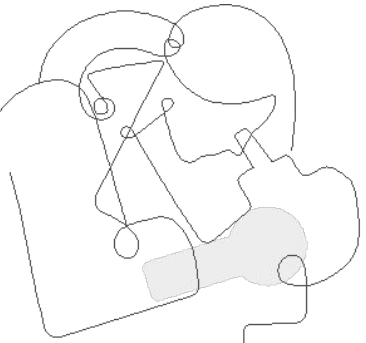
Amplify Science

Plant and Animal Relationships Unit Deep Dive

Grade 2



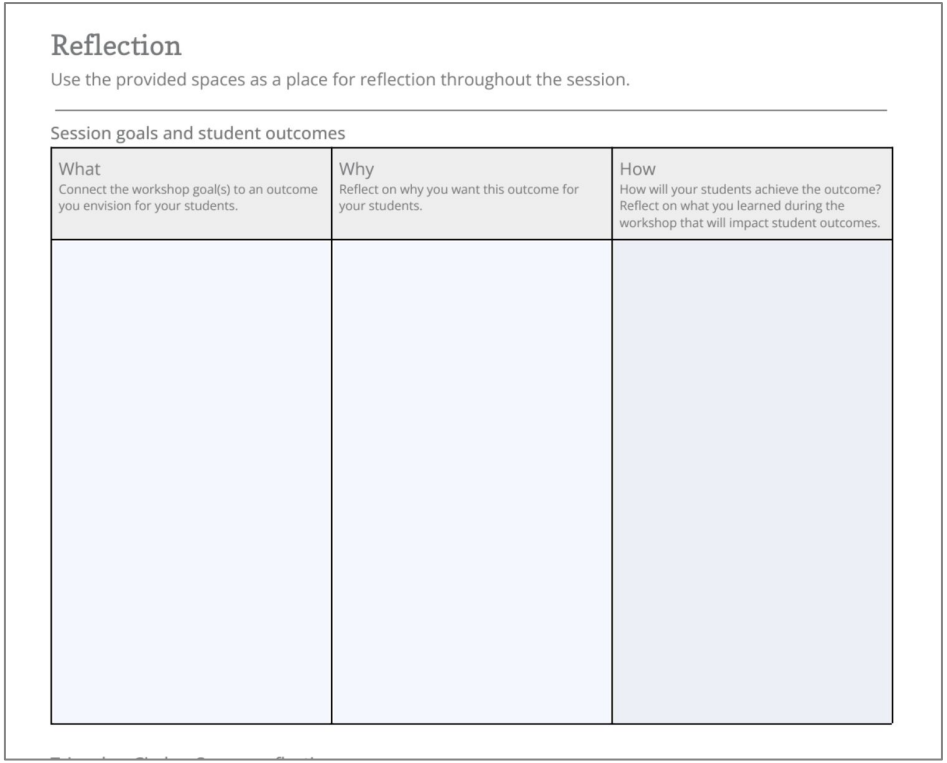
LAUSD
Date: September, 2023
Presented by

PLPG CERTIFIED PROVIDER

Opening Reflection

What are your goals for student outcomes as a result of attending this professional workshop?

Participant Notebook



Reflection

Use the provided spaces as a place for reflection throughout the session.

Session goals and student outcomes

What	Why	How
Connect the workshop goal(s) to an outcome you envision for your students.	Reflect on why you want this outcome for your students.	How will your students achieve the outcome? Reflect on what you learned during the workshop that will impact student outcomes.

Name

Amplify Facilitator

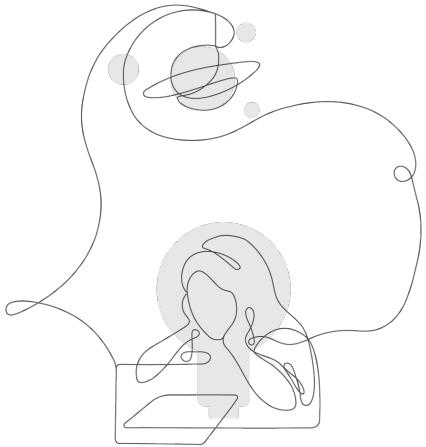
- Add your experience here.
-
-

[Insert Photo]

For an easy way to do it:

- Right click on **this** image.
- Click “Replace Image.”
- Choose how you’ll upload your image.
- Reposition your photo if necessary.

Please write your name on the index card.



Amplify's Purpose Statement

Dear teachers,

You do a job that is nearly impossible and **utterly essential.**

We are in your corner – extending your reach, saving you time, and enhancing your understanding of each student.

Thank you for working with us to craft rigorous and riveting learning experiences for your classroom.

We share your goal of **inspiring all students to think deeply, creatively, and for themselves.**

Sincerely,
Amplify

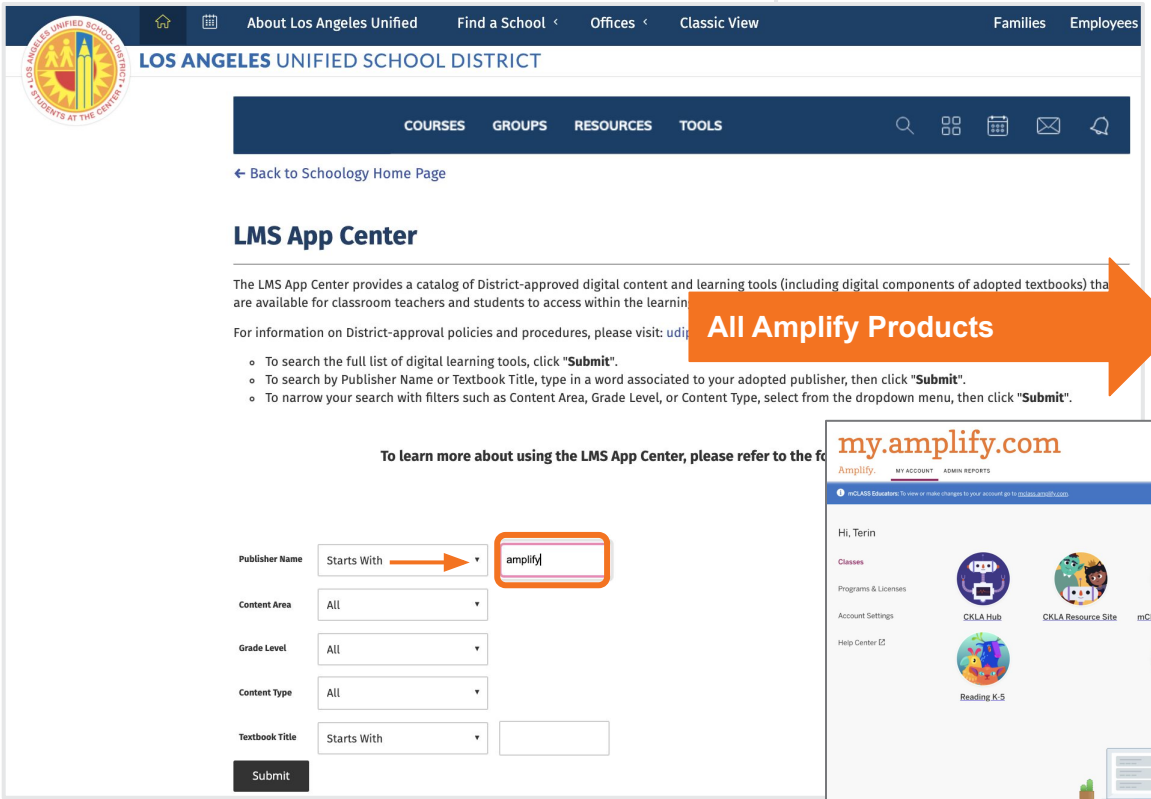
Norms: Establishing a culture of learners

- **Take risks:** Ask any questions, provide any answers.
- **Participate:** Share your thinking, participate in discussion and reflection.
- **Be fully present:** Unplug and immerse yourself in the moment.
- **Physical needs:** Stand up, get water, take breaks.

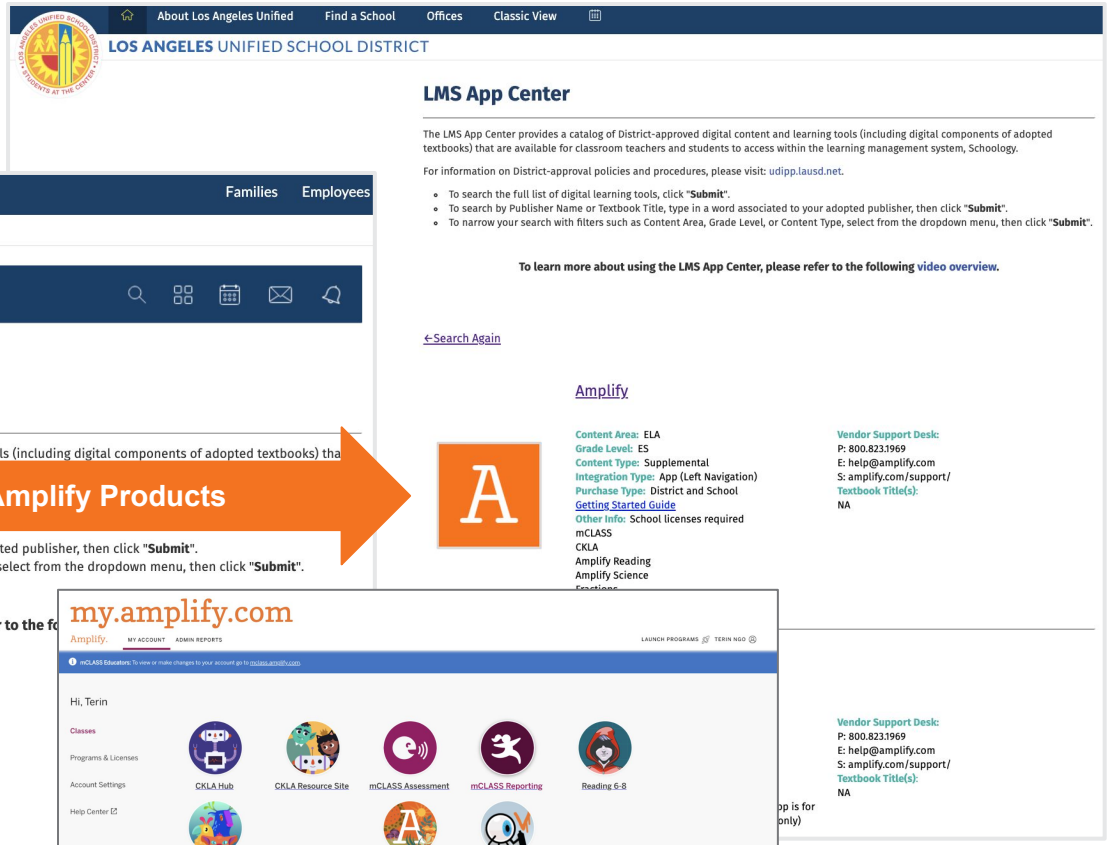
Today's Logistics

- Lunch break from 11:30 - 12:30
- The day ends at 3:00
- Please be sure to sign in
- Bathrooms
- Parking lot for questions or concerns
- If you need to stand, feel free to but please stay engaged

Schoology



All Amplify Products



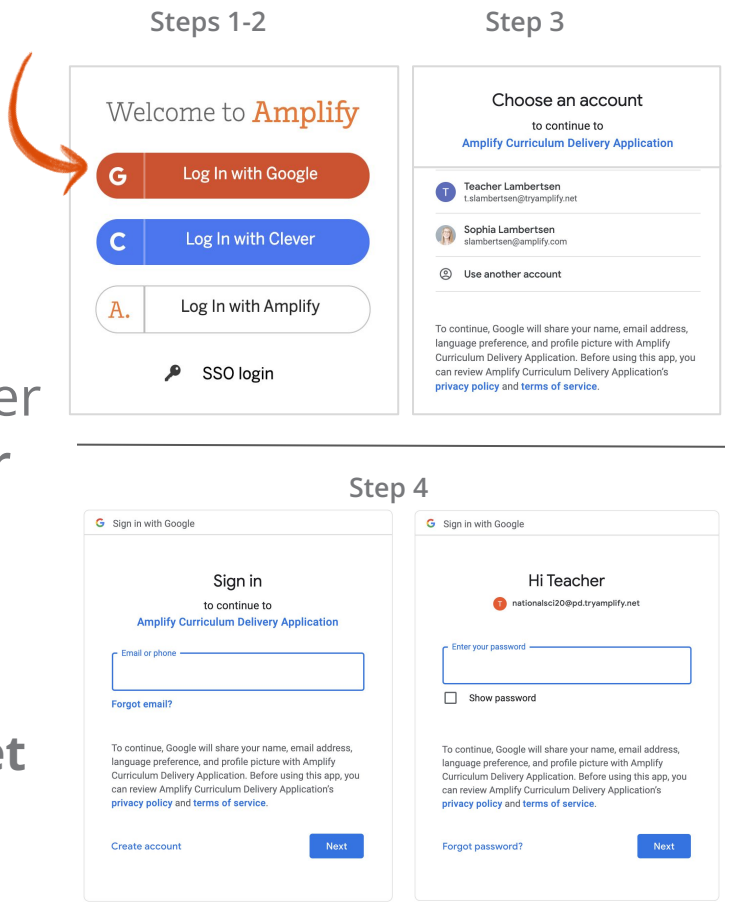
Join Amplify Science Schoology Group

To join Amplify Science Schoology ES Group: W4PK-W466-63F5B

Logging in (demo account)

