A Condensation Sensation!

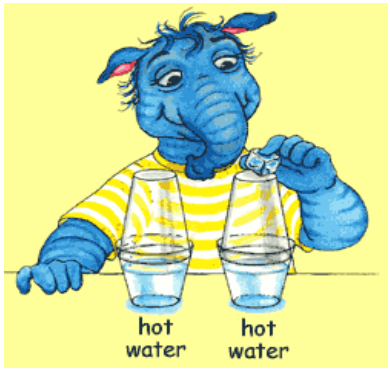
In the last activity you saw that increasing the temperature of liquid water increases the rate of evaporation. This means that water changed its state from a liquid to a gas. In this activity, let's see if decreasing the temperature of water vapor increases the rate of condensation.

Materials:

- 2 wide clear plastic cups
- 2 tall clear plastic cups
- Hot tap water
- Piece of ice
- Magnifier

Procedures:

1. Fill two punch cups about 2/3 full of hot tap water.
2. Quickly place a tall clear plastic cup over each of the punch cups as shown.



3. Place a piece of ice on the top of one of the cups and wait about 2-3 minutes.
4. After the ice has been on the cup for 2-3 minutes, remove it and use a paper towel to dry off the water from the melted ice.
5. Look closely at the top of each cup. Use a magnifier if you have one. What do you notice?

Think about this …

Water evaporates all the time from oceans, lakes, rivers, and other bodies of water. What do you think happens when the water vapor gets high into the sky and meets colder air? How does the activity you just did help you answer this question?

Where's the Chemistry?

When water exists as a gas (water vapor) the molecules are very far apart. But when water vapor or any gas is cooled, the molecules slow down and do not move so far apart from each other. As a gas is cooled, and the molecules move closer together, they can change back into a liquid. This process is called condensation. You saw in the activity that decreasing the temperature increases the rate of condensation.

The American Chemical Society develops materials for elementary school age children to spark their interest in science and teach developmentally appropriate chemistry concepts. The *Activities for Children* collection includes hands-on activities, articles, puzzles, and games on topics related to children's everyday experiences.

The collection can be used to supplement the science curriculum, celebrate National Chemistry Week, develop Chemists Celebrate Earth Day events, invite children to give science a try at a large event, or to explore just for fun at home.

Find more activities, articles, puzzles and games at www.acs.org/kids.

Safety Tips

This activity is intended for elementary school children under the direct supervision of an adult. The American Chemical Society cannot be responsible for any accidents or injuries that may result from conducting the activities without proper supervision, from not specifically following directions, or from ignoring the cautions contained in the text.

Always:

- Work with an adult.
- Read and follow all directions for the activity.
- Read all warning labels on all materials being used.
- Wear eye protection.
- Follow safety warnings or precautions, such as wearing gloves or tying back long hair.
- Use all materials carefully, following the directions given.
- Be sure to clean up and dispose of materials properly when you are finished with an activity.
- Wash your hands well after every activity.

Never eat or drink while conducting an experiment, and be careful to keep all of the materials used away from your mouth, nose, and eyes!

Never experiment on your own!

For more detailed information on safety go to www.acs.org/education and click on "Safety Guidelines".