

Warm it UP!

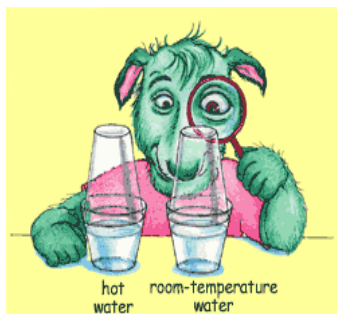
Have you ever noticed that puddles seem to dry up faster on a warm day than on a cool day? What makes that happen and where do you think the water goes?

Materials:

- 2 wide clear plastic cups
- 2 tall clear plastic cups
- Hot tap water
- Room temperature water
- Magnifier

Procedures:

1. Fill one punch cup about 2/3 full of hot tap water and fill another about 2/3 full of room temperature water.
2. Quickly place a tall clear plastic cup upside down over each of the punch cups as shown.
3. Watch the cups for about 2-3 minutes.



4. Look very closely at the sides and top of the top cups. Do you notice any difference between them? Use a magnifying glass if you have one. What do you think is on the inside of the cup over the hot water? How do you think it got there?

Think about this ...

There are lots of examples where water evaporates faster when it is warmed than when it is cold or room temperature. Wet

towels and clothes dry faster in warm weather because the water evaporates faster. Can you think of any other examples?

Where's the Chemistry?

Any sample of water is made up of an enormous number of water molecules. At all times, some of the water molecules are breaking away from the rest of the water and going up into the air. When water molecules do this, they change from liquid water to water vapor – a gas. This changing from a liquid to a gas is called evaporation. Heating a liquid causes evaporation to happen faster. That's why there is more evaporation from the hot water than the room temperature water. The water vapor is invisible so what you see on the inside of the top cup is actually the water vapor that has already turned back to liquid water. This is called condensation but we'll look at that more closely in the next activity.



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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".

