Explore a Wetland

Take a walk in a wetland and then make a wetland picture story or fill in a wetland worksheet.

Objectives:
Name several wetland animals and plants.
Discuss some wetland safety tips.

Ages:
Primary, Intermediate, and Advanced

Materials:
- ***pictures of wetlands***
- ***copies of page 15***
- ***crayons or markers***
- ***pencils***
- ***scissors***
- ***glue***
- ***paper***
- ***field guides (see suggestions in activity and in bibliography)***
- ***clipboards or cardboard and rubber bands***
- ***white baking dishes, bowls, or collecting pans for observing creatures (optional)***
- ***thermometer, wind gauge, or other weather equipment (optional)***
- ***hand lenses (optional)***
- ***"Romp in the Swamp" album by Bill Brennan (optional)***

Subjects:
Science and Creative Writing

Take your kids on a wetland safari so they can get a firsthand look at a unique, watery community. We've provided a couple of different activity options you can try, depending on the age group you're working with. (You might also want to combine parts of both activities.)

Before setting out on an expedition with your group, visit the wetland yourself to become familiar with its features and wildlife. Also take a look at the "Tips for Wetland Wanderers" at the end of the activity. Go over the safety suggestions with the kids—then get them outside and into the wild world of wetlands!

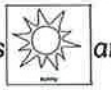
Option #1: Say It With Pictures (for younger kids)

On the day of your wetland trip, show the kids pictures of the kind of wetland they'll be visiting. (See the background information on pages 18-20 and pages 33-35 for information about the different kinds of wetlands.) You might also want to play some songs from Bill Brennan's album entitled "Romp in the Swamp" to help get the kids in a "wetland mood." We've included information about how to order the album on page 64.

When you get to the wetland, try some of the following activities:

- Have the kids make a list of the different kinds and numbers of animals they see. (Even though they may see a lot of the larger animals, such as birds, remind them that there are many smaller animals living among the wetland plants and in the soil.)
- Let the kids look at a sample of wetland soil with hand lenses. (If you visit a bog, look at the sphagnum moss.) Can you see any insects or other small animals moving around in it?
- Keep an eye out for animal signs. For example, you might come across some animal tracks or droppings. Or you might discover a bird nest or the lodge of a beaver or muskrat.
- Take the group into a non-wetland area (forest, field, or prairie) that's near the wetland you're visiting. Can they see any plants and animals that are different from those in the wetland?

When you get back to the classroom or nature center, pass out copies of page 15. Explain that each person will be writing a paragraph or two about the wetland they visited, using pictures from page 15 that they've colored, cut out, and glued down. For example, a description of a trip to a swamp could start off this way:

Today we visited a  *. The weather was*  *and* 

.

For best results the kids should color the pictures they want to use before they cut them out and glue them down. They might want to add a few original pictures too. Tell them that just about anything goes, and encourage them to use their imaginations. (How about a fantasy story about the wetland? Or an account of life in the wetland from an animal's point of view?) No matter what approach they take, they should include the following information in their paragraphs:

- the name and a picture of at least one plant they saw on their visit
- the names and pictures of three or more animals they saw on their visit
- a description and a picture of at least one animal sign they came across

When all of the groups are finished, talk about the pictures from page 15 that each person used. The pictures they chose will probably vary enough to give a good representation of the different things the kids saw on their wetland excursion.

OPTION #2: WETLAND RESEARCHERS (FOR OLDER KIDS)

Here's a way to help your kids key in on the variety and diversity of a wetland community. Before visiting a wetland, tell the kids to pretend that they're wildlife biologists who have been hired by the state to survey the plant and animal life of the wetland you'll be visiting. The state has come up with a list of information it wants the biologists to determine. Here's a sample of the kinds of things the biologists might be asked to find out:

