

Rainbow in a Glass

Watch Scientist Joe conduct the experiment [here!](#)

Materials

- ★ Water
- ★ A mug
- ★ 5 separate cups
- ★ A Tablespoon
- ★ A clear glass
- ★ A dropper or pipette



Instructions:

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1. Separate the Skittles into the cups, in these amounts: 2 red, 4 orange, 6 yellow, 8 green, and 10 purple.
2. Heat a mug of water in the microwave for a minute and a half (or long enough that the water is hot, but not boiling). Be careful removing the water from the microwave—it's hot!
3. Measure and pour two tablespoons of hot water into each cup, on top of the Skittles.
4. Stir each cup carefully so no water splashes out. The cups need to be cool for the next part of the experiment, so leave them somewhere where they won't get knocked over. Stir them every ten minutes or so until the Skittles are dissolved and the water is room temperature.
5. Using the dropper, add the colored water from the five cups to the clear glass. Start with purple, then add green, then yellow, orange, and red last. Go slowly here, we don't want the different layers to mix.
6. Congratulations, you made a rainbow. You didn't even have to go outside!

How does it work?

Skittles are mostly made of sugar. When you add hot water to them, the sugar dissolves and the coloring on the shell of the Skittles turns the water different colors. The cup with only two red Skittles doesn't have as much sugar as the cup with ten purple Skittles, but they both have the same amount of water. The amount of matter packed into a certain amount of space is called the density of the material. The red water is less dense than the purple water, so it will float on top of the purple water.

Further Experiments

- ★ We added our colors in heaviest-to-lightest order. Does the rainbow still form if you add the red water first, then the orange, yellow, green, and purple?
- ★ What happens if you stir your rainbow? What if you leave it sitting there over night?