

TEACHING KATE
TEACHING KIDS ABOUT THE ENVIRONMENT

WETLANDS

Grade Level: 4-5

Time Required: 6 class periods of 50 minutes each

SC Science Standards

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

Grade4:

- I. A. 4. a
- I. B. 1. a, b, d
- II. A. 1. a, b
- II. B. 3. a

Grade 5:

- I. A. 4. a
- I. B. 1. a, b, f
- II. B. 1. b
- II. B. 4. a, e, f

Purpose

Following earlier lessons on the definition of a wetland and the different kinds of wetlands, students will learn how wetlands serve plants and animals. By learning wetland importance, students will gain an understanding, awareness and appreciation of wetlands.

Skills

Analysis, appreciation, comparison, description, discussion, evaluation, interpretation.

Concepts

Identification of the importance of wetlands and their role in plant and animal activity, awareness and appreciation of wetlands ecology, the application of conservation in future wetland use.

Materials Needed

Paper	Pencils
Chart Paper	Index Cards
Laminating Film	Video- Fabulous Wetlands
Charts (from earlier lessons)	4 Jars or Glasses
Strainer	Dirt and Sand
Coffee Filter	Cotton Balls
Poster Board	Sponge
Mixer	Toy Cradle
T-shirt Outline	Paintings w/ Wetland Themes
Stories with Wetland Themes	Poems with Wetland Themes

Definition of Terms

<u>Filter</u>	To pass through material of various types to remove particles.
<u>Migratory</u>	To move in a pattern from one place to another during the course of a year.
<u>Pollutant</u>	Any agent causing harm or damage by introducing a chemical or physical substance to the environment.
<u>Sediment</u>	Soil particles, sand, clay or other substances that settle to the bottom of a body of water.
<u>Wetland</u>	Land area that is covered or saturated with water to within 18 inches of the surface for seven or more days. Only water tolerant plants can grow there. They may be fresh or saltwater.

Before the Session

Gather needed materials, including charts from earlier lessons on types of wetlands. Make arrangements and preview a site for a field excursion to a wetland.

Background Information

Wetlands are important to us in many ways. They help keep our environment in balance. They provide habitat to numerous species of fish, birds and other wildlife including one-third of America's

endangered and threatened species. Wetlands are one of the most productive habitats on earth, providing a strong base for plants and animals important to the world's food web. They provide economic resources such as fur, waterfowl, fish, shellfish, peat and timber. Money spent on recreational activities enhances the economies of the surrounding communities.

Wetlands act to prevent floods by catching, storing and slowly releasing runoff. They replenish aquifers and protect against wind erosion by serving as a buffer during storms. Wetlands and wetland plants are efficient sinks and traps for sediment and other pollutants. Many migrating birds stop in wetland areas. Wetlands serve as nurseries for eggs and juvenile birds, fish, shrimp, crabs, etc. They are also a place of beauty to enjoy.

Various types of wetlands include swamps, marshes, bogs, mangroves, pot holes and bays.

Suggested Lesson Plan

Day 1

1. Review with the students the definition of a wetland and the various kinds of wetlands, using charts from previous lessons. Remind students that in South Carolina we have different kinds of wetlands including swamps, marshes and bays (Carolina Bays).
2. Show video (7 minutes) Fabulous Wetlands. Before viewing, ask students to be prepared to identify as many different kinds of wetlands as they can from the film, and to listen for ways that wetlands are valuable.
3. After viewing, have students list orally the different kinds of wetlands and compare their lists with the charts made earlier. Did they see any new kinds? Did the film help them see differences and similarities?
4. On a piece of chart paper list all ideas from students as to why wetlands are important. Guide their discussion and be sure to include the following: they serve as home to many plants and animals, they serve as a source of food, they filter water, they serve as resting places for migrating birds, they help control floods by absorbing excess water, they serve as nurseries for young animals, they provide shelter for hiding from predators or to aid in the capture of food, and they are recreational areas providing enjoyment in the form of fun and beauty.

