

Table of Contents

UNIT SYNOPSIS.....1

CONTENT STANDARDS.....3

ROADMAP.....5

UNPACKED STANDARDS.....84

VERTICAL STANDARDS.....86

VOCABULARY GLOSSARY.....87

**Unit Synopsis**

What is the connection between chalta fruit, elephants, and droppings? Students find out as they investigate a mystery that really occurred in a broadleaf forest habitat in northeastern India. Earth is comprised of a vast array of complex habitats, each including a great diversity of plants and animals that interact in a myriad of ways. Like animals, plants are living things with particular needs, but without the ability to move on their own, how can plants get to places where those needs can be met? Many plants depend on animals to disperse their seeds to new places in their habitats where they are able to get the water and sunlight that they need to grow. In the Plant and Animal Relationships unit, students dive deep into how plants depend on animals in their habitats. Students assume the role of plant scientists reporting to the lead scientist at the Bengal Tiger Reserve, who has tasked students with explaining the unit's anchor phenomenon of why no new chalta trees are growing there. Motivated to figure out the cause of this real-world mystery, students investigate the problem, and then pursue a chain of reasoning that takes them from considering how plants get what they need to grow to understanding how seeds depend on animals for dispersal. Along with firsthand experiences, students read informational texts, focus on how to plan and carry out investigations about plant needs, and engage in student-to-student discussions as they come to understand some challenging life science concepts. Students use their newfound understanding of plant needs and plant-animal relationships in a habitat to explain what chalta seeds need to grow into full-grown trees and why no new chalta trees are growing in the Bengal Tiger Reserve.

**Amplify Unit Level 3D Statement**

As plant scientists, students use and create models to investigate and then plan and carry out investigations to **explain why new chalta trees are not growing in a section of a broadleaf forest in India** (systems and systems models; scale, proportion, and quantity). In doing so, they figure out how **the parts of a habitat system interact generally and about seed dispersal mechanisms specifically** (systems and systems models, structure and function).

Key: Targeted 3D Learning Objectives

**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 1-3 flex days during the unit. Flex Days are recommended:

1. After a Critical Juncture in lessons 1.7, 2.4, 2.5 and 3.6
2. Campus based activities day
3. Review centers for the End of Unit Exam

## 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 Developing and Using Models.

**Focus on Disciplinary Literacy**

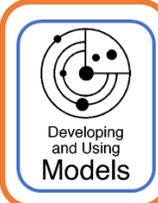


*Practice 1*



Asking Questions  
Defining Problems

*Practice 2*



Developing and Using Models

*Practice 3*



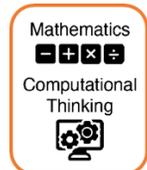
Planning and Carrying Out Investigations

*Practice 4*



Analyzing and Interpreting Data

*Practice 5*



Mathematics  
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 1 & 2 on the Unit Internalization Protocol	<a href="#">Unit Internalization Protocol</a> Curriculum Corner > State > Early Childhood > Grade > Instructional Resources
	Watch the Unit Overview Video/ TIPS	<a href="#">2<sup>nd</sup> Grade Unit 1 Overview Video</a>
	Review the visual flow of the unit	<a href="#">Coherence Flowchart</a>
	Gain science background knowledge and identify student and teacher preconceptions	<a href="#">Amplify Science Background Knowledge</a>
2	Prepare for each day of instruction by following <ul style="list-style-type: none"> <li>• Step 3 on the Unit Internalization Protocol</li> <li>• Steps 1-3 on the Lesson Internalization Protocol for each lesson</li> </ul>	<a href="#">Lesson Internalization Protocol</a> Curriculum Corner > State > Early Childhood > Grade > Instructional Resources

## CONTENT STANDARDS

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

### Standards

#### *Next Generation Science Standards (NGSS)*

##### Focal Performance Expectations

2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow. [Assessment Boundary: Assessment is limited to testing one variable at a time.]

2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats. [Clarification Statement: Emphasis is on the diversity of living things in each of a variety of different habitats. Assessment Boundary: Assessment does not include specific animal and plant names in specific habitats.]

##### Connections to Other Performance Expectations

2-ESS2-2. Develop a model to represent the shapes and kinds of land and bodies of water in an area. [Assessment Boundary: Assessment does not include quantitative scaling in models.]

