Revised 4/17/20
Neal Smith National Wildlife Refuge

Plant Life Cycles

3rd Grade

60 Minutes

Fall

Summary

Based on their prior knowledge about the lifecycle of a plant, students will act out different stages of the plant lifecycle. Students make quadrants in their nature journals and label the squares "Seeding," "Sprouting," "Blooming," and "Lifecycle discoveries." Next, students search outside to find and sketch plants that are in various growing stages and record them in the appropriate quadrant. Later, students share their discoveries and their nature journals by participating in a silent "nature journal walk" exercise. During this exercise, students leave their journals open on the floor and students walk around in a circle and observe each person's entry. Afterwards, students are encouraged to share what they learned about plant lifecycles and prairie plants in the fall season.

Next Generation Science and Iowa Core Standards

Next Generation Science

- **3-LS1-1**
  - Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.

Literacy

Writing

- **W.3.2**
  - Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

- Introduce a topic and group related information together; include illustrations when useful to aiding comprehension.
- Develop the topic with facts, definitions, and details.

Speaking and Listening

- **SL.3.1**
  - Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.
- **SL.3.4**
  - Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.
- **SL.3.6**
  - Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.

Materials and Resources

- White board
- Plant Life Cycle Dress-up materials
- Dry erase marker
- Clipboards and Data sheets or nature journals
- Pencils & Colored pencils
- Cuttings of prairie plants in various stages of their life cycles

Presentation

Today we are going to be learning about the lifecycle of prairie plants and how magical plants can truly be if they just look closely at them. Plants change every day, whether it blooms a flower, grows taller, changes to brown in the fall, or gains seeds. There are endless discoveries to be made about prairie plants. Explain that the world needs more naturalists who will stop to examine the beauty of plants. Let's get busy investigating the lifecycle of plants!

Directions

1. Explain to students that today, they will be learning about the lifecycle of prairie plants. Write the words "prairie plants" on the white board.

2. Create a t-chart on the board that has 2 columns and label one "know" and the other "learned". Gauge students background knowledge by asking the students, "What do you already know about the life cycle of prairie plants?" If students need extra guidance, ask them specific questions such as: "Where do seeds come from? How are seeds made? Do all flowers look the same? What does a plant look like when it first emerges?" Record their answers on the board under the column labeled "know."

3. Use cuttings of prairie plants in different stages to pass around and teach the students about different lifecycles before they go outside. Pick a seed head or flowers and ask them to describe it and explain the lifecycle stage.

4. Have students role play the life cycle of a plant. Ask volunteers to come and demonstrate the life cycle around the classroom. First, we start with a **seed** (have student hold a ball). What does it need to grow? Water! Have students mimic rain with their fingers to "feed" the seed. Next, our seed turns into what? A **sprout** (give student a green tunic). Our sprout still needs water to survive, but it uses its leaves for another need—sunlight. Have students mimic sunlight by waving their hands. With enough sunlight and water, our sprout becomes an **adult plant** (give student another green tunic). How is a sprout different from an adult plant? It's bigger! Have the adult plant reach their arms up high. It grew big enough to make a **flower** (have the adult plant hold up a picture of a flower)!

5. A few more things must happen to complete our life cycle. What does the flower need to make seeds? If students cannot guess, ask if they know what pollen is. Pollination, or when two flowers exchange pollen, lets them make seeds (have another student hold a flower picture- this is our second flower).

6. But our two flowers can't reach each other! How will they exchange pollen? There are a few methods: wind, water, people, or animals. We call animals that help flowers exchange pollen "**pollinators**." Examples include bees, beetles, ants, bats, butterflies. etc. Luckily, the refuge is full of

pollinators willing to help our flowers (have a student wear butterfly wings and trade a pollen ball between flowers).

7. Now that our flowers have exchanged pollen, they have served their purpose (have students wilt). But from their hard work, they can create **seeds**. We have now completed the plant life cycle!

8. Thank students for their help and have them sit down.

9. Explain to the students that in a few minutes they will be going outside to find and explore the lifecycle of prairie plants. They will be writing and drawing about different prairie plants. Ask students, *"What questions do you have about prairie plants?"* Provide them with one or two examples: I wonder…how many prairie plants will be blooming right now? I wonder how many different colored flowers we can find? I wonder if we can find any parts of a flower? I wonder if any plants will have seeds on them? I wonder what their seeds will look like? I wonder how the seeds disperse? I wonder if any of the species will have lost all their seeds? This will get students excited about learning and help guide them while they are outside.

