

Observing Phase Changes

Most matter exists in three different states — liquids, solids, and gases. These states of matter are also called phases. A substance can move from phase to phase and it's still the same substance! When molecules in a liquid move farther apart, they enter into a gas phase. This is called evaporation.

Objective

Investigate how two different liquids evaporate at different rates.

Materials

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| — water | — rubbing alcohol | — paper towels |
| — a tablespoon | — a marker | — scissors |
| — cellophane tape | — 2 large plastic cups | — a ruler |
| — an adult helper | — 2 small plastic cups | — a pencil |

Safety Notice: All applicable laboratory safety rules must be followed. Students should not perform any experimental activity without the teacher's supervision and express permission. Students must follow safety guidelines and wear appropriate protective gear.

Procedure

1. Place your two large plastic cups upside down on a flat surface, a little less than a pencil's width apart. Then lay the pencil across the cups and tape the pencil down at each end of the cup.
2. Carefully balance the ruler on top of the pencil. It's a little tricky, but you can do it!
3. Have your adult helper cut two strips of paper towel, each 20cm long and 4 cm wide. With the marker, label one for the alcohol and one for the water.
4. Using the two small cups, pour a tablespoon of water into one cup and tablespoon of alcohol into the other. (Remember, water and alcohol are both clear liquids so be careful not to mix them up. You can use your marker to label each cup.)
5. Using the marked strips of paper towel, dip one strip into the water until it is completely wet and the other strip into the alcohol until it, too, is completely wet.
6. At the very same time, carefully place the wet strips at the very ends of the ruler while keeping it balanced. You can ask a friend or your adult helper to assist you.

7. Watch the ruler closely as the alcohol and water in the paper towels evaporate. Where does the liquid go?

8. Can you predict which liquid will evaporate first? What do you think will happen to the ruler as the liquids in the paper towel evaporate?

9. Continue to observe the ruler until you see a change and then record what you see.

10. Can you explain what happened? Which liquid evaporated into gas more quickly? How did this change the balance of the ruler?
