TEACHING KATE
TEACHING KIDS ABOUT THE ENVIRONMENT

WHAT IS A WETLAND? CAN WE FIND ONE OR MAKE ONE?

Grade Level: 6 **Time Required: 5 class periods**

SC Science Standards

This lesson plan was correlated with only the grade level specified unless otherwise noted.

I. A. 1. d. 1
I. A. 7. a
III. A. 2. c

Purpose

Students will become familiar with terms related to wetlands and the characteristics and uses of wetlands. They will be able to recognize wetlands through observations and interpreting data.

Skills

Classifying, gathering data, measuring, observation, record keeping.

Concepts

Wetlands are important to all mankind; come in many forms; perform many essential functions for plants, animals and water; ecology, while complex, must be understood. Application of conservation principles is necessary to protect wetlands.

Materials Needed

bucket
shovels
2-liter bottles
resource material book on plants
overhead projector
hand-outs
marker
color chart for soil identification

Definition of Terms

Bog	Wetland characterized by a build-up of peat, acid conditions and mostly sphagnum moss.
Bottomland	Low-lying land usually next to a river or stream. These areas are highly productive because they contain rich, moist, alluvial soil; add diversity to the landscape and provide habitat for a number of wildlife species disproportionate to their expanse.
Carolina Bays	Shallow; pond-like; elliptical, oval or assymetrical geological formations of uncertain origin. These wetland depressions are found in the coastal plain and are oriented northwest to southeast with prominant sand ridges on the southeast sides.
Erosion	The breaking down or washing away of soil and rocks on the earth's surface.
Estuary	A partly closed body of water where fresh and salt water meet and mix.
Marsh	Wetland with mostly grassy plant material on site.
Pocosin	An upland swamp of the coastal southeast.
Sediment	Soil particles, sand, clay or other substances that settle to the bottom of a body of water.
Swamp	Wooded wetland where water is near or above ground level.
Wetlands	Lands transitional between terrestrial and aquatic systems, where the water table is usually at or near the surface of the land; usually characterized by fluctuating water levels, hydric soil and an abundance of aquatic and marsh plants.

Before the Session

Plan for a field trip to a local wetland site for introducing wetlands. Distribute handout on wetlands and their values to people.

Background Information

There are many different types of wetlands. They include bogs, fresh and salt water marshes and swamps. These areas are usually forested. They differ from ponds, lakes and oceans because of the defining characteristics of wetlands.

Wetlands are defined with many definitions and personal interpretations and that is the reason there is so much talk and debate concerning wetlands. Wetlands are protected areas and therefore getting a permit to develop a wetland area can be a very difficult process. Some people consequently think that the definition for a wetland is too loose and preserves areas which are not historically wetlands but have been created by development. Others think they are not strict enough and allow wetlands to be modified or destroyed. To be classified as a wetland the area must have recognized characteristics of a wetland. It must have water standing for more than 18 days consecutively, hydric soil and plant life indigenous to wetlands.

For a long time, people have considered wetlands wasted land which should be drained or filled for productive uses. Recently, however, wetlands have become a political nightmare and a very important tool for many due to ecological reasons. Wetlands are being filled by people who want to make money at any cost for personal gain. They are also being destroyed by people who just want to work their land and not have to worry about the wet land in their way. What to do?

Wetlands perform many valuable functions for people. They control floods by slowing down rushing water, thereby, letting the water spread out over a large area and slowly dissipate into the ground. They also help purify water by trapping silt. As the waters slow down in the wetland areas the sediments and other materials and/or impurities carried in the water drop out around the roots of plants and trees. Coastal wetlands take on the brunt of storms, reducing damages and erosion. Wetlands provide one of the richest wildlife habitats in the nation.

Today, about half of wetland areas are covered by forests. With good forest management, these areas can sustain harvestable timber for economic gain and also continue as a good site for recreation and wildlife habitat. Bottomland forests are good examples of this.

We can not protect wetlands if we do not know what they are or how they function, so it is essential to teach our children the importance of wetlands and how they work for everyone.

Taking a child into a wetland for the first time can be so gratifying that the experience should be captured on film so they will not forget it. The experience can be used in all curriculums in school and then shared with entire school. Teach the kids “What is a wetland, Can I Find One?, and if not Can I Make One?”

Suggested Lesson Plan

1. To introduce the topic of wetlands, display a variety of pictures of wetlands and ask the students to list how they are important. Leave the pictures on display for future comparisons. Next, have students come up with a definition of wetlands within cooperative groups. If the definition is not firmed up then have the groups use resource books to find the definition. Take the students outside and see if the school has a wetland on site by using the skill of observation.

