

Water Lab -Middle School Adhesion and Capillary Action

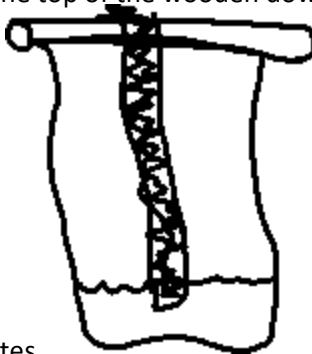
Standards met: NGSS: MS-PS1-1

Materials List:

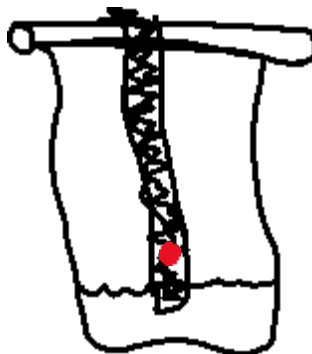
Penny
250 mL beakers
Stirring rod or wooden dowel
Water
Coffee filters or filter paper
Black ink pen
Paper towels

Procedure:

1. Cut the coffee filters or filter paper into strips about 2 cm wide and 20 cm long.
2. Fill the beaker with about 50 mL of water.
3. Fold one of the paper strips over the top of the wooden dowel with enough length hanging over to touch to water in the beaker.



4. Observe what happens for 5 minutes.
5. On a second paper strip, draw a .5 cm wide dot of ink using the black pen. Place the dot so that it is about 1 cm above the water when the strip is placed as described in step 3. Do not let the ink touch the water.
6. Observe what happens for 5 minutes.
7. If time allows, try this with other ink colors.



Observations of first strip

Observations of second strip

Explanation:

There is a force of attraction between the water molecules and the molecules making up the filter paper (adhesion). This force pulls the water up into the filter paper (capillary action).

When the ink is added, the adhesive forces between the water and ink also pull the ink up the filter paper. Different colors of ink have different adhesive forces so the colors will separate out as the water rises.

This is how plants get water from the soil up to their leaves.

<https://www.youtube.com/watch?v=g1v-uLmSng>