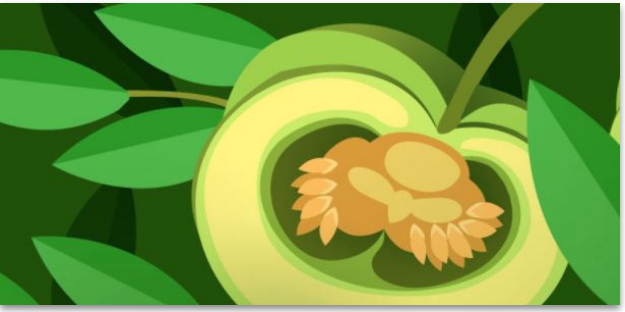
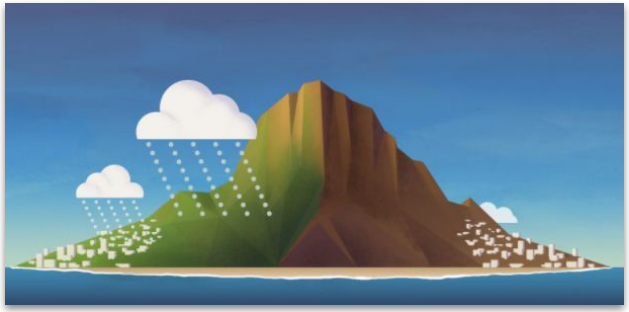
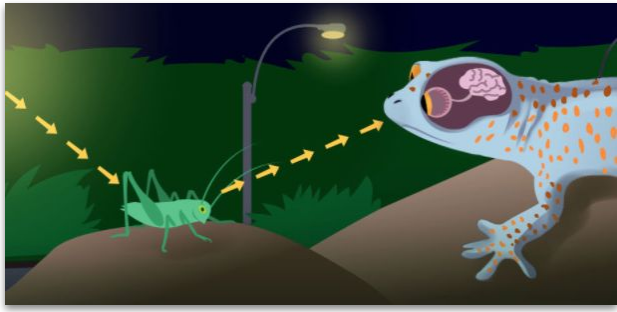
Safari or Chrome

1. Go to **learning.amplify.com**
2. Select **Log in with Google**
3. If you're already logged in with other Google accounts, click **Use another account**
4. Enter teacher demo account credentials
   - **californiasci__@pd.tryamplify.net**
   - Password: **AmplifyNumber1**



LAUSD SUMMER INSTITUTE 2023

Session 1
Unit 1 Deep Dive

Plan for the day

- Introduction and framing
- Unit Internalization
- Digging into Chapter 1
- Model Lesson
- Digging into Chapter 2
- Planning
- Closing

Ice Breaker!

Who do we have in the room today?

- Name & School
- Have you taught Amplify Science before and if so, for how long?
- What are your goals for student outcomes after attending this student workshop today?

Navigation Temperature Check

Rate yourself on your comfort level accessing Amplify Science materials and navigating a digital curriculum.

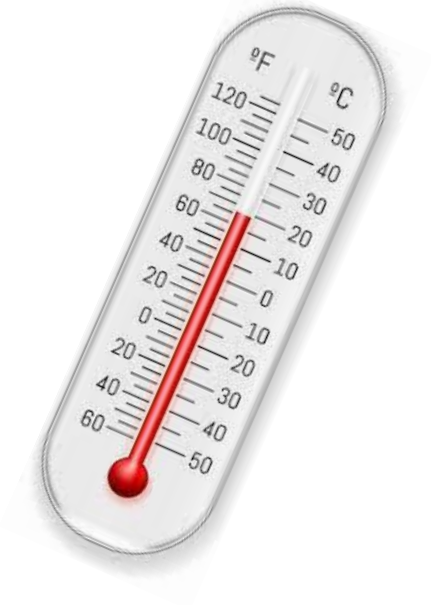
1 = Extremely Uncomfortable

2 = Uncomfortable

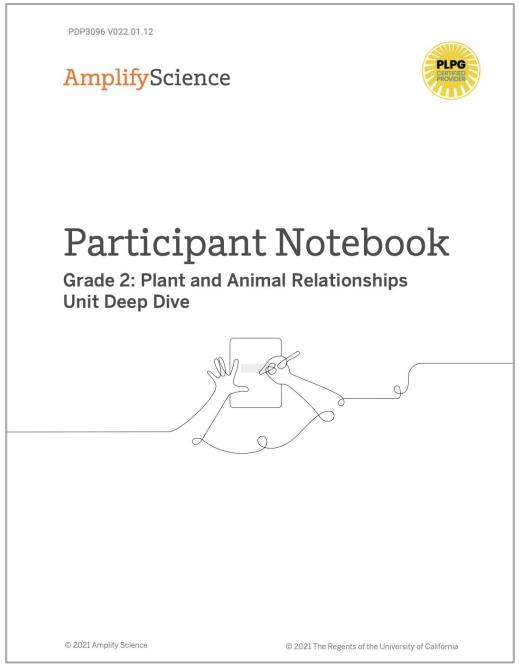
3 = Mild

4 = Comfortable

5 = Extremely Comfortable



Participant Notebook



Hardcopy and digital

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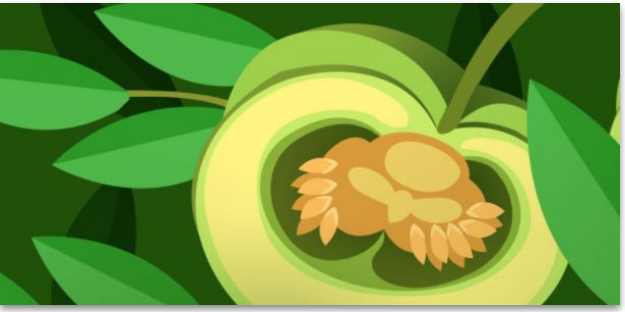
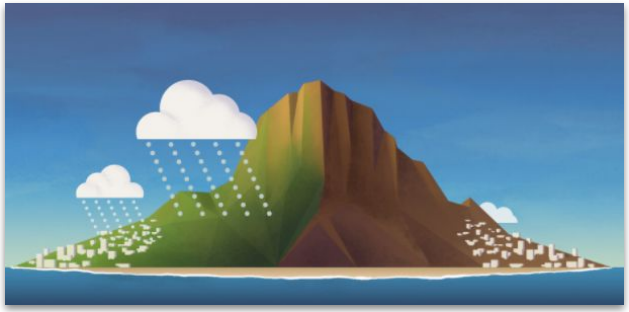
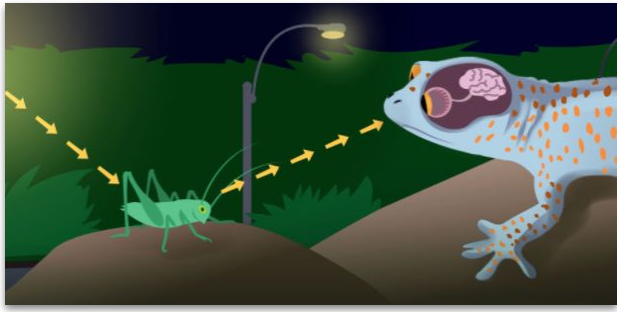




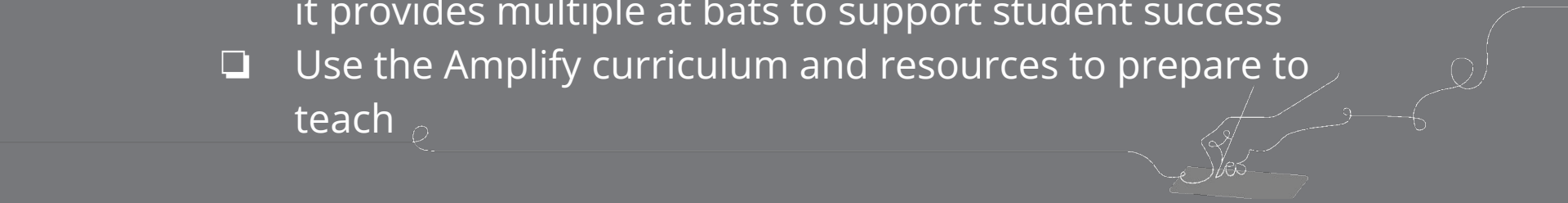
Plan for the day

- Introduction and framing
- Unit Internalization
- Digging into Chapter 1
- Model Lesson
- Digging into Chapter 2
- Planning
- Closing

Goals for the day:

By the end of the day, you will:

- ❏ Experience how all the instructional components fit together in the context of the unit
- ❏ Gain a deeper understanding of the purposeful sequencing of each activity and lessons within a chapter
- ❏ Become more familiar with multimodal instruction and how it provides multiple at bats to support student success
- ❏ Use the Amplify curriculum and resources to prepare to teach



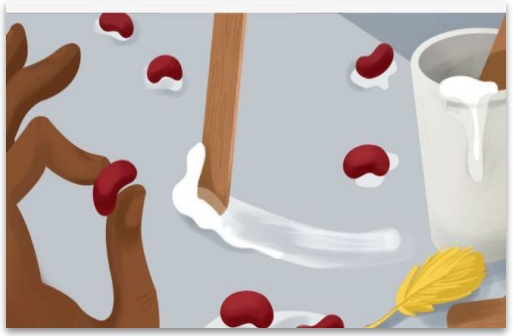
Year at a Glance: Grade 2

Plant and Animal Relationships

Domain: Life Science

Unit type: Investigation

Student role: Plant Scientists

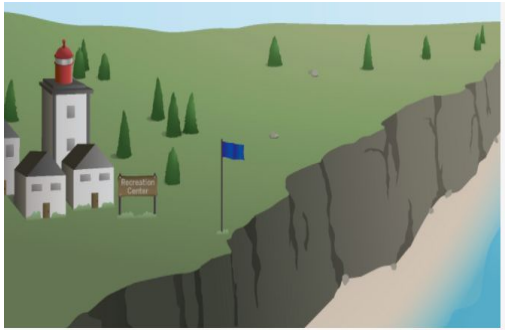


Properties of Materials

Domains: Physical Science, Engineering Design

Unit type: Engineering design

Student role: Glue engineers



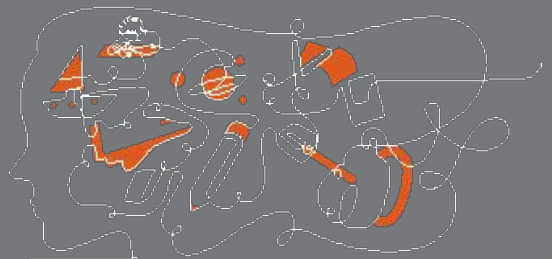
Changing Landforms

Domain: Earth and Space Science

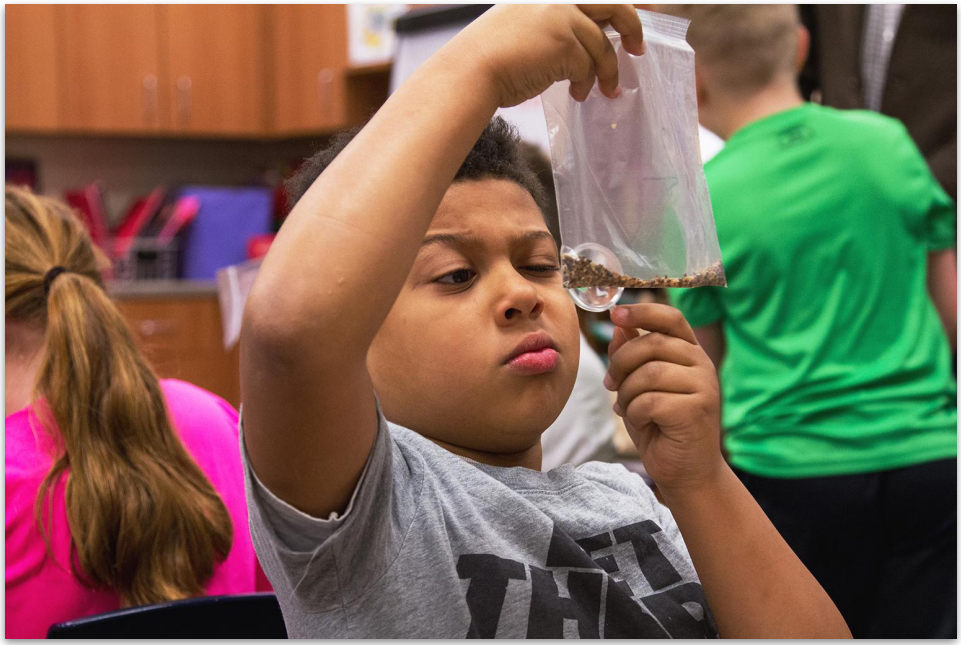
Unit type: Modeling

Student role: Geologists

Unit Overview



Phenomenon based learning



Phenomenon-based learning and teaching

A scientific phenomenon is an **observable event** that occurs in the universe that we can use science ideas to explain or predict.

