Mapping the Mississippi

Students explore the physical and social characteristics of the Mississippi River through Internet-based research and an interactive map to measure and analyze the river's geography. They compare these methods of investigation to understand the benefits of different types of learning resources.

GRADES

6 - 12+

SUBJECTS

Earth Science, Experiential Learning, Geography, Geographic Information Systems (GIS), Human Geography, Physical Geography

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3 Links, 2 PDFs

OVERVIEW

Students explore the physical and social characteristics of the Mississippi River through Internet-based research and an interactive map to measure and analyze the river's geography. They compare these methods of investigation to understand the benefits of different types of learning resources.

For the complete activity with media resources, visit:

http://www.nationalgeographic.org/activity/mapping-mississippi/

DIRECTIONS

1. Research the physical and human characteristics of the Mississippi River.

Explain to students that they will explore the Mississippi <u>River</u> and its <u>watershed</u> in two ways: through Internet research and with an interactive map called FieldScope. Have students work at computers individually, in pairs, or in small groups if necessary. First, have students read the National Geographic encyclopedic entry for watersheds to build their understanding of what a watershed is. Introduce the Mississippi River watershed, explaining how it is a complex physical and geographical feature that has important ecological, social, and historical implications. Then give students the Two Approaches: Mississippi River Research worksheet and ask them to complete Part 1. This section has questions about the physical characteristics and human geography of the Mississippi River and its watershed. Direct students to the National Park Service Mississippi River website to find the answers. Once students have finished the worksheet, discuss the answers as a class. Invite volunteers to share other information they found that was not on the worksheet.

2. Explore and analyze the Mississippi River using FieldScope.

Access the National Geographic FieldScope website for the New Orleans area. Follow the short tutorial in FieldScope with students to explore how it works. Have students carry out the instructions in Part 2 of the worksheet. Walk around the class as students work with FieldScope, helping them as needed. Once students have completed the worksheets, discuss the answers as a class. Discuss any differences in answers, such as those between calculations or identification of characteristics. Also discuss the broader context of the Mississippi River. Ask:

- *How are the features and impacts of the Mississippi River different when considering New Orleans versus the state of Louisiana?*
- *When considering the Midwest region and the U.S.?*
- *When considering the U.S. versus North America?*

3. Discuss different ways of learning about the Mississippi River.

To wrap up, engage students in a discussion on learning about the Mississippi River via fact-finding versus spatial exploration. First, focus on the fact-finding aspect. Ask:

- *Have you done this type of learning before?*
- *If so, for what kinds of topics?*

- *In what ways is this approach to learning challenging?*

Then explore spatial exploration. Ask:

- *How did mapping the Mississippi River help you build understanding of it?*
- *What was easy or challenging?*

Discuss other approaches to learning about the Mississippi River. Ask: *What are some other ways to analyze and understand the Mississippi River beyond the two options you used in this activity?* (field data collection, historical accounts) Finally, bring students' thoughts into context with broader questions about the Mississippi River. Ask:

- *Where do you think the Mississippi River plays the biggest role socially and ecologically?*
- *What role(s) does the Mississippi River play in your life?*

Tip

If accessible during class, take students to the library to do the fact-finding portion of the activity so they can search print materials as well as the internet.

Modification

For more advanced groups, have students investigate a current issue involving the Mississippi River and describe it to the class, including ecological and social implications.

Informal Assessment

Assess student learning by evaluating their worksheets and FieldScope notes and calculations for completeness and accurateness. Make sure students are able to describe both physical and social features of the Mississippi River. Also, ensure that all students participate in the discussions or class questions by contributing at least one answer or idea during the course of the activity.

Throughout the activity, walk around the room and ensure students are carrying out the FieldScope instructions, including taking notes about what they find as they go. Assess students based on level of engagement and competence development—whether they

understand the tasks and apply their understanding to their performance.

Extending the Learning

Have students compare and contrast the Mississippi River watershed with other watersheds in the U.S., such as the Colorado River watershed, or around the world, such as the Amazon or Nile watersheds. Have them investigate physical as well as social characteristics and present their findings to the class.

