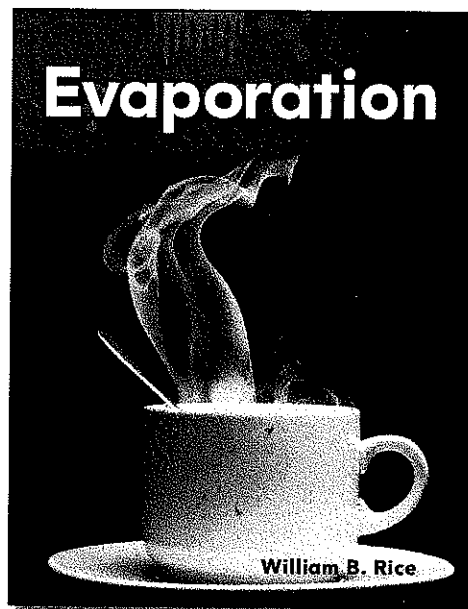


Science Readers: A Closer Look

Lesson Plan for

Evaporation



Author

Kathleen Kopp, M.S.Ed.

**Teacher
Created
Materials**
PUBLISHING

Teacher Created Materials

5301 Oceanus Drive

Huntington Beach, CA 92649

<http://www.tcmpub.com>

TCM 13836 (i5177)

© 2011 *Teacher Created Materials, Inc.*

The classroom teacher may reproduce copies of materials in this book for classroom use only. The reproduction of any part for an entire school or school system is strictly prohibited. No part of this publication may be transmitted, stored, or recorded in any form without written permission from the publisher.

Consultant

Scot Oschman, Ph.D.
Palos Verdes Peninsula Unified
School District
Rancho Palos Verdes, California

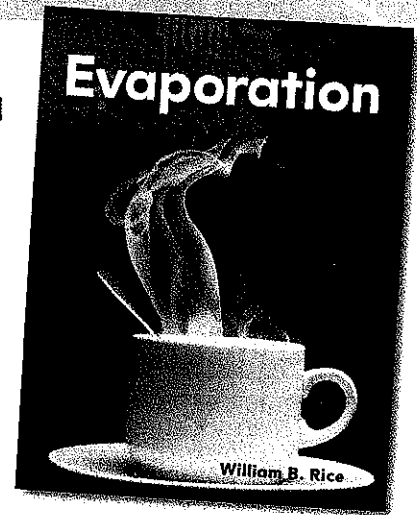
Publishing Credits

Dona Herweck Rice, *Editor-in-Chief*; Lee Aucoin,
Creative Director; Don Tran, *Print Production Manager*;
Timothy J. Bradley, *Illustration Manager*; Chris
McIntyre, *Editorial Director*; James Anderson, *Associate
Editor*; Robin Erickson, *Interior Layout Designer*;
Stephanie Reid, *Photo Editor*; Corinne Burton, M.S.Ed.,
Publisher

Evaporation Reader Lesson Plan

Learning Objectives

- Students use reading skills and strategies to understand and interpret nonfiction. (Reading Objective)
- Students summarize information found in text. (Reading Objective)
- Students understand the structure and properties of matter. (Science Objective)
- Students know that things can be done to materials to change some of their properties (e.g., heating, freezing, mixing, cutting, dissolving, bending), but not all materials respond the same way to what is done to them. (Science Objective)
- Students know that Earth materials consist of solid rocks, soils, liquid water, and the gases of the atmosphere. (Science Objective)



Materials

- *Evaporation* Reader
- board or chart paper
- *The Story of Evaporation* activity sheets (pages 6–7)
- *Liquids and Gases in the Water Cycle* activity sheet (page 8)
- *Reader Quiz* (page 9)
- materials for the Lab activity (page 12)
- *Evaporation in the Rainforest* resource page (page 13)

Before Reading

- Lead a discussion about what happens after it rains. Ask students to think about where all the water goes after it stops raining. List their ideas on the board or chart paper with the title "Where does the rain go?"
- Read pages 4–7 of the reader to the students. If they did not mention *evaporation*, add this to the list from Step 2 above. Distribute the first page of the activity sheet *The Story of Evaporation* (page 6). Read each example. Discuss how the water changes. Have students draw the "after" pictures. Review what kinds of things help water evaporate (e.g., *heat, hot wind*).
- Explain to students that water can exist in all three states of matter—as a solid, as a liquid, and as a gas. Have students give examples of water as a solid and as a liquid. Explain that they can see water as a gas when they see steam. But most of the time, they cannot see it. Explain that there is water in the air around them right now. Sometimes it is called *water vapor*.

