

BUILD YOUR OWN WATERSHED

Topic

Watersheds and Watershed Conservation

Duration

One Session

Vocabulary

basin
conservation
estuary
gravity
precipitation
pollutant
runoff
slope
watershed

STANDARDS

Practices

Developing and Using Models

Core Ideas

The Roles of Water in Earth's Surface Processes

Crosscutting Concepts

Patterns

OCEAN LITERACY PRINCIPLES

OLP 1, OLP 2

FOCUS QUESTION

What is a watershed?

OVERVIEW

Students define the term “watershed.” Students create a model of a watershed. Students identify their local watershed. Students discuss how they can protect their local watershed, and how doing so helps protect the ocean.

OBJECTIVES

Students will be able to:

- ★ Identify the term “watershed”
- ★ Assemble a watershed
- ★ Describe the connection between their local watershed and the ocean

MATERIALS NEEDED

Per Group:

- ★ Large plastic container such as a dish pan
- ★ Old newspapers or scrap paper
- ★ Kitchen-size trash bag
- ★ Pair of scissors
- ★ Spray bottle full of blue-colored water (preferably dyed blue)
- ★ Glitter or construction paper
- ★ Copy of activity sheet (page 28) for each group member

Other:

- ★ Blue food coloring
- ★ Model of watershed

TEACHER PREPARATION

1. Build a model of a watershed as an example for students (roll up newspapers to create a large slope, then cut a trash bag to size and tuck it under the newspapers).





Teacher Tips

- ★ Have students develop expectations for working together as a group.
- ★ Create specific jobs for members of each group.
- ★ Write and review step-by-step group procedure for students to follow.
- ★ Check out your local dollar stores for dish pans and spray bottles.



Extension Suggestions

- ★ Four Corners Movement Game: develop five to ten questions on watershed pollution scenarios with four possible solutions (a, b, c, d). Designate the four corners of your classroom as a, b, c, and d. Have students move to the corner of the room that corresponds to the answer they believe is correct. After all students have moved, have students explain why they chose their answer, then inform them of the correct answer.
- ★ The Watershed Quest Lesson Plan at pbs.org.

TEACHER PREPARATION (CONTINUED)

2. Prepare supplies for student groups (three to four students per group recommended)—fill each plastic container with old newspapers or scrap paper, a kitchen-size trash bag, one pair of scissors, one spray bottle full of blue-colored water, and either a bottle of glitter or a piece of colorful construction paper.
3. Plan on designating specific work spaces for groups.
4. Each student will need a copy of the activity sheet on page 28, and a pencil.
5. Teachers will need easy access to a whiteboard or interactive whiteboard to record student input.

BACKGROUND

A watershed is an area of land in which all water flows down into a common basin. The water collected in a watershed, called runoff, soaks into the ground or flows downstream into rivers, lakes, and the ocean. The runoff comes from precipitation or melting snow. Runoff that reaches the ocean flows through an estuary—an area where the rivers meet the ocean and freshwater and saltwater mixes together.

PROCEDURE

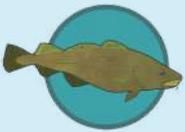
1. Ask students if they have ever heard the word “watershed” before, and ask them to attempt to define the word.
2. If students cannot come up with an accurate definition, write down this definition for all students to see: “A watershed is an area of land in which all water flows down into a common basin.” Inform students that a basin is a depression or “dip” in the land where water collects, such as a lake or ocean.
3. Have student volunteers attempt to draw a watershed based on the definition on a whiteboard or interactive whiteboard. Discuss with students the various characteristics of the drawings and label them with the following terms if possible: mountain, hill, stream, river, lake, ocean, slope, runoff, precipitation, and estuary. If you have time, show students an illustration of a watershed.
4. Show students your prepared model of a watershed and inform them that they will be working together in groups to create their own watershed.
5. Discuss the steps students need to take to create their own watershed.
6. Allow students fifteen to twenty minutes to create their watershed.





Books

- ★ *Watershed Adventures of a Water Bottle* by Jennifer Chambers
- ★ *All the Way to the Ocean* by Joel Harper
- ★ *Riparia's River* by Michael J. Caduto



Websites

- ★ Find your local watershed at the “Surf Your Watershed” web page created by the United States Environmental Protection Agency.
- ★ Check out watershed facts, videos, student action and games at the Caring for our Watersheds Website.



Scientist Notebook

- ★ Students can record the definition of watershed and record or paste their observations of their watershed model.

PROCEDURE (CONTINUED)

7. Once students have completed their watersheds, have them simulate precipitation by spraying blue-colored water several times on the top of the watersheds and observe what happens.
8. Have students add glitter or very small, torn up pieces of construction paper to areas near the top of their watershed, and have them spray blue-colored water several times again and observe what happens.
9. Have students disassemble their watersheds and recycle as many materials as possible.
10. Have students fill out the activity sheet (page 28).

WRAP-UP

- ★ Ask students to report what they observed when they “made” precipitation, and what happened when they added pollutants.
- ★ Have students come up with a list of pollutants that might contaminate their local watershed.
- ★ Ask students if and how these pollutants could impact the ocean.
- ★ Have students come up with ways they could prevent different types of pollution (conservation).
- ★ Conclude by addressing the fact that no matter how far away someone lives from the ocean, they can still impact the health of the ocean, as well as local waterways.



BUILD YOUR OWN WATERSHED



Name: _____

Date: _____

1. Draw your watershed model.

2. Record your observations of what happens when precipitation falls on your watershed.

3. Why does the water flow downhill?

4. What happened to the pollutants on your watershed?



WATERSHED DIAGRAM