Add an English language arts connection by asking students to reflect on the following excerpt from Mark Twain's *Adventures of Huckleberry Finn*:

"We catched fish and talked, and we took a swim now and then to keep off sleepiness. It was kind of solemn, drifting down the big, still river, laying on our backs looking up at the stars, and we didn't ever feel like talking loud, and it warn't often that we laughed—only a little kind of a low chuckle. We had mighty good weather as a general thing, and nothing ever happened to us at all—that night, nor the next, nor the next."

Ask students to write their reactions to and impressions of this excerpt. Discuss how this quote, as a creative expression, lends another interpretation of the Mississippi River. Explore different types of understanding and sources of knowledge by asking students to compare and contrast the information and insights gained from poems and stories versus research and data collection.

OBJECTIVES

Subjects & Disciplines

Earth Science
- Experiential Learning

Geography
- Geographic Information Systems (GIS)
- Human Geography
- Physical Geography

Learning Objectives

Students will:

- identify and describe the physical and social characteristics of the Mississippi River and watershed
- describe human uses of the Mississippi River
- use GIS to measure and analyze physical characteristics of the Mississippi River and watershed
- compare and contrast different ways of learning

Teaching Approach

- Learning-for-use

Teaching Methods

- Discussions
- Hands-on learning
- Multimedia 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
  - Analyzing
  - Applying
  - Understanding
- Geographic Skills
  - Acquiring Geographic Information
  - Analyzing Geographic Information
  - Answering Geographic Questions

National Standards, Principles, and Practices

IRA/NCTE STANDARDS FOR THE ENGLISH LANGUAGE ARTS

- **Standard 12:**

Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information).

NATIONAL COUNCIL FOR SOCIAL STUDIES CURRICULUM STANDARDS

- **Theme 2:**

Time, Continuity, and Change

- **Theme 3:**

People, Places, and Environments

- **Theme 7:**

Production, Distribution, and Consumption

NATIONAL GEOGRAPHY STANDARDS

- **Standard 1:**

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

- **Standard 14:**

How human actions modify the physical environment

- **Standard 15:**

How physical systems affect human systems

- **Standard 4:**

The physical and human characteristics of places

Preparation

What You'll Need

MATERIALS YOU PROVIDE

- Paper
- Pencils

* Pens

REQUIRED TECHNOLOGY

* Internet Access: Required
* Tech Setup: 1 computer per learner, 1 computer per small group

PHYSICAL SPACE

* Classroom
* Computer lab

GROUPING

* Large-group instruction

BACKGROUND & VOCABULARY

Background Information

The Mississippi River and its watershed are a major geographical and hydrological feature of the United States. The watershed stretches from Canada, just north of Montana, to the Gulf of Mexico and covers nearly half of the continental United States. The Mississippi River itself is also impressive. At over 2,300 miles long, it is the third longest river in North America.

While the river and watershed impact a significant portion of the United States, the city of New Orleans, Louisiana is particularly influenced. Located at the mouth of the Mississippi River delta, or the confluence of the Mississippi River and the Gulf of Mexico, New Orleans' history, culture, economics, and ecosystems are uniquely tied to the river. It maintains a delicate balance between relying on the Mississippi River while also combating its impact on the landscape through a complex system of levees and water management. When this balance is upset, there can be devastating consequences for both human lives and ecosystems. This has never been more clear than in the destruction wrought by Hurricane Katrina in 2005.

Prior Knowledge

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Recommended Prior Activities

- Mountains, Rivers, and Vegetation of Europe
- Rivers of the Americas

Vocabulary

Term	Part of Speech	Definition
delta	*noun*	the flat, low-lying plain that sometimes forms at the mouth of a river from deposits of sediments.
ecosystem	*noun*	community and interactions of living and nonliving things in an area.
geographic information system (GIS)	*noun*	any system for capturing, storing, checking, and displaying data related to positions on the Earth's surface.
land cover	*noun*	physical material at the very top surface of the Earth, such as grass.
physical characteristic	*noun*	physical feature of an organism or object.
river	*noun*	large stream of flowing fresh water.
tributary	*noun*	stream that feeds, or flows, into a larger stream.
watershed	*noun*	entire river system or an area drained by a river and its tributaries.

For Further Exploration

Websites

- National Geographic Education: BioBlitz
- National Geographic: BioBlitz

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