

## FALL HABITAT COMPARISONS

Grade: Fourth Grade

Number of Students: Up to 27 students/class, 54 kids/visit

Number of Groups: Approx. 6 adult leaders each with 7-8 students; 1 adult leader stationed at the dock

*9:00 am – 9: 15 am	Getting in the Moment
9:15 am – 9:30 am	Introduction to Habitats (Indoors)
9:30 am -10:20 am	Habitat Investigation #1 (Outdoors)
10:20 am – 11:10 am	Habitat Investigation #2 (Outdoors)
11:10 a.m. – 11:15 a.m.	Return to Classroom
11:15 am – 11:45 am	Wrap-Up (Indoors)

\*Sample schedule; plan for at least an hour outside, weather and school schedule permitting.

### Habitat Comparisons - Oak Savanna & Wetlands

Grade: Fourth Grade

Group Size: 2 Classes

Time: 2 – 3 hours

Season: Fall

#### **Summary:**

Students work in small groups to make observations from two pre-selected habitat areas: wetland and oak savanna. As the observations are made, students use their nature journals to record living and non-living items they find at each habitat. After the investigation, students return inside. The field leader draws a Venn diagram on the board, labeling one side “Wetland” and other side “Oak Savanna.” Students share their findings and instruct the field leader where to place them within the Venn diagram. Once the diagram is complete, students speculate about the non-living variables that contributed to the patterns they discovered.

#### **Performance Objectives:**

After completing this activity, students will be able to...

- Collect data about living and non-living things at two different habitats.
- Write a conclusion sentence summarizing their findings.
- Explain in their own words how and why non-living factors influence living things and their habitats.

#### **Materials Needed:**

- White board
- Dry erase markers
- Blank paper or nature journals
- Pencils
- Clip boards
- Attached *Facilitator’s Guide to the Oak Savanna and Wetland Habitats*
- Attached *Nature Journal Sheet* for students

#### **Background Information (Adapted from Prairie Wetlands Learning Center):**

In this field investigation, students will observe and make connections between organisms’ basic needs for life and two habitats where they might meet those needs. *Habitat* may be defined as the place where living things obtain their requirements for life: food, water, shelter, space, and air in the appropriate arrangement or amount. The main habitats found at the Sherburne National Wildlife Refuge include prairie, wetlands, and oak savanna. They make-up the transition zone in Minnesota, where the forest in the northeast and the prairies from the southwest meet geographically. During this investigation, students will explore the wetland and oak savanna habitats.

#### **Examples of Most Commonly Observed Fall Oak Savanna and Wetland Plants and Animals**

Oak Savanna Plants	Wetland Plants	Oak Savanna Animals	Wetland Animals	Both Habitats
Oak Trees	Cattail	Squirrel	Goose	Butterflies
Raspberry	Water Lily	Woodpecker	Snail	Mink
Box Elder	Coontail	Millipede	Water Boatman	White-Tailed Deer
Aspen	Pondweed	Beetle	Painted Turtle	Leopard Frog

Oak savanna and wetland plants and animals must obtain their basic needs from their habitats in order to survive, grow, and reproduce. The most significant difference between oak savanna and wetlands for most plants and animals is the presence or absence of water.

	Oak Savanna Plants	Wetland Plants	Oak Savanna Animals	Wetland Animals
<b>Air</b>	Cold air in winter for some seeds to sprout; wind to help disperse some seeds	Wind to help disperse some seeds	Need air to breathe oxygen	Breathe oxygen from water or air
<b>Water</b>	Lower levels of moisture	Need higher levels of moisture	Need lower levels of moisture	Need higher levels of moisture
<b>Food</b>	Partial sunlight (some areas of full sun and some areas of full shade, too)	Full sunlight	Need plants and animals for food	
<b>Light</b>	Partial sunlight (some areas of full sun and some areas of full shade, too)	Full sunlight	Sunlight for warmth, to find food, digestion of food (reptiles and amphibians)	
<b>Shelter</b>	Roots in ground, rest of plant in open, somewhat protected by each other	Somewhat sheltered in water or by each other	Underground, trees, or in grasses and flowers	Underwater, in ground, in lodges, or within plants

Some plants and animals are found only in one habitat because their needs for life and related adaptations are specific to that habitat. For example, many savanna plants would not survive wetland moisture conditions; most wetland plants have weak, hollow, and flexible stems plus stomata on the top side of their leaves to prevent drowning. Savanna habitat is far too dry for most of these wetland plants to survive there; however, many savanna plants have deep and extensive root systems to find moisture and survive fire. Some animals, such as dragonflies, leopard frogs, and white-tailed deer, may be found in both habitats. As these animals' needs vary with the seasons, they may move from one habitat to another to complete their life cycle or to find food or appropriate cover.

From an ecological standpoint, the matrix of savanna and wetlands is important to wildlife and plants because it is their home, their habitat, where their basic needs for life are found. Without these habitats, wildlife must find other places to live, if possible. Grassland and wetland restorations, prairie gardens, rain gardens, and other such sites provide new alternatives for wildlife and plants alike.