- the dominant plant species
- the names of other kinds of plants growing in the wetland
- a description of the soil and the creatures that live there (Do insects live in the soil? crustaceans? mollusks? what else?)
- weather conditions (temperature of the air and/or soil, wind speed and direction, percent cloud cover, and so on)
- the names of several species of birds seen in the wetland, and a description of what they were doing (flying, feeding, preening, and so on)
- the names of at least two species of insects seen in the wetland, and a description of what they were doing (flying, sunning, biting, and so on)
- the names of other animals seen in the wetland, and a description of what they were doing
- a description of any animal signs seen in the wetland (tracks, droppings, nests, lodges, burrows, and so on)
- the total number of each species of animals identified
- a comparison of plants and animals of the wetland with those of a nearby, non-wetland habitat
- the temperature of the air several feet above the ground compared to the temperature at ground level

You can either modify the above suggestions into worksheet questions that the kids can answer at the wetland, or you can come up with a chart that they can fill in during their visit. (See the example.) You might even want to have the kids come up with their own charts, as a field biologist might do. On the backs of their charts, they could jot down any information that doesn't fit on the chart, such as the descriptions of soil and weather conditions.

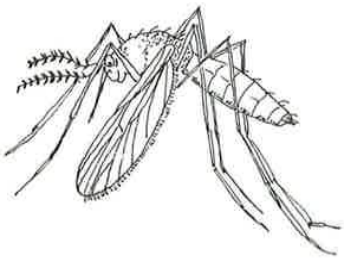
When you get to the wetland, you might want to pass out field guides for the kids to use. (The Golden Nature Guide entitled *Pond Life* and Delta Education's *OBIS Pond Guide* are two good ones for freshwater wetlands. You might want to bring bird and insect field guides too. See the bibliography for suggestions of some other field guides you can use.) Also pass out clipboards for the kids' worksheets or charts. (If you don't have clipboards, have the kids attach their sheets to cardboard with rubber bands.)

After the wetland visit, talk about all the things the kids saw. Explain that real wildlife biologists who are hired to do surveys of an area make many trips into the area to get a good indication of the plants and animals that live there. One trip usually can't reveal all of the life an area harbors. So there's probably a lot more to the wetland your group visited than they discovered while taking their surveys. You might want to try visiting the wetland at least one more time—maybe during a different season. *(continued next page)*

SAMPLE CHART

SURVEY OF THE SALISBURY SALT MARSH

Plants	Animals		
	Birds	**Insects**	**Miscellaneous**
spartina (dominant) glasswort phragmites groundsel	great blue herons 𝍸 snowy egrets III bald eagles I clapper rails *heard* 𝍸 *saw* none	dragonflies damselflies mosquitoes grasshoppers deer flies	whitetail deer III raccoon—*tracks seen* snails—*everywhere*



Tips For Wetland Wanderers

- ***Bring along "bug" juice***—Where there's a wetland, there are usually insects—especially on warm or hot days with no wind. (Biting insects tend to "lie low" on cool, windy days.) You can discourage mosquitoes and other biting insects by wearing long pants and long-sleeved shirts. And be sure to have some insect repellent on hand!
- ***Stay on the boardwalk***—Try to visit a park or reserve that has a boardwalk extending into the wetland area. A boardwalk can prevent a muddy hike—and it protects fragile plants and small animals.
- ***How about a boat?***—Consider taking a canoe through the tidal creeks of a salt marsh, around the cypress "knees" in a swamp, or just offshore from some tangled mangrove thickets. You may be able to get closer to wildlife this way (you can often approach more quietly on the water), and you'll be able to see fish and other aquatic life.
- ***Be prepared to get your feet wet***—This holds true for any wetland you may visit, particularly if it doesn't have a boardwalk. Old sneakers can be good wetland shoes—but if you step into a really soggy or muddy area, walk carefully. (It's easy to lose sneakers in the muck! Old boots are more likely to stay on your feet.) You might want to tell the kids to bring extra shoes and socks that they can change into later.
- ***Remember the first aid kit***—Just in case! It's also a good idea to carry some food and water, even on short trips.
- ***Take only memories***—Remind the kids not to pick plants or take animals from the wetland. Certain plants or animals that seem common in the wetland you're visiting may be very rare everywhere else. Some may even be endangered. It's against the law to collect endangered species without a special permit, and in many states, it's against the law to collect any species from parks or refuges.
- ***Don't go poking around!***—Tell the kids not to put fingers under rocks, logs, or in other hidden-from-view places. As with almost any habitat, some wetlands are home to critters that bite or sting—and a few of these animals are poisonous. Such animals often live or hide in secluded places.
- ***Try a winter walk***—Don't rule out winter as a time to visit wetlands—particularly marshes. If the ground is frozen it can be much easier to walk on. (Tell the kids to wear shoes or boots with slip-resistant soles, though, just in case you come across any icy spots.) And insects usually aren't a problem in winter, since most die or go into hibernation when the weather gets cold.

snowy egret and young

David Hall. USFWS

Wetland Models

Make a clay model of a wetland and discover how a wetland works.

