Lesson 3
When Does Water Turn Into A Gas?

Key Idea

When water gets very warm, it turns into water vapor (a gas).

Activity

Students will study water in its gas form and explore the concept of evaporation.

Materials

Paint paper for each child
Watercolors and brushes
Small water containers
Sink stopper

Procedure

1 Ask: How do we know there is moisture in our breath?

a Exhale close to the chalkboard so that moisture from your breath makes a dark, wet spot. Trace the spot with chalk and ask why the spot is darker than the rest of the board.

- Where did the moisture come from? (inside the lungs - Moist lung tissue allows gases in the air to dissolve and pass in and out of our bodies.)

b Fan the spot to make the molecules move faster and watch it disappear. Introduce the word evaporation. Write it on the board and clap out the syllables as children say it. Discuss the root word vapor.

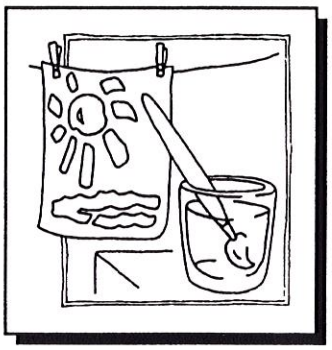
- What are some ways you can make water evaporate or jump into the air? (heating, boiling)
- To relieve a bad chest cold, some parents use steam to help you feel better. (heating water in a vaporizer)

Procedure
(cont.)

2 Ask: How does evaporation help us when we paint?

Have the children paint a picture of their favorite water play activities.

3 To show how much water is used for paint cleanup, stop up the sink before children wash hands, brushes, or water cups. Then follow with class discussion on how water was used.



- How did we use water to mix our paint and spread it?
- How much water did we use to clean up? How might we have used less?
- What became of the sink water when we pulled the stopper?
- What if the water we used to paint did not evaporate?

4 Ask: Where did the water go from our paintings?

To share the paintings, string a clothesline across the chalkboard at the children's eye level. As the children finish, let each child hang his/her picture with a clothespin. Allow time for the children to walk by and enjoy each other's pictures.

5 Then ask: What kinds of "playing with water" do our pictures show? Where do you go for this kind of water play? Where did the water go that we used to mix our paints?

When we made water very cold it became a solid. When water is spread out to dry, as in our pictures, it evaporates or turns into an invisible gas, water vapor. Some of the tiny drops which jumped into the air are still around us even though we can't see them. What if water didn't like to jump away and hide when it gets too warm? (There would be no water vapor to make clouds for rain or snow.)

Extension

Help the students understand that different materials dry at different rates.

Why do some things dry so much faster than others?

Obtain three or more cloth samples of different thicknesses or textures (nylon, cotton, etc.)

Which of these will dry fastest? Slowest? Ask for volunteers to wash (rinse) the samples and hang them out to dry. Keeping track of drying time might be interesting for some. Examining cloth with a magnifying glass might interest others. The weave and texture under magnification is surprising.

- What is the best time of day to dry things outdoors? (daylight) Why? (Sun's heat is greatest.)

- What is the worst time of day to water plants outdoors? (night) Why? (The plants remain wet through the night, resulting in a condition favorable to certain plant diseases.

  If you are trying to reduce the amount of water lost to evaporation, early morning watering is recommended.)