Wetland Types

Adapted from: An original Creek Connections activity created by Cassandra Hamilton. Creek Connections, Box 10, Allegheny College, Meadville, PA 16335 http://creekconnections.allegheny.edu

Grade Level: Basic

Duration: 30 minutes

Setting: Classroom

Summary: Students will learn about six common types of wetlands, which are freshwater marshes, freshwater swamps, saltwater marshes, mangrove swamps, fens, and bogs. After the discussion, students will then match pictures of different wetlands to their corresponding descriptions.

Objectives: Students will be able to identify and describe the major characteristics of two different types or saltwater wetlands and four different types of freshwater wetlands.

Vocabulary: Wetland, saltwater marshes, mangrove swamps, bogs, swamps, freshwater marshes, fens, peat, submergent

Related Module Resources:
- Fact Sheets:
  -"An Introduction to Wetlands"
  -"Wetlands Overview"
  -"Types of Wetlands"
- Wetlands books

Materials (Included in Module):
- Wetland Types Laminated poster
- 6 laminated wetland pictures on green paper (activity envelope)
- Seashells, peat, picture of waterlilies, and a picture of groundwater (activity envelope)

Additional Materials (NOT Included in Module):
- Moss
- Tape, magnets, or thumbtacks
- Other wetland plants and objects

ACADEMIC STANDARDS: (ENVIRONMENT AND ECOLOGY)

7th Grade
4.1.7.D. Explain and describe characteristics of a wetland.
- Identify specific characteristics of wetland plants and soils.
- Recognize the common types of plants and animals.
- Describe different types of wetlands.

10th Grade
4.1.10.D. Describe the multiple functions of wetlands.
- Analyze wetlands through their indicators (e. g., soils, plants, hydrology).

12th Grade
4.1.12.D. Analyze the complex and diverse ecosystems of wetlands.
- Describe and analyze different types of wetlands.

BACKGROUND:

What exactly is a **wetland**? It is land that gives way to water. Wetlands are located worldwide. They provide habitat for numerous plants and animals, control flooding and erosion, supply food for us humans, and so much more.

Wetlands can be broken down into two main categories: saltwater and freshwater wetlands. Their names can tell you what type of water they are located in. These two main categories can be broken down into even smaller groups. **Saltwater marshes** and **mangrove swamps** are two different types of saltwater wetlands. **Bogs**, **swamps**, **freshwater marshes**, and **fens** are four different types of freshwater wetlands.

What distinguishes a **saltwater marsh** from all the other types of wetlands? A saltwater marsh forms along coves, bays, inlets, and estuaries, where rivers meet with the ocean. These low-lying areas are protected from the forceful moving tides. They are places where grasses have been able to grow. Saltwater marshes cover 10,000 square miles (25,900 square kilometers) along the coastline of the United States. Almost half of them are found between Maine and Florida. These marshes can receive both saltwater and freshwater if they are located near rivers that enter the ocean. Also, saltwater marshes mainly contain tall and hardy grasses such as saltgrass, cordgrass, pickleweed, and spike grass. In addition, incoming and outgoing tides are constantly changing the saltwater marshes. Therefore, many animals are greatly affected by the tides. Some are specially

adapted for the changing tides such as clams, mussels, fiddler crabs, and snails. Many birds, including herons and egrets, come to saltwater marshes to feed on these specially adapted animals.

The second type of saltwater wetland is known as a mangrove swamp. **Mangrove swamps** are known for their tightly woven mangrove trees. Mangrove trees send their finger-like roots deep into the mud. The roots keep the trees firmly in place and also pull in extra oxygen. In addition, the roots keep the tree's trunk above the water. Mangrove swamps are found in warm tropical areas such as the southern coast of Florida. Incoming and outgoing tides also greatly affect mangrove swamps. During low tide, you can see the mangroves' roots coming out of the water. Many animals hide from predators around the roots of the mangrove such as small fish, sea horses, oysters, blue crabs, and shrimp.

A **bog** is a type of freshwater wetland that forms in cool areas, where little water flows in and out. Also, a bog grows where the soil is very low in oxygen. Since bogs contain poor drainage and low oxygen, dead plant and animal material breaks down very slowly. Over a long period of time, the layers of organic decay build up forming an acidic material known as **peat**. Sphagnum moss, which is a common plant, grows on top of the peat and spreads along the open water. As the mat of moss thickens, it can support larger plants such as trees. Since bogs are oxygen deficient, only specially adapted plants and animals live there. The black spruce is commonly found in bogs because it has special roots that pull in extra oxygen.