Comparing topics and phenomena

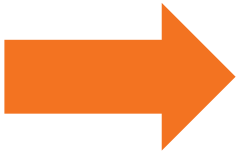
Topic-based	Phenomenon-based
Ocean habitats	A sea turtle can survive in an ocean habitat where sharks live

Comparing topics and phenomena

A shift in science instruction

from learning about

(like a student)



to figuring out

(like a scientist)

Phenomena-based Instruction

Inquire like a scientist.

Think like a scientist.

Quantify like a scientist.

Read like a scientist.

Talk like a scientist.

Write like a scientist.

Critique like a scientist.

Argue like a scientist.

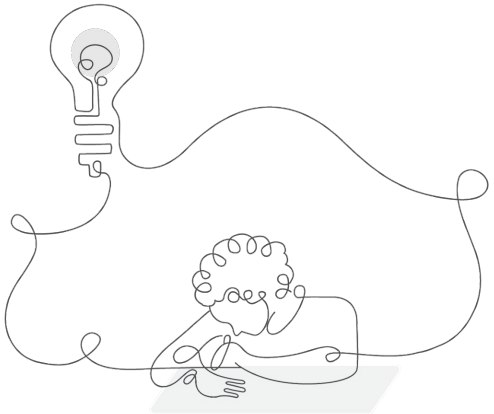
Figuring out phenomena like a scientist.

Previewing the unit

Introducing the phenomenon

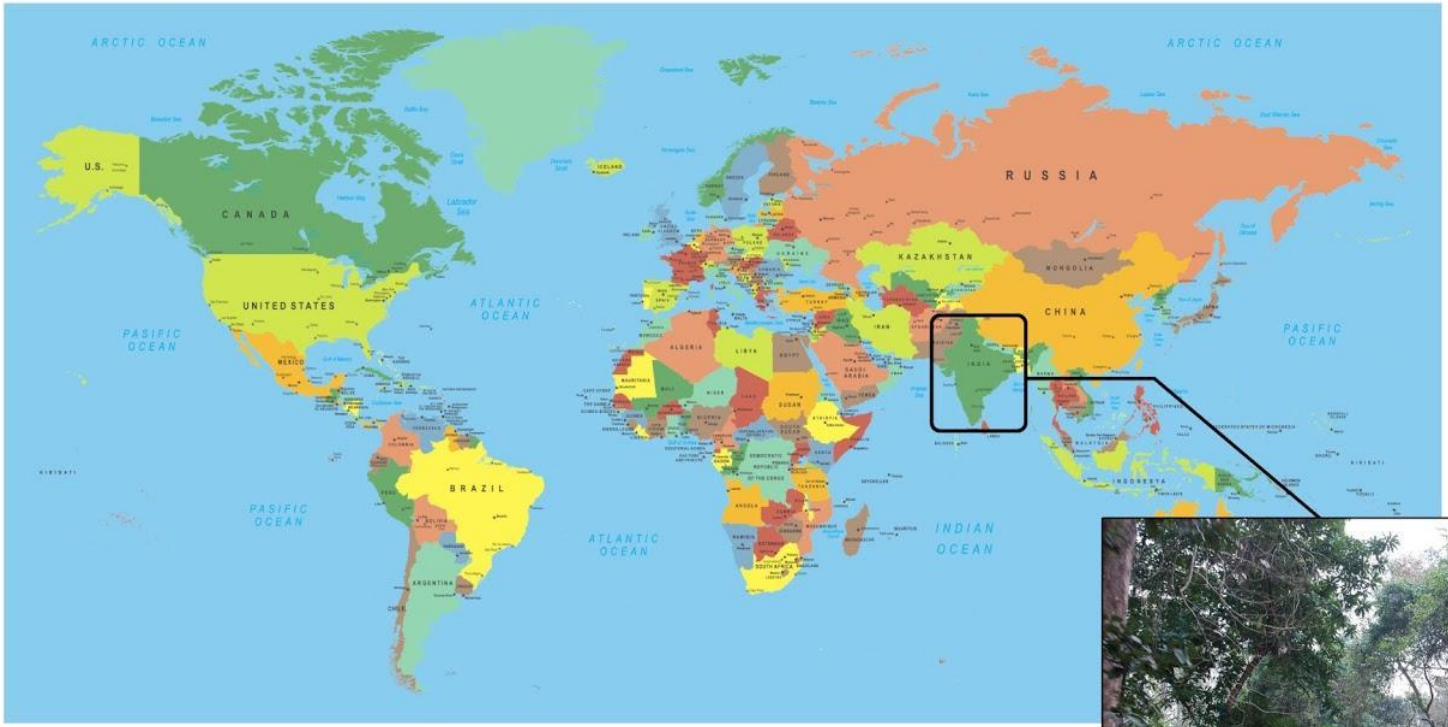
Amplify Science units are designed around complex phenomena that drive student learning through the unit.

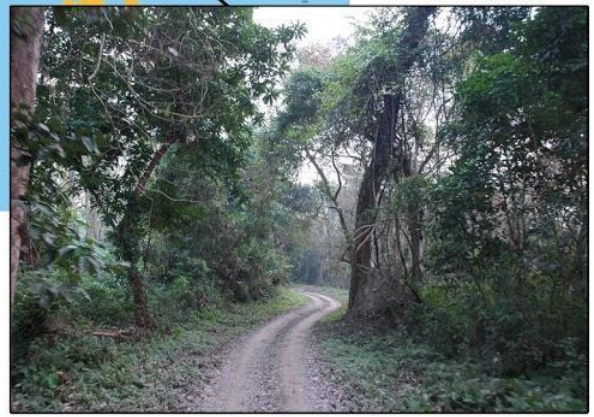
Let's look at the phenomenon, or observable event, students will figure out in your unit.



The unit we're beginning is called *Plant and Animal Relationships: Investigating Systems in a Bengali Forest*.

In this unit, you will **investigate why the chalta trees are not growing in the Bengali Tiger Reserve.**





Broadleaf Forest

Bengal Tiger Reserve

The Bengal Tiger Reserve is a section of the forest where tigers are protected. Lots of different kinds of plants and animals live in the Bengal Tiger Reserve.

The lead scientist at the Reserve thinks something is **changing** with the trees. We are going to help figure out **what is happening** with the trees that live in the Reserve.

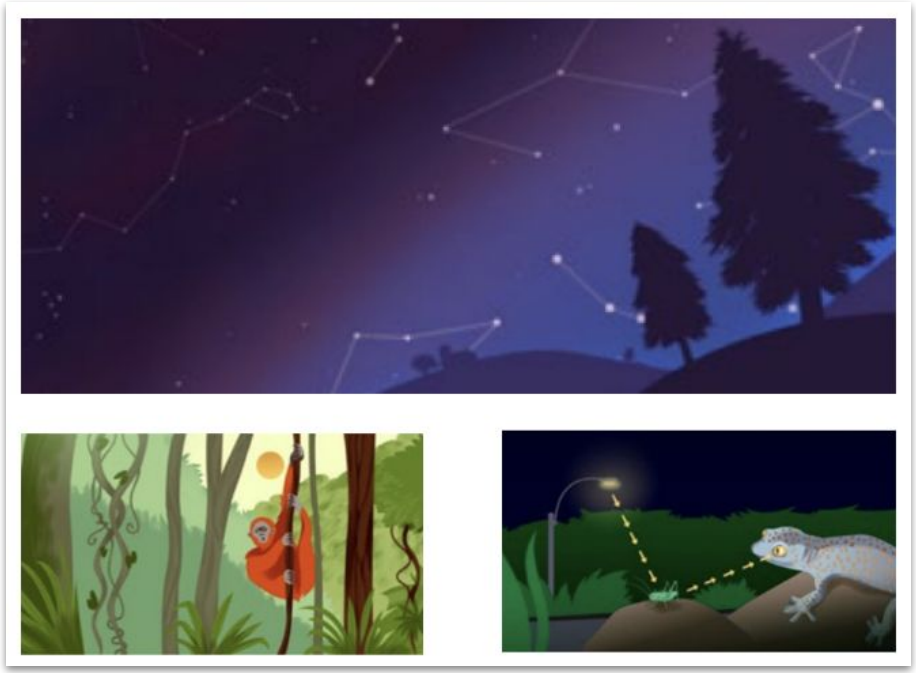
In this unit, we will be **plant scientists.**

Plant scientists try to answer questions about plants in the places where they live.

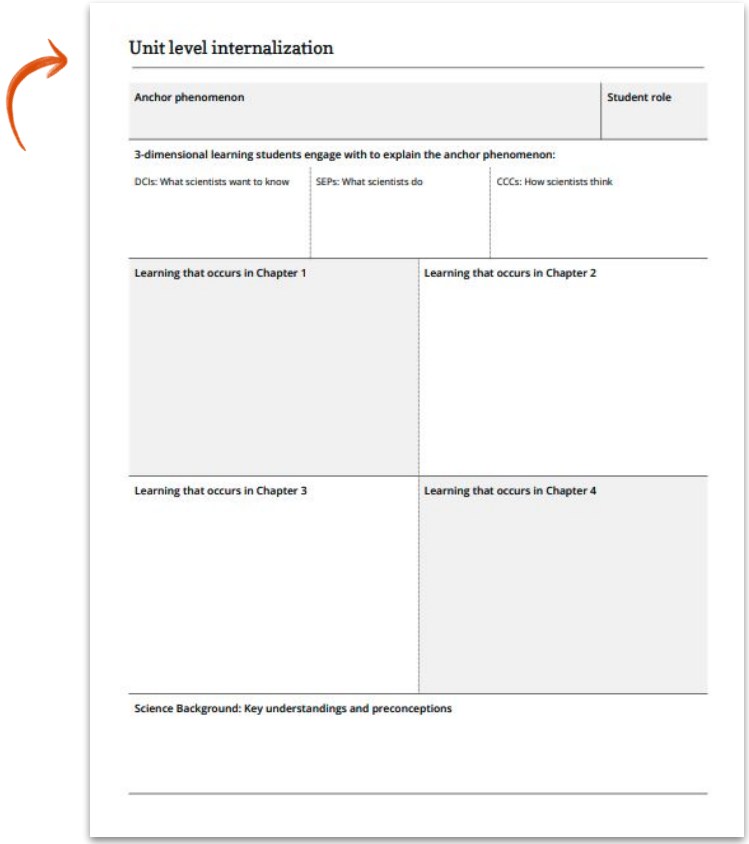
Amplify Science

Anchoring phenomenon

- Complex and rich
- Drives learning through a whole unit
- Specific and observable
- Relatable at students' developmental level



Unit Overview



Unit level internalization

Anchor phenomenon	Student role

3-dimensional learning students engage with to explain the anchor phenomenon:

DCIs: What scientists want to know	SEPs: What scientists do	CCCs: How scientists think

Learning that occurs in Chapter 1	Learning that occurs in Chapter 2

Learning that occurs in Chapter 3	Learning that occurs in Chapter 4

Science Background: Key understandings and preconceptions

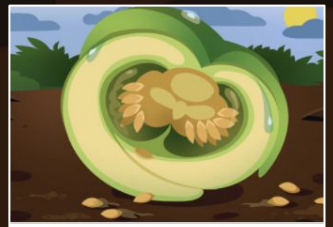
Plant and Animal Relationships

Problem: What is happening to the chalta trees in the Bengal Tiger Reserve?

