

## SCHOOL TOUR: EXPLORING TALLGRASS PRAIRIES

### TEACHER'S GUIDE

Grades: 3<sup>rd</sup>-5<sup>th</sup>

Program Length: 2 Hours

**Focus Concept:** *The tallgrass prairie is a unique ecosystem. Its plants are specially adapted to survive harsh climate conditions, grazing by animals, and periodic fires. Because this Illinois ecosystem was forever changed by the arrival of settlers, many of its native animals are no longer found here.*

### OBJECTIVES:

Students will

1. Explain what components make up a prairie community.
2. Name three factors that make prairie ecosystems unique.
3. List three adaptations of plants that allow them to survive on the prairie.
4. Describe insect characteristics.
5. Understand the historical significance of Illinois' vanishing prairie.

### BACKGROUND

Before settlement, over half of Illinois was covered by tallgrass prairie. Prairie is characterized by a wide variety of grasses and forbs (non-woody flowering plants) and an absence of trees. Tremendous fires swept across the prairie, clearing the ground of built up vegetation and discouraging the establishment of trees and other woody plants. Prairie plants developed many adaptations to survive the high winds, periodic drought, strong sun, and prairie fires that characterize the prairie environment. Many different animals, from the smallest insects to the large bison, called the prairie home.

The thick root systems of prairie plants made for rich soil and when settlers arrived, they quickly transformed the prairie to agricultural fields. Loss of prairie habitat led to loss of animal species that lived in the prairie, and many moved on or are now endangered species. Only 0.01% of Illinois' original prairie remains, mainly along railroad rights-of-way and in pioneer cemeteries. The prairie that students explore on the field trip is restored prairie.

### Common Core Standards Correlated

Area	Strand	Standard	Standard Numbers
English Language Arts	Speaking/Listening	Comprehension & Collaboration	3.SL.1, 3, 6 4.SL.1, 2 5.SL.1,2
English Language Arts	Language	Conventions of Standard English	3.L.1 4.L.1 5.L.1

### Next Generation Science Standards Correlated

Physical Science	Life Science	Earth & Space Science
	3-LS1-1, 3-LS3-1, 3-LS3-2, 3-LS3-2, 3-LS4-3, 3-LS4-4, 4-LS1-1, 5-LS1-1	

### Illinois Learning Standards Correlated

Learning Area	Goal	Standard	Benchmark
Science	11	A	2b
	12	B	2a, 2b

Social Science	16	E	1 (US)
	17	B	2b
	17	C	2c

### **SUGGESTED SUPPLEMENTAL ACTIVITIES**

The activities listed below are intended to provide ideas for before or after the field trip. Feel free to adapt activities to match your students' ability level.

### **SUGGESTED PRE-TRIP ACTIVITIES**

1. The students will be visiting a prairie habitat to investigate its plants and animals. Discuss with the students the characteristics that make a prairie a prairie. Review with the students the concepts of "habitat" (food, water, shelter, and space in a suitable arrangement) and "adaptations" (characteristics developed by plants or animals to enable them to survive in their habitat).
2. Students will be conducting detailed observations of a prairie plant. Reviewing the parts of a plant and their functions with your class will facilitate this activity. Plant parts include roots to take in water and nutrients from the soil, leaves to make food (photosynthesis), a stem to transport the water and food, and flowers to attract pollinators and make seeds.
3. Students will be catching and observing prairie insects and/or insect relatives. If you or another teacher have a classroom animal, have the students practice observing it. What color is it? Where does it live? How does it move?, etc. If no animal is available, have students think about what they would like to learn when they investigate an animal and generate a list of questions.
4. Enhance the students' observation skills with the following activity (adapted from Learning to Look, Looking to See in Project Wild). Cover a desk, table, bulletin board, or other classroom display with a large sheet before the students come to class. Ask them to write down all the things that they thought they saw there before it was covered. When their lists are completed, have them turn their papers over, then remove the sheet. On the back of their original lists, have them make new lists of what they now see. What items were most easily remembered? What items were most frequently missed? Can they think of reasons why? If possible, follow this by a trip outside. Have each child individually choose an object (tree, fence post, flower, wall, playing field, etc.) and spend 10-15 minutes recording everything they see (also feel, smell, and hear) about their object. Then bring the children back together for a discussion of the importance of observing things using all their senses. Review the various adjectives they used in describing their objects.
5. During their prairie hike, students will use their senses to explore the prairie. They will be asked not only what they see, but what they hear, feel, and smell, and to think of descriptive words about the prairie. Have the students practice this on a walk around the school or school yard, or by closing their eyes while you read them a descriptive narrative. What are some words that describe the way something looks, smells, sounds, or feels?
6. Have students start a prairie journal or portfolio and continue it for the duration of the prairie unit.
7. Using the novel *Little House on the Prairie*, or other novels or memoirs relating to life on the prairie, read sections and discuss with the students what it was really like to live in Illinois during the 1800's. Another source of local prairie history is Celebrating Champaign-Urbana History by Alice McGinty.