**Procedure:**

1. **Lead Refuge Volunteer:** In the classroom, welcome students, teachers, and chaperones to Sherburne National Wildlife Refuge. Remind them of your name. Explain traits of a naturalist and expectations for behavior: calm and quiet, inquisitive, respectful, prepared, use all of their senses.
2. **Teacher:** Explain to students that today they are going to be doing an investigation about two different habitats. Write the word *habitat* on the board. Ask a student volunteer to explain what the word *habitat* means and list its components (food, shelter, space, light, water, air). Another way to phrase it: What does every animal and plant need to live?

3. **Teacher, with assistance from volunteer:** Draw a Venn diagram on the board. Explain to students that they will be investigating two different habitats at Sherburne NWR. Invite them to guess which two (wetlands and oak savanna). Then ask students what they already know about oak savanna and wetlands. What plants and animals do they know? What do they know about non-living factors like weather, moisture, rocks?
4. **Volunteer:** Explain that soon the class will be splitting into groups and heading outside to explore. They will be making observations in the oak savanna habitat as well as the wetland habitat. Everyone will be able to investigate both habitats, making discoveries in each and being able to compare one to the other.
5. **Volunteer, with assistance from teacher:** Help students prepare their journal entries by modeling on the board. Ask students what they think will be the most important observations to record while outside. Have students split a page of their nature journals into four boxes and label each box with one important thing to observe outside. Examples might include: plant life, animal life, water, soil observations, and weather. (\*Journal pages can be done with the classroom teacher prior to the field trip to allow for more time spent outdoors).
6. **Volunteer, with assistance from teacher:** Tell students that they are ready to go outside to explore. Put students into small groups with an adult volunteer for each group, if possible. Make eye contact with the adult volunteers and teachers. Explain to them that they will each get a small group of students. When the class gets outside, some groups will go to the oak savanna and some groups will go to the wetlands.
7. **Volunteer:** Make sure students have all of their materials. Remind students that naturalists are happy outside, explorers, adventurers, respectful, prepared, responsible, and quiet. They ask questions, use words, numbers, and pictures, and share their discoveries.
8. **Volunteer:** Once outside, explore one of the assigned habitats (e.g., oak savanna) and then switch to the other assigned habitat (e.g., wetland). Please see included Oak Savanna Investigation Sheet and Wetland Investigation Sheet that will help adult leaders guide students in their discoveries.
9. **Volunteer and Teacher:** Once back inside, have students sit down. Draw a Venn diagram on the board, and ask students to create a similar Venn diagram on a blank page of their journals. Title the diagram "Habitat Comparison." Label one circle "Oak Savanna" and the other circle "Wetland." Ask students to share their observations and discoveries and to record their responses in the appropriate place.
10. **Volunteer and Teacher:** To wrap up as a whole class, review the data – which animals and plants were found in the oak savanna? In the wetland? Were any found in both? Ask them what we could now say about these animals and plants. (Some live in wetlands, some in the oak savanna, and some maybe in both.)
11. **Volunteer:** At the end of the lesson, explain to students that today they discovered how magical the oak savanna and wetlands can truly be if they just look closely. They are so much more than trees and cattails. And the same habitat can even be very different at different locations! There are endless discoveries to be made about different habitats. Students don't even have to come to Sherburne NWR to track these changes; they can do it in their very own yard, at a park, or anywhere outside. Explain that the world needs more naturalists who will stop to examine the beauty of different habitats and that, because they did such a good job today, they seem like perfect candidates.

### **Core Standards:**

Science: Physical Science

- Objects have observable properties that can be measured.
  - ✓ Measure temperature, volume, weight and length using appropriate tools and units
- Energy can be transformed within a system or transferred to other systems or the environment.

Science: Earth Science

- Rocks are an Earth material that may vary in composition.
  - ✓ Recognize that rocks may be uniform or made of mixtures of different minerals.
- Rocks are an Earth material that may vary in composition.
  - ✓ Describe and classify minerals based on their physical properties. *For example:* Streak, luster, hardness, reaction to vinegar.
- Water circulates through the Earth's crust, oceans and atmosphere in what is known as the water cycle.
  - ✓ Identify where water collects on Earth, including atmosphere, ground, and surface water, and describe how water moves through the Earth system using the processes of evaporation, condensation and precipitation.
- In order to maintain and improve their existence, humans interact with and influence Earth systems.
  - ✓ Describe how the methods people utilize to obtain and use water in their homes and communities can affect water supply and quality.

Reading: Informational Text

- Analyze how and why individuals, events, and ideas develop and interact over the course of a text.
  - ✓ Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
- Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
  - ✓ Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.

Writing: Standard Conduct

- Short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
  - ✓ Conduct short research projects that build knowledge through investigation of different aspects of a topic.

Speaking, Viewing, Listening and Media Literacy

- Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
  - ✓ Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. Follow agreed-upon rules for discussions and carry out assigned roles. Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others. Review the key ideas expressed and explain their own ideas and understanding in light of the discussion. Cooperate and problem solve as appropriate for productive group discussion.
- Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.
  - ✓ Identify the reasons and evidence a speaker provides to support particular points.