Role: Plant Scientists

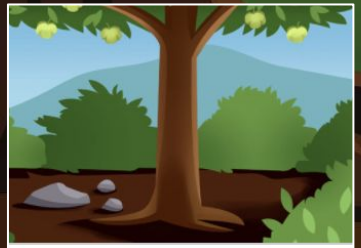
Students examine what plant structures allow a plant to get what it needs to grow and how plants depend on the parts of their habitat to get them to new places where there is ample sunlight and water.

Coherent storylines



Chapter 1: Why aren't new chalta trees growing in the Bengal Tiger...

7 Lessons



Chapter 2: Why aren't the chalta seeds getting what they need to grow?

5 Lessons

Chapter 3: Why aren't the chalta seeds getting to places where they...

6 Lessons

Chapter 4: How are other seeds in the reserve able to get to place where they can grow?

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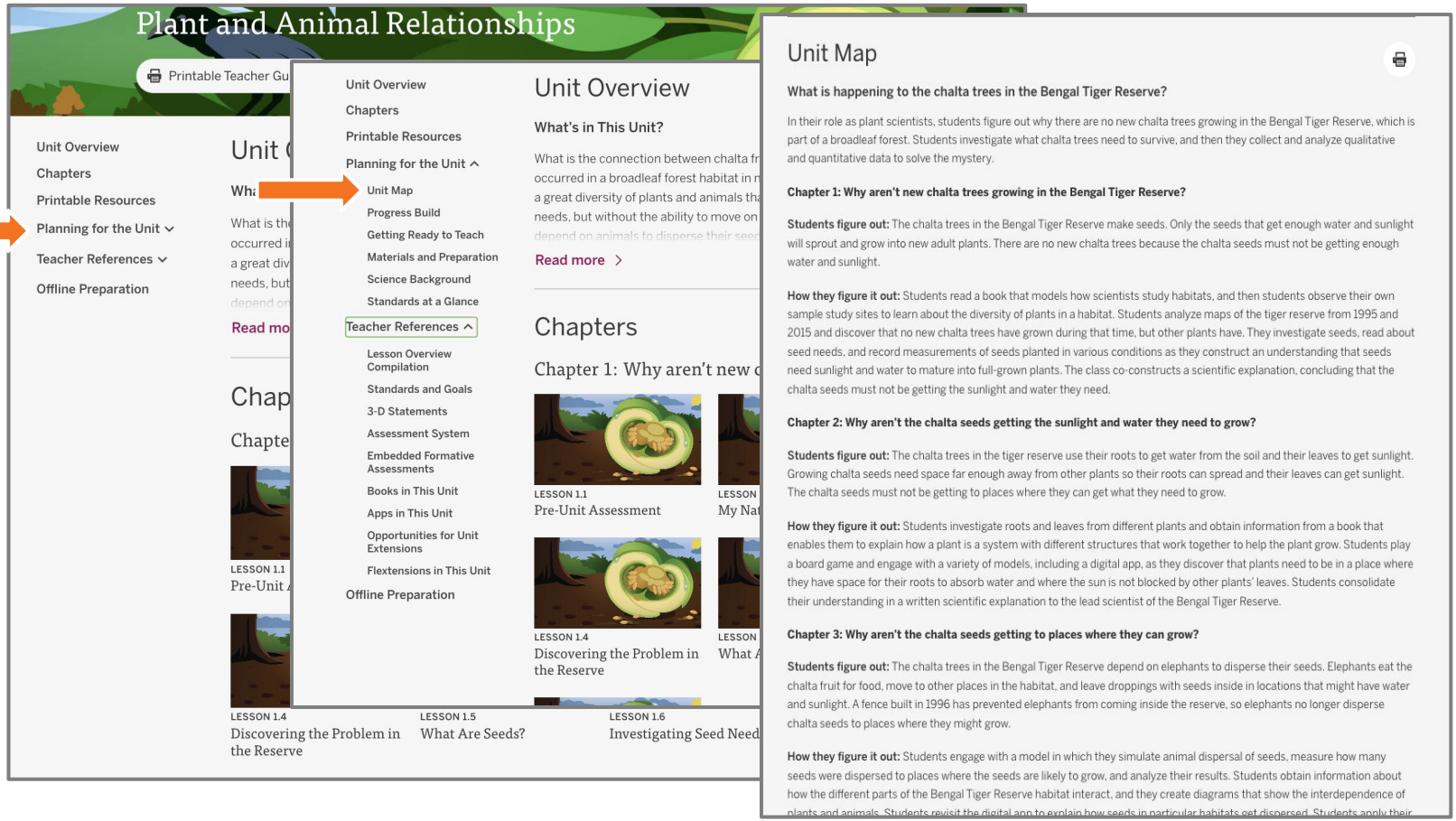
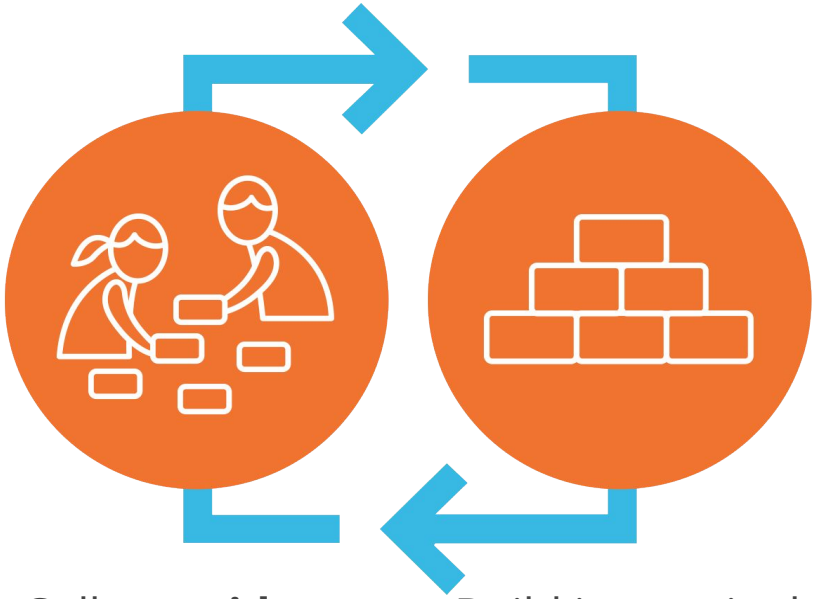
Navigating to the Unit Map

Pg. 5,6



Amplify Science Approach

How is it possible for a train to float?



Why does the train change from floating to falling?

Introduce a **phenomenon** and a related problem

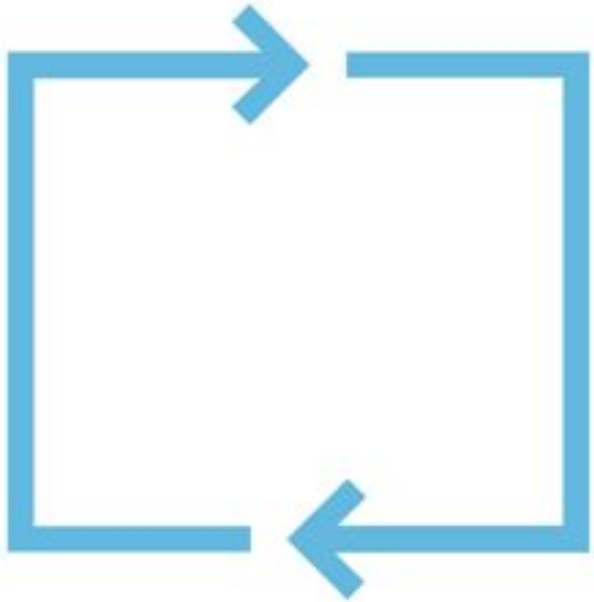
Collect **evidence** from multiple sources

Build increasingly complex **explanations**

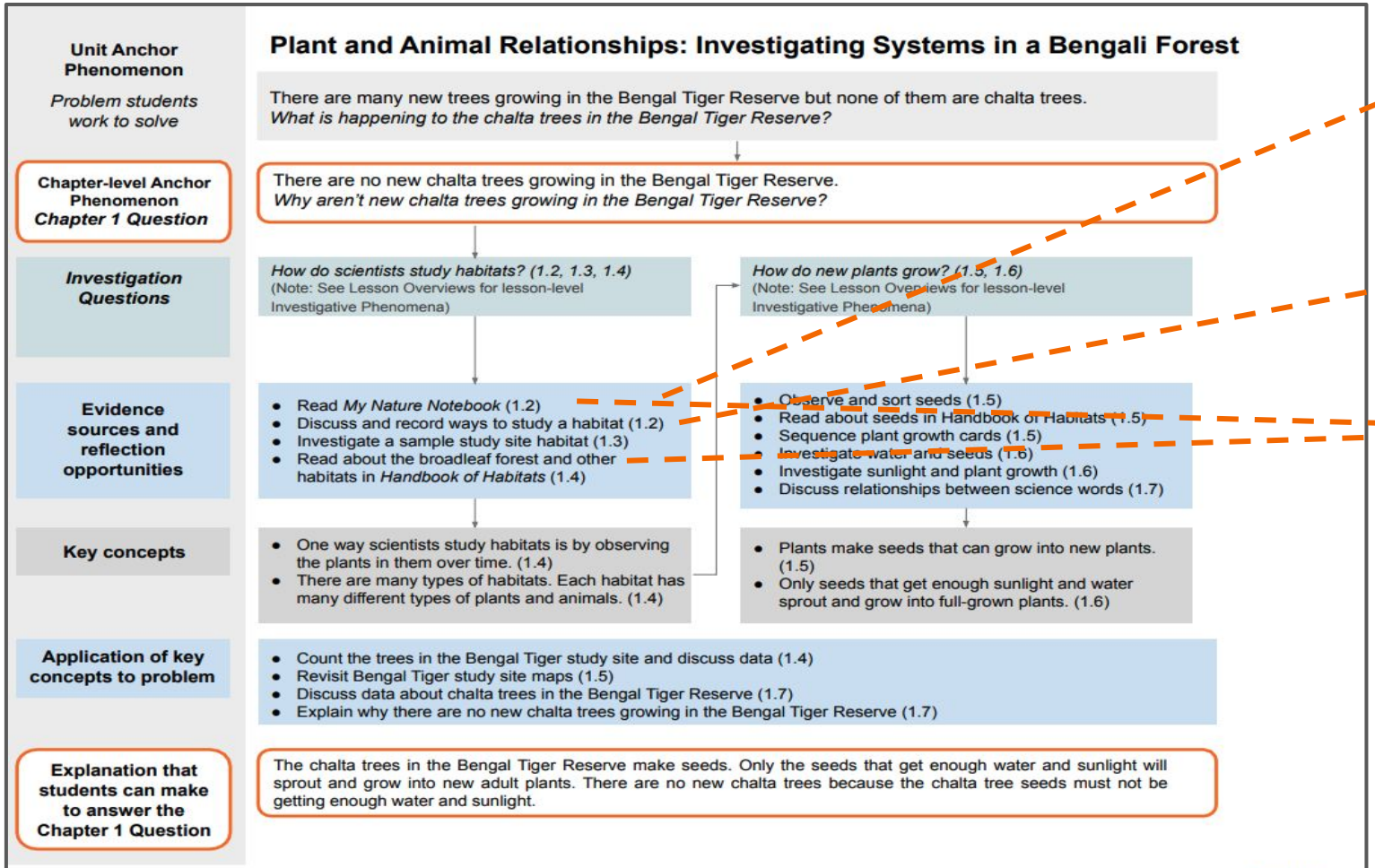
Apply knowledge to solve a different problem