## SUGGESTED POST-TRIP ACTIVITIES

1. Have students close their eyes and think back to what they felt, heard, or smelled while at the prairie – things they noticed with senses other than sight. For example, they might notice the warmth of the sun or the buzz of insects. Have each student write a list of these things. Discuss the lists to generate a class description of how it felt out on the prairie.
2. Give any students who still need it time to complete their worksheets. Lead a discussion of the worksheets and have the students think a little more about what was special about the plants or insects they investigated. How many different plants did the class investigate? Did the students notice the differences between the grasses and forbs they investigated? How many different ways did they find that the plants are adapted to conserve water? Did they notice evidence of animal life on or around their plants? How many different insects were observed? Where were they found? (on a leaf, a flower, on the ground?) Can students think of how prairie plants and animals depend on each other for survival?
3. Prairie Mural: Using pictures from magazines or the internet, or drawings by the students, create a prairie habitat on a bulletin board. Be sure to include plants, streams, bridges, trees, and anything else they saw at the prairie. Have each student draw a picture of the insect they investigated and include it in its appropriate habitat on the mural. Ask the students the following questions:
  - Why did you select that habitat for your animal?
  - What did you discover about the animal that surprised you the most?
  - Had you ever seen that animal before?
  - Did you know before you visited the prairie where to find the animal you interviewed?
4. Now that the students are prairie plant experts, have them think about the role of the prairie plants in the environment. Plants convert energy from the sun into food. What eats the plants? What eats the herbivores? What happens to the carnivores and omnivores when they die? Discuss the concept of food chains and food webs.
5. Creative writing – have the students write a story about the prairie.
  - Have them pretend they are writing to a pen pal and describe what it felt like to be out on the prairie.
  - Have them pretend to be a bird flying over the prairie. Describe what the prairie looks like to the bird as it soars through the sky. Is it hunting for food? What kind – rodents or insects or seeds? How will it catch them? Where is its home?
  - Have them pretend to be a small insect crawling through the grasses. What is the insect doing? How does it feel to be so tiny? What does the prairie look like from the insect's perspective?
  - Have them pretend it is night on the prairie. What does the prairie look like at night? What sounds can they hear? What can they see in the night sky?
  - Have them pretend to be one of the plants they investigated. Write about a day in the life of that plant.
  - Older or very imaginative students might want to try creating a legend about what their plant is used for or how it got its name.
6. If time and interest permit, expand the discussion of restoration and land management begun at the prairie. Of over 22 *million* acres of prairie in Illinois, only 2300 acres, or 0.01%, of presettlement prairie remains. The Nature Conservancy lists tallgrass prairie as one of the most endangered ecosystems in the world. Would the students like for their own children to be able to experience the prairie someday? How can they help that happen?

7. Borrow a Prairie Educational Loan Box from the Nature Center. The *Prairie Discovery* box is for elementary school students, and the *Prairie as a Habitat* box is for middle and high school students. Each contains an activity guide and additional books, field guides, equipment, and activity props, as well as an extensive bibliography. There is a small fee for the use of these boxes. Please call the Nature Center at 384-4062 for more information.
8. If you and other teachers in your school are interested in learning more about the prairie, consider participating in a Prairie School Project educator workshop. Contact the Nature Center at 384-4062 for information.

**VOCABULARY:** These words will be used by the educators during this program.

Adaptation	Forb	Roots
Agriculture	Grass	Settlers
Climate	Grazing	Short grass
Community	Habitat	Soil
Drought	Leaf	Stem
Ecosystem	Mixed grass	Tall grass
Endangered	Native	Threatened
Environment	Non-native	Vegetation
Fire	Population	
Flower	Prairie	

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