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**Rainbow Bottle**

Stem Activities



Ages: 3-5



Less than 30 minutes



Growup needed



Can salt water create a rainbow? By mixing different amounts of salt with red, yellow, and blue water, then carefully pouring them into a cup, you can witness magical rainbow layers appear!

### Materials Needed

4 glass bowls  
Salt  
Teaspoon  
Clear bottle  
Straw  
Measuring cup  
Water



### Step-by-step tutorial

#### Step 1

Add 250ml of water to each of the four bowls, then add different food colourings and stir well.



#### Step 2

Arrange the four bowls of coloured water in order from 1-4. Using a measuring spoon, add 1 teaspoon of salt to bowl 1, 2 teaspoons to bowl 2, 3 teaspoons to bowl 3, and 4 teaspoons to bowl 4. Stir until all salt is dissolved. You now have 4 bowls of salt water at different concentrations.



#### Step 3

Pour 50ml of the solution with 1 teaspoon of salt into the clear bottle.



#### Step 4

Place the straw at an angle into the bottle.



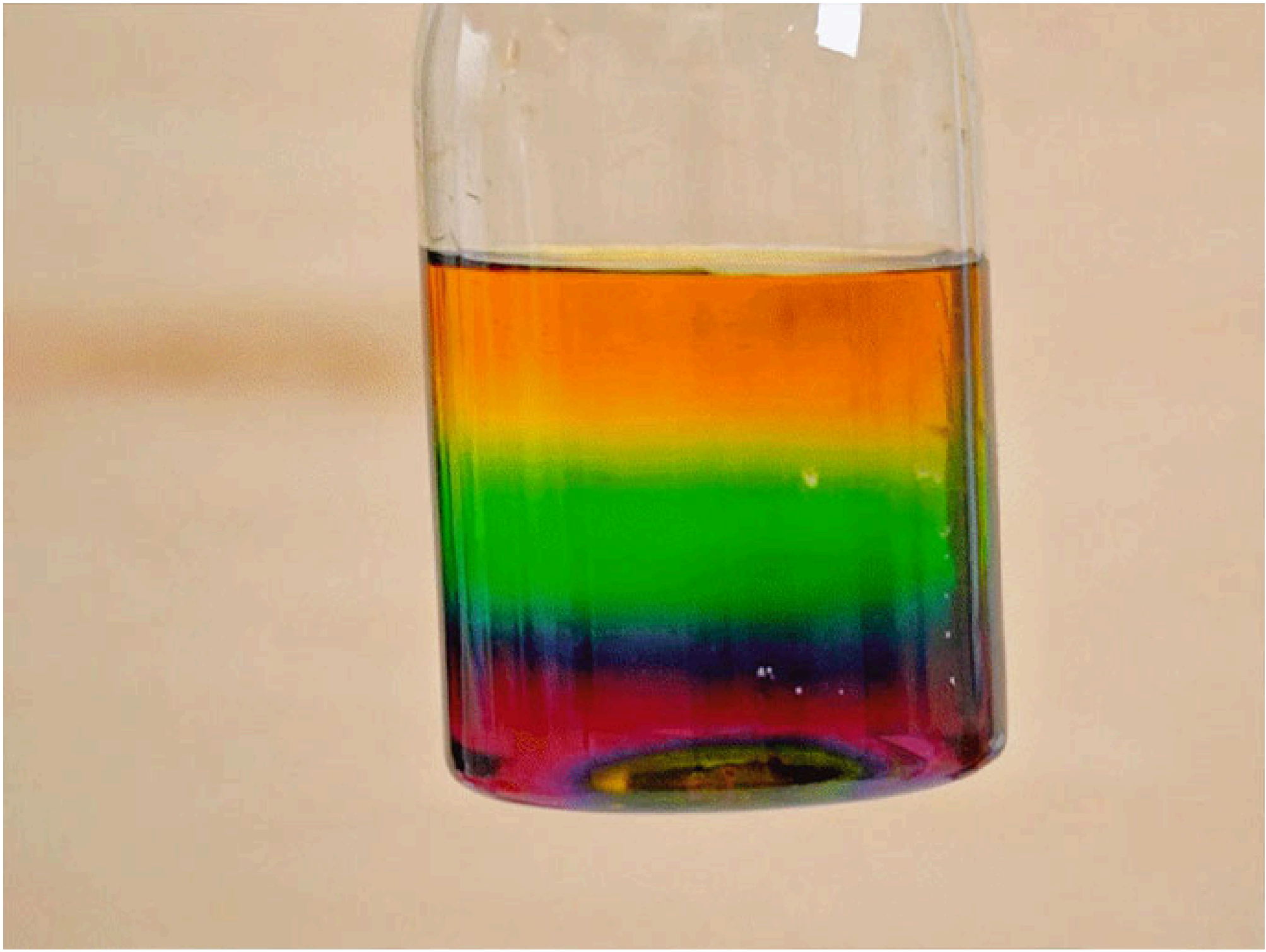
#### Step 5

Through the straw, pour 50ml of solutions 2-4 in sequence.



#### Step 6

Let the bottle rest for 5 minutes, then pick it up. The different coloured salt solutions haven't mixed - try gently shaking the bottle to observe what happens.



### The Science Behind It:

The density of a liquid determines its weight. Water with more salt is heavier and sinks to the bottom, while water with less salt is lighter and floats on top. When you carefully pour in coloured salt water of different densities, they don't mix immediately, creating beautiful rainbow layers!