Multimodal instruction

For each key concept, students w
with evidence in varied modalities



Do,
Talk,
Read,
Write,
Visualize


Plant and Animal Relationships: Investigating Systems in a Bengali Forest
Unit Anchor Phenomenon
Problem students work to solve
There are many new trees growing in the Bengal Tiger Reserve but none of them are chalta trees.
What is happening to the chalta trees in the Bengal Tiger Reserve?
Chapter-level Anchor Phenomenon
Chapter 1 Question
There are no new chalta trees growing in the Bengal Tiger Reserve.
Why aren't new chalta trees growing in the Bengal Tiger Reserve?
Investigation Questions
How do scientists study habitats? (1.2, 1.3, 1.4)
(Note: See Lesson Overviews for lesson-level Investigative Phenomena)
How do new plants grow? (1.5, 1.6)
(Note: See Lesson Overviews for lesson-level Investigative Phenomena)
Evidence sources and reflection opportunities
Read My Nature Notebook (1.2)
Discuss and record ways to study a habitat (1.2)
Investigate a sample study site habitat (1.3)
Read about the broadleaf forest and other habitats in Handbook of Habitats (1.4)
Observe and sort seeds (1.5)
Read about seeds in Handbook of Habitats (1.5)
Sequence plant growth cards (1.5)
Investigate water and seeds (1.6)
Investigate sunlight and plant growth (1.6)
Discuss relationships between science words (1.7)
Key concepts
One way scientists study habitats is by observing the plants in them over time. (1.4)
There are many types of habitats. Each habitat has many different types of plants and animals. (1.4)
Plants make seeds that can grow into new plants. (1.5)
Only seeds that get enough sunlight and water sprout and grow into full-grown plants. (1.6)
Application of key concepts to problem
Count the trees in the Bengal Tiger study site and discuss data (1.4)
Revisit Bengal Tiger study site maps (1.5)
Discuss data about chalta trees in the Bengal Tiger Reserve (1.7)
Explain why there are no new chalta trees growing in the Bengal Tiger Reserve (1.7)
Explanation that students can make to answer the Chapter 1 Question
The chalta trees in the Bengal Tiger Reserve make seeds. Only the seeds that get enough water and sunlight will sprout and grow into new adult plants. There are no new chalta trees because the chalta tree seeds must not be getting enough water and sunlight.
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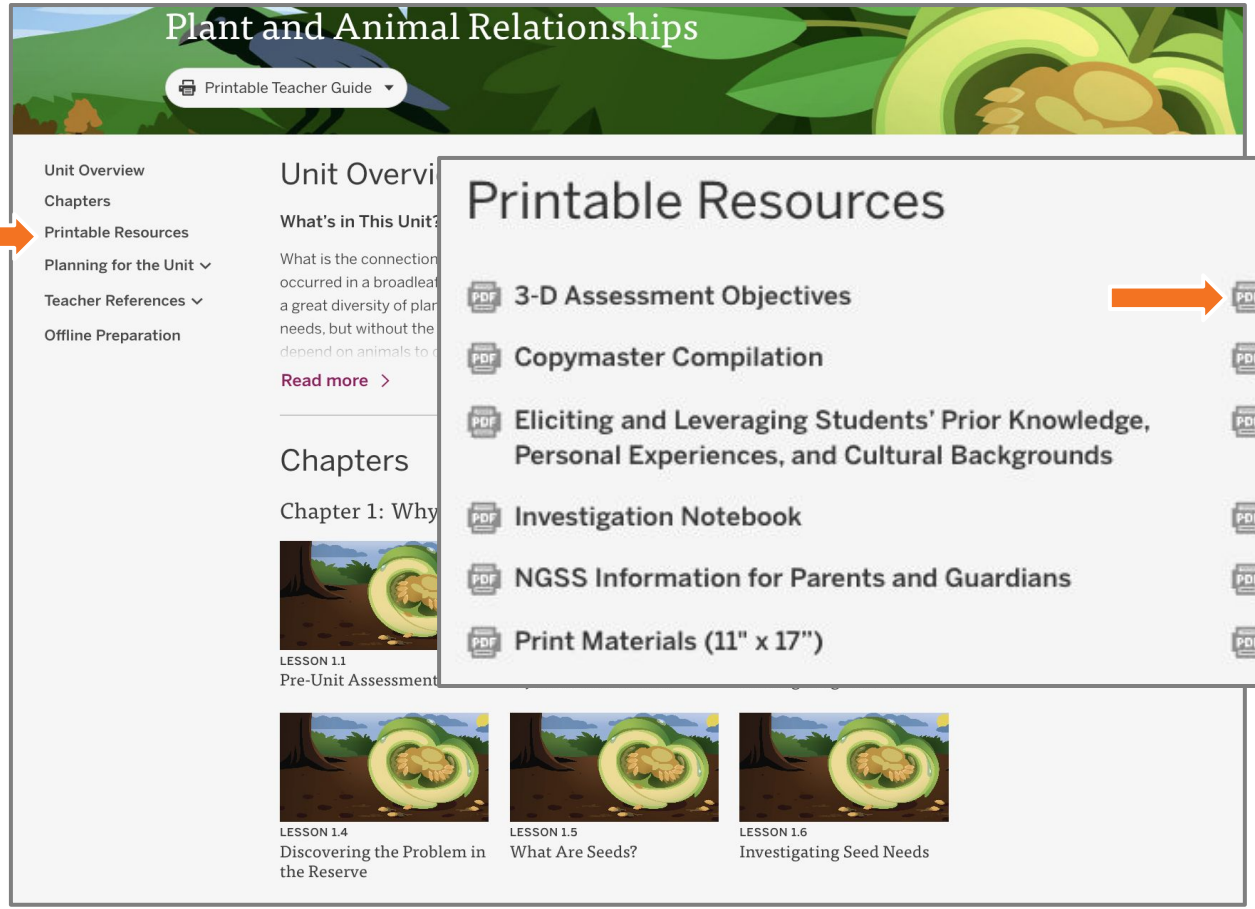
Amplify.
Do
Talk
Read
Write
Visualize

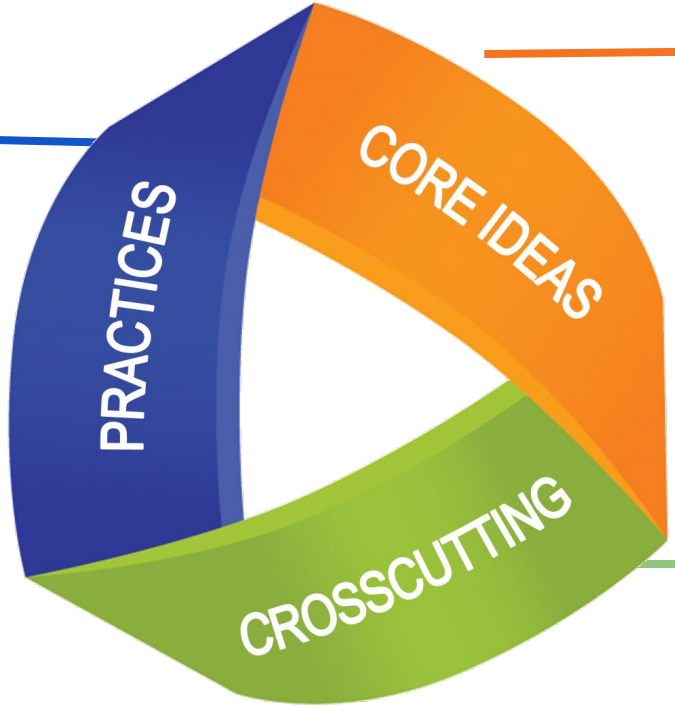
Navigating to the Coherence Flowchart



Plant and Animal Relationships & NGSS

Using 3-D teaching and learning for figuring out phenomena

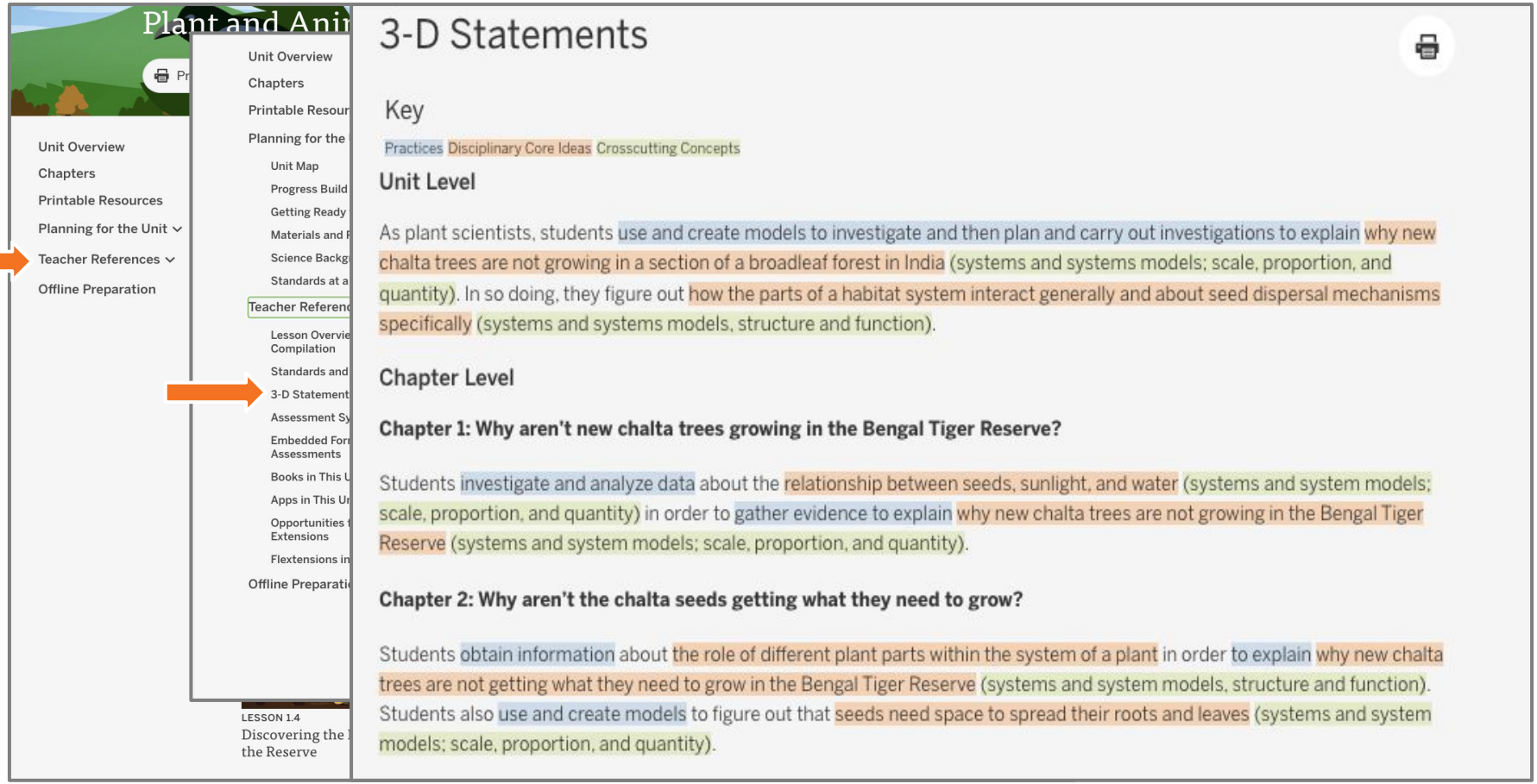
What scientists do
Science and Engineering Practices



What scientists want to know
Disciplinary Core Ideas

How scientists think
Crosscutting Concepts

Navigating to the 3-D Statements



Disciplinary Core Ideas: Plant and Animal Relationships

Life Science	Physical Science
LS1: From Molecules to Organisms: Structures and Processes LS2: Ecosystems: Interactions, Energy, and Dynamics ✔ LS3: Heredity: Inheritance and Variation of Traits LS4: Biological Evolution: Unity and Diversity	PS1: Matter and Its Interactions PS2: Motion and Stability: Forces and Interactions PS3: Energy PS4: Waves and Their Applications in Technologies for Information Transfer
Earth & Space Science	**Engineering & Technology**
ESS1: Earth's Place in the Universe ESS2: Earth's Systems ✔ ESS3: Earth and Human Activity	ETS1: Engineering Design ETS2: Links Among Engineering, Technology, Science, and Society

Science and Engineering Practices Plant and Animal Relationships

inquiry

1. Asking questions (for science) and defining problems (for engineering) ✔
2. Developing and using models ✔
3. Planning and carrying out investigations ✔

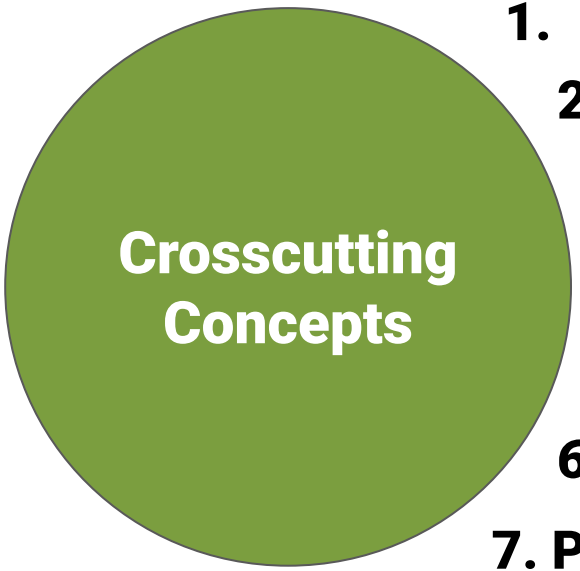
math

4. Analyzing and interpreting data ✔
5. Using mathematics and computational thinking

language

6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

Crosscutting Concepts: Plant and Animal Relationships



1. Cause and Effect
2. Structure and Function
3. System and System Models ✔
4. Scale, Proportion and Quantity
5. Stability and Change
6. Energy and Matter
7. Patterns

