

RESOURCE LIBRARY

ACTIVITY : 1 HR 30 MINS

Mapping U.S. Watersheds

Students trace the Mississippi River and its major tributaries on a map of the United States. They use an interactive map or atlases to locate other major rivers and identify the major U.S. watersheds.

GRADES

3 - 6

SUBJECTS*Geography***CONTENTS**

1 PDF, 2 Images, 1 Link, 1 Resource

OVERVIEW

Students trace the Mississippi River and its major tributaries on a map of the United States. They use an interactive map or atlases to locate other major rivers and identify the major U.S. watersheds.

For the complete activity with media resources, visit:

<http://www.nationalgeographic.org/activity/mapping-us-watersheds/>

DIRECTIONS

1. Have students identify major bodies of water on a map.

Give each student a printed map of the United States and crayons or colored pencils. Have them find the large bodies of water—the Atlantic and Pacific Oceans and the Gulf of Mexico—and color them light blue. Explain that in this activity, students will find out how water flows over land in different parts of the United States and into these large bodies of water.

2. Have students trace the Mississippi River.

Give students thin markers. Have students find the Mississippi River and locate its two ends. Ask: *Where do you think the river begins?* (Minnesota) Explain that this is the source of the river. Ask: *Where does it end?* (New Orleans, Louisiana, at the Gulf of Mexico) Explain that this is the mouth, where a river empties into a larger body of water.

Have students trace the length of the river using a blue marker. Have them highlight the river name and label and mark with an arrow the location of the source of the river—tiny Lake Itasca in Minnesota. Ask: *How many states have a border along the Mississippi River?* (10 states) Have students follow the route of the river and draw an asterisk in each state that borders it.

Explain that the Mississippi is the longest river in the United States, with water traveling more than 3,782 kilometers (2,350 miles) from Lake Itasca before it reaches the Gulf of Mexico. Along its route, it is joined by water from many tributaries—the smaller rivers and streams that empty into it. The Mississippi River and its more than 250 tributaries are known as the Mississippi River System. The land that it drains is the Mississippi River watershed.

3. Have students trace the Mississippi's major tributaries.

Have students trace the largest rivers that flow into the Mississippi—the Arkansas, the Missouri, the Red, and the Ohio Rivers—using a purple marker. These are major tributaries of the Mississippi River. Have students highlight the names of these. Ask: *How is the Platte River different from the rivers you traced in purple?* (The Platte River flows into the Missouri River, a tributary, instead of into the Mississippi River.) Have students trace the Platte in light blue and highlight its name.

4. Have students mark the Mississippi River Watershed.

Explain that next the class will look at a map of the river system and watershed. First, ask: *How many states do you think have land that is part of this watershed?* Have students take a few minutes to independently count the states they expect have tributaries that flow into the Mississippi eventually. List their predictions on the board.

Project the Mississippi River System and Watershed map. As a whole class, count the states that have some land that is part of the Mississippi River system. The class should count a total of 29 states, plus part of Canada. Have students draw on their maps a line in pencil around the Mississippi River watershed. Then have them use a colored pencil to shade the entire watershed.

5. Have students identify other major U.S. rivers.

Have students use an atlas or the National Geographic MapMaker Interactive to help them identify the remaining rivers on the U.S. map. Note that the map handout only shows the major rivers; students will probably see many more rivers in atlases. Ask students to do the following:

- Trace rivers that eventually flow into the Atlantic Ocean in *red*. (Connecticut, Hudson, Delaware, Potomac, Susquehanna, Savannah)
- Trace rivers that eventually flow into the Pacific Ocean in *orange*. (Columbia, Snake, Yukon, Sacramento, San Joaquin, Colorado)
- Trace rivers that eventually flow into the Gulf of Mexico in *blue*. (Rio Grande, Alabama)

6. Have students analyze the relationship to the shape of the land.

Brainstorm how the shape of the land and the flow of water are related. Talk about how water flows from areas of higher elevation to lower elevation. If possible refer to rivers or streams in your own community or nearby. Ask: *Where do you think areas of higher elevation are in the United States?* Have students refer to an atlas if needed to mark on their maps the locations of the two major mountain ranges in the United States—the Appalachian Mountains and the Rocky Mountains. Ask: *What effect does the shape of the land have on how water flows into the Atlantic Ocean, Pacific Ocean, and the Gulf of Mexico?* (From the Appalachians moving east, the land's elevation causes water to flow east; the rivers colored in red flow east into the Atlantic. South and west of the Appalachians but east of the Rockies, elevation causes water to flow south; the rivers colored in blue flow into the Gulf of Mexico. And west of the Rockies, the rivers colored in orange flow west into the Pacific.)