#### *Texas Alignment (TEKS)*

2.12.A describe how the physical characteristics of environments, including the amount of rainfall, support plants and animals within an ecosystem;

2.12.C explain and demonstrate how some plants depend on other living things, wind, or water for pollination and to move their seeds around.

2.13.A identify the roots, stems, leaves, flowers, fruits, and seeds of plants and compare how those structures help different plants meet their basic needs for survival;

2.13.B record and compare how the structures and behaviors of animals help them find and take in food, water, and air;

#### *Ohio Alignment (Ohio's Learning Standards)*

2.LS.1: Living things cause changes on Earth.

#### *Florida Alignment (NGSSS)*

K.N.1.2 Make observations of the natural world and know that they are descriptors collected using the five senses.

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.

## PROGRESS BUILD

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

Plant and Animal Relationships Progress Build	
In the <i>Plant and Animal Relationships</i> unit, students will learn to write scientific explanations about how an animal's role in dispersing a plant's seeds can help explain why there are no new chalta trees growing in a broadleaf forest habitat.	
<b>Prior knowledge (preconceptions):</b> Students are likely to understand that some animals eat plants for food and that plants need water and sunlight to grow. Students may have learned that new plants grow from seeds. However, it is not expected that students have considered the interdependence of plants and animals in a habitat or how a plant's seeds can be moved to new places in a habitat. While these ideas are not necessary for students to participate fully in the unit, prior exposure to them will prepare students well for what they will be learning.	
Level 1	
<b>Plants make seeds, which can sprout and grow into new plants only if they get enough sunlight and water.</b>	There are many different types of habitats. Each of these habitats has many different kinds of plants and animals. These plants make seeds that can sprout and grow, but only those seeds that get enough sunlight and water will sprout and grow into full-grown plants.
Level 2	
<b>In order to grow, seeds need space to get sunlight on their leaves and to spread their roots to get water.</b>	There are many different types of habitats. Each of these habitats has many different kinds of plants and animals. These plants make seeds that can sprout and grow, but only those seeds that get enough sunlight and water will sprout and grow into full-grown plants. <b>Plants have roots that spread in the soil to get water, and they have leaves to get sunlight. In order to grow into full-grown plants, seeds need space away from other plants so they can spread their roots and get sunlight on their leaves.</b>
Level 3	
<b>Some plants depend on animals to disperse their seeds, and some animals depend on these plants for food.</b>	There are many different types of habitats. Each of these habitats has many different kinds of plants and animals. These plants make seeds that can sprout and grow, but only those seeds that get enough sunlight and water will sprout and grow into full-grown plants. Plants have roots that spread in the soil to get water, and they have leaves to get sunlight. In order to grow into full-grown plants, seeds need space away from other plants so they can spread their roots and get sunlight on their leaves. <b>Some plants depend on animals to move their seeds to places where they can get enough sunlight and water to sprout and grow. Some animals depend on these plants for food. As these animals meet their own needs for food, they move seeds around the habitat by eating fruit, moving to other places, and leaving droppings with seeds inside.</b>

## ROADMAP

Below is the recommended sequence of instruction for this unit.

At a Glance Unit 1: Plant and Animal Relationships								
Day	Lesson	Date	Day	Lesson	Date	Day	Lesson	Date
1	1.1		16	2.2 A		31	3.5 B	
2	1.2		17	2.2 B		32	3.6 A	
3	1.3 A		18	2.3 A		33	3.6 B*	
4	1.3 B		19	2.3 B		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	4.2 A	
7	1.5 A		22	2.5 A		37	4.2 B	
8	1.5 B		23	2.5 B*		38	4.3 A	
9	1.6 A		24	Optional Flex		39	4.3 B	
10	1.6 B		25	3.1		40	Optional Review	
11	1.7 A*		26	3.2		41	Optional Review	
12	Optional Flex		27	3.3 A		42	4.4 A	
13	1.7 B		28	3.3 B		43	4.4 B	
14	2.1 A		29	3.4		44	4.4 C	
15	2.1 B		30	3.5 A				
<p>* Critical Juncture in lesson</p> <p><u>Formative Checks</u>: 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.</p>						 <ul style="list-style-type: none"> <li>• See Scope and Sequence for Scanning Deadline, <a href="#">Link</a></li> <li>• <b>Allow 5 business days BEFORE the scanning deadline for grading responses and entering grades.</b></li> </ul>		