

Capillary Colors

Defy Gravity in this Water Raising Activity



Does marker ink contain any hidden colors? Watch as capillary action lets water rise up to reveal the answer!

Activity Challenge

Make water climb up a paper by itself. Use capillary action in a colorful way.

Preparation

1. Select an absorbent material, such as a paper towel or napkin.
2. Select a workspace that can get a little wet.
3. Collect at least three water-based markers of different colors.
4. Fill a container about one-quarter full of water.

To Do

1. Cut a rectangular strip of paper as long as the container is high, and half the width of the container.
2. Fold the narrow end of the strip about 2 pencil widths from the end.
3. Unfold the strip. Along the crease line, place three dots, one from each marker.
4. Let dry and then slowly dip the colored end of the paper strip into the container. The water should just touch the strip's end but not the colored dots.
5. Watch as the water moves up, through and past, the colored dots.
6. If the water is being absorbed very slowly, fold, tape or clip, the other end of the strip along the rim of the container so it can hang by itself. A spoon, or other item, can be used if the rim of the container will not work.

Observations

- Note how far, and how fast, the water moves up the paper strip.
- Note what colors appear above each colored dot. Which colored marker ink showed several colors going upwards, if any?

Materials Needed

- Paper napkin, paper towel, coffee filter or facial tissue
- Water based colored markers
- Container to hold water, (clear sided is best)
- Optional: spoon or another item that will rest on the rim of the container

Grade Range

K-2 (with adult assistance)
3-5

Topics/Skills

Science: Liquid flow; Forces;
Plant Cells

Learning Standards

NGSS: [From Molecules to Organisms: Structures and Processes](#)

Duration

15 minutes

Prep Time

5 minutes

Extensions

- Repeat using different colored markers.
- Repeat the activity using different types of paper for the strip. Are there any differences in how the water moves up the paper?
- Repeat the activity using a drop of food coloring instead of a colored marker dot.
- Add food coloring to the water and place a flower in the water. Observe what happens.
- With adult assistance, the activity can be repeated using rubbing alcohol instead of water. Does the color pattern appear different?

The Science (or Content) behind the Activity

Water is composed of many tiny, identical pieces called molecules. The water molecules are attracted to each other and to the molecules in things, like the paper and the container used in this activity.

Look carefully at the surface of water in a container and notice that the surface is slightly higher where it touches the container. Water molecules can group together like links in a chain. The chain of water molecules is pulled up the side of the container, creating a curved surface.

The fibers in paper can also pull on the water molecules. The water molecules are pulled up along the paper fibers, wetting more and more of the paper. That movement is called capillary action.

The moving water can soak and dissolve the ink molecules, as well as carry along what is dissolved. The ink molecules are pulled along with the water and up the paper strip. Differently colored ink molecules will leave the water at different heights. As colored molecules leave the water stream, they create the different colored bands seen on the paper.