



# Explore Watersheds

*What are you always in, no matter where you are standing?*

## GRADE LEVEL

- 3-6

## SUBJECT AREAS

- Geography, Earth Science, Environmental Science, Ecology

## SKILLS

- Analyze, Interpret, Apply, Evaluate, Technology

## VOCABULARY

Borders, cargo, downstream, drains, fertilizers, gravity, ground water, headwaters, main stem, mouth, pavement, ports, precipitation, surface water, reservoir, settling tanks, solid particles, traditions, tributaries, upstream, water treatment center, watershed, watershed boundary

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## MEASURABLE OBJECTIVES

Learners will:

- Identify parts of a watershed.
- Describe how water moves through a watershed.
- Discuss what is found within the borders of a watershed.
- Recognize that all land is part of a watershed.
- Summarize what is found within their unique watershed.

## BACKGROUND AND TEXT OVERVIEW

### INTRODUCTION

No matter where you live and how much or how little water is nearby, you live in a watershed. A watershed, also called a basin, drainage or catchment, is an area of land that drains into a specific body of water like a river, stream or lake. It includes everything within its borders—all the land, air, plants, animals, mountains, deserts, cities, farms, and even people, their stories and traditions.

### GOING DOWNHILL

Due to gravity, water flows downhill, from higher points to lower points. Although it is easiest to imagine watersheds in areas where there are hills or mountains, water flows downhill even in relatively flat areas. Even small differences in elevation can create watersheds.

### SEEING WATERSHEDS

Visualizing a watershed begins with identifying the main river (main stem) in the watershed. To see the whole watershed, it helps to identify some of its major geographic features.

The main feature of a watershed is the major river all water drains into, which is called the **main stem**. The place where this river meets a larger river or the sea is called the river's **mouth**. **Tributaries** are the smaller rivers that flow into a larger river, adding

water to it. The **headwaters** are found at the beginning of this river. A **watershed boundary** is the edge of a watershed, beyond this boundary water flows into another watershed.

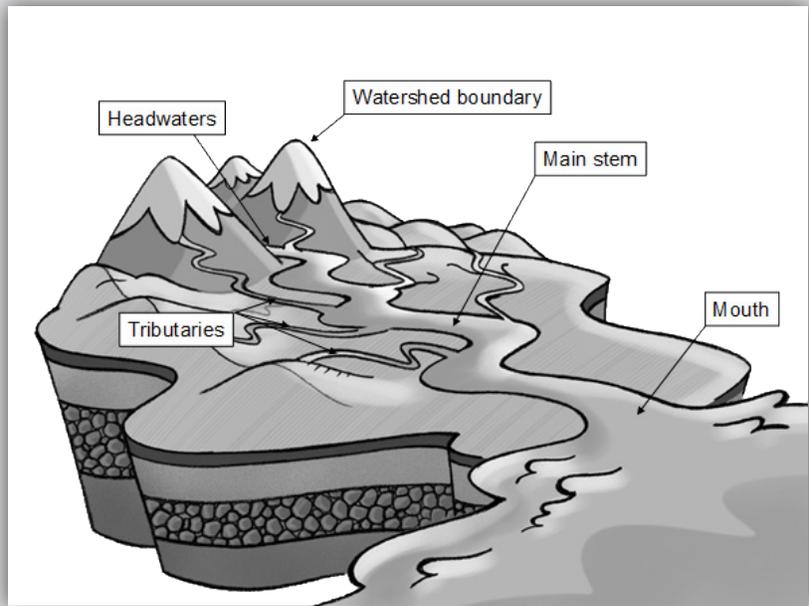
Smaller watersheds exist within larger watersheds. The largest watershed division in North America is the Continental Divide, also called the Great Divide. Water that falls west of the Continental Divide flows into the Pacific Ocean. Water that falls east of the Continental Divide flows into the Atlantic. Within each of these very large watersheds there are many small watersheds.

