

Wetland Safari



In a Nutshell



Students will use binoculars and aquatic dip nets to discover plants and animals that make wetlands their home. During their investigations, students will uncover unique characteristics that make wetlands important to wildlife and people.

Grades	3-5
Seasons	Spring
Location	Bass Ponds Trailhead

Learning Objectives

After participating in this activity, students will be able to:

- Describe what makes up a wetland habitat.
- Name at least one wetland plant and one wetland animal
- Describe how each member of a wetland community.
- Explain the value of a wetland as it relates to water quality.
- Explain the value of a wetland as it relates to flood control
- Explain the value of a wetland as it relates to healthy wildlife populations.

Literature Connections

- *What is a Life Cycle?* by Bobbie Kalman
- *¿Qué es el ciclo de vida?* by Bobie Kalman
- *What are Food Chains and Webs?* by Bobbie Kalman
- *¿Qué son las redes y cadenas alimentarias?* by Bobbie Kalman
- *Squish! A Wetland Walk* by Nancy Luenn
- *Leapfrogging through Wetlands* by Margaret Anderson
- *Song of the Water Boatman* by Joyce Sidman
- *One Small Square: Pond* by Donald Silver
- *Around the Pond: Who's Been Here?* by Lindsay George
- *Who Eats What?* by Patricia Lauber
- *Life in a Jar* by Mary Hoff, MN Conservation Volunteer Magazine

Pre-Activities

Project WILD Aquatic, Wetland Metaphors

Students learn the many benefits wetlands provide for both wildlife and people using metaphors. They also build a wetland mural with plant and animals and discuss wetland communities.



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On-site Activities

Students observe a wetland ecosystem using binoculars on a hike around the wetlands and discover organisms in the water using dip nets and hand lenses. They will learn firsthand about the complexity of the wetlands and that the creatures both on land and in the water are important members of the community.

Classroom Connections

- Read all/part of the book *Song of the Water Boatman* by Joyce Sidman with your class. Have students write a poem or story based on what they saw and/or experienced during their field trip to the refuge.
- Ask each student to draw an illustration they saw while hiking and dip netting at the refuge (a plant, flower, tree, bird, insect, etc.). Encourage students to use reference pictures from books, magazines, or the internet as they draw to help them remember what things looked like. Create a classroom “wetland community” habitat collage and have students add their drawings.

Teacher Resources

- ***Discover Nature in Water & Wetlands*** by Elizabeth Lawlor
- ***Nature Scope Wading Into Wetlands*** by the National Wildlife Federation
- ***Golden Guide to Pond Life*** by George Reid
- **Young Naturalists:** Minnesota Conservation Volunteer Magazine
 - ***Life in a Jar*** by Mary Hoff
 - ***Chirp, Croak, and Snore*** by Mary Hoff
 - ***Spring-to-Life Ponds*** by Larry Weber

➤ Stories and Teacher's Guides can be found at:
<http://www.dnr.state.mn.us/mcvmagazine/young-naturalists.html>



Wetland Safari Pre-Activity

Materials

- Assortment of wetland plant and animal pictures, at least one from each category (plants, wetland birds, mammals, fish, reptiles, amphibians, and macro invertebrates)
- White board/Large piece of butcher paper
- Tape
- *Project WILD* Wetland Metaphors kit (paper coffee filter, sponge, small box of cereal, baby bottle, beater, bar of soap, strainer)

Introduction

Lead with a discussion of wetland characteristics, beginning with what wetlands are and then what plants and animals live in/near them.

Wetlands are places that are wet, at least some part of the year. Ask students to help create a list of types of wetlands. Possible answers include: ponds, lakes, streams, rivers, bogs, swamps, marshes (both freshwater and saltwater). After the class has come up with their list of types of wetlands, begin the discussion about **why** they are important, not only to plants and wildlife, but also to us!

Wetland Metaphors

Review what a **metaphor** is with the class. A metaphor is *a term, phrase, or object that is used to compare two things that aren't alike but have something in common.*

As a class or in small groups (each group focuses on one item or rotate the items between all the groups), discuss each of the following objects and how they represent wetland characteristics. Put a T-chart on the board titled like the chart below. Go through each item and have students give ideas about what they think it is representing. Discuss how they relate to a wetland and why that characteristic is an important one.

Object	Metaphoric Function
sponge	Absorbs runoff, holds moisture even after standing water has evaporated.
mixer	Mixes nutrients and O ₂ into water.
strainer	Strains silt and debris from water.
filter	Filters even smaller impurities from water.
cereal	Provides nutrient rich foods.
soap	Helps to “cleanse” the environment in the ways mentioned above.
bottle	Provides a nursery that shelters, feeds and protects young wildlife.

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After going through the metaphors, ask students to come up with a definition for the word **community** (*a group of living things that depend on each other*). Plants and animals that live in water habitats each play an important role as part of a wetland community.

Wetlands are home to many types of wildlife. They are often referred to as “nurseries”. Create another list with students, having them name some plants and animals they know that live some or all of their lives in wetlands. Some possible answers include: frogs, toads, salamanders, ducks, geese, swans, herons, fish, crayfish, snails, insects, muskrat, beaver, deer, raccoons, water lilies, cattails, etc.

Using a whiteboard or large piece of butcher paper, build a wetland community with your class. Pass out the pictures of plants and animals that live in the wetland communities. 1-2 pictures per students depending on the size of your class-you do NOT need to use all pictures available. Hand them out with the picture facing up and tell them make to guess about what is shown in their picture (some are harder than others) before turning it over to find out. Have one student at a time tell the class what they had in their picture and tape it onto the wetland community.