7. Have students determine other major U.S. watersheds.

Have a class discussion about how many of these rivers and the tributaries that flow into them form their own watersheds, such as the Colorado and the Alabama. The Susquehanna and Potomac are both part of the Chesapeake Bay watershed. The Snake River flows into the Columbia River, so they are part of another watershed. The Sacramento and San Joaquin meet and flow into the San Francisco Bay.

Working in groups of two or three, have students use the MapMaker Interactive and/or their atlases to try to find a total of 12 major U.S. watersheds, including the Mississippi watershed. Have them look for and mark with colored pencil the tributaries that flow into the rivers they marked in Step 5. Discuss students' findings and list them on the board.

Next, project the Watersheds of the United States Map. Ask: *Are any of these surprising to you?* (Students may be surprised by the Great Basin, which does not flow into the Pacific Ocean. Also, the southeast states are considered one watershed although several rivers flow into the Gulf and Atlantic separately.) Have students use this map to help them draw watershed boundaries and label the remaining 11 watersheds.

Modification

For advanced students, print the [United States Physical MapMaker Kit Tabletop Map](#) and have students work in small groups to find and trace even more tributaries that flow into the Mississippi River. Students will see many of the 250 rivers that make up the river system and watershed. Challenge students to determine the boundaries of the watershed by looking at where rivers start and how they connect. They can then trace the other major U.S. watersheds on this map as in the main activity.

Tip

Have students practice making a map key with the colors and shapes (lines and areas) used to trace the rivers and shade the watershed.

Tip

In Step 1, you can project the map printed for students, or the MapMaker Interactive, and then use the drawing tools to model the process.

Modification

In Step 5, since space is limited, you can have students number each river and then make a key that identifies each number by name.

Modification

In Step 6, students will vary in their use of cardinal directions, so allow them to express their understanding, as needed, by pointing and moving hands along the map while describing the movement of water.

Informal Assessment

Using the map of the United States as a guide, have students draw and label on a separate sheet of paper a fictional area of land with a major river, tributaries, an area of mountains, a source, and the mouth flowing into a body of water. Have them outline and shade the area that makes up its watershed. Then ask them to write a paragraph explaining the route a drop of water would travel from a tributary to the mouth.

Extending the Learning

- Have students research the history of the Mississippi River. Hundreds of years ago the Ojibwa Indians of Minnesota called it “Big River” and “Father of the Waters”—and people still do today. The river has always been used for transportation, fishing, and recreation. Have students work together to create a bulletin board that presents the river’s history using maps and illustrations.
- For a math extension, have students calculate the time it takes for a drop of water to flow from the source to the mouth of the Mississippi River, approximately 3,782 kilometers (2,350 miles). A drop of water travels at an average rate of 3 kilometers per hour (2 miles/hour). *Ask: How many hours will it take? How many days does that equal?* Allow students to use calculators as needed, and have them explain their calculations. (Answer: about 1,175 hours, or about 49 days.)
- Have students explore the provided Continental Divide encyclopedic entry and the maps included with it. Have them identify its significance, including the flow of water on either side of it, and then add a red line to their maps showing this divide.