Plant and Animal Relationships: 3D Statements

3-D Statements

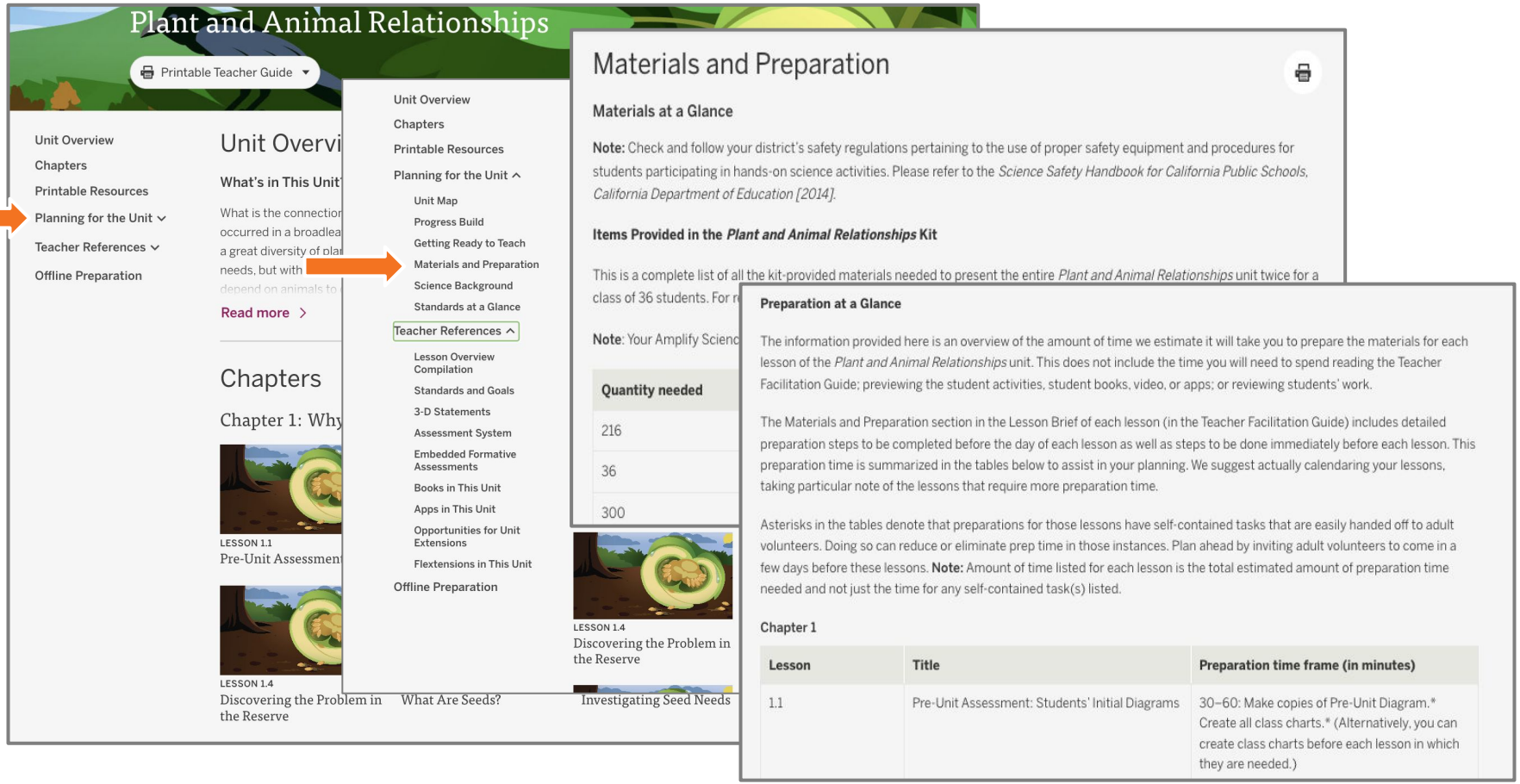
Key

Practices Disciplinary Core Ideas Crosscutting Concepts

Unit Level

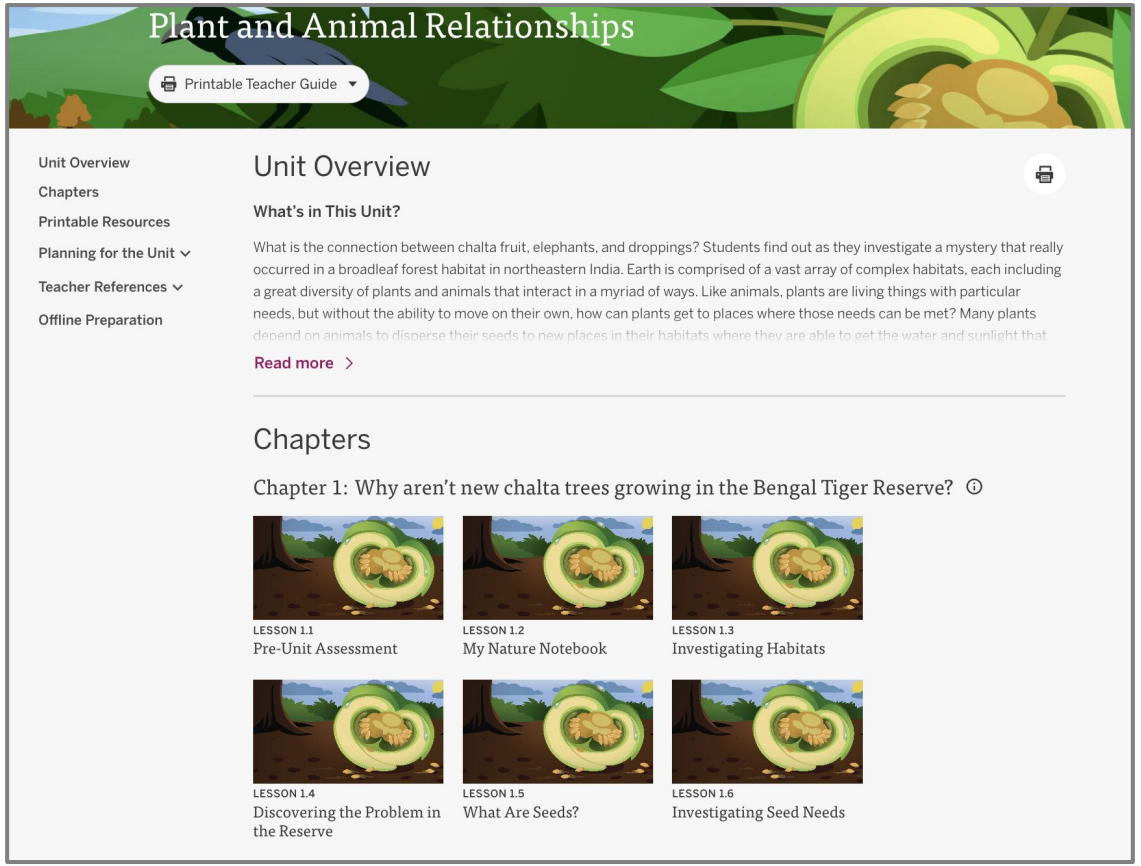
As plant scientists, students use and create models to investigate and then plan and carry out investigations to explain why new chalta trees are not growing in a section of a broadleaf forest in India (systems and systems models; scale, proportion, and quantity). In so doing, they figure out how the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

Navigating to the Materials and Preparation



Explore or review the key planning documents

Spend a few more minutes exploring or reviewing the documents on the Unit Landing Page.



Plant and Animal Relationships

Unit Question: How do the living things in a habitat depend on each other?

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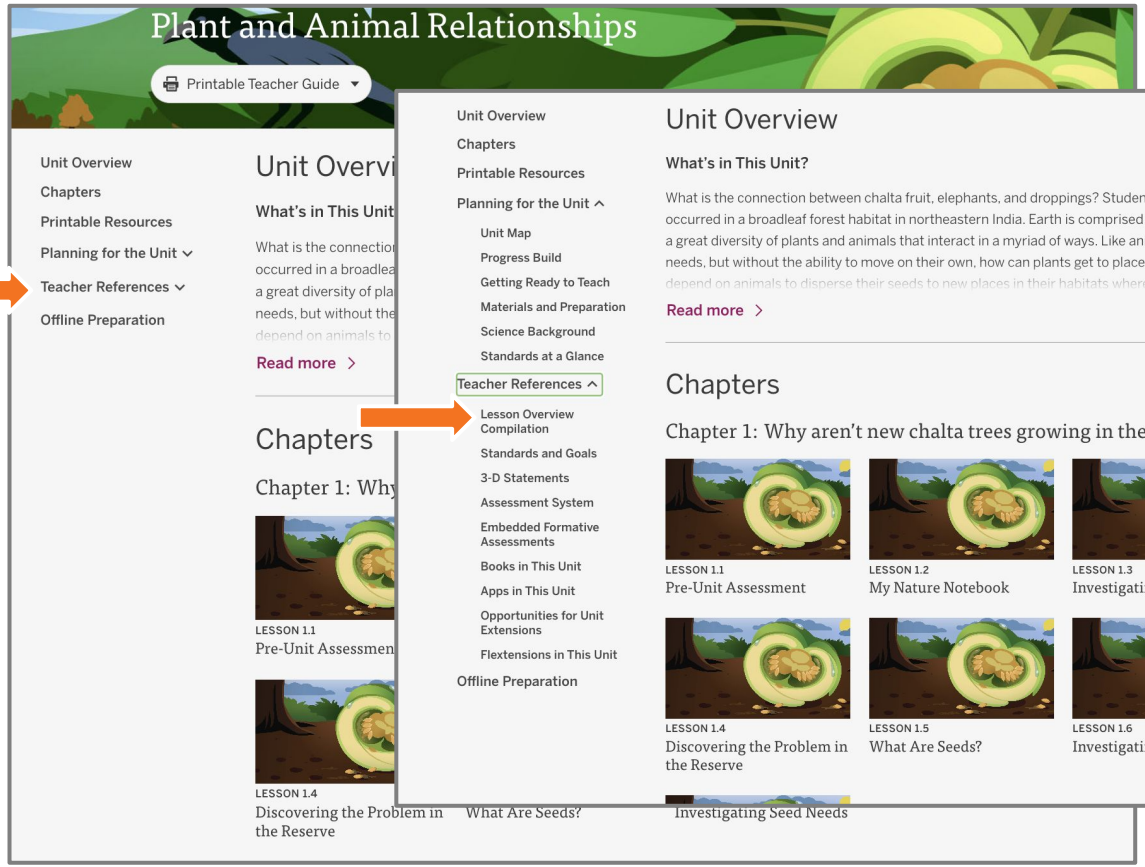
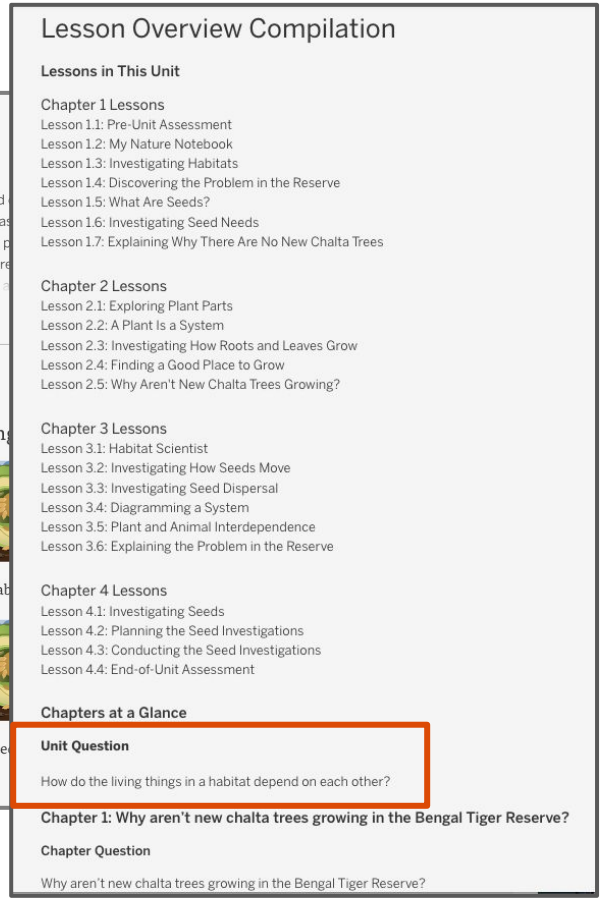
Navigating to the Lesson Overview Compilation