### DRINK IT UP

The water that comes out of your faucet very likely comes from your watershed. Think about where you live. Is there a river close to your town? Water in rivers, lakes and wetlands is called surface water. These sources of water are easy to identify and the water that comes from your faucet might come from one of these places. But there is another source of water that is not visible—ground water. Ground water is found beneath the earth's surface, moving through tiny spaces in rocks and among soil particles. Water that falls on your neighborhood (as rain or snow) probably flows directly into a nearby river. It might also flow into a smaller river first or filter underground.

### WE ALL LIVE DOWNSTREAM

Every watershed is different, but an old saying holds true every place on Earth: We All Live Downstream. This means we're all watershed neighbors and share responsibility for protect-



ing our watersheds. Protecting watersheds is important because they support everything from the water we drink and use to grow food, to water for industry, transportation and wildlife. What goes on in your watershed will affect the water there. It is important to think about what is happening in your watershed to make sure your drinking water stays clean and plentiful.

### ACTIVITIES

#### SEEING MY WATERSHED ACTIVITY

Please see *Seeing My Watershed Activity* student copy page.

#### SEEING MY WATERSHED ACTIVITY ANSWER KEY

Answers will vary

### TAKE ACTION!

#### POSTER ITEMS

1. I will start a watershed protection club at school.
2. I will tell my parents if I see oil stains under the car so they can fix the leak and the

oil doesn't end up flowing into a river or stream.

3. I won't litter; it could enter storm drains and local rivers.

### ACTIVITIES

- Have students investigate if there is a volunteer watershed-monitoring program for their local river in which they could participate.

### ASSESSMENTS

#### PRETEST/POSTTEST

Before students visit the *Explore Watersheds Unit* of the *Discover Water* website, have them take the following quiz to see what they already know about watersheds. Have students take the same quiz again as a posttest to measure learning.

#### PRETEST/POSTTEST ANSWER KEY

1. All of the above
2. True
3. True

4. True
5. True
6. True
7. True

## CRITICAL THINKING QUESTIONS

### LEVEL 1

Explain how water moves through a watershed in your own words.

*Answers will vary but should include the idea that water flows from higher to lower elevations due to gravity. Key words include headwaters, tributaries, main stem and ocean.*

### LEVEL 2

What are you always in, no matter where you are standing?

*Answer should explain that all land on Earth is part of a watershed—no matter where you are, water is draining through a watershed toward lower elevations and eventually the ocean.*

### LEVEL 3

Part 1: Where does the water that comes out of your faucet come from?

*Answers will vary—students may need to research the source of their water.*

Part 2: Are there human factors in your watershed that could affect your water?

*Answers will vary—students need to think about the path their drinking water takes from its source, to where it is treated, to their faucets and what it encounters along the way.*

## WHAT DID I LEARN? ONLINE QUIZ ANSWER KEY

Q. Everyone on Earth lives in a

watershed.

A. True

Q. A watershed includes everything within its borders—land, animals, plants, people, their traditions and more.

A. True

Q. Smaller watersheds exist within larger watersheds.

A. True

Q. Smaller rivers that flow into a larger river are called \_\_\_\_\_?

A. Tributaries

Q. Water within a watershed flows from higher elevations to lower elevations.

A. True

## EXTENSIONS

Ideas for ways to support and expand lesson plans about this topic or provide additional activities for advanced learners.

- Use a map of your area and tracing paper to create a map/poster of your own watershed—draw on important features including buildings or parks, etc.

## RESOURCES

### PROJECT WET RESOURCES

Project WET KIDS (Kids in Discovery Series) Booklets

- [Discover Bays and Estuaries](#)
- [Discover California Coastal Ecosystems](#)
- [Discover Floods](#)
- [Discover Ground Water and Springs](#)
- [Discover the Colorado River](#)
- [Discover the Hudson River](#)

- [Discover the Missouri River](#)
- [Discover the Red River](#)
- [Discover the Rio Grande](#)
- [Discover the Waters of Arizona](#)
- [Discover the Waters of Nebraska](#)
- [Discover the Waters of Nevada](#)
- [Discover the Waters of New Mexico](#)
- [Discover the Waters of Tennessee](#)
- [Explore Oceans](#)
- [Native Waters Sharing the Source](#)
- [Water Every Drop Counts](#)
- [Watershed Protection](#)

