Revised 4/17/20
Neal Smith National Wildlife Refuge

Habitat Comparisons

4th Grade

60 Minutes

Fall

Summary

This is a student-led activity that puts learners in charge of answering the question, "How does plant height affect prairie life?" Students work in small groups to make observations from two pre-selected, outdoor grass areas (turf/lawn grass vs. prairie grass). Back in the classroom, students share their findings to complete a Venn diagram that is used by students to identify the environmental factors or variables that contributed to the patterns they discovered. From their evidence, students work to draw a conclusion about the influence plant height has on habitats.

Next Generation Science and Iowa Core Standards

Next Generation Science

- **4-LS1-1**
  - Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

Materials and Resources

- White board
- Dry erase marker
- Blank paper or nature journals
- Pencils
- Hula Hoops
- Tools
  - Thermometers
  - Soil probe

- Field guides
- Ruler or yard stick

Presentation

Today we will be doing an investigation about how plant height effects (or changes) prairie life.

Directions

1. Write the word "height" on the board. Ask a student volunteer to explain what the word height means. Ask students what differences they might expect to find with weather or temperature or moisture with taller or shorter plants?

2. Then ask students, what do they already know about prairie life? What plants and animals do they know? What do they know about non-living factors on the prairie like weather, moisture, rocks? This prairie is called "tallgrass prairie" because it has significantly taller grasses than typical lawn grass.

3. Help the students brainstorm questions about how prairie life will be affected by plant height. For example, will we find the same plants and animals in lawn patches versus prairie patches? Will the soil be the same? Will the moisture of the soil or the temperature of the air be the same? Guide students to ask questions that they will be able to answer by making observations outside. Record students' questions on the white board.

4. Explain that soon the class will be splitting into groups and heading outside to explore and try to answer our questions. Some groups will be making observations in a patch of lawn grass, and some groups will be making observations in the prairie. Afterward, we will compare our observations to answer our questions about how plant height affects prairie life.

5. Help student prepare their journal entries by modeling on the board. **See example on final page.** 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, soil observations, and weather (temperature and moisture). On the next page of their journals, students should draw a large circle. This is where they will draw their observations.

6. Tell students that they are now almost ready to go outside to explore. Put students into small groups and put an adult chaperone with each group if possible. Make eye contact with the adult chaperones and teachers. Explain to them that they will each get a small group of students. When the class gets outside, some groups do lawn grass, and some will do tall prairie grass. Each group chaperone will toss a hula hoop into their area and help their students make observations of what is inside their hoop. While journaling, students should try to be quiet, so that each naturalist can think about their questions and concentrate on their observations. However, the adult leaders are welcome to ask their fellow naturalists questions or help the students look for details in their hoops.

7. Distribute one hula hoop and tools to each group chaperone. If using tools, chaperones can assign a tool to each person in their group. Have all the groups form a single file line to get ready to head outside. Make sure that the students have all 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. When outside, direct adult chaperones where you would like them to go. Provide them with boundaries. While the students are journaling, rotate among groups. Ask students questions like: How many types of plants have they found? What types of insects have they found? What is the soil like in their hoop (hard/soft, wet/dry, silt/sandy/clay)? Have they found any signs of animal life? Why or why not?

9. After about 20 minutes, ask students and adult chaperones to line up to head back inside. Instruct students that while they are walking to go back

inside, they should think about the discoveries they made and get ready to share them with the other naturalists.

10. Once 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 "lawn grass" and the other circle "tallgrass." Ask students to share their observations and record their responses in the appropriate place.

11. Ask the students to consider the questions they posed at the beginning of the activity. Ask them to write in their journals, "One way that plant height affects prairie life is…" and complete the sentence on their own. After a couple of minutes, ask student volunteers to share their discoveries.

12. Ask students if they can identify structures or parts of an animal or plant which helps it thrive at this height? For example- Deep roots might help a plant growing in dry soil. It might be easier to tunnel in soil without roots.

13. At the end of the lesson, explain to students that today they discovered how magical the prairie can truly be if they just look closely at it. It is so much more than grass and it can even be very different at different locations! There are endless discoveries to be made about different habitats. They don't even have to come to Neal Smith 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.

Resources

Journal Prompt

Name, Date, Location, Weather, Time
Habitat Comparison

Soil
-the soil is cold, hard and dry in the prairie

-it is dark brown, warm and damp in the lawn

Weather
-it isn't windy in the prairie grass

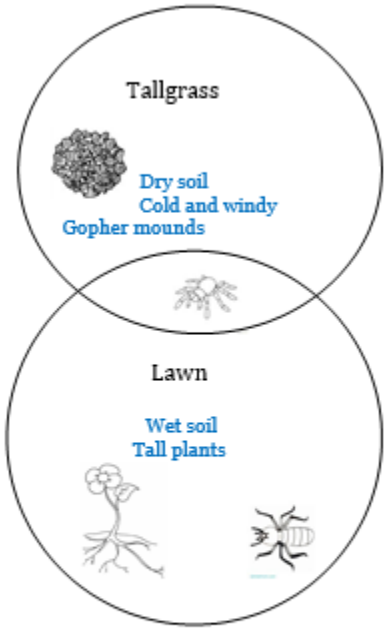
-it is windy at the in the lawn

Plant Life
- at the top of the hill there are lots of tall yellow flowers

- the flowers near the lawn are really small!
I wonder why?

Animal Life
-I saw three gopher mounds in the tall grass prairie

-I found six ant hills in the lawn grass.



One way that plant height affects prairie life is: Tall prairie plants have deep roots that let them survive in drier soil.