

Table of Contents

UNIT SYNOPSIS.....1

CONTENT STANDARDS.....4

ROADMAP.....5

UNPACKED STANDARDS.....95

VERTICAL STANDARDS.....98

VOCABULARY GLOSSARY.....98

Unit Synopsis

Students assume the role of scientists helping a group of children from the fictional community of Mariposa Grove to explain why there are no more caterpillars in a community garden that was converted from a field which once had caterpillars; students also advise the children on what they can do to attract the monarchs. In the unit, students figure out that monarch caterpillars feed on milkweed plants, and then investigate what milkweed plants need to grow by observing and recording plants under different water and light conditions. Students also examine the ways that humans change their environment in order to meet their needs and explore how people can choose to share the places they live with other living things. At the end of the unit, students engage in a design problem as they recommend a plan to redesign the garden in Mariposa Grove in such a way that it accommodates the needs of both humans and monarchs.

Amplify Unit Level 3D Statement

Students carry out investigations **and analyze and interpret data** to determine **what plants and animals need to live and grow (systems and system models)** in order to help a group of kids from the fictional town of Mariposa Grove solve the problem of why there are no longer monarch caterpillars living in a garden in their neighborhood (cause and effect). At the end of the unit, the class designs a solution to the problem by developing a model (scale, proportion, and quantity) for a garden that provides for both human and animal needs.

Key: Targeted 3D Learning Objectives

Science and Engineering Practices

Disciplinary Core Ideas

Crosscutting Concepts

***Reference your Scope and Sequence on Curriculum Corner to create your Long-Term Plan to determine your time frame for teaching the unit.**

Depending on your Long-Term Plan, you could have 3 flex days during the unit. Flex Days are recommended:

- After a Critical Juncture in lessons 1.7, 2.2, 2.7 and 3.4
- Campus based activities day
- Review centers for Critical Junctures and the End of Unit Exam

DISCIPLINARY LITERACY

Focus on
Disciplinary
Literacy

In science, disciplinary literacy is synonymous with the science and engineering practices (SEPs). The SEPs are the context through which all science concepts should be taught. In the lessons, you will find the Science and Engineering practices icons when the SEPs are being explicitly used by students. The two focus SEPs for this unit are Planning and Carrying out Investigations and Asking Questions and Defining Problems.

Practice 1

Asking
Questions
Defining
Problems

Practice 2

Developing
and Using
Models

Practice 3

Planning and
Carrying Out
Investigations

Practice 4

Analyzing and
Interpreting
Data

Practice 5

Mathematics
- + x ÷

Computational
Thinking

Practice 6

Constructing
Explanations
Designing
Solutions

Practice 7

Engaging in
Argument
from Evidence

Practice 8

Obtaining,
Evaluating, and
Communicating
Information

UNIT 1: ADVANCED TEACHER PREPARATION

Step	Action	Resource
1	Internalize the unit by following steps on the Unit Internalization Protocol	<u>Unit Internalization Protocol</u> Curriculum Corner > State > Early Childhood > Grade > Instructional Resources
	Watch the Unit Overview Video/ TIPS	Kindergarten Unit 1 Overview Video
	Review the visual flow of the unit	Coherence Flowchart
	Gain science background knowledge and identify student and teacher preconceptions	Amplify Science Background Knowledge
2	Prepare for each day of instruction by following the Lesson Internalization Protocol for each lesson	<u>Lesson Internalization Protocol</u> Curriculum Corner > State > Early Childhood > Grade > Instructional Resources

PROGRESS BUILD

Below describes the way in which students' explanations of the central phenomenon should develop and deepen over the course of this unit.

Needs of Plants and Animals Progress Build

In the *Needs of Plants and Animals* unit, students will learn to construct scientific explanations of why milkweed plants grow differently under different water and light conditions.

Prior knowledge (preconceptions): There is no significant prior knowledge assumed. Students may have observed plants and animals in their homes or neighborhoods, or when on outings with family members. They have experience eating and may be aware that pets and other animals need to be fed. They may have watched or helped someone care for houseplants or grow plants in a garden.

Foundational knowledge: **Animals can only live in a place that has the food they need.**

Before developing the ideas in the Progress Build, students develop some foundational ideas about animals and their needs:

- Living things include both plants and animals.
- Animals need food in order to live.
- Many animals eat plants for food, and they can only live in places where their food grows.

Level 1

Growth is increasing in size or having new parts.

When a plant grows, it gets bigger or develops new parts that were not there before, such as leaves.

Level 2

Plants need to get water with their roots.

When a plant grows, it gets bigger or develops new parts that were not there before, such as leaves. **Plants need water in order to live and grow. Plants use their roots to take in water from the soil around them.**

Level 3

Plants also need to get light with their leaves.