### Project WET Curriculum and Activity Guide 2.0 Activities

- [Back to the Future](#)
- [Blue River](#)
- [Color Me a Watershed](#)
- [Discover the Waters of Our National Parks](#)
- [Get the Ground Water Picture](#)
- [Make-a-Mural](#)
- [My Water Address, Take Action!](#)
- [Rainy-Day Hike](#)
- [River Talk](#)
- [Seeing Watersheds](#)
- [Snapshot in Time](#)
- [Snow and Tell](#)
- [Storm Water](#)
- [Sum of the Parts](#)
- [Your Hydrologic Bank Account](#)

### ADDITIONAL STUDENT RESOURCES

Castaldo, Nancy F. 2006. *River Wild: An Activity Guide to North American Rivers*. Chicago, IL: Chicago Review Press.

Collier, Michael. 2008. *Over the*

*Rivers: An Aerial View of Geology.*  
New York, NY: Mikaya Press.

Dobson, Clive, and Beck, Gregor  
Gilpin. 1999. *Watersheds: A Practical Handbook for Healthy Water.*  
Toronto, Ontario, BC: Firefly  
Books, Inc.

Rapp, Valeria. 2003. *Life in a River.*  
Minneapolis, MN: Lerner Publications Co.

### **ADDITIONAL EDUCATOR RESOURCES**

Bodzin, Alec and Louise Shive.  
2004. "Watershed Investigations."  
*Science Scope*, 27 (7), 21-23.

Environmental Concern and  
Project WET Foundation. 2003.  
*Wow! The Wonders of Wetlands Educator's Guide.* St. Michaels,  
MD: Environmental Concern, Inc.

Kenney, Jane L., Heidi Price  
Militana, and Mary Horrocks  
Donohue. 2003. "Helping  
Teachers to Use Their School's  
Backyard as an Outdoor  
Classroom: A Report on  
the Watershed Learning  
Center Program." *Journal of  
Environmental Education*, 35 (1),  
18-26.

McCallie, Ellen. 2003. "Science  
101: What is a Watershed?"  
*Science and Children*, 40 (7), 17.

Project WET. 2005. *Discover  
a Watershed: The Colorado  
Educators Guide.* Bozeman,  
MT: Project WET International  
Foundation.

Project WET. 2004. *Discover a  
Watershed: The Missouri Educators  
Guide.* Bozeman, MT: Project WET  
International Foundation.

Shepardson, Daniel P., Bryan

Wee, Michelle Priddy, Lauren  
Schellenberger, and Jon Harbor.  
2007. "What Is a Watershed?  
Implications of Student  
Conceptions for Environmental  
Science Education and the  
National Science Education  
Standards." *Science Education*, 91  
(4), 554-578.

**SEEING MY WATERSHED ACTIVITY** *(also in My Science Notebook)*

A watershed includes everything within its borders. In the boxes below, write down as many different things as you can think of for each category that are found in your watershed.

Feature	My Watershed
<p style="text-align: center;"><b>Land Features</b> (rivers, lakes, mountains, deserts, wetlands)</p> 	
<p style="text-align: center;"><b>Local Plants</b></p>	
 <p style="text-align: center;"><b>Local Animals</b></p>	
<p style="text-align: center;"><b>Cities and Towns</b></p>	
 <p style="text-align: center;"><b>Farms or Ranches</b></p>	

 <p><b>People</b></p>	
<p><b>Stories</b></p>	
<p><b>Traditions</b></p>	
<p><b>Air</b></p>	

1. What do you live downstream from?
  
2. What lives downstream from you?
  
3. What may be affecting the quality of your drinking water in your watershed?

# Explore Watersheds Unit Pretest/Posttest

1. What is another word for a watershed?
  - a. Drainage
  - b. Basin
  - c. Catchment
  - d. All of the above
2. True or false, water flows downhill due to gravity.
3. True or false, watersheds exist even in relatively flat areas.
4. True or false, tributaries flow into the main stem of a watershed.
5. True or false, a watershed contains both surface water and ground water.
6. True or false, your drinking water likely comes from your watershed.
7. True or false, what goes on in your watershed affects the water there.

Score: \_\_\_/7

