

The Science Fair is Coming! Let's start off with an easy experiment.

Research Question: Can I pour a rainbow?

Hypothesis: I think if I add food coloring to sugar water, I can pour a rainbow.

Experimental Design: Set up several cups of water, add sugar and food coloring to each cup, and then pour them all into another cup.

Materials:

- Sugar
- Water
- Food coloring (please don't drink the food coloring!)
- Tablespoon
- 5 glasses or clear plastic cups

Procedure:

1. Line up five glasses. Add 1 tablespoon of sugar to the first glass, 2 tablespoons of sugar to the second glass, 3 tablespoons of sugar to the third glass, and 4 tablespoons of sugar to the fourth glass. The fifth glass remains empty.
2. Add 3 tablespoons 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 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. 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.
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.

Results: Describe what you see; do you see the rainbow? Try stirring the rainbow; can you describe what happens?

Conclusions: Were you able to create a rainbow by pouring colored water into a glass?

Resources: <https://www.thoughtco.com/rainbow-in-a-glass-density-demonstration-604258>