Objectives:
Discuss what a wetland is. Describe several functions of a wetland.

Ages:
Intermediate and Advanced

Materials:
- *chalkboard or easel paper*
- *modeling clay*
- *Oasis (florist foam)*
- *roasting pans*
- *small piece of indoor-outdoor carpeting*
- *sponges*
- *pine needles, twigs, grass, weeds, soil, and other natural materials*
- *cotton swabs (optional)*
- *toothpicks (optional)*
- *cardboard*
- *glue*
- *scissors*
- *paper and pencils*
- *crayons or markers*
- *pictures of wetlands and wetland plants and animals*
- *jar of muddy water*
- *water*
- *reference books*
- *poster paints*

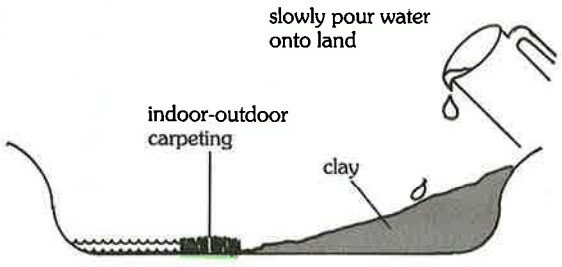
Subject:
Science

It's hard to tell, just by looking at wetlands, that they help filter silt and pollutants from water, help prevent soil erosion, and often reduce flood damage. But by building a simplified wetland model, you can demonstrate some of these important wetland functions.

Before you begin the activity, make a demonstration model. Here's how to do it:

1. Spread a layer of modeling clay in half of the roasting pan to represent land. Leave the other half of the pan empty to represent a lake or other body of water, such as a river or ocean.
2. Shape the clay so that it gradually slopes down to the body of water (see diagram).

3. Smooth the clay along the sides of the pan to seal the edges. You can also form meandering streams in the clay that lead into the body of water.
4. Cut a piece of indoor-outdoor carpeting to completely fill the space across the pan along the edge of the clay (see diagram). The carpeting represents the wetland buffer between dry land and open water.



Begin the activity by asking the kids to list the characteristics of a wetland. Write their answers on a chalkboard or large sheet of easel paper. Take a group survey to decide which of the characteristics might apply to all wetlands. (See the background information on pages 3-4.)

Next show the group some pictures of different types of wetlands, including freshwater and salt marshes, freshwater swamps, mangrove swamps, and bogs. Have the kids think about the animals and plants that might live in each kind of wetland. (For examples, see the background information on pages 18-20 and 33-35.)

Now demonstrate some of the functions of a wetland using the model. Explain that wetlands, like all habitats, are very complicated natural systems. And scientists are still learning more about how they work. Scientists already know that wetlands perform some very important functions, such as filtering pollutants, reducing flood damage, and preventing soil erosion. (Scientists also think that some wetlands, at times, might help to recharge underground water supplies.) Explain that your model will demonstrate some of these functions in a very simplified way. Here are a couple of the functions you can demonstrate with the model:

Flood Control: Fit the piece of carpeting into the wetland area. Pour some water slowly on the land, as shown. Have the kids describe what happens. (Some of the water is slowed down by the wetland [carpeting]. The excess slowly flows into the body of water.)

Now remove the carpeting and water. This time pour the same amount of water on the model at the same spot and rate as before. Have the kids note any differences. (The water should fill the body of water much more quickly than before. That's because it's no longer buffered by the wetland. Explain that most wetlands are shallow basins that collect water and slow its rate of flow. This slowing process helps reduce flooding and also helps prevent soil erosion.)

In many coastal areas wetlands are drained and filled in, and houses or

marinas are built right along the water. Without a wetland buffer, these developed areas are often subjected to severe flooding and erosion, especially during violent storms.