Before Reading (cont.)

- On the board, write the vocabulary words students will encounter in the text (see below). Have students discuss in pairs what they think the words mean. Use each of these words in a sentence on the chart from Step 2.

Vocabulary

evaporate	evaporation
molecules	water cycle

During Reading

- Instruct students to skim through the reader once. Have each student share one page that interests them the most. Have them make a prediction about how evaporation affects the world around them.
- Read the chapter title on page 8 of the reader together ("Evaporation"). Have students preview pages 8 to 21. Read this chapter as a group. Discuss and clarify the opposite of evaporation (*condensation*, page 8). Have students act out becoming an excited water molecule. Their fingers may act as the water molecules. They are moving about, but not too quickly. (*Students spread out and wiggle their fingers slowly.*) Then, they are heated. (*Students wiggle their fingers more quickly.*) Finally, the molecules get so excited, they escape the water. (*Students hold their fingers far apart, high in the air.*) Now they are no longer water molecules; they are air molecules.
- Discuss and clarify why hot liquids evaporate more quickly than cold liquids as shown on page 14 of the reader.
- Students saw on the first page of the activity sheet, *The Story of Evaporation* (page 6), that the hot wind from the blow dryer and heat from the stove are some things that help water evaporate more quickly. Ask students what other things might help water evaporate more quickly (*sun, heating lamp, clothes dryer, etc.*).
- Distribute copies of the second page of the activity sheet *The Story of Evaporation* (page 7) to students. Read the directions to students. Have them recite the words in the Word Box. Then, read the paragraph together. Help students fill in the missing words. Afterwards, they may draw their picture.
- Have students preview pages 22–27 of the reader. Review the steps of the water cycle using the diagram on page 23. Clarify what happens when water evaporates as part of the water cycle. Then, choral read pages 22–27. Ask students to explain why the water cycle would not work without evaporation.

After Reading

- Have each student share with a partner what he or she learned from reading this reader.
- Remind students that before water condenses to form clouds, it evaporates from Earth to the sky. Then, distribute the activity sheet *Liquids and Gases in the Water Cycle* (page 9). Students will only write two words to complete the page: *liquid* or *gas*. Read the directions to students. Discuss and complete the activity together. Then, have students think about Question 5. If needed, lead students to understand that some water evaporates before it can move over land, as in a puddle or clothes put on a line to dry.
- This reader mentions that some rain in a rainforest evaporates slowly because the air is so wet (pages 18–19). They may be surprised to find out that some rain in a rainforest is a result of its own evaporation. Distribute copies of the *Evaporation in the Rainforest* resource page (page 13) to students. Look at the pictures. Have students make observations about the rain and steam. Then, read the information to students. Discuss how this water cycle is a little different from the one shown on page 23 of the reader.
- Use the *Reader Quiz* (page 9) to further assess student learning. Depending on the reading abilities of students, consider reading each test question aloud to students before they record the answer.
- Gather all students together as a whole class to complete the Lab activity (pages 11–12).

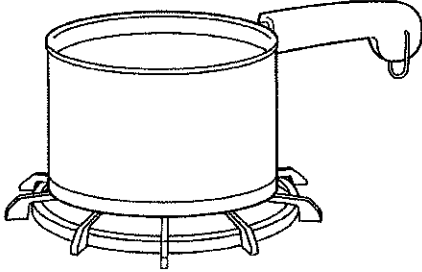
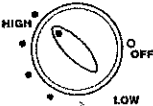
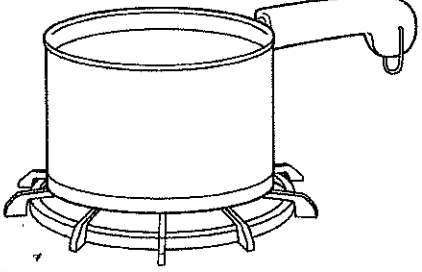

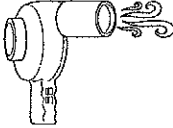
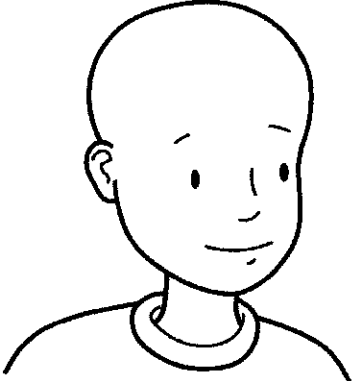
Extension Ideas

