

A'Mazing Water

Science IDEAS Project
 Student Activity

Goal:

To demonstrate the cohesive forces that keep water molecules together in drops.

Materials:

- water
- isopropyl alcohol
- 2 small cups
- eyedropper
- maze photocopy
- wax paper
- popsicle stick

Procedure:

1. Put a small amount of water in one cup, and a small amount of the isopropyl alcohol in another. Put an eyedropper in each cup.
2. Place the maze photocopy down on a flat surface.
3. Lay a piece of wax paper over the maze.
4. Place a drop of water at the beginning of the maze.
5. Use the popsicle stick to maneuver the water drop through the maze. No cheating!
6. Try to repeat the maze, but this time use a drop of isopropyl alcohol.



Journaling Opportunities:

- How did the water act differently than the alcohol. Why?
- Draw a picture showing the difference between the drop of water and the drop of alcohol on the wax paper.
- What substances could you add to the water to make it act like the alcohol?

What Happened?

Cohesive force between the water molecules kept them pulled tightly together. It is this force that causes water to stay in “drops.” The force is strong enough that when the drop is pushed on, all of the water molecules in the drop hold themselves together. The **adhesive** force between the water and the wax paper is not nearly as strong as the cohesive force between the water molecules. There is some adhesion present though, as you see when you push on the drop and it bends and warps before moving.

There is very little cohesive force between the molecules of isopropyl alcohol. The adhesive force between the alcohol and the wax paper is stronger, so the alcohol tends to spread out more than it stays in drops.