Rainbow in a Jar

Items needed:

Water (2 cups)

Sugar (12 T)

Food coloring

Glasses (4)

Spoon

Turkey baster

Beaker or jar

Instructions:

1. Put ½ cup of warm water in the four glasses.
2. Add a few drops of food coloring to each glass to make four different colored liquids.
3. Leave one colored liquid as it is (we'll call this Liquid 1).
4. Add two tablespoons of sugar to the next colored liquid (Liquid 2). Mix well.
5. Add four tablespoons of sugar to the next colored liquid (Liquid 3). Mix well.
6. Add six tablespoons of sugar to the last colored liquid (Liquid 4). Mix well. You'll notice it will take more time to dissolve the sugar the more sugar you have to dissolve! Makes sense, eh?
7. Now it's time to create your rainbow! Use your baster to draw up some of Liquid 4 (your most sugary liquid). Squirt this liquid into your beaker or jar.
8. Draw up some of Liquid 3. Gently squeeze it out onto Liquid 4. You want your baster to be right down next to Liquid 4, and you want to go slowly and steadily.
9. Draw up some of Liquid 2, and squeeze it out onto Liquid 3. Again, slow and steady wins the race here.
10. Draw up some of Liquid 1, and squeeze it out onto Liquid 2.

What's Happening Here?

This is all about water density. You start with four glasses of water that all have the same density. By adding sugar in increasing amounts to the glasses of water, you are creating four glasses of water with increasing densities. The densest water solution stays on the bottom and least dense solution stays at the top!

What next?

If you like this experiment, try making a rainbow with six or even eight colors. Even if you only have four colors of food coloring, you can mix them to create new colors like orange or purple.

Try using liquids other than water. What happens when you try to layer corn syrup, honey, olive oil and water? Which solution do you think would be the most dense? The least dense?

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