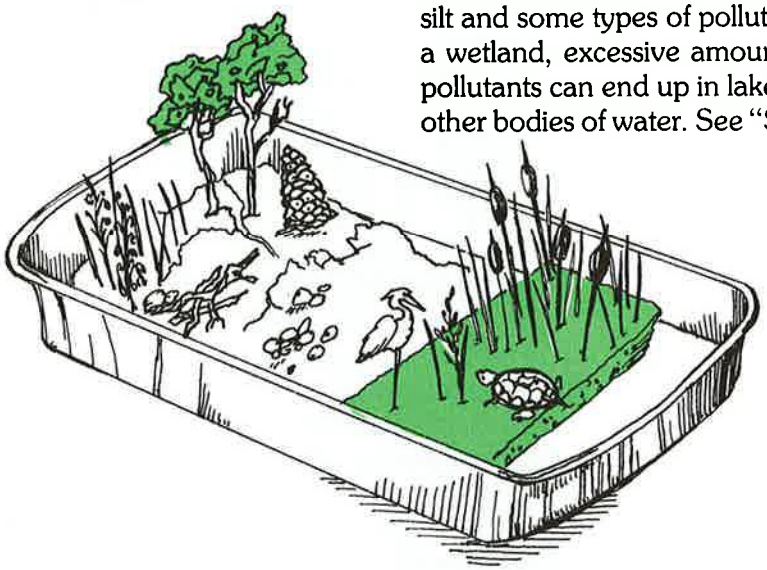
Water Purification: Pour the water out of the model and replace the piece of carpeting in the wetland. Pour some muddy water from the jar onto the land. Ask the kids to compare the water that ends up in the body of water with the water in the jar. (Explain that the soil particles are trapped by the carpeting, making the water in the body of water much clearer.)

Remove the carpeting, pour out the water, and try the experiment again. What happens without the wetland in place? Ask the kids why all the dirt particles end up in the body of water now. (The thick mat of plant roots in a wetland helps trap silt and some types of pollutants. Without a wetland, excessive amounts of silt and pollutants can end up in lakes, rivers, and other bodies of water. See "Silt Trappers" on page 4 to find out more about how wetlands act as natural filters.)

After demonstrating some wetland functions, discuss how wetlands are important wildlife habitats, as well as important recreation sites for people. (See the background information on pages 46-48 for more about how wetlands are important to people and wildlife.)

Now divide your group into smaller groups of about five each. Tell each group they will be making their own wetland models out of clay, using your model as an example. (Instead of using indoor-outdoor carpeting to represent a wetland, have them use Oasis [florist foam] molded into a very shallow basin. Then the kids can attach plants and animals to the model with toothpicks.) They can make a freshwater marsh, a salt marsh, a freshwater swamp, a mangrove swamp, or a bog. Provide reference books so the kids can see pictures of the different types of wetlands. Then have them decorate the models according to the types of wetlands they are making. Here are some ideas:

- For cattails, use cotton swabs painted brown, pieces of grass, or toothpicks painted green with bits of brown clay stuck on the tops.
- Use long pine needles for reeds.
- Shape wetland creatures from clay or cut them from paper and glue onto toothpicks.
- Make trees by gluing pieces of green sponge onto twigs.



Put It on the Map!

Use clues to identify the locations of some major North American wetlands.

Objectives:
Name several major wetlands. Describe an important feature about each one and locate it on a map.

Ages:
Advanced

Here's a challenging way to help your group become familiar with some of our major wetlands. Start by discussing what wetlands are and the kinds of places where they occur. (See the background information on pages 3-4.) Explain that there are a number of significant wetlands in North America. Some are significant because they are extensive and provide important wildlife habitat. Some are homes to rare plants and animals. Some provide important resources for people. And some have historical and cultural value. Tell your group that they will discover what some of these major wetlands are and where they're located.

Then pass out copies of page 16 and 17. Explain that each wetland is marked on the map with a code that symbolizes a particular type of wetland (freshwater marsh, salt marsh, swamp, or bog). The goal is to identify each of the wetlands by name on the line under each clue on page 16, to identify each wetland by letter on the lines on the map, and then to identify which kind of wetland each code symbolizes.