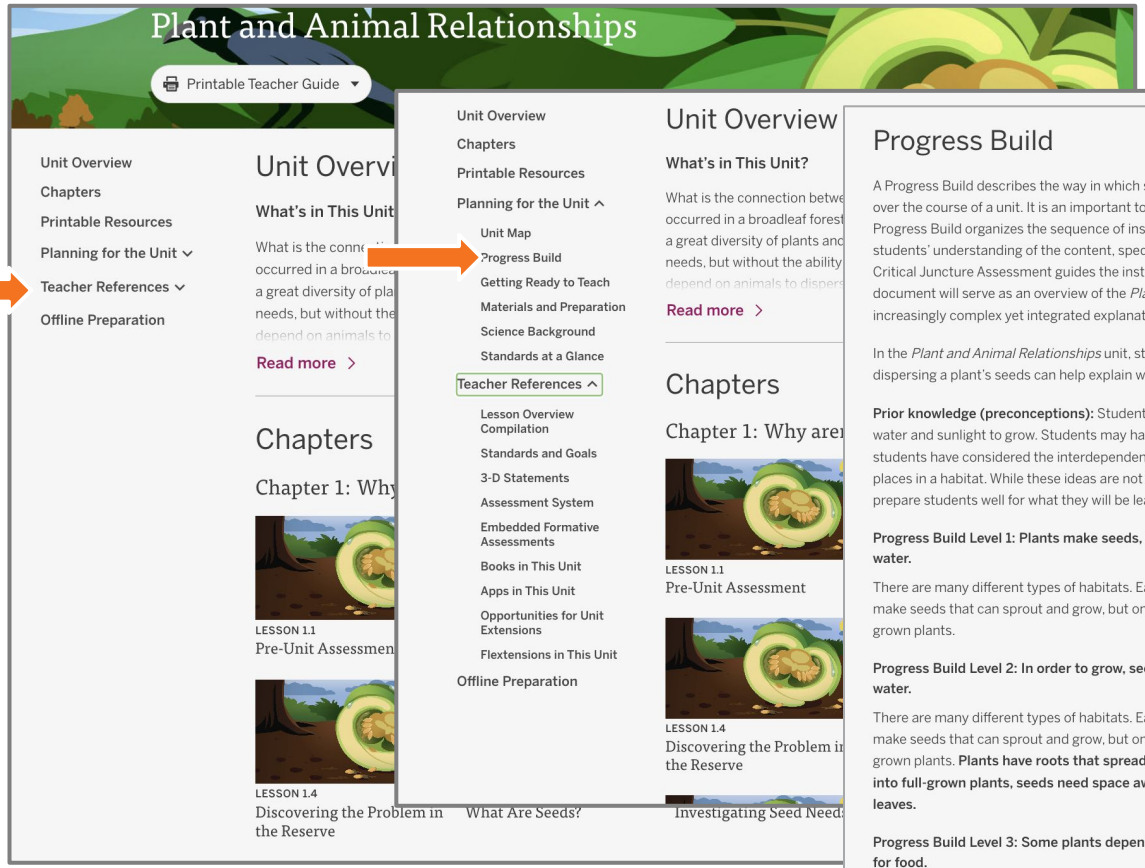
Plant and Animal Relationships

Unit Question: How do the living things in a habitat depend on each other?

What **science concepts** do you think students need to understand in order to **explain the phenomenon?**

AmplifyScience

Navigating to the Progress Build



Progress Build

A Progress Build describes the way in which students' explanations of the central phenomenon should develop and deepen over the course of a unit. It is an important tool in understanding the design of the unit and in supporting students' learning. A Progress Build organizes the sequence of instruction, defines the focus of the assessments, and grounds inferences about students' understanding of the content, specifically at each of the Critical Juncture Assessments found throughout the unit. A Critical Juncture Assessment guides the instruction designed to address specific gaps in students' understanding. This document will serve as an overview of the *Plant and Animal Relationships* Progress Build. Since the Progress Build is an increasingly complex yet integrated explanation, we represent it below by including the new ideas for each level in bold.

In the *Plant and Animal Relationships* 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.

Prior knowledge (preconceptions): 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.

Progress Build Level 1: Plants make seeds, which can sprout and grow into new plants only if they get enough sunlight and water.

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.

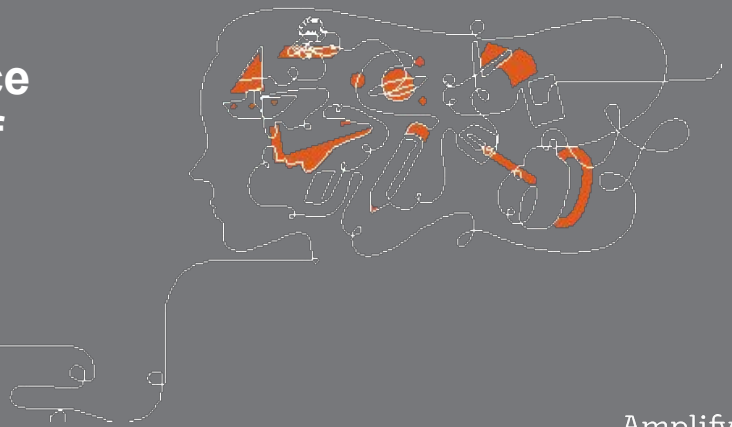
Progress Build Level 2: In order to grow, seeds need space to get sunlight on their leaves and to spread their roots to get water.

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.**

Progress Build Level 3: Some plants depend on animals to disperse their seeds, and some animals depend on these plants for food.

Progress Build

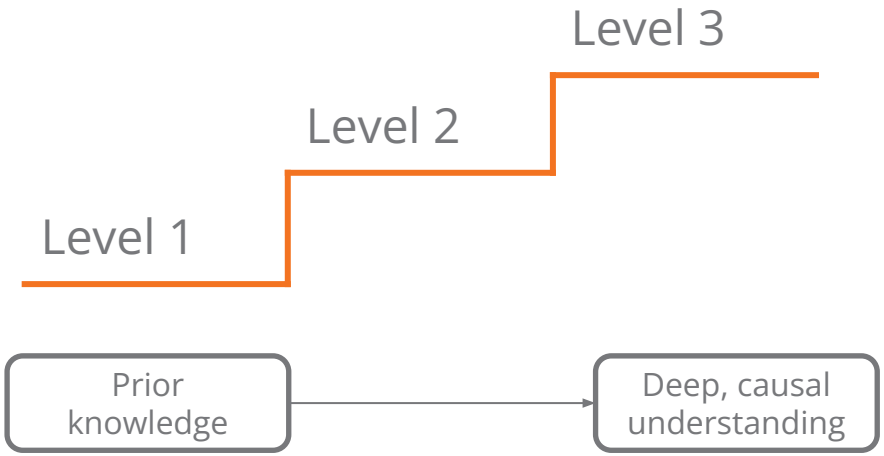
A Progress Build describes the way in which students' explanations of the central phenomenon should develop and deepen over the course of a unit. It is an important tool in understanding the design of the unit and in supporting students' learning. **A Progress Build organizes the sequence of instruction and defines the focus of the assessments.**



Unpacking the Progress Build

Understanding a unit's Progress Build will help you guide your students, address misconceptions, and avoid giving ideas away too early in the unit.

In this activity, you'll use the Progress Build.



Progress Build

Plant and Animal Relationships

Prior knowledge (preconceptions): Students are likely to understand that some animals eat plants for food and that plants need water and sunlight to grow.

Level 1

Plants make seeds, which can sprout and grow into new plants only if they get enough sunlight and water.

Level 2

In order to grow, seeds need space to get sunlight on their leaves and to spread their roots to get water.

Level 3

Some plants depend on animals to disperse their seeds, and some animals depend on these plants for food.

Unpacking the Progress Build

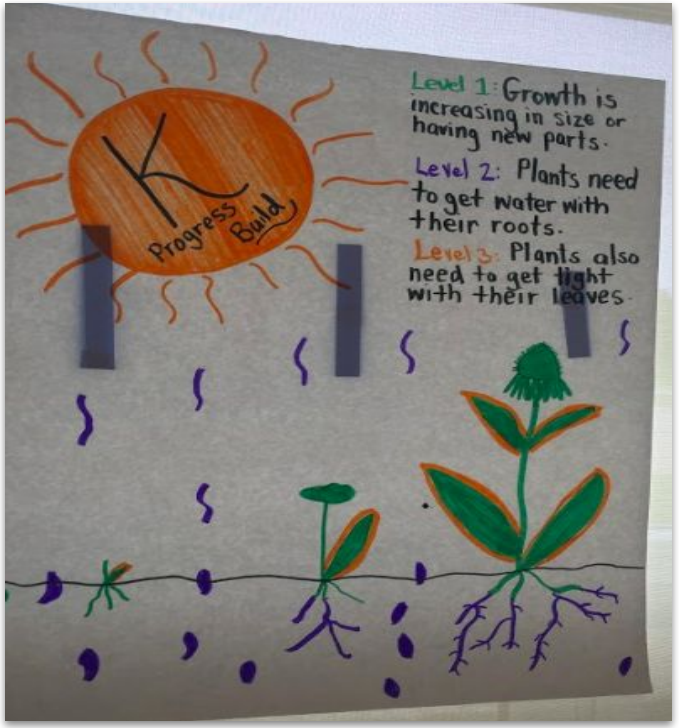
Group Work time

The purpose of this next work time is to understand what the levels of the Progress Build are in this unit, and reinforce understanding of its science concepts.

Progress Build analysis

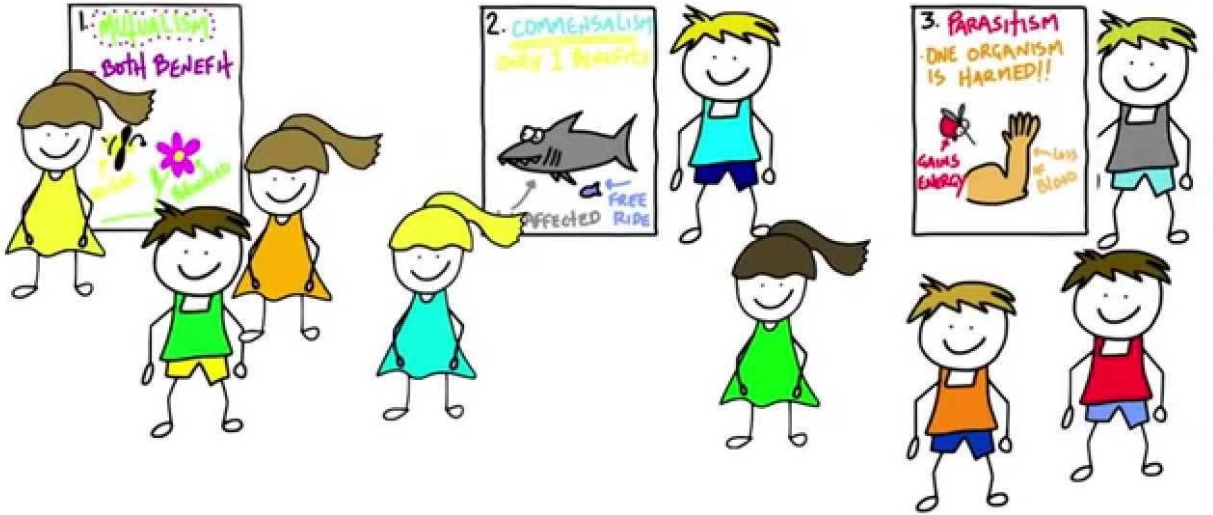
Group work time

- With your group or partner, create a visual representation of all the levels of your unit's progress build.

