

## Lesson 15

# Wetland Wonders

Why are wetlands important?  
How are wetlands identified?  
What types of animals and plants live in wetlands?

**GOAL** To understand that wetlands are significant to the health of a watershed

**OBJECTIVES** Students will:

- ✓ simulate a wetland flow of water
- ✓ identify the importance of wetlands
- ✓ visit a wetland and observe the plants and animals
- ✓ compare a wetland to another type of ecosystem

**MATERIALS** aluminum tray with hole cut out, four sponges, wetland worksheet, clipboard, pencils, field guides, Wetland pictures from CD

### CORE CURRICULUM CONTENT STANDARDS

- Science 1(1,2), 3(4,5), 7(7), 8(2,3)
- Social Studies 9(1), 10(2,3), 13(5)

**VOCABULARY** wetland, saturate, filter, sediments

### PROCEDURES

1. Begin by asking students if they are familiar with the term *wetland* (Elicit responses). Provide them with some background information about wetlands.

Wetlands can form at edges of rivers, streams, ponds, and low-lying woods and are areas that are saturated with water for all or part of the year. They have qualities of both aquatic and terrestrial habitats and a diversity of plant and animal life. Surface water, ground water, and precipitation all contribute to the formation of wetlands. Water collects in low spots, such as rivers, ponds, and lakes. When the water saturates the surrounding land, then wetlands form. Wetlands are important to the watershed because they hold water, store it, and slowly release it over time. Because they have both land and aquatic characteristics, wetlands are some of the most diverse ecosystems on earth. The different plant species of a wetland provide habitat for a variety of animals. Microorganisms, invertebrates, and reptiles are common in wetlands. Additionally, many amphibians live in wetlands during at least part of their life cycle. A large number of fish species require wetland habitat for spawning, feeding, or protection from predation. Abundant food resources and sites for nesting, resting, and feeding attract many species of birds. Many breeding and migratory birds, especially waterfowl, are associated with wetlands, as are mammals such as muskrats, mink, raccoons, and beavers. About one-fourth of the plants, one-half of the fishes, two-thirds of the birds, and three-fourths of the amphibians listed as threatened or endangered in the United States are associated with wetlands.

Farmington River Watershed Education Curriculum: Middle School

Wetlands help to control floods by storing water and slowly releasing it to downstream areas after the flood peaks. Wetlands slow the flow of water, lessening erosion and causing sediments to settle out of the water. This improves water quality, as does the removal of nutrients and contaminants from the water by growing wetland plants and by chemical processes in wetland sediments. Wetlands act as natural filtering systems. They trap and neutralize sewage waste and promote the decomposition of many toxic substances. Wetlands also serve as sites where surface water can seep into the ground and replenish groundwater. Since the late 1700s, over half of the wetlands of the United States, (excluding Alaska), have been lost. Approximately 35 percent were lost by the 1950s; wetland destruction during the next two decades resulted in an additional loss equal to the combined area of Massachusetts, Connecticut, and Rhode Island. Wetland losses have resulted in greater flooding and erosion, reduced water quality, and reduced populations of many plants and animals.

2. Have students view pictures of wetlands from CD. Divide class into groups to demonstrate how wetland is able to store and filter water through an ecosystem.
3. Provide each group with an aluminum tray. Have them pour a shallow layer of water into bottom. Place a sponge in tray. Watch how it absorbs the water as soil does. Have a student place his finger on the sponge to create a depression.
4. Ask what happens to water once it reaches the wetland. Have students compare a watershed to one that has a wetland and one that does not.
5. Have students in groups poke a hole in one end of the aluminum tray and prop the tray up at an angle with a board or brick. Place 4 sponges in tray and pour two cups of water over the “wetland.” The sponges act like a wetland in that they absorb the water and slow the runoff.
6. Have students remove and wring out sponges, remove and empty water from tray. Have them repeat the demonstration without the sponges and compare the water flows.
7. Have student groups visit a wetland. Provide clipboards, pencils, and student worksheets (sample at end of lesson) to student groups to complete. Also, provide a field guide for students to use to identify plants and animals.
8. Have students look for the following in a wetland:
  - a. Observe plant species – spot and identify the dominant species.
  - b. Weather conditions – observe temperature of the soil and air, cloud cover, wind speed and direction.
  - c. Describe the soil and identify what lives there.
  - d. Identify various insect species.
  - e. Names of bird species and a description of what they are doing
  - f. Identify other animals and describe what they are doing.
  - g. Identify other animal signs.
  - h. Tally total number of species identified.
  - i. Compare the wetland to another ecosystem.
9. After students have completed their worksheets, have groups discuss their findings.

## **EXTENSIONS**

1. Discuss with students the significance of the following scenario:

A development is being considered in an area with wetlands. Wetlands are to be filled in with soil before construction begins. The wetlands are not in a protected area. Discuss the impact of this action with students. Ask if anything can be done to prevent this action.

2. Have students create a mural of the animal and plant species found in the wetland they observed.

## **RESOURCES**

Nelson, Dennis, *Project WET Curriculum and Activity Guide*, The Watercourse and Council for Environmental Education, 1995, Bozeman, Montana 59717 – 0570

Ranger Rick's Nature Scope *Wading Into Wetlands*, National Wildlife Federation, 1992, Washington, DC 20036-2266

"Wetland," Microsoft® Encarta® Online Encyclopedia 2003

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## **GLOSSARY**

**filter** - to pass through a filter; to percolate

**saturate** - to soak, fill, or load to capacity

**sediments** - fine soil or mineral particles, resulting often from the run-off from the land, which either settle to the bottom of a water body or are suspended in the water

**wetland** - a lowland area, such as a marsh or swamp, that is saturated with moisture, especially when regarded as the natural habitat of wildlife

## **Wetland Worksheet**

1. Describe the weather conditions.  
Air Temperature \_\_\_\_\_  
Soil Temperature \_\_\_\_\_  
Cloud Cover Percentage \_\_\_\_\_  
Wind Speed \_\_\_\_\_  
Wind Direction \_\_\_\_\_
2. Identify plant species and list. Name the dominant species.
3. Describe the soil. What is living there?
4. Identify insect species observed.
5. Identify any animal observed and describe what it is doing.
6. Identify birds and describe what they are doing.
7. List any animal signs observed.
8. Count number of species observed.
9. Compare the wetland to another type of ecosystem.