



Grade Level:

1st Grade

Time:

90 minutes

Season:

Fall

Objectives:

Students will be better able to...

- Differentiate between prairie and wetland habitats
- Name one animal and one plant that lives in the prairie
- Name one animal and one plant that lives in a wetland
- List five basic needs of prairie and wetland plants and animals (food, water, shelter, light, and air)
- Enjoy exploring prairie and wetlands in winter

Materials:

- Laminated prairie and wetland animal and plant photos
- Journal, pencil for Prairie Wetlands Learning Center staff



Prairie Wetlands Learning Center

Habitat Basics

1st Grade - Observation Series

Summary

During an investigation, students ask and answer their own questions about prairie and wetland plants and animals. Students then search for plants and animals in the prairie and a wetland. They observe, evaluate, and record the level of food, water, shelter, light, and air each plant and animal needs. Lastly, they review which animals and plants were found in which habitats and why.

Background

In this field investigation, students 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, and air in the appropriate arrangement or amount. Habitats found at the Prairie Wetlands Learning Center primarily include prairie and wetlands. Since the Prairie Wetlands Learning Center is located in the grassland biome and within the Prairie Pothole Region of North America, our field investigation will focus on our local prairie and wetlands.

Prairie 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 prairie and wetlands for most plants and animals is the presence or absence of water.

- Seeds of *prairie plants* often need cold **air** temperatures in winter in order to sprout (known as cold stratification), wind to help disperse some seeds, full **sunlight** for photosynthesis, and roots in **dry** soil with stems above ground sheltering and supporting each other.

Minnesota Academic Standards

Subjects Covered:
Science,
Language Arts

Helps support 12 standards and 14 benchmarks. See sections "2019 Minnesota Academic Standards in Science" and "2010 Academic Standards in Language Arts"



Background, *continued*

Skills Used

Listening, critical thinking, observation, listening, teamwork, following directions, teamwork, exploration, discovery, matching, questioning, using senses, compare and contrast, concluding

- *Wetland plants* need wind and water to help disperse some seeds, wet to moist soil, full **sunlight** to fuel growth, and shelter provided by the water and each other.
- *Prairie animals* breathe **oxygen** from air, eat plants and/or animals for **food**, and require lower moisture levels than wetland animals for survival. They use **light** for warmth, to see and find food, and to aid in digesting food (reptiles, amphibians, and invertebrates). They can **shelter** underground in the soil, on the surface of the ground, and within prairie plants (grasses, flowers, shrubs).
- Wetland animals breathe **oxygen** from water and/or air, need higher levels of **moisture**, and also consume animals and/or plants for **food**. They also may use **sunlight** for warmth, to see food, and for digestion. They **shelter** underwater, in the ground, in shelters they make above ground, or within plants.

Some prairie and wetland plants and animals are only found in one habitat. For example, stiff goldenrod, big bluestem, grey-headed coneflower, grasshoppers, and millipedes are typically only found in prairie habitats, not wetlands. Cattails, duckweed, leeches, and scuds are only found in wetlands habitats, not prairie. These plants and animals can only complete their life cycles in one habitat. Some species, though, require both habitats to live, like mallards, dragonflies, and tiger salamanders, which may lay their eggs in or near water and then later move from water to land and air as adults.

From an ecological standpoint, the matrix of prairie and wetlands are 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.





Teacher Preparation

To maximize outdoor classroom time at the Prairie Wetlands Learning Center, teachers may

- Conduct the introductory steps of the “Field Investigation Procedure” at school. Upon arrival at the Prairie Wetlands Learning Center, the Prairie Wetlands Learning Center instructor may conduct a quick review before proceeding, allowing for more time in the outdoor classroom.
- Organize students into small groups, each group led by a chaperone, everyone wearing nametags. Each chaperone is responsible for helping their students to follow-through with directions and with dispersal and collection of materials. Their job is not to provide the answers but to guide students to make their own discoveries. The Prairie Wetlands Learning Center staff person’s job is to manage and guide the entire large group, distribute equipment to chaperones, and provide trail leadership.
- We highly recommend conducting one or more of the suggested extensions before your visit in order to integrate this field investigation into the classroom study of animals, plants, living/non-living things, basic needs, habitats, or other topics. We believe such integration enhances student motivation for learning in other curricular areas. Please see section, “Teacher-Led Extensions/Adaptations/Assessment Ideas.”

Prairie Wetlands Learning Center Instructor Prep

Prepare and organize photos of prairie and wetland animals and plants that are easily observable on that day, particularly bugs and plants.

