

Capillary Colours: A Rainbow Journey



Capillary Colours: A Rainbow Journey - demonstrate capillary action, adhesion, cohesion, and colour mixing through a visually engaging and hands-on experiment. It provides a practical illustration of scientific concepts related to water movement in narrow spaces and the interactions between water and plant fibres.

The Science behind the experiment

This colourful experiment works like magic because of a cool scientific process called capillary action. Imagine water travelling up a paper towel against gravity - that's capillary action.

Paper towels are made from plant fibres called cellulose. In this experiment, water moves up through the tiny gaps between these cellulose fibres. The gaps act like tiny tubes, pulling the water upwards.

The water defies gravity because it's attracted to the cellulose fibres. This attraction is called adhesion. Water molecules also stick together, a process known as cohesion. As the water climbs the paper towel, cohesive forces help pull more water up.

However, at some point, gravity tries to pull the water down. The forces holding the water up—adhesion to cellulose and cohesion between water molecules—struggle against gravity. When gravity wins, the water stops moving up.

To make the experiment work well, keep the paper towel from being too tall and fill the coloured water to the top of the glass. This way, the forces keeping the water up have an easier time against gravity. It's a simple yet fascinating science activity for kids!



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Activity Overview:

To observe capillary action and colour mixing using water, paper towels, and food colouring.

What you need:

- 6 clear jars or glasses
- Paper towels
- Food coloring (Red, Yellow, Blue)
- Water

Instructions:

Arrange the 6 clear jars in a visually appealing pattern on a flat surface.

- Fill each jar with water to about one-third full.
- Add Food Coloring

Select various colours of food colouring, assigning a unique colour to each jar.

- Add a few drops of food colouring to each jar, creating a spectrum of colours.

Prepare Paper Towels:

- Cut six long, narrow strips of paper towel, one for each jar.
- Fold each paper towel strip in half vertically, creating a slender strip.

Assemble the Experiment:

- Introduce the paper towel strips, placing one end in each jar with coloured water and ensuring the other end hangs over the side.
- Repeat this process for all jars, using a different coloured strip for each.

Observation:

- Observe the mesmerizing journey of water through capillary action, noting the colours mixing and creating unique patterns.

Record Your Findings:

- Document the time it takes for the water to ascend each paper towel.
- Capture any noteworthy observations regarding colour blending and visual aesthetics.