OBJECTIVES

Subjects & Disciplines

Geography

Learning Objectives

Students will:

- identify and label the Mississippi River and its source, mouth, major tributaries, and watershed on a U.S. map
- identify other major U.S. rivers and watersheds
- analyze the relationship of watersheds to major mountain ranges

Teaching Approach

- Learning-for-use

Teaching Methods

- Discussions
- Hands-on learning
- Visual instruction

Skills Summary

This activity targets the following skills:

- 21st Century Student Outcomes
 - Information, Media, and Technology Skills
 - Information, Communications, and Technology Literacy
 - Learning and Innovation Skills
 - Communication and Collaboration
- Critical Thinking Skills
 - Applying
 - Understanding

- Geographic Skills
 - Acquiring Geographic Information
 - Asking Geographic Questions

National Standards, Principles, and Practices

NATIONAL COUNCIL FOR SOCIAL STUDIES CURRICULUM STANDARDS

- Theme 3:

People, Places, and Environments

NATIONAL GEOGRAPHY STANDARDS

- Standard 1:

How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information

- Standard 3:

How to analyze the spatial organization of people, places, and environments on Earth's surface

- Standard 7:

The physical processes that shape the patterns of Earth's surface

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS & LITERACY

- Reading Standards for Informational Text K-5:

Integration of Knowledge and Ideas, RI.3.7

- Reading Standards for Informational Text K-5:

Integration of Knowledge and Ideas, RI.4.7

- Reading Standards for Informational Text K-5:

Integration of Knowledge and Ideas, RI.5.7

THE COLLEGE, CAREER & CIVIC LIFE (C3) FRAMEWORK FOR SOCIAL STUDIES STATE STANDARDS

- Geographic Representations: Spatial Views of the World: D2.Geo.1.3-5:

Construct maps and other graphic representations of both familiar and unfamiliar places.

• **Geographic Representations: Spatial Views of the World: D2.Geo.3.3-5:**

Use maps of different scales to describe the locations of cultural and environmental characteristics.

Preparation

What You'll Need

MATERIALS YOU PROVIDE

- Highlighters
- Paper
- Atlases (1 per student or 1 per pair)
- Calculators (optional)
- Crayons or colored pencils
- Pencils
- Thin markers

REQUIRED TECHNOLOGY

- Internet Access: Required
- Tech Setup: 1 computer per classroom, Projector

PHYSICAL SPACE

- Classroom

GROUPING

- Large-group instruction

OTHER NOTES

Before conducting this activity, print one map of the United States for each student.

BACKGROUND & VOCABULARY

Background Information

A river is a large, natural stream of flowing water. Rivers are found on every continent and on nearly every kind of land. Some flow all year round. Others flow seasonally or during wet years. A river may be only kilometers long, or it may span much of a continent.

Measuring a river is difficult because it is hard to pinpoint its exact beginning and end. Also, the length of rivers can change as they meander, are dammed, or their deltas grow and recede.

During the water cycle, water travels through watersheds composed of streams and rivers and flows into larger bodies of water and eventually into the ocean. When precipitation falls and the land has absorbed all the water it can, the remaining water travels as runoff over the ground within the watershed. A watershed is the land included as part of an entire river system, or an area drained by a river and its tributaries. The shape of watersheds is greatly influenced by the land’s topography.

Prior Knowledge

[]

Recommended Prior Activities

- None

Vocabulary

Term	Part of Speech	Definition
elevation	noun	height above or below sea level.
map skills	noun	skills for reading and interpreting maps, from learning basic map conventions to analyzing and comprehending maps to address higher-order goals.
mountain range	noun	series or chain of mountains that are close together.
mouth	noun	place where a river empties its water. Usually rivers enter another body of water at their mouths.

Term	Part of Speech	Definition
river	<i>noun</i>	large stream of flowing fresh water.
river system	<i>noun</i>	tributaries, mouth, source, delta, and flood plain of a river.
route	<i>noun</i>	path or way.
source	<i>noun</i>	beginning of a stream, river, or other flow of water.
stream	<i>noun</i>	body of flowing water.
tributary	<i>noun</i>	stream that feeds, or flows, into a larger stream.
watershed	<i>noun</i>	entire river system or an area drained by a river and its tributaries.

For Further Exploration

Interactives

- [National Geographic Education: Activity—Mapping the World's Watersheds](#)

Maps

- [USGS: Science in Your Watershed](#)

Websites

- [U.S. Environmental Protection Agency: Surf Your Watershed](#)