Field Investigation Procedure

Welcome and Intro

1. Welcome students, teachers, and chaperones to the Prairie Wetlands Learning Center. Review rules for the trail.
2. Ask students what every animal and plant needs to live? (air to breathe, water to drink, food to eat, shelter to rest or hide in, light). Review the meaning of the word “habitat” with them as an animal or plant’s neighborhood where it finds its basic needs for survival (air, water, food, shelter, light).
3. Do they know the names of the two habitats at the Prairie Wetlands Learning Center? (prairie and wetlands)
4. Ask them what they already know about prairie and wetland plants and animals? What kinds of animals and plants live in those habitats?
5. Find out what questions they have about prairie and wetland plants and animals. Write down these questions on the clipboard or white board.
6. Explain that in each habitat, they will explore and look for plants and animals and search for the answers to their questions. They will also decide how much food, shelter, water, air, and light each plant and animal needs to live.



Field Investigation Procedure, *continued*

Exploring Outside

7. In each habitat, first prompt them with questions to examine the air, water, and light. Model how to use the sense of touch, sight, and smell:
 - Squeeze the soil between your fingers for moisture and smell it – is this habitat dry or soggy?
 - Feel the air/wind against your cheeks as you turn in a circle – is it windy or calm? Both, if you sit and stand?
 - With eyes closed, turn in a circle again – where is the sun the brightest? Is this habitat shady or sunny? Both, if you sit and stand?
- Next, in each habitat, ask students to vote. Their choices are SIT (has a little), KNEEL (has some), or STAND (has a lot). For each habitat, ask them to show you how much air, light, and water it provides to plants and animals.
9. Last, in each habitat, search for a few plants and animals (or evidence of animals). Show photos of them as well. Wonder what kind of food this animal or plant eats – can they find any? Wonder where this animal finds shelter – can

they find any?

Reflecting Together

10. Back at the amphitheater or classroom, allow students to share their discoveries. To wrap up as a whole class, review the photos – which animals and plants were found in the prairie? 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 prairie, and some in both possibly.)
11. Could New England aster survive in a wetland? Could a leech survive in the prairie? Why not? Are prairies and wetlands important? If so, why? Review the original questions they had about prairie and wetland plants and animals and provide answers as time allows. How can they be a friend to prairie and wetland plants and animals?
12. Thank the class, chaperones, and teachers for coming. Invite them to come back again to visit.

Weather Alternatives

Field investigations take place rain or shine. Everyone should dress appropriately for the weather. In the event of unsafe weather (lightning, high winds) or pouring rain, everyone must come indoors. Prairie Wetlands Learning Center staff make every effort to make your travel worthwhile despite the weather and prepare indoor, age-appropriate plans. Prairie Wetlands Learning Center staff welcome teacher input into these plans. Some possible alternatives might include:

- Go outside for a very short amount of time, even if only under the deck, to observe the prairie and small animals like insects and their needs for life.
- Tour the exhibit area and watch prairie wetlands videos with the objective of finding examples of prairie and wetland animals and their needs for life.
- Using large cut-out letters, challenge students to unscramble the mystery word which means the place where an animal or plant finds its basic needs for life (habitat).
- Read *Squish! A Wetland Walk* by Nancy Luenn and Ronald Himler. Look for examples of wetland plants and animals and their basic needs for life.



Teacher-Led Extensions and Adaptations

Try these activities to extend your visit.

School Connections

- Ask students to draw two pictures, one of prairie, one of wetlands. Direct them to include animals and plants that live in those habitats. They should also draw examples of the basic needs that those plants and animals have for life found in those habitats. Save these pictures and return them after your visit. Invite students to add to their pictures based upon what they observed outside at the Prairie Wetlands Learning Center.
- Challenge students to include conjunctions in concluding statements about their visit, such as "before, after, although, while, or, when, but, except, since, because, whenever," etc., to further their logical thinking process. They could be written on the whiteboard and copied for concluding statements for everyone to take home and share with families.
- Make pop-up 13-lined ground squirrels by adapting "Pop-up Prairie Dog" in the book *Animal Habitats!* by Judy Press and Betsy Day.
- Provide magazines or photos to students of animals and plants that live in the forest (such as burr oak tree, maple tree, paper birch, grey squirrel, eastern cottontail rabbit, eastern chipmunk, jack-in-the-pulpit, wild grape, white-tailed deer, house wren, black-capped chickadee, downy woodpecker, great-horned owl, etc.). What is the name of the habitat they live in? How is that habitat different from the prairie and wetlands?

Neighborhood Connection

- Take a walk around the block to search for other prairie and wetland habitats. Can you find remnants of them in yard or school plantings? Which do they think existed first, the wetland in the middle of a block, or the houses built around it?

For the Prairie Wetlands Learning Center Educator

Prairie Wetlands Learning Center Theme – the Prairie Pothole Region

Primary Environmental Education Message – The prairie pothole region is valuable and in need of restoration and protection.

Sub-message – Habitat: The prairie pothole region is a unique and rare ecosystem.