Day 2

1. Post your chart of reasons why wetlands are important.

2. To illustrate how wetlands filter sediments and pollution from water before it reaches the ocean conduct the following demonstration. Pour clean water into three small jars. Add a cup of dirt and sand to two jars. Line a strainer with a coffee filter and add cotton balls. Pour the water from one jar of dirty water through the strainer and collect in a fourth jar. Compare the filtered water with the second jar of dirty water and the clean jar. Ask students, did the filtering process remove all or some of the dirt and sand? What would happen to plants and animals in the ocean if dirty, muddy, polluted water was not filtered in wetland areas before it reached the ocean? What will happen to the quality of ocean water if wetlands are destroyed?
3. Discuss with students the different ways people use wetlands for fun, include: canoeing, bird watching, fishing, hunting, hiking and photography. Tell students that wetlands are not sticky, yucky, ugly places, but places of beauty that inspire artists, writers and poets. Share with students examples of paintings, poems and stories of wetlands. Have each student write a story or poem or draw a picture of a wetland. Make a scrapbook for the classroom of their work. Poems can be simple and related to the language arts program by using a form that has been studied such as haiku, cinquain or acrostic. A simple example might be:

Wetlands are fabulous.
Wetlands are great.
Let's take care of wetlands,
before it' too late.

Day 3

1. Use "Wetland Metaphors" activity from Aquatic Wild (pages 55 and 57) to review the importance of wetlands. Adapt the activity as necessary to the level of the students. (See attached copy of activity.)

Day 4

1. Give students the following list (on chart paper) home, restaurant, nursery, filtration factory, hiding place, amusement center, rest stop, farm and sponge. Place next to chart of why wetlands are important. Have students match the phrases on the chart to the description of the ways that wetlands are important.
2. Using a 3 X 5 index card, have each student create a cartoon panel showing the use of wetlands by animals and people. (See examples.) Make certain that all nine areas are illustrated. When completed, make xerox copies of illustrations, mount and laminate to make cards. On other cards write the ways wetlands are useful. Students may then use sets of 18 cards to play "Concentration" matching illustrations to uses.

Day 5

1. Using the students' illustrations as examples, let each student choose to either design a T-shirt or poster to advertise the importance of wetlands. Display around the school to help promote awareness and appreciation for wetlands in other students.

Day 6

1. Make plans to visit a wetland near your community (either coastal or inland). Have students list things they are likely to see including plants and animals. Let each student choose a specific plant or animal to research. Tell them to be prepared to share basic information with the group during the trip. Older students also enjoy planning details for the trip (equipment needed, type of clothing appropriate, etc.).

Application

This series of lessons would continue to include lessons on how we have harmed wetlands in the past, what we as students can do to correct mistakes and insure the preservation of wetlands in the future. Field trips to local wetlands to point out wildlife and vegetation important to the quality of the environment will enable students to see for themselves the importance of the wetland areas of their state. Trips to both coastal and inland wetlands would be beneficial for the purpose of comparison and contrast. This unit of study can be used to motivate and instruct students in order to promote awareness of our total environment and its impact on our lives.

Resources Available

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

Fabulous Wetlands. Washington State Department of Ecology, Wetlands Section, MS PV-11, Olympia, W. A. 98504. \$15 or borrow.

Waterworks Book. 1988. K. Mittowe. Mississippi Department of Wildlife Conservation, Bureau of Marine Resources.

WOW!: The Wonders of Wetlands. 1991. B. E. Slattery. Environmental Concern, Inc., P. O. Box P, St. Michaels, M. D. 21663.

Prepared by: Elaine B. McClure

**TEACHING KATE
TEACHING KIDS ABOUT THE ENVIRONMENT**

WETLANDS

WETLAND METAPHORS FROM AQUATIC PROJECT WILD

Many of the major attributes of wetlands can be explored through the use of metaphors. To use a metaphor is to apply a word or phrase to an object or concept which it does not literally denote in order to suggest a comparison between the two. A metaphor represents a concept or idea through another concept or idea. “A tree is a home” and “Books are windows of thought” are two examples. In this activity a variety of everyday objects are used to represent the natural functions of wetlands. For example:

<u>OBJECT</u>	<u>METAPHORIC FUNCTION</u>
sponge	absorbs excess water caused by runoff, retains moisture for a time even if standing water dries up (e.g., sponge placed in a small puddle of water absorbs water until saturated, then stays wet after standing water has evaporated)
pillow or bed	is a resting place for migratory birds
mixer or egg beater	mixes nutrients and oxygen into the water
cradle	provides a nursery that shelters, protects and feeds young wildlife
sieve or strainer	strains silt, debris, etc., from water
filter	filters smaller impurities from water
antacid	neutralizes toxic substances
cereal	provides nutrient-rich foods
soap	helps cleanse the environment, as wetlands do

Wetland habitats are being converted to other uses (agriculture, roadways, housing developments) or otherwise being destroyed (drained for pest control or polluted) at the rate of about a half million acres per year. And although many wetlands are protected by federal and state laws, there still appears to be a significant need to create a greater understanding of the importance of wetlands as ecosystems and as wildlife habitat.

The major purpose of this activity is for students to develop an appreciation and understanding of wetlands through the power of metaphor, linking the characteristics and natural functions of wetlands to the familiar realm of everyday life.

