpose:** to prepare and dilute a solution of KOOL AID and to calculate its final concentration.

**Part I**

1. Prepare 100.0 ml of a 0.037 moles/L solution of KOOL Aid (mostly sugar =  $C_{12}H_{22}O_{11}$ .) Start by showing the calculation used to figure out how much KOOL Aid should be massed.

Calculation:

$$n = CV$$

n = moles of solute

C = concentration of solution in moles/L

V = volume of solution in L

2. Place a weighing boat on the balance and press tare.
3. Weigh the calculated amount.
4. Dissolve the powder in approximately 60 mL of water in a beaker. Make sure the boat is clean.
5. Transfer this to the volumetric flask.
6. Use a small amount of water to rinse the beaker twice and add the washings to the volumetric flask.
7. Dilute to the white or blue line with water from the wash bottle.
8. Place the cap on the flask, and mix several times.

**Part II**

1. Use a pipette to transfer 10.00 mL of the solution from the volumetric flask with the KoolAid to an empty volumetric flask. Don't lift the pipette out of the fluid until you're done, and don't stick the rubber bulb too deeply over the end of the pipette.
2. Dilute to the white line with water from the wash bottle.
3. Place the cap on the flask, and mix several times.
4. Compare your solution to the standard in your teacher's presence, and have him initialize the little box below:



**Analysis:**

1. Use  $C_1V_1 = C_2V_2$  to calculate the final concentration( $C_2$ ) of the last solution you prepared.

$$C_1 = 0.037 \text{ moles/L}$$

$$V_1 = \text{pipetted amount} = 10.00 \text{ ml} = 0.01000 \text{ L}$$

$$V_2 = \text{final volume} = 100.00 \text{ mL} = 0.10000 \text{ L}$$

2. How much Kool Aid in grams would you have used if you had to prepare 250 ml of a 0.37 moles/L solution?

**Conclusion:** (see the purpose; there were **three** things accomplished. Mention all of them. Use past tense.)