Prairie Wetlands Learning Center Environmental Education Objective – Describe and apply basic ecological concepts such as energy flow, community, biodiversity, change, interrelationships, cycles, and adaptations.



2019 Minnesota Academic Standards in Science

This lesson helps support the following state standards.

Strand 3 Developing possible explanations of phenomena or designing solutions to engineering problems

Substrand 3.1 Developing and using models

Standard 3.1.1 Students will be able to develop, revise, and use models to represent the students' understanding of phenomena or systems as they develop questions, predictions and/or explanations, and communicate ideas to others.

Benchmark 1L.3.1.1.1 Develop a simple model based on evidence to represent how plants or animals use their external parts to help them survive, grow, and meet their needs. (P: 2, CC: 6, CI: LS1) Examples of external parts may include acorn shells, plant roots, thorns on branches, turtle shells, animal scales, animal tails, and animal quills.

2010 Minnesota State Standards in Language Arts

This lesson helps support the following state standards.

Strand READING

Substrand Reading Informational Text K-5

Standard 3 Analyze how and why individuals, events, and ideas develop and interact over the course of a text.

Benchmark 1.2.3.3 Describe the connection between two individuals, events, ideas, or pieces of information in a text.

Standard 4 Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

Benchmark 1.2.4.4 Ask and answer questions to help determine or clarify the meaning of words and phrases in a text



Language Arts Standards, *continued*

Standard 5 Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.

Benchmark 1.2.5.5 Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.

Standard 6 Assess how point of view or purpose shapes the content and style of a text.

Benchmark 1.2.6.6 Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.

Standard 7 Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

Benchmark 1.2.7.7 Use the illustrations and details in a text to describe its key ideas.

Standard 10 Read and comprehend complex literary and informational texts independently and proficiently.

Benchmark 1.2.10.10 With prompting and support, read informational texts appropriately complex for grade 1, as well as select texts for personal enjoyment, interest, and academic tasks.

Strand READING FOUNDATIONAL SKILLS

Substrand Reading Foundational Skills K-5

Standard 0

Benchmark 1.3.0.4 Read with sufficient accuracy and fluency to support comprehension.

a. Read grade-level text with purpose and understanding to promote oral and silent reading fluency.

c. Use context and other cues (e.g., phonics, word recognition skills, prior knowledge) to confirm or self-correct word recognition and understanding, rereading as necessary.

Strand SPEAKING, VIEWING, LISTENING AND MEDIA LITERACY

Substrand Speaking, Viewing, Listening and Media Literacy K-5

Standard 1. 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.

Benchmark 1.8.1.1 Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.

a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).

b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges.

c. Ask questions to clear up any confusion about the topics and texts under discussion.

d. Listen to others' ideas and identify others' points of view.

e. Follow two-step oral directions.



Language Arts Standards, *continued*

f. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

Benchmark 1.8.2.2 Ask and answer questions about key details in a text read aloud or information presented orally or through other media (e.g., stories, poems, rhymes, songs).

Standard 3 Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.

Benchmark 1.8.3.3 Ask and answer questions about what a speaker

Standard 4 Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

Benchmark 1.8.4.4 Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.

Standard 6 Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

Benchmark 1.8.6.6 Produce complete sentences when appropriate to task and situation, and respond to stories, poems, rhymes and songs with expression.

Benchmark 1.10.6.6 Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., because).

Resources

Book and Web Site for Adults

- *Animal Habitats! Learning About North American Animals and Plants Through Art, Science, and Creative Play* by Judy Press and Betsy Day.
- Enchanted Learning web site, prairie animal printouts

Wetland Books for Children

- *America's Wetlands, Guide to Plants and Animals* by Marianne D. Wallace
- *Around the Pond* by Ann Cooper
- *One Small Square Pond* by Donald M. Silver

Prairie Books for Children

- *America's Prairies and Grasslands, Guide to Plants and Animals* by Marianne D. Wallace
- *America's Prairies* by Frank Staub
- *A Walk on the Prairie* by Rebecca L. Johnson
- *An American Safari, Adventures on the North American Prairie* by Jim Brandenburg

Credits

This field investigation was developed and written by Prairie Wetlands Learning Center Staff, U.S. Fish and Wildlife Service. Thanks to Prairie Science Class Naturalist Tia Thysell for contributing to and reviewing this lesson plan. Thanks to the following teachers for reviewing this lesson plan: Deborah Strege, licensed teacher, Fergus Falls; Tricia Hamann, Heart of the Lakes/Dent Elementary Schools; Gay Eckberg, West Central Area Schools; and Renee Larsen, Adams Elementary in Fergus Falls. Thank you to PWLC volunteer Rita Loftness for reviewing this lesson. Thanks to Beth Franklin and Laura Handergaard, Underwood Elementary, for informally field testing this lesson. Photos provided by Dave Ellis and Molly Stoddard/USFWS.