

Up, Up, and Away

Description

In this activity, students observe water changing from a liquid to a gas during evaporation.

Time Frame

1 lesson (and approximately 10 minutes for 3–5 days for data collection)

Correlation to Texas Essential Knowledge and Skills

During this activity, students will be exposed to the following Texas Essential Knowledge and Skills:

Note: Some TEKS statements below end with a ; or *and* and nothing thereafter—this indicates that further TEKS statements follow but are not included here.

(2.10) Science concepts. The student knows that the natural world includes rocks, soil, water, and gases of the atmosphere. The student is expected to:

- (A) describe and illustrate the water cycle; and

Note: The TEKS listed here are the main content TEKS for this activity; however, this activity may also cover additional content and process skills included in other TEKS.

Materials

Damp sponge
Water
Clear plastic cups (1 per group)
Permanent marker (1 per group)
Unifix® cubes
Water journal for each student
Water Rhyme (included at the end of this activity)

Background Information for the Teacher

Approximately 71% of the earth is covered by water. Water evaporates when energy is added and condenses energy is lost. The loss of energy causes the water to cool. Small drops of condensed water suspended in the air can become enlarged as the droplets come together. When they become too heavy, the water precipitates (falls from the air).

Evaporation, condensation, and precipitation that occur in the water cycle are abstract concepts. Because water vapor is an invisible gas, teachers and students may use the terms, but in this activity the purpose is to observe and describe the processes rather than to explain how or why it occurs.

Advance Preparation

1. Locate places where clear plastic cups of water can be stored for evaporation to occur. The locations should not be in high traffic areas. List these sites on a chart for student reference, leaving space for additional sites students may suggest.
2. Create water journals by stapling together several sheets of paper for each student.
3. Write the Water Rhyme on the board or overhead transparency.

Procedures

1. Lead the class through the first line of the Water Rhyme. Ask the students, “What are the ways for water to go away? Let’s see if we can find ways to make water go away without pouring the water out.” Wipe a damp (not wet) sponge across a non-permeable material such as a chalkboard or transparency sheet so the class can clearly see water left behind. Begin a class discussion with: “I need to get rid of this water so I can use the board. Will it soak in? What can I do? I could dry it with a towel, but I don’t have one.” Explain to the students that the water will go away after a period of time. Ask for suggestions on how to make the water go away faster; suggestions might include blowing on the water or putting it in the sun.
2. Have the students draw before and after pictures of the wet board in their water journals.
3. Divide the class into small groups, and give each group a clear plastic cup of water and a marker. Students should measure the water level using Unifix cubes, and mark the level line on the outside of the cup. In their water journals, students record the date and their measurements (in terms of Unifix cubes), and draw and label a picture of the cup showing the water level.
4. Have each group label its cup. Allow each group to place its cup in a location from the list of possible sites that you created at the start of this activity. Be open to student suggestions that also fit the criteria but are not on the list.
5. Bring students’ attention back to where the water spot was left by the sponge. Ask, “What happened here? Where did the water go? Where else have you noticed water disappearing? What do you think happened to it?” Discuss the change that occurred and possible explanations for where the water went. Share line 2 of the Water Rhyme: “Water, water, went away, found a place to hide away.”
6. Based on the discussion of the disappearing water stain on the board, ask students, “What do you think is going to happen with the water in your cup over the next few days?” Discuss expected changes in the water levels of each cup.
7. Groups should observe and measure the water in their cups daily for the next several days. Students record in their journals each day’s measurement and a

drawing of their observations. Monitor and assist students who may need help measuring or recording their observations.

Note: The clear plastic cups may be observed daily or set out on a Friday and observed the following Monday.

8. Discuss changes in water level that occurred over a 3–5 day period: “Did everyone’s water level change? Did each cup change the same amount?” Have students discuss and compare their findings. “What seemed to make the water disappear the fastest?” Discuss what might have happened to the water missing from the clear plastic cups.

Note: A common problem for students at this age is distinguishing between evaporation, absorption, and drainage. You may want to demonstrate how water is absorbed by using paper towels or sponges, and show how water leaks out by pouring water into a sieve, a cloth bag, or a flower pot that has a drainage hole at the bottom.

9. Ask, “Did some locations produce more change? Less change? Where?” Discuss how the conditions at each location were different: “What might have caused a greater change at some locations?” Students may need to run another experiment to compare, clarify, or collect additional data.
10. Review lines 1 and 2 of the Water Rhyme.
11. Review the rhyme “Rain, Rain, Go Away.” Be sure students understand that the rain can go away, but there is still water in the air that we cannot see.
12. Have students write a few sentences in their water journals telling what may have caused the water in their cups to disappear over time and where the water went. Students should understand that the water goes into the air under different conditions, but that the water does not actually disappear. Have students use their measurements to determine the amount of evaporated water each day and graph these amounts. Display student graphs.

Water Rhyme

(Sung to the tune of Rain, Rain, Go Away)

1. Water, water, will you stay or find a way to go away?
2. Water, water, went away, found a place to hide away.
3. Water, water, hide away, collect as droplets where you stay.
4. Water, water, droplets play, become clouds without delay.
5. Water, water, clouds are growing, now we find your rain is showing.
6. Water, water, circle away, come as rain another day.
7. Water, water, reappear, keep the circle going here.