2. Plan a field trip to a wetland in your area. Locate a guide to go with the group in order to explain the facts about wetlands and how and why they are important. Have the children, in their groups, write one fact apiece about wetlands so that the group will be able to share at least 4 facts from their trip. The following class period should include a review of the facts obtained by the students while on the trip.

3. Review the different types of wetlands through resource materials and films which may be available at the school library or the South Carolina Department of Natural Resources, Wildlife Division. Have the groups record on a chart what they feel are the importances of the wetlands. A second chart may be started on how wetlands are valuable.

4. Make a transparency of the page "Major Wetland Values." Using the overhead projector, have the students discuss the different kinds of values and how we all have different values. Make a list of values from the class and compare the lists. Have the students write a special value they have then match the similar ones together and have them write a short essay on why they think it is important to them. A picture of their idea would be good at this time.

5. Take a survey of your school property and see if the soil is suitable for holding water or if it has a slow permeation rate and then, try to build a wetland. Review with the class what an area needs to be considered a wetland. Have the students choose a large area, if possible in the path water will flow. Let them dig the area out to a depth of a few inches. Acquire wetlands plants from a wetland area or a local nursery. Consult the horticulturist at a local nursery or SCDNR, Wildlife Division for assistance in getting the project started.

Application

The series of lessons should continue with special guests to discuss problems the public are having with the restrictions being placed on them and how it affects people in general. Wetlands are extremely important as they function as breeding and nursery grounds for many species of fish, aquatic birds, and other aquatic species (such as shrimp in coastal marshes and beaver, muskrat, otters, alligators, etc. in fresh water). They also serve as refuge, feeding, breeding, watering and resting sites for a tremendous variety of avian, aquatic and terrestrial species. Migrating waterfowl rely on wetlands for resting and feeding grounds along their migration

routes. Wetlands provide homes and feeding grounds for raptor species such as Bald Eagles and Osprey. They also function as gigantic filters allowing sediments to settle out and absorbing and/or neutralizing pollutants. Unfortunately the inland areas possess extremely fertile soil and many of these areas have been converted into farmland. The coastal areas are financially valuable as areas for resort construction. For these reasons hundreds of thousands of acres of wetlands have been converted to such uses across the country. The adverse impact of these losses has already been observed on some species of wildlife (such as the diminished populations of migrating waterfowl). Many people feel the conversion of wetlands should be more strictly controlled to ensure sufficient wetland habitat is available to sustain the wildlife that relies on it.

Extension

Trips to different kinds of wetlands would be beneficial to compare the different kinds of wetlands and the different species of plants and animals found in them. Have students research to determine the different kinds of wetlands. Allowing students to work in groups, assign each group a different wetland type and have them research their type and give an oral report to the class. (Be sure Carolina Bays are included.) There are different kinds of activities to use in explaining the wetlands. A few are: from *Project Learning Tree*, "Watch the Wetlands" has good ideas for different activities; *Aquatic Project Wild's*, "Wetland Metaphors" looks to be a fun activity; and many other activities could be adjusted to fit a fun type of hands-on experience for learning about wetlands. Use this unit to teach the students about their environment and the importance they have in helping to protect wetlands, a key to the entire ecosystem.

Resources Available

Aquatic Project Wild. Western Regional Environmental Education Council, P.O. Box 18060, Boulder, CO 80308-8060.

Elements of Ecology, 3rd edition. 1992. R. L. Smith. Harper Collins Publishers Inc., New York, N.Y.

Project Learning Tree. Environmental Education Activity Guide Pre K-8. 1993. American Forest Foundation, 1111 19th St. NW, Washington, D.C. 20036.

Teaching KATE. 1995. Coalition for Natural Resource Education.

WETLANDS. Nebraska Department of Education in Conjunction with the Satellite Educational Resource Consortium.

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CAN WE FIND ONE OR MAKE ONE?

MAJOR WETLAND VALUES

SOCIOECONOMIC VALUES

1. Flood control
2. Wave damage protection
3. Erosion control
4. Ground water recharge and water supply
5. Timber and other natural resources
6. Energy source (peat)
7. Livestock grazing
8. Fishing and shellfishing
9. Hunting and trapping
10. Recreation
11. Aesthetics
12. Education and scientific research

ENVIRONMENTAL QUALITY VALUES

1. Water quality maintenance:
   a. Pollution filter
   b. Sediment removal
   c. Oxygen production
   d. Nutrient recycling
   e. Chemical and nutrient absorption
2. Aquatic productivity
3. Microclimate regulator
4. World climate (ozone layer)

FISH AND WILDLIFE VALUES

1. Fish and shellfish habitat
2. Waterfowl and other bird habitat
3. Furbearer and other wildlife habitat
4. Breeding and nursery grounds for many species
5. Resting and feeding grounds for waterfowl during migration