Review the definition of a community. Ask students to make connections about the plants and animals. Which members of the wetland community depend on each other? Who eats whom? Who eats plants? Who uses plants for nests? Use a color marker to draw connections between the members of the wetland community as students begin to discuss them.

Field Trip Information: Explain to students that during their refuge fieldtrip they will be dip-netting for aquatic invertebrates in a pond and taking a hike with binoculars through the wetlands. Half the class will do the hike first and half will dip net, switching halfway through.

Remind students to wear old clothes and shoes in case they get wet or dirty. Long pants and close-toed shoes are highly recommended. Shorts and flip flops are not appropriate. Encourage students to apply sunscreen and insect repellent if they choose BEFORE traveling to the refuge.

Wetland Safari On-Site Activity

Materials

- One pair of binoculars per student
- Assortment of laminated wetland wildlife pictures (w/ binder clips)
- One Aquatic Sampling Kit per student team of 3-5
 - Kit includes: 1 long-handled aquatic net; 1 small dip net; 1 large tub; specimen sorting containers (1 square tray, 1 ice cube tray); 1 gallon bucket; 4 plastic spoons; 1 aquatic insect dichotomous key; 4 hand lens; 1 cooking baster; *Pond Life* field guide
- 2 field microscopes with:
 - 2 well slides, 2 small eye droppers, 2 petri dishes, 1 card table

Activity 1: Exploring the Wetland

Before the group arrives, place the wetland wildlife pictures alongside the trails using binder clips to attach them to branches, strong grasses, etc. Set-up the pond sampling kits at the water's edge.

To begin the activity, pass out a pair of binoculars to each student and instruct them on the proper way to use binoculars.

- Require that they place the strap around their neck. This is the proper way to wear binoculars. It prevents them from being dropped or dragged during the hike.
- Demonstrate how to adjust the eyepieces (pivot in the center) to match the distance between their eyes. Demonstrate how to focus.
- Point out the pictures hanging along the trail. Ask students to find the pictures, one at a time, using their eyes first. Instruct students to slowly bring the binoculars up to their eyes. This technique will make it easier for students to locate and focus in on birds and other wildlife.
- Explain to students how to adjust the focus until the image is clear. Ask students to identify what they see in the picture.
- Continue to walk a small distance down the trail and try the same thing again with the next pictures placed along the trail.

As students approach the wetland, encourage them to listen and watch for birds. Give students plenty of time to get close and observe what animals are around the water's edge. Ask students to scan the cattails with their binoculars to spot wildlife that may be well camouflaged. Use the laminated pictures in your backpack as you share specific information about wetland wildlife students may (or may not) encounter.

Activity 2: Pond Sampling

When the group has reached the Pond Sampling Kits, ask students to put the binoculars in the backpack. Divide the class into teams of four to six. Assign

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each team to one collection tub. Teams should take turns investigating the wetland in the following way. First, two people from each team should use the skim nets to take one scoop of pond life from the surface of the water, including plants. Demonstrate how to empty their scoop into the collection tub. The remaining team members should use the spoons and small containers to attempt catching what they see. Then switch allowing the other two team members to take one scoop in the pond while the other members look for life in the tub. Allow for enough time at the end for the teams to compare what each team found.

Sampling Tips for Teachers, Students and Chaperones

- It is OK that some plant material is picked up in the skim nets. Many aquatic organisms live among the plants.
- Many pond creatures are very small and well camouflaged. Students should assume with every swipe through the water something is in the net. With this assumption, students should take their net back to their teams' clear plastic tub and swish it through the water before determining that it is empty. Until pond insects are back in water and swimming, it is possible for students to miss something.
- The nets being used in this activity are skim nets which are meant to be used on the top, or just under, the water's surface. Students should not scoop mud from the bottom of the pond.
- If students are working from a dock or steps, allow only one student from each team on the dock per skim net. This will help reduce the chance of someone accidentally falling into the water.
- The students waiting for their turn on the dock can use their time to transfer specimens from the large team tub into the smaller collecting containers.

Wrap-Up Management Connection

Water Control Structures

What animals did the students find that need to live in the water, visit the water or water's edge, or live among the wetland vegetation?

Point out the water control structures (old or new) as you pass by or make a special point of visiting them. Explain to students how the Refuge staff raise and lower water levels in marshes, ponds and lakes for the benefit of wildlife. Use the following bath tub analogy :

- *A bath tub has a drain stop that allows you to hold as much water as you need while bathing, then drain the water when you are finished. The water control structure (like a tub drain stop) can be opened to let water drain out or plugged to hold water in a marsh.*

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- *If you drop a bath toy into the tub and it sinks to the bottom, will it be easier to reach if the tub is full, or almost empty? (less water will make it easier to reach the toy).* Some birds, like shore birds, are built to walk on mud flats in search of the food they find in small wetland puddles and mud. Other wetland birds, like ducks, are built to swim and dive underwater to find food plants that grow in wetland ponds. Letting water out when shorebirds migrate through, and raising water when ducks arrive, allows biologists to manage a wetland for both types of birds.

Biologists must also think about the needs of wetland plants, a major food source for many migrating waterfowl.

- *If you toss a handful of seeds into a large glass of water will the seeds grow in the water alone?* No, of course not, they also need soil and sunlight. Wetland plants need the same things. In order to grow, water level must be low or completely gone for before seeds sprout. As plants grow, this shallow, dry habitat is a great place for other wildlife to build nests, raise young, find shelter, and feed. When the plants are fully grown and have produced seed a new source of food will be ready for the next migration season when the wetland is flooded again.

At the conclusion of the lesson: Return live specimens to the wetland areas where they were collected (if there is time, it is best to have students help with this at the conclusion of their session). Thoroughly rinse equipment and leave it out to dry in the visitor center classroom. Please inventory and note any low quantities of supplies or broken equipment.