Numerous trees and shrubs grow in this second type of freshwater wetland, which is known as a **freshwater swamp**. These wetlands can form along lakes, rivers, and in low-lying areas where the water tends to be dark and still. They exist in the northern and southern parts of the United States. In the north, some trees that grow in freshwater swamps are red maple, black willow, white cedar, and cottonwood. In the south, tupelo, cypress, and water oak trees are common. Some different types of shrubs that grow in freshwater swamps are pussywillow, buttonbush, and leatherleaf. Depending on their location, freshwater swamps can contain numerous wildlife, including ducks, snapping turtles, alligators, cottonmouth snakes, and panthers.

A third type of freshwater wetland is known as a **freshwater marsh**. It contains mainly soft-stemmed plants, which include grasses, cattails, bulrushes, sedges, and waterlilies. Coontail, a **submergent** plant, grows under the water's surface. The rich plant life found in these wetlands can provide an abundance of food and shelter for animals such as deer, frogs, fox, turtles, snakes, and birds. Many birds migrate or nest in freshwater marshes, too. This type of wetland is believed to support as much life, acre for acre, as rain forests.

A **fen** is a fourth type of freshwater wetland that receives its water source mainly from groundwater. Since it is fed by groundwater, it tends to be less acidic than bogs. Fens also produce peat. In addition, this wetland has higher nutrient levels compared to bogs, so it is able to support much more plant and animal life. Many grasses, sedges, rushes, and wildflowers grow in fens. Different species of trees can survive here too.

OVERVIEW:

The class will listen to the description given by the teacher about some of the common wetlands that are found in the United States. During the discussion, students may take notes and pay close attention to the different types of plants and animals that live in each wetland. Afterwards the students will match the photograph of each different type of wetland to the bulleted description on the poster.

PROCEDURE:

Teacher Preparation:

1. Locate the poster, photographs, seashells, peat, the picture of waterlilies, twigs, and groundwater.
2. Secure the poster to a chalkboard or wall.
3. OPTIONAL: Collect wetlands plants and other real wetlands objects.

Student Activity:

1. First, have the students take a look at each photograph and discuss each picture separately without allowing the students to look at the bulleted description.
2. Have the students look at each wetland picture and guess what types of animals or plants may live there. After the discussion you can briefly describe why each wetland is different from the others.
3. You may also use visuals to explain each type of wetland. For example, use twigs to show that freshwater swamps mainly contain trees and shrubs. Also, use seashells to explain that snails and crabs live in saltwater marshes. In addition, show the students a picture of waterlilies to show that many grasses and submergent plants only grow in a freshwater marsh. In addition, use the groundwater picture to demonstrate that fens mainly receive their water source from underground. Furthermore, show the students the yellow container filled with peat to explain that bogs contain a large amount of peat in order for sphagnum moss to grow.
4. After the discussion, have the students try to match the pictures of each type of wetland to the bulleted description on the poster.

Answer Key

A=Fen
B=Freshwater Marsh
C=Saltwater Marsh
D=Mangrove Swamp
E=Freshwater Swamp
F=Bog

DISCUSSION:

During the discussion, ask the students if they know of any different types of wetlands that are located where they live. *Any of the four types of freshwater wetlands can be found in Pennsylvania, which are bogs, swamps, marshes, and fens. The most common are swamps and marshes.*

Where are saltwater marshes located? *Saltwater marshes form along coves, bays, inlets, and estuaries, where the rivers meet the ocean. They cover 10,000 square miles (25,900 square kilometers) along the coastline of the United States.*

What characterizes a mangrove swamp? *Mangrove swamps are only found in warm tropical areas such as the southern coast of Florida. Tightly woven mangrove trees only grow in mangrove swamps.*

What type of moss grows in a bog and why does it survive there? *Sphagnum moss grows in a bog because it is a specially adapted plant that can grow on top of the acidic peat material.*

What are the two main types of plants that mainly grow in a freshwater swamp? *Numerous trees and shrubs mainly grow in a freshwater swamp such as black willow and red maple. Buttonbush and pussy willow are some common shrubs that grow in a freshwater swamp.*

What type of plants only grow in a freshwater marsh and why*? Grasses and submergent plants only grow in a freshwater marsh because it contains an abundant amount of water in which trees cannot grow.*

What is the main water source that distinguishes a fen from a bog? *Groundwater.*

EVALUATION:

- Ask the students to briefly describe one of the six types of wetlands that they found interesting.
- Ask them the definitions of vocabulary words.
- Lecture on the different types of wetlands then use the matching activity as a quiz or graded exercise.

EXTENSIONS AND MODIFICATIONS:

- Students can write a report about any one of the six different types of wetlands. They can describe its specific characteristics and why it is important to our environment.
- Students could make an artistic poster on any one of the six different types of wetlands. They could draw different types of plants and animals that might live there.
- Students could create a 3-D model on one of the six different types of wetlands by using moss, twigs, peat, and plastic animal figures.

NOTES (PLEASE WRITE ANY SUGGESTIONS YOU HAVE FOR TEACHERS USING THIS ACTIVITY IN THE FUTURE):