MATERIALS

A large pillowcase, bag, or box; sponge; small pillow; soap; eggbeater or mixer; small doll cradle; sieve or strainer; paper (coffee) filter; antacid tablets; small box of cereal; 3x5 cards with pictures that could be used to show other wetland metaphors (a zoo could represent the idea of wildlife diversity in a wetland, a lush vegetable garden could represent the idea of a productive wetland in which food is abundant, a vacation resort could represent the idea of a resting or wintering place for migrating waterfowl)

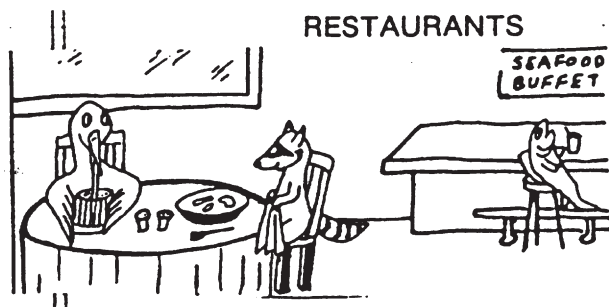
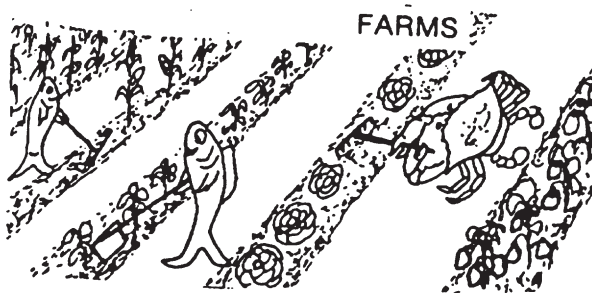
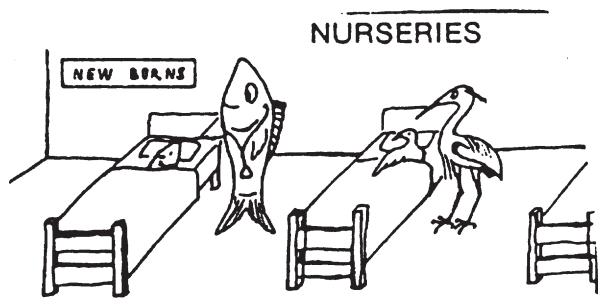
NOTE: A metaphoric approach such as this allows a variety of objects to suggest some appropriate linkage to the basic characteristics of wetlands.

1. Prepare a “Mystery Metaphor Container” (pillowcase, bag or box). It should be possible for a student to put his or her hand into the container and pull out an object. You may want to collect as many as one metaphoric object per student, but at least have enough for one per group of four students. Put the container aside to use later.
2. Now bring out the “Mystery Metaphor Container.” Tell the students that everything in the container has something to do with a wetland. Have the students divide into groups of four. Announce that when it is their turn, you want a representative of each group to draw an object from the container. Then, as a group, they must figure out how the object could represent what a wetland is or does. Have the designated student reach into the container and withdraw one object. When each group has an object, ask them to work as a team to describe the relationships between their metaphoric object and the wetland. Encourage the students to build on each other’s ideas. You can also assist by strengthening their connections. NOTE: Allow the students time to discuss their ideas with each other before doing so in front of the entire class.
3. Ask each group to report their ideas to the class.
4. Following discussion and review of the functions represented by each metaphor, ask the students to summarize the major roles that wetlands perform in contributing to habitat for wildlife. List the ways in which wetlands are important to humans. Why do humans convert wetlands to other uses? Ask them if their own attitudes about wetlands are different now. If yes, how? If not, why not?
5. For the final part of this activity, encourage the students’ understanding of how the wetlands’ condition depends upon each of us. Many kinds of wildlife depend upon wetlands. Our own well-being requires wetland ecosystems. Strengthen the students’ understanding of the connectedness that humans have to wetlands. Recreation, aesthetics, utilitarian uses, environmental quality and nature study are but a few of the connections we each have with wetlands.

TEACHING KATE
TEACHING KIDS ABOUT THE ENVIRONMENT

WETLANDS

WETLAND CARTOONS FROM WATERWORKS BOOK



**TEACHING KATE
TEACHING KIDS ABOUT THE ENVIRONMENT**

WETLANDS

WORKSHEET — T-SHIRT DESIGN

Name:

Date:

**TEACHING KATE
TEACHING KIDS ABOUT THE ENVIRONMENT**

WETLANDS

WORKSHEET — POSTER DESIGN

Name:

Date: