

**URBANA PARK DISTRICT
Anita Purves Nature Center**

SCHOOL TOUR: **PRAIRIE PLANTS OF ILLINOIS**

TEACHER'S GUIDE

Grades: **3rd, 4th & 5th**

Program Length: **2 Hours**

LOCATION: **MEADOWBROOK PRAIRIE**

Focus Concept: *The plants of the tallgrass prairie ecosystem are specially adapted to survive harsh climate conditions, grazing by animals, and periodic fires.*

OBJECTIVES: Students will

1. Name three factors that make prairie ecosystems unique.
2. Know the difference between forbs and grasses.
3. List three adaptations of plants that enable them to survive on the prairie.

INTRODUCTION

High winds, periodic drought, strong sun, and occasional fires are all characteristics of the prairie environment. The prairie plants (grasses and forbs) developed many adaptations in order to survive these harsh conditions. Grasses, the dominant plant of the prairie, have long narrow leaves that grow from their bases and enable the plants to survive grazing by various plant-eating animals. Forbs (the broad-leaved plants) also have special adaptations to survive periods of dryness. These include thick waxy-coated leaves or leaves covered with fuzzy hairs. Some have a thick milky sap to aid in water retention and some have leaves that orient themselves to minimize sun exposure. Both grasses and forbs have extensive and deep root systems to help in absorbing as much moisture as possible from the soil, and both are able to regenerate from their roots after fires.

In this program, students will be introduced to the adaptations enabling prairie plants to survive in the prairie environment. They will make a detailed investigation of both a grass and a forb, studying their structure and reaching conclusions about their adaptations. The "Remarkable Roots" game will reinforce the concept of the prairie plant root system.

Common Core Standards Correlated

| Area | Strand | Standard | Standard Numbers |
|--------------------------|--------------------|-------------------------------|--|
| English Language Arts | Speaking/Listening | Comprehension & Collaboration | CC.3.SL.1, 1b,c,d, 3 CC.4.CL.1, 1b,c,d,2 CC.5.SL.1, 1b,c,d,2 |

Next Generation Science Standards Correlated

| Physical Science | Life Science | Earth & Space Science |
|------------------|--------------|-----------------------|
| | LS1.B, LS2.B | ESS2.E, ESS3.C |

Illinois Learning Standards Correlated

| Learning Area | Goal | Standard | Benchmark |
|----------------|------|----------|---------------|
| Science | 11 | A | 1d, 2b, 2d |
| | 12 | A | 1a |
| | | B | 1a, 2b |
| Social Science | 16 | E | 1(US), 2a(US) |
| | 17 | C | 2c |

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

| | | |
|------------|---------|------------|
| Adaptation | Forb | Roots |
| Bison | Grass | Soil |
| Climate | Graze | Stem |
| Ecosystem | Habitat | Tall grass |
| Fire | Leaf | |
| Flower | Prairie | |

SUPPLEMENTAL ACTIVITIES: These activities are intended to provide ideas to be used before or after the field trip. Feel free to adapt the activities to match your students' ability level.

SUGGESTED PRE-TRIP ACTIVITIES

1. The students will be visiting a prairie habitat to investigate how plants are adapted to survive. 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 grasses and forbs. 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. 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.
4. From the list of prairie plants included in the packet, have the students select a plant to investigate. Have each student or pair of students research information about their plant. You may want to provide some standard questions for the children to answer. ("Is your plant a grass or a forb?" "How tall is your plant?" "When does your plant bloom?" "What animals like to eat your plant?")

“Did people have any uses for the plant?” “How does your plant reproduce?” etc.) Have the students present their findings to the class.

SUGGESTED POST-TRIP ACTIVITIES

1. Give any students who need it time to finish their worksheets. Lead a discussion of the worksheets and have the students think a little more about what was special about the plants they chose to investigate. 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?
2. Have each student draw a picture of his/her favorite plant, or of the plant they studied at the prairie.
3. Have students close their eyes and think back to how it felt to walk through the prairie – what they saw, heard, smelled, touched. Have the class generate a list of as many descriptive words as possible to describe what it feels like to walk through a prairie.
4. Using pictures collected from magazines, or other pictures or artwork created by the students, create a prairie mural or bulletin board. Include topographical features seen at the prairie, such as the stream, bridges, paths, and trees at the edge of the prairie. Have the students include any insects or birds they saw at the prairie, or other animals that would live in a prairie habitat.
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. 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.
7. 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?

8. For more information and activities about the tallgrass prairie, borrow one of the Nature Center's educational loan boxes. The *Prairie Discovery* Loan Box is for grades 3-5 and the *Prairie as a Habitat* loan box is for middle school ages. The boxes contain books, posters, tools, activity props, and an Activity Guide. For more information, contact the Nature Center at 384-4062.

Revised 11/13 NCS