

Water's Adhesive Properties

Water is attracted to compounds or substances that are not water. This phenomenon is called adhesion. Water can wet other substances. In this activity the adhesive properties of water and other substances will be examined.

Materials:

Narrow strips (~.5 cm) of filter paper, approximately 6 inches long

Pencil

Test tubes (test tubes should be twice as wide as the filter paper strip)

Vegetable oil

Water

Milk

Alcohol (ethanol or methanol)

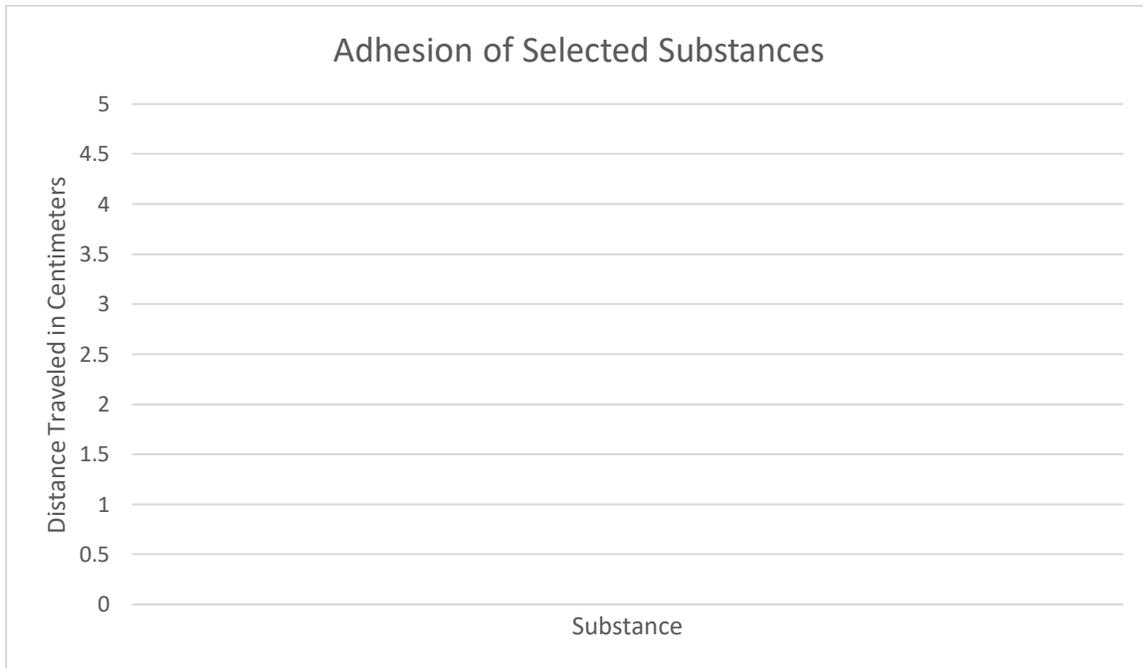
Tooth picks

Timer

1. Obtain 4 filter paper strips. Use a pencil to mark the filter paper strips in 1 cm intervals.
2. Obtain 4 test tubes from the supply table. Label the test tubes with solutions to be tested (water, vegetable oil, milk, alcohol). Use an indelible marker or wax pencil to mark each test tube 1 cm from the rounded bottom. All of the test tubes should be marked at the same level.
3. Fill each test tube to the mark with the solution labeled on the side of the test tube. Place the test tubes upright in a test rack.
4. Carefully insert a marked filter strip paper into the test tube marked vegetable oil. The filter paper should extend into the oil ~.5 cm or about halfway between the bottom of the paper and the first pencil mark. Do not allow the paper to touch the sides of the test tube.
5. Use a toothpick to hold the filter paper in place by pushing the toothpick through the paper at the level of the top of the test tube. Make sure the paper does not touch the sides of the test tube.
6. Repeat steps 4 and 5 with the remaining test tubes and filter papers.
7. Start the timer.
8. After 3 minutes, remove the filter paper strip from the vegetable oil and mark the level to which the vegetable oil wetted the strip (highest point that oil appears on the strip).
9. Repeat step 8 with the other filter paper strips. Remove the strips in the same order in which they were placed into the test tubes.
10. Measure the distance each solution traveled. Measure from the bottom of the filter paper strip to the mark you made after the 3 minute experimental period.

Data

Graph the results of your experiment below. Label the horizontal axis with the name of the substance.



Which substance traveled farthest up the filter paper?

Which substance moved the least distance?