

Comparing Arthropod Abundance and Diversity in a Reconstructed Prairie and Mown Lawn Habitats; Lesson Plan

Emma Brimeyer, Bailey Dohlman, Tanner Stumm,
and Olivia Weigel
NREM 380, Fall 2020

Introduction

Topic: Biodiversity!

Central Concepts:

- Animals depend on plants for habitat, food, and other resources
- Availability of plant based resources vary in different habitats and alters animal species diversity
- Humans depend on biodiversity



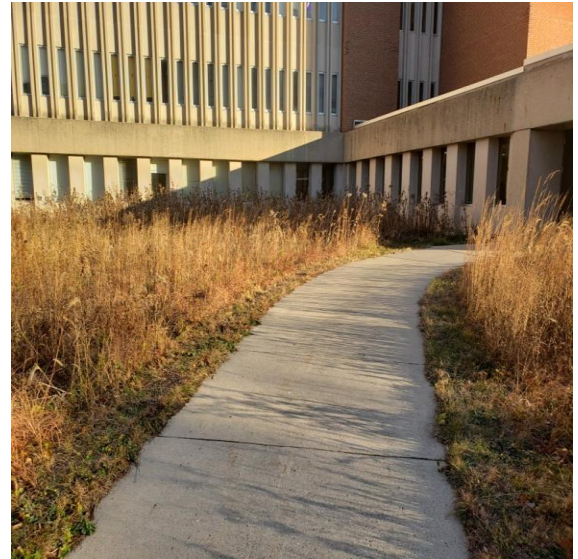
Introduction

- By the end of this lesson, students will be able to:
 - Apply the steps of the scientific method
 - Explain why diversity and arthropods are important to humans
- Target audience: First Graders
- Time requirement: An hour for set up and an hour to complete the activity



Learning Activity Site

- Students collect arthropods on reconstructed prairie plots and mowed turfgrass plots nearby each other
- Allows for hands-on comparison of biodiversity
- Space to socially distance



Preparing for Lesson

- Create two 2X2 m meter plots in each habitat
- Attach velcro to insects and scatter in plots
- Set up easel, notepad, felt board, and gather markers



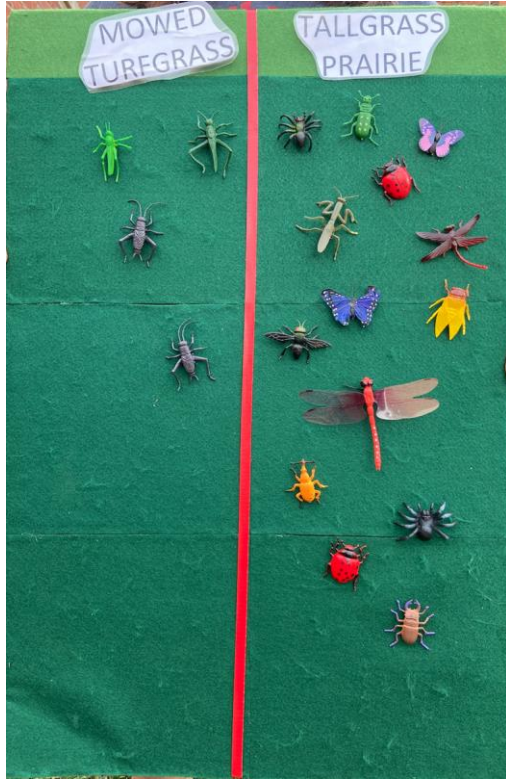
Engaging Students

Questions Used to Engage Students in Arthropod Abundance

- Who can tell me what an arthropod is?
 - Can you give me an example of an arthropod?
- What do you notice about the prairie flowers?
What do you notice about the grassy areas?
 - Are they similar? Different? Tell me why you think that.
- **Predict:** Do you think you will find more arthropods on the tallgrass prairie flowers or in the mowed turfgrass areas? Let's find out!



Exploring the Habitats



- Students are grouped into fours, each with a container to place arthropods
- Student are provided three minutes to observe each plot
- Students place the arthropods on respective sides of the felt board for each habitat
- Students count the arthropods in each habitat

Building Upon Exploration Phase

Questions Used to Expand on Collected Data

- “Do the total number and number of different types of arthropods support your original hypothesis?”
- “Why do you think you found a wider abundance and diversity of arthropods in tallgrass prairie than in mowed turfgrass? ”
- Biodiversity: “ What do tallgrass prairies provide for arthropods that mowed turfgrass areas do not?”



Applying the Concepts

- **Relate concepts of biodiversity and arthropod habitat to the student's lives**
 - **Why arthropods are important to us? Services?**
 - **Discuss questions relating to decomposers, pollination, etc**
- **Brainstorm what students can do to help preserve arthropod biodiversity**
 - **Generate ideas including prairie planting, gardening, etc**
 - **What can decrease biodiversity? Mowing? Pesticides?**

Connecting to the National Science Standards (NGSS)

2-LS4-1: Make observations of plants and animals to compare the diversity of life in different habitats.

- **Science and Engineering Practices - Planning and Carrying Out Investigations**
- **Disciplinary Core Ideas - LS4.D. Biodiversity and Humans**
- **Crosscutting Concept - Cause and Effect**



References

- **The Editors of Encyclopaedia Britannica. 2015. Asteraceae.**
<https://www.britannica.com/plant/Asteraceae>.
- **Convention on Biological Diversity. 2007. What is biodiversity?**
http://www.biodiv.be/biodiversity/about_biodiv/biodiv-what.
- **NGSS Lead States. 2013. Interdependent Relationships in Ecosystems.**
<https://www.nextgenscience.org/topic-arrangement/2interdependent-relationships-ecosystems>.