Materials:
- ***copies of pages 16 and 17***
- ***reference books***
- ***large sheets of construction paper (optional)***
- ***glue (optional)***
- ***scissors (optional)***
- ***colored yarn (optional)***
- ***world map***

Subjects:
Science and Geography

Give the kids research time to discover which wetland, geographic region, body of water, or city or state each clue is referring to. You can have them work individually or in teams. If they work together, you might want to add a little extra challenge by having the teams try to be the first to identify all the wetlands on the map and label the key correctly.

Each team could also make a poster out of the map. Here's how:

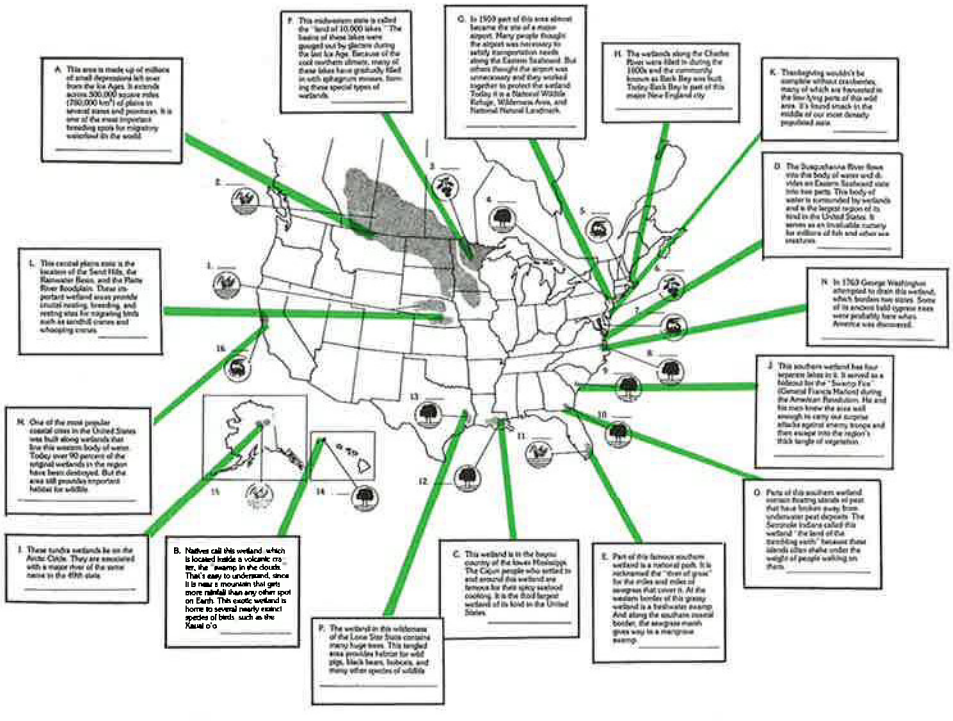
1. Glue the map onto a large sheet of construction paper.
2. Cut out the clues and glue them around the border of the paper.
3. Use pieces of colored yarn to connect the clues with the proper wetlands on the map (see diagram below).

BRANCHING OUT: WHERE IN THE WORLD?

Have the kids bone up on their geography skills by learning about some significant wetlands around the globe. Use the following information to discuss a few of these special areas. Then have the kids try to point out the countries where these wetlands are located on a world map.

Tigris-Euphrates: This marshy middle eastern river valley was the world's "cradle of civilization" and is still home to a group of people called the Marsh Arabs. These people of southern Iraq have found many uses for the reeds that grow near their marshy villages, such as a source of building material for houses and boats, and as sources of fuel and cattle feed.

Tollund Bog: In 1950, peat miners discovered a perfectly preserved, 2000-year-old body of a man in this Danish bog. The acids in this type of wetland inhibited the process of decay so that even the whiskers on the man's chin were intact.



Pantanal: South America's most important waterfowl habitat is a floodplain wetland. (Floodplain wetlands form along rivers and are subjected to periodic floodings.) The Pantanal stretches across 20 million acres (8 million ha), most of which are in Brazil. This wild wetland is home to such creatures as howler monkeys, capybaras, caimans, and jabiru storks.