When a plant grows, it gets bigger or develops new parts that were not there before, such as leaves. Plants need water in order to live and grow. Plants use their roots to take in water from the soil around them. **Plants also need light in order to live and grow. Plants get light when it hits their leaves.**

CONTENT STANDARDS

Below are the standards **taught** and **assessed** in this unit.

Standards	
<p><i>Next Generation Science Standards (NGSS)</i></p> <p><u>Focal Performance Expectations</u></p> <p>K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive. [Clarification Statement: Examples of patterns could include that animals need to take in food but plants do not; the different kinds of food needed by different types of animals; the requirement of plants to have light; and, that all living things need water.]</p> <p>K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. [Clarification Statement: Examples of plants and animals changing their environment could include a squirrel digs in the ground to hide its food and tree roots can break concrete.]</p> <p>K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live. [Clarification Statement: Examples of relationships could include that deer eat buds and leaves, therefore, they usually live in forested areas; and, grasses need sunlight so they often grow in meadows. Plants, animals, and their surroundings make up a system.]</p> <p>K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment. [Clarification Statement: Examples of human impact on the land could include cutting trees to produce paper and using resources to produce bottles. Examples of solutions could include reusing paper and recycling cans and bottles.]</p> <p><u>Connections to Other Performance Expectations</u></p> <p>K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</p> <p>K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</p>	
<p><i>Texas Alignment (TEKS)</i></p> <p>K.12.A observe and identify the dependence of plants on air, sunlight, water, nutrients in the soil, and space to grow; and</p> <p>K.12.B observe and identify the dependence of animals on air, water, food, space, and shelter.</p> <p>K.13.B identify the structures of plants, including roots, stems, leaves, flowers, and fruits;</p> <p>1.11.A identify and describe how plants, animals, and humans use rocks, soil, and water;</p> <p>1.12.A identify and describe how plants, animals, and humans use rocks, soil, and water;</p> <p>1.12.A classify living and nonliving things based upon whether they have basic needs and produce young;</p> <p>2.11.B describe how human impact can be limited by making choices to conserve and properly dispose of materials such as reducing use of, reusing, or recycling paper, plastic, and metal.</p> <p>2.13.D investigate and describe some of the unique life cycles of animals where young animals do not resemble their parents, including butterflies and frogs.</p>	
<p><i>Ohio Alignment (Ohio's Learning Standards)</i></p> <p>1.LS.1: Living things have basic needs, which are met by obtaining materials from the physical environment.</p> <p>1.LS.2: Living things survive only in environments that meet their needs.</p> <p>2.LS.1: Living things cause changes on Earth.</p>	<p><i>Florida Alignment (NGSSS)</i></p> <p>K.N.1.2 Make observations of the natural world and know that they are descriptors collected using the five senses.</p> <p>K.L.14.1 Recognize the five senses and related body parts.</p> <p>K.L.14.3 Observe plants and animals, describe how they are alike and how they are different in the way they look and in the things they do.</p>

ROADMAP

Below is the recommended sequence of instruction for this unit.

At a Glance Unit 1: Needs of Plants and Animals								
Day	Lesson	Date	Day	Lesson	Date	Day	Lesson	Date
1	1.1		16	2.1 C		31	3.4 A*	
2	1.2		17	2.2 A		32	Optional Flex	
3	1.3 A		18	2.2 B*		33	3.4 B	
4	1.3 B		19	2.3		34	4.1 A	
5	1.4 A		20	2.4 A		35	4.1 B	
6	1.4 B		21	2.4 B		36	4.1 C	
7	1.5 A		22	2.5		37	4.2	
8	1.5 B		23	2.6		38	4.3 A	
9	1.6 A		24	2.7 A*		39	4.3 B	
10	1.6 B		25	Optional Flex		40	Review	
11	1.7 A*		26	2.7 B		41	Review	
12	Optional Flex		27	3.1		42	4.4 A	
13	1.7 B		28	3.2		43	4.4 B	
14	2.1 A		29	3.3 A		44	4.4 C	
15	2.1 B		30	3.3 B				

* Critical Juncture in lesson

Formative Checks: Each lesson includes a formative check to gauge student progress, using varied, differentiated methods. Examples include: anecdotal records, oral and written explanations with evidence, illustrations with labels, physical models, presentations. Notice that we are moving away from exit tickets and multiple-choice questions. As you review responses, you will need to look for patterns of strength and areas that the teacher needs to make adjustments and provide more support.

- See Scope and Sequence for Scanning Deadline, [Link](#)
- **Allow 5 business days BEFORE the scanning deadline for grading responses and entering grades.**