10. Help students prepare their journal entries by modeling on the board. ***Use the example on the last page – headings include *Seeding, Sprouting, Blooming, and Lifecycle discoveries.*** Have students divide their paper into the 4 boxes as shown. Fill in the quadrants on the board with possible discoveries using words and pictures to provide an example. While they complete their data sheet, they can just focus on one plant or several plants. They should use the "Lifecycle discoveries" quadrant to write or draw about something they never knew before, something that surprised them, or questions that come to their mind.

11. Time to go out and explore! Put students in small groups and remind them that that *naturalists* are happy outside, explorers, adventurers, respectful, prepared, responsible and quiet. They ask questions, use words, numbers and pictures, and share their discoveries.

12. Once you get outside, try to spread the groups out as much as possible to

get a variety of observations. When journaling, students should try to be quiet, so that each *junior naturalist* (student) can think about their questions and concentrate. However, teachers are encouraged to ask their *junior naturalists* questions about their plant or help them look for details on their plant. Possible questions include: How many colors do they see on their plants? How many blooming plants have they found? What are the parts of the flowers that they can find? What are some similarities and differences in the plant structures? How do they know the difference between seeds and flowers? (Ex-Rattlesnake Master) What shapes are the seeds and how are they moving? Have they found any seedlings? Why or why not?

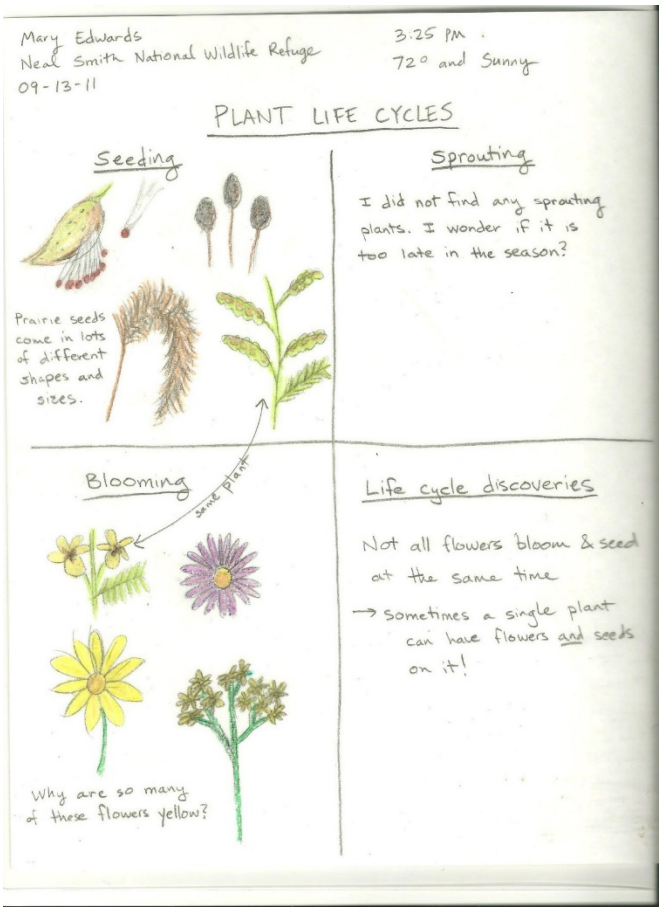
13. After about 10 minutes, take students back inside. Students should be prepared to share their discoveries with the class. Ask students to also contemplate why studying the lifecycles of plants might be important.

14. Allow students to share the discoveries they made and possibly construct explanations about prairie plants. (You can write these discoveries on the T- chart you created at the beginning of the lesson.) What did they *learn* by looking closely at prairie plants? See if students can answer their *wonder* questions, too. Record their answers under the column "Learn" on the board. If students need further prompting, ask students- What was special about the plants they saw? How did they look, feel, smell?

15. Congratulate your *junior naturalists* on a job-well-done investigating plants!

Resources

Journal Prompt



Plant life Cycle Examples

Seeds Seedling Flower Seed Head

Mountain Mint

Pycanthemum virginianum

Seed Seedling Flower Seed head

Pale Purple Coneflower

Echinacea pallida