Finland: Wetlands cover almost one-third of this Scandinavian country. In fact, its name comes from a word for a type of wetland—"fen."

Orinoco Delta: Mangrove swamps line the shores of this area of Venezuela. When people attempted to drain the Orinoco Delta for agriculture, they created desertlike conditions.

Sudd: The extensive marshes of this Nile River floodplain in South Sudan are important to waterfowl migrating from Europe to Africa. Many other animals, including people, also depend on these marshes for fish and other foods.

Wadden Sea: This region is the largest wetland in the Netherlands. It has been drastically reduced since dikes were first built about 2000 years ago.

Answers: 1—Nebraska (L); 2—Prairie Pothole Region (A); 3—Minnesota (F); 4—Great Swamp (G); 5—Boston (H); 6—Pine Barrens (K); 7—Chesapeake Bay (D); 8—Dismal Swamp (N); 9—Four Holes Swamp (J); 10—Okefenokee (O); 11—Everglades (E); 12—Atchafalaya (C); 13—Big Thicket (P); 14—Alakai (B); 15—Yukon Flats (I); 16—San Francisco Bay (M)

SYMBOLS KEY

Freshwater Marsh

Swamp

Bog

Salt Marsh

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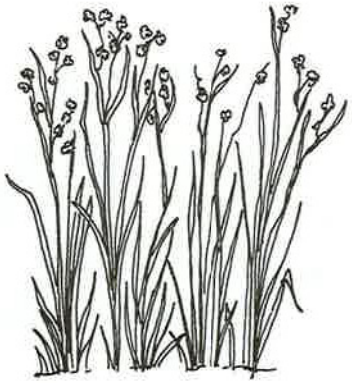
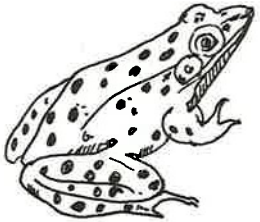
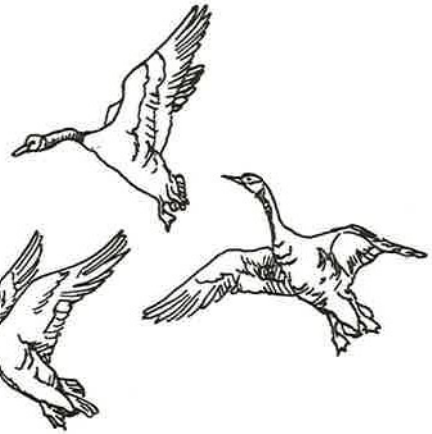
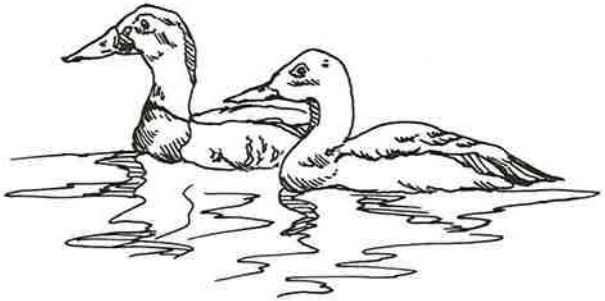
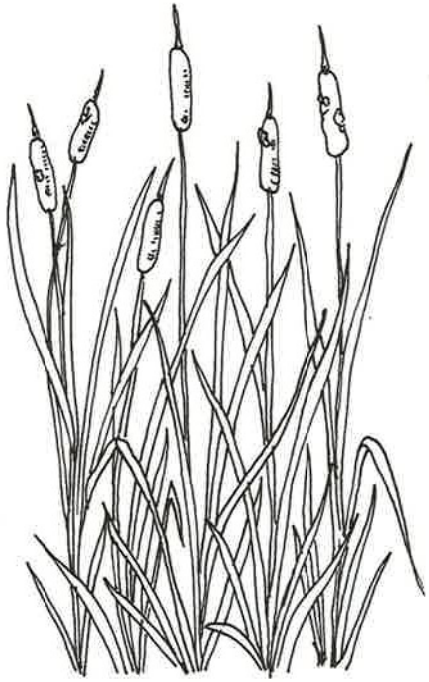
CREATE A SCENE