- Have students read *A Scientist Today* on page 32 of the reader. As a group, compare how the animal found by Roberto Danovaro differs from most living things on Earth.
- Compare how quickly different amounts of water evaporate. Measure 10 mL, 20 mL, 30 mL, and 40 mL of water in each of four small beakers. Place the water on a sunny ledge. Keep track of how many days it takes for each beaker to completely evaporate.
- Compare the evaporation rate of water in different solutions. Measure the same amount of water (10 mL) into 4 beakers. Add 1 mL salt to one beaker, 1 mL of dish soap to another beaker, and two drops of food coloring to the third beaker. Leave the fourth beaker alone. Again, measure about how long each amount of water takes to completely evaporate. Discuss how the beakers with added materials differed from the plain-water beaker.

Name _____

The Story of Evaporation

Directions: Read about evaporation. Draw what happens in the AFTER picture because of evaporation.

Before	Heat	After
<p>1.</p>  <p>water on the stove</p>		 <p>steam</p>
<p>2.</p>  <p>wet hair</p>		 <p>dry hair</p>

The Story of Evaporation *(cont.)*

Directions: Read the story below. Use the Word Box to fill in the blanks. Draw a picture to show what happens in the story.

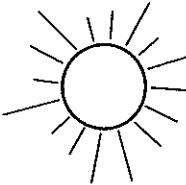
Word Box

evaporate faster gas
liquid molecule sun

I am a liquid water _____ in a puddle.

The _____ warms me up. I get excited. I move
_____ . Soon, I _____ . I

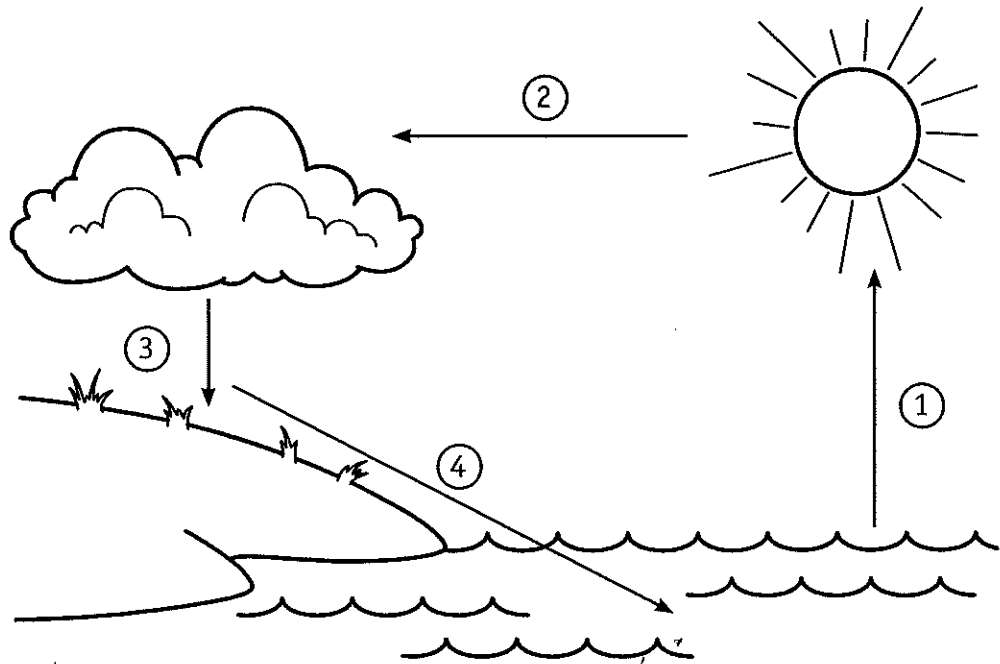
change from a _____ molecule. Now, I am a
_____, or air, molecule.

Before	Sun	After
		

Name _____

Liquids and Gases in the Water Cycle

Directions: Look at the diagram. Complete the sentences using the words *liquid* or *gas*, to explain the water cycle.



1. Water evaporates. It changes from a _____ on Earth to a _____ in the sky.
2. Water condenses. It changes from a _____ in the sky to a _____.
3. Precipitation forms. Rain falls to Earth as a _____.
4. Some water moves over land to the sea. It is a _____.
5. Only some water moves over land. What happens to the rest of it? _____

Name _____

Reader Quiz

Directions: Circle the best answer.

