

Secret of colors



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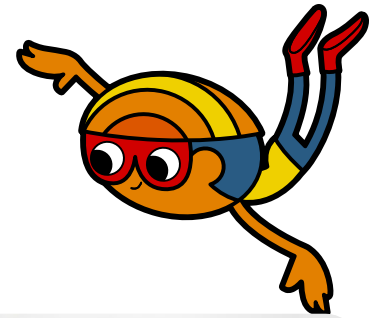
Separating colors with paper chromatography

Research question

Has this ever happened to you? You've drawn a nice, colorful picture with felt-tip pens, and then the picture accidentally gets wet. The paper curls and the colors suddenly run. Strange – now you can see completely different colors. Where did they come from? **Are there other colors hidden in the felt-tip pens?**

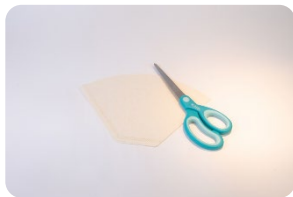
You need

- Coffee filter
- Scissor
- Felt-tip pens
- Two small bowls
- Water



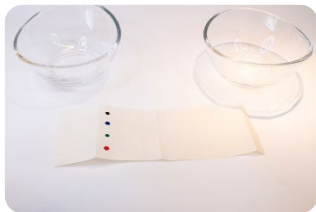
How to do it

Step by step



Prepare paper strips

Cut a rectangular strip as long as possible from a filter paper.



Colorful felt-tip pen

1. Draw a line of dots on the strip using different colored felt-tip pens. The dots must be at least 0.5 cm apart.
2. Fold the strip on both sides as shown in the photo.



Fill with water

1. Place the strip over two bowls so that one end extends into one bowl and the other end extends into the other bowl.
2. Fill one bowl with enough water to wet the bottom of the strip.



Observe

1. Observe how the water is slowly absorbed by the filter paper. It moves through the paper into the second bowl.
2. Be patient, it may take a little longer to see anything.



Result

Remove the strip when the colors have migrated to the second glass. Place the strip on a kitchen towel to dry.

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Context

In art lessons, children of elementary school age learn that an entire color palette can be mixed from a few basic colors. As a rule, they work with watercolors. It is not so easy for children to understand that felt-tip pen colors are also composed of several individual colors. This simple experiment is a good way to demonstrate this.

Paper chromatography

Many felt-tip pen colors are mixed colors. This means that they are composed of different individual colors, which together make the visible color impression. Paper chromatography can be used to separate the individual colors from one another and make them visible. This makes use of the fact that the individual colors are transported at different speeds from a mobile phase (water) to a stationary phase (filter paper). In other words, the colors "migrate" at different speeds and thus separate.