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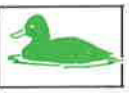
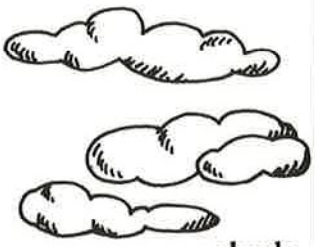
EXPLORE A WETLAND



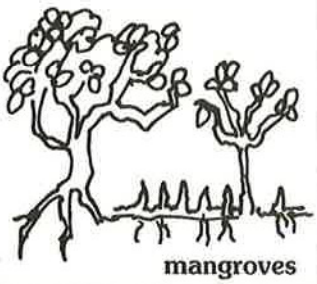


cloudy

animal tracks

mosquito

dragonfly

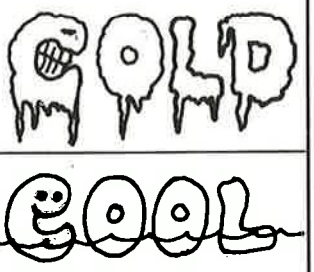


mangroves

sphagnum moss

freshwater swamp

raccoon

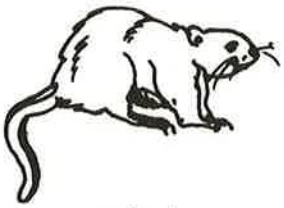


cattails

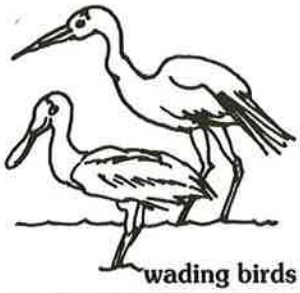
rushes

muskrat
or beaver lodge

fiddler crabs

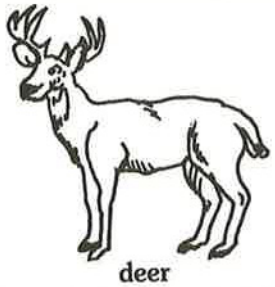


muskrat



wading birds

salt marsh



deer

freshwater marsh

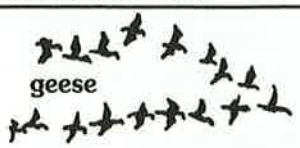
snails

pitcher
plant

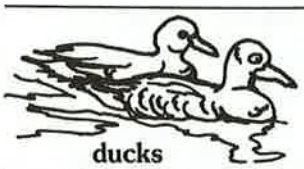
sundew

clams

mussels



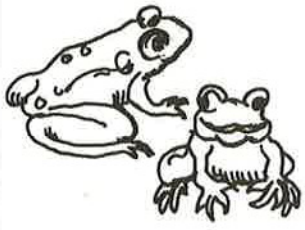
geese



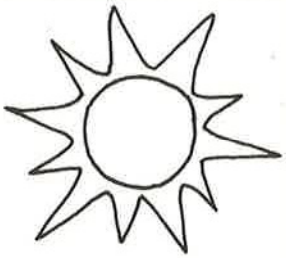
ducks

hawk

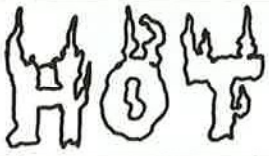
mangrove
swamp

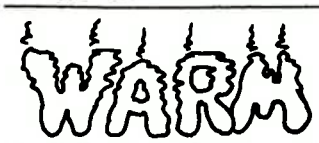


frogs



sunny

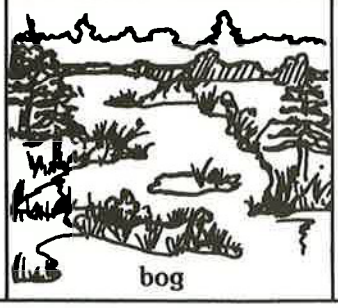




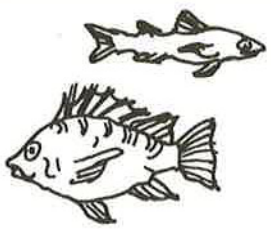
trees

grasses

beaver



bog



fish