



RAINBOW IN A GLASS

You don't have to use lots of different chemicals to make a colorful density column. Let's use colored sugar solutions made at different concentrations. The solutions will form layers if you are careful.

Tips:

1. The sugar solutions are miscible, or mixable, so the colors will bleed into each other and eventually mix.
2. If you want to make layers you can drink, try substituting unsweetened soft drink mix for the food coloring, or four flavors of sweetened mix for the sugar plus coloring.
3. Pour them at a 45 deg angle.

Procedure:

1. Line up five beakers. Add 1 tablespoon (15 g) of sugar to the first glass, 2 tablespoons (30 g) of sugar to the second glass, 3 tablespoons of sugar (45 g) to the third glass, and 4 tablespoons of sugar (60 g) to the fourth glass. The fifth glass remains empty.
2. Add 3 tablespoons (45 ml) of water to each of the first 4 glasses. Stir each solution. If the sugar does not dissolve in any of the four glasses, then add one more tablespoon (15 ml) of water to each of the four glasses.
3. Add 2-3 drops of red food coloring to the first glass, yellow food coloring to the second glass, green food coloring to the third glass, and blue food coloring to the fourth glass. Stir each solution.
4. Now let's make a rainbow using the different density solutions. Fill the last glass about one-fourth full of the blue sugar solution.
5. Carefully layer some green sugar solution above the blue liquid. Do this by putting a spoon in the glass, just above the blue layer, and pouring the green solution slowly over the back of the spoon. If you do this right, you won't disturb the blue solution much at all. Add green solution until the glass is about half full. **IF IT THE SOLUTIONS ARE MIXING** and you don't produce at least **3 layers of different colors**, please alter the tablespoons. Keep track of it on your paper. You are calculating the concentrations of each layer later.
6. Now layer the yellow solution above the green liquid, using the back of the spoon. Fill the glass to three-quarters full.
7. Finally, layer the red solution above the yellow liquid. Fill the glass the rest of the way

Submit to seesaw: Due on Wednesday, April 29th (done individually)

1. Show me your final rainbow! Picture or video of YOU in the video. This is required.
2. Calculate the molarity of each layer. Show your work on this. Submit a picture from your lab notebook, if possible. The solute is sucrose ($C_{12}H_{22}O_{11}$)

So, get the molar mass of this first. Solve for moles of sucrose (because you know grams already). Change your mL to L. Now, you have the numerator and denominator of the Molarity formula, so just divide.