1. When water evaporates:

- a. it turns into a liquid.
- b. it turns into a solid.
- c. it turns into ice.
- d. it turns into a gas.

2. What happens when molecules get heated?

- a. They move slower.
- b. They move faster.
- c. They stop moving.
- d. They disappear.

3. Water will evaporate more quickly when it is _____.

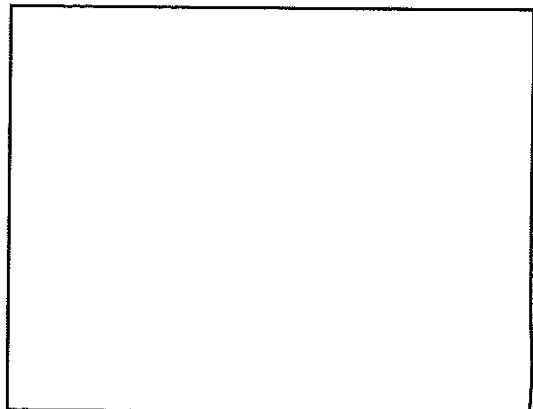
- a. frozen
- b. cold
- c. warm
- d. boiling

4. What is one example of evaporation?

- a. Water moves from Earth to the sky.
- b. Water forms clouds.
- c. Water falls to Earth.
- d. Water sinks into Earth.

Directions: Answer the question. Draw a picture with your answer.

5. What are some examples of evaporation?



Evaporation Answer Key

The Story of Evaporation (page 6–7)

Check students' papers. They should have drawn:

1. steam coming out of the pot
2. dry hair on the boy (students can have fun creating his hairstyle)

Fill in the blanks:

molecule; sun; faster; evaporate; liquid; gas

Students' illustrations should show a puddle; sun; no puddle or a smaller puddle.

Liquids and Gases in the Water Cycle (page 8)

1. liquid; gas
2. gas; liquid
3. liquid
4. liquid
5. It evaporates; It soaks into the ground

Reader Quiz (page 9)

1. d
2. b
3. d
4. a
5. Answers and drawings will vary.

Lab Lesson Plan: What Is Evaporation?

Before the Lab

- 1 Review with students what they learned about liquids.
- 2 Discuss and clarify how liquids can change their state. Have students give examples of water in all three states (solid, liquid, and gas). They should also explain how it changes from one state to another (*e.g., as the effect of heating or cooling*).

Introduce the Lab

- 1 Read the introductory statement with students. Have students discuss with a partner how they think they can “see” evaporation.
- 2 Read the list of materials and Procedure Steps 1 through 6 with students. Create a class hypothesis as to what they think will happen in each of the two cups.

Conduct the Lab

(**Note:** Set aside time every two hours or so to record changes to the amount of water in the cups.)

- 1 Conduct this experiment as a class demonstration, or provide the needed materials to each pair of students. If possible, use beakers to measure the exact amount of water to fill each cup in Step 1. Complete the Procedure through Step 6.
- 2 As a class, discuss the data collected from this experiment.
- 3 Read Step 7. Confirm or revise the hypothesis that students created in Step 4 above. Write a class summary explaining what happened in each cup.

After the Lab

- 1 Have students predict how this experiment would differ if it had been conducted in the classroom instead of in the sun. If possible, re-run this experiment in the classroom. Discuss and clarify the students’ findings.
- 2 Have students individually summarize what they learned during this lab. They should explain how they can “see” evaporation.

*Evaporation***Lab: What Is Evaporation?**

You can see evaporation in action if you follow these steps.

Materials

- 2 clear plastic cups
- marker
- plastic wrap
- water
- a sunny day

Student readers have identical instructions on pages 28 and 29.

Procedure

1. Fill each cup with water. Be sure the cups have the same amount of water.
2. Put plastic wrap tightly over one cup.
3. Mark the water line on both cups.
4. Place the cups outside in the sun where nothing will knock them over.
5. Check the cups after two hours. Did the water go down in either cup? Mark the new water line.
6. Check again in two more hours. Mark the water line again.
7. Keep checking over time. You will see that the cup that is not covered is losing its water. But the water did not spill. It has evaporated in the heat of the sun. The plastic covering does not allow the water from the second cup to evaporate, so it should all still be there.

Evaporation in the Rainforest

Rainforests get a lot of rain. They get over 200 cm of rain per year! Half of the rain in a rainforest comes from its own evaporation. It rains hard. Then it stops. It is hot. Steam rises from the plants and ground. Water evaporates. Some of this water vapor condenses. It pours down more rain. The cycle continues.

