

RESOURCE LIBRARY | ACTIVITY : 1 HR

In Your Watershed

Students learn the components of a watershed, identify examples of point and nonpoint source pollution, and then build a 3-D watershed model.

GRADES

6, 7, 8

SUBJECTS

Biology, Geography, Human Geography

CONTENTS

7 Photographs, 1 PDF

OVERVIEW

Students learn the components of a watershed, identify examples of point and nonpoint source pollution, and then build a 3-D watershed model.

For the complete activity with media resources, visit:

<http://www.nationalgeographic.org/activity/in-your-watershed/>

Program



DIRECTIONS

1. Introduce the vocabulary.

Introduce the vocabulary term [watershed](#). Ask students what they think the term means.

Display for students the satellite image of the Chesapeake Bay watershed. Then explain that a

watershed is the land area from which surface runoff drains into a stream, channel, lake, reservoir, or other body of water. Tell students that people are either directly or indirectly connected to bodies of water, which connect to land.

2. Distribute the worksheet.

Distribute copies of the worksheet Components of a Watershed to each student. Have students label the watershed components using the words along the bottom of the diagram. (Answers: 1. River Source, 2. Upstream, 3. Downstream, 4. Main River, 5. Tributaries, 6. Floodplain, 7. Watershed Boundary, 8. Meanders, 9. Wetlands, 10. River Mouth)

3. Have students identify examples of pollution.

Tell students that people use water for agriculture, industry, manufacturing, power, transportation, and recreation. Explain the meaning of terms [point source pollution](#) and [nonpoint source pollution](#). Show students the photo gallery and ask students to identify examples of each. Point sources include facilities such as sewage treatment plants and factory discharges; Nonpoint source pollution includes excess fertilizers from lawns and farms, oil from roads, overflows from city sewers, and animal waste.

4. Have students make a 3-D model of a watershed.

Divide students into small groups. Have each group begin by molding clay to represent mountains in a plastic or metal tray. Next, ask students to form the watershed by gradually leveling the clay so that it leads to the mouth of their river. Then, have them form river channels and coat with blue enamel paint and color the land with tempera paint. Finally, have students place construction paper figures on the model to simulate users of a river system, using the diagram in the worksheet as a guide. Let the model dry overnight.

5. Simulate the flow of water in a watershed.

The next day, have a volunteer from each group pour a slow, steady stream of water from the top of the mountain area. Have students watch how the "river" runs from its source to its mouth and orally describe it.

6. Have students apply their understanding to their own watershed.

Use the models to discuss your community's watershed. Ask:

- *Where are its boundaries?*
- *What are the main sources of pollution in our watershed?*
- *Who is impacted?*
- *How can we ensure the watershed is a clean resource for the community?*

OBJECTIVES

Subjects & Disciplines

Biology

Geography

- Human Geography

Learning Objectives

Students will:

- define the terms
- create a 3-dimensional model of a watershed
- apply what they learned to their own community's watershed

Teaching Approach

- Learning-for-use

Teaching Methods

- Discussions
- Hands-on learning

Skills Summary

This activity targets the following skills:

- Critical Thinking Skills
 - Applying
 - Creating
 - Understanding

National Standards, Principles, and Practices

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

NATIONAL SCIENCE EDUCATION STANDARDS

- (5-8) Standard F-2:

Populations, resources, and environments

PREPARATION

What You'll Need

MATERIALS YOU PROVIDE

- Blue enamel paint
- Construction paper
- Modeling clay
- Plastic or metal trays
- Scissors
- Tempera paint
- Toothpicks
- Water

PHYSICAL SPACE

- Classroom

GROUPING

- Small-group instruction

RESOURCES PROVIDED: HANDOUTS & WORKSHEETS

- [Components of a Watershed](#)

RESOURCES PROVIDED: IMAGES

- Chesapeake Bay Watershed
- In Your Watershed

BACKGROUND & VOCABULARY

Background Information

People in a watershed are either directly or indirectly connected to bodies of water that connect to land.

Prior Knowledge

[]

Recommended Prior Activities

- None

Vocabulary

| Term | Part of Speech | Definition |
|---------------------------|----------------|--|
| nonpoint source pollution | <i>noun</i> | toxic chemicals that enter a body of water from many sources. |
| point source pollution | <i>noun</i> | pollution from a single, identifiable source. |
| watershed | <i>noun</i> | entire river system or an area drained by a river and its tributaries. |

For Further Exploration

Websites

- [PBS: Strange Days on Planet Earth](#)

FUNDER



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