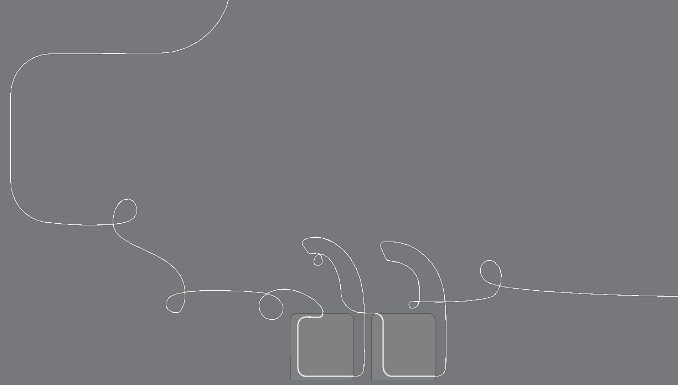


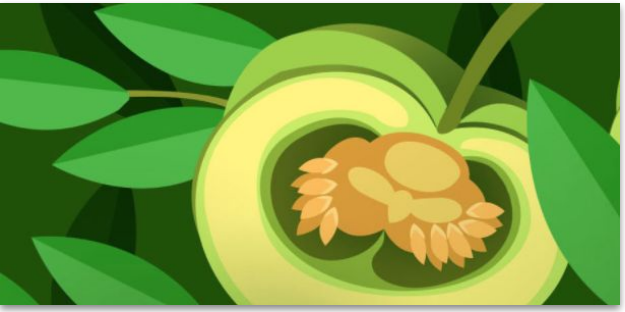
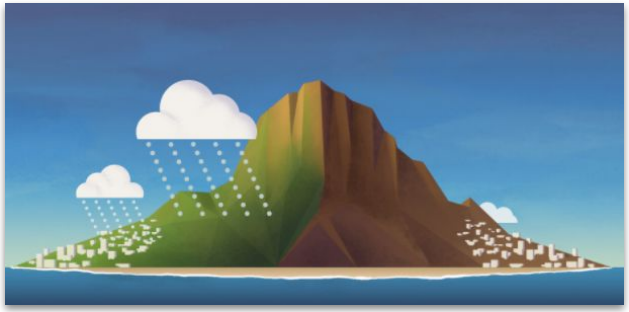
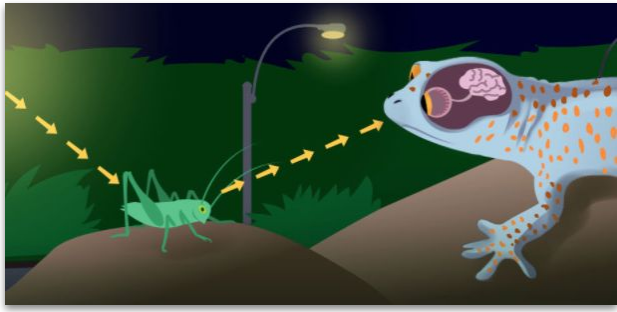
Progress Build analysis

Presentations



Questions?



Plan for the day

- Introduction and framing
- Unit Internalization
- Digging into Chapter 1
- Model Lesson
- Digging into Chapter 2
- Planning
- Closing

Plant and Animal Relationships: Chapter 1

Chapters

Chapter 1: Why aren't new chalta trees growing in the Bengal Tiger Reserve?

LESSON 1.1
Pre-Unit Assessment

LESSON 1.2
My Nature Notebook

LESSON 1.3
Investigating Habitats

LESSON 1.4
Discovering the Problem in the Reserve

LESSON 1.5
What Are Seeds?

LESSON 1.6
Investigating Seed Needs

LESSON 1.7
Explaining Why There Are No New Chalta Trees

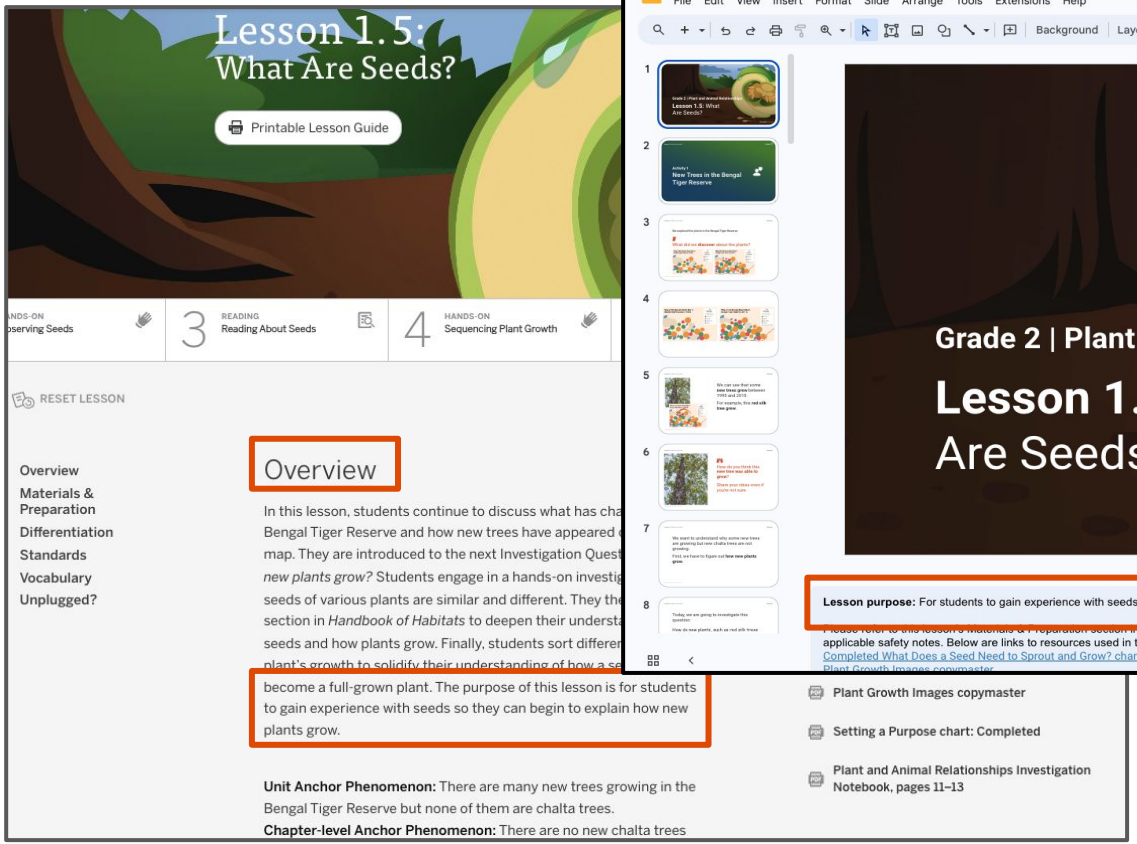
Digging in to chapter 1

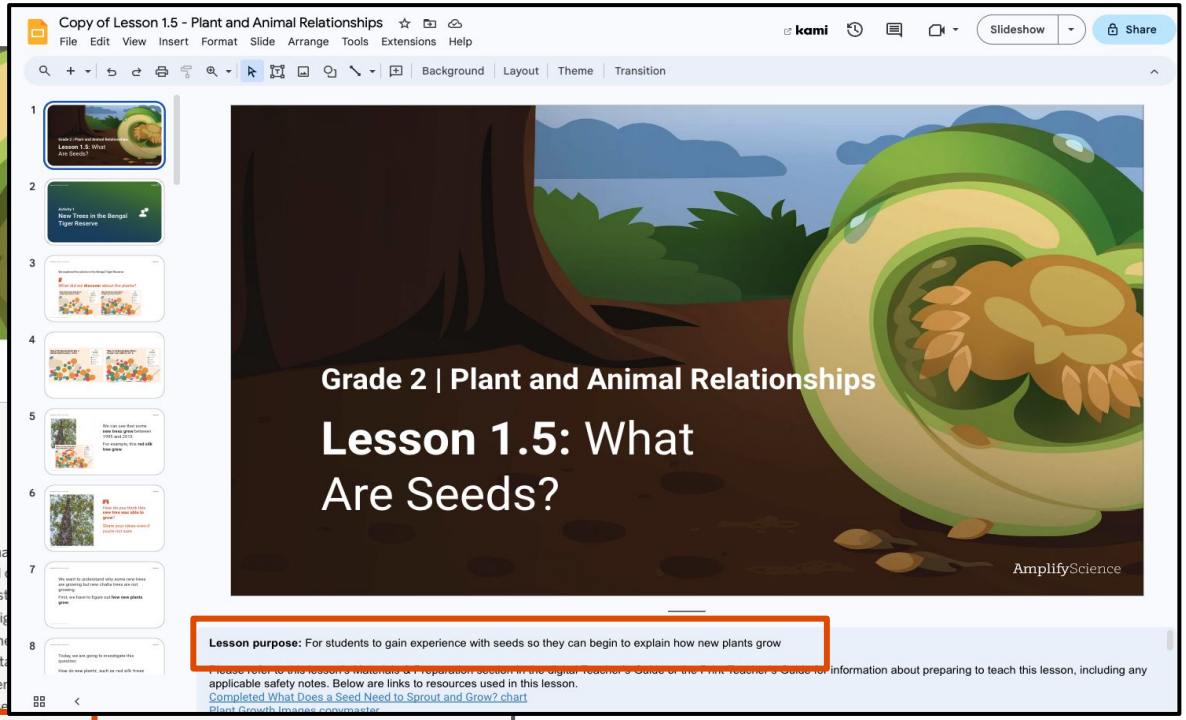
Group Work time

1. Form groups of 2, 3 or 4
2. Each group will pick a lesson in Chapter 1 (1.1 - 1.7)
3. Chart the activities in the lesson. Be sure to include:
    a. Purpose of lesson
    b. Modalities of each activity (do, talk, read, write or visualize)
    c. Vocabulary introduced
    d. Key Concepts introduced

Purpose of the lesson

Lesson Brief





Classroom Slides

Amplify.

Modalities

Lesson at a Glance

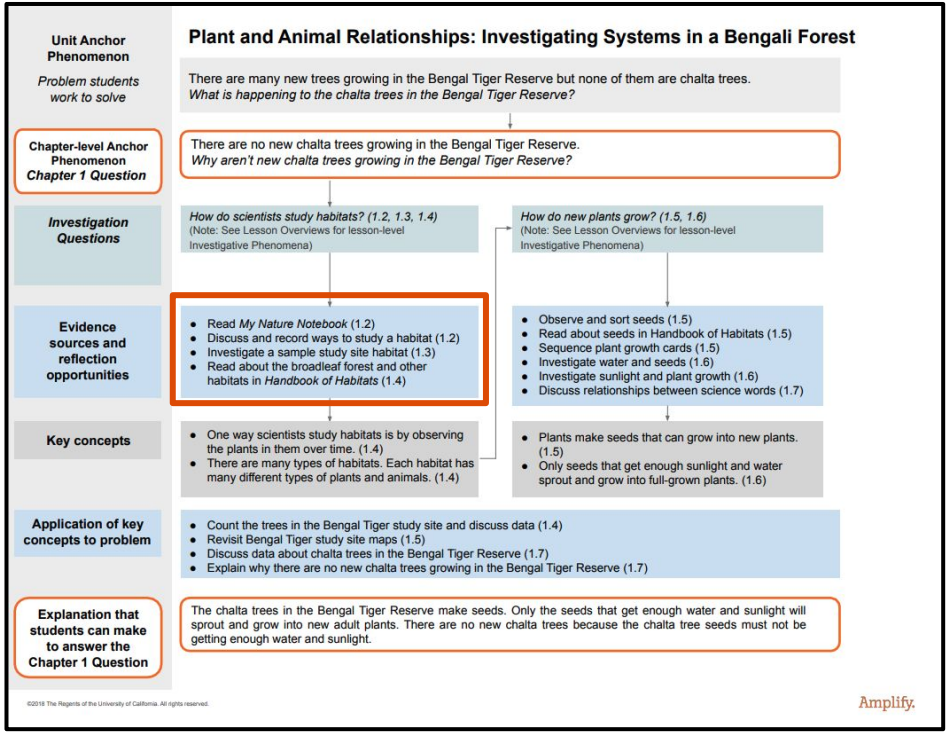
1: New Trees in the Bengal Tiger Reserve (10 min.)
As students investigate the Bengal Tiger Reserve Sample Study Site Maps, they are invited to consider where new plants come from. A new Investigation Question initiates seed and plant investigations.

2: Observing Seeds (25 min.)
Students observe a variety of seeds to make note of the ways that seeds from different plants are similar and different. Students sort the seeds by size, which provides an opportunity for an On-the-Fly Assessment of students' ability to think about relative size when categorizing objects.

3: Reading About Seeds (15 min.)
Students deepen their understanding of seeds and how new plants grow as they read a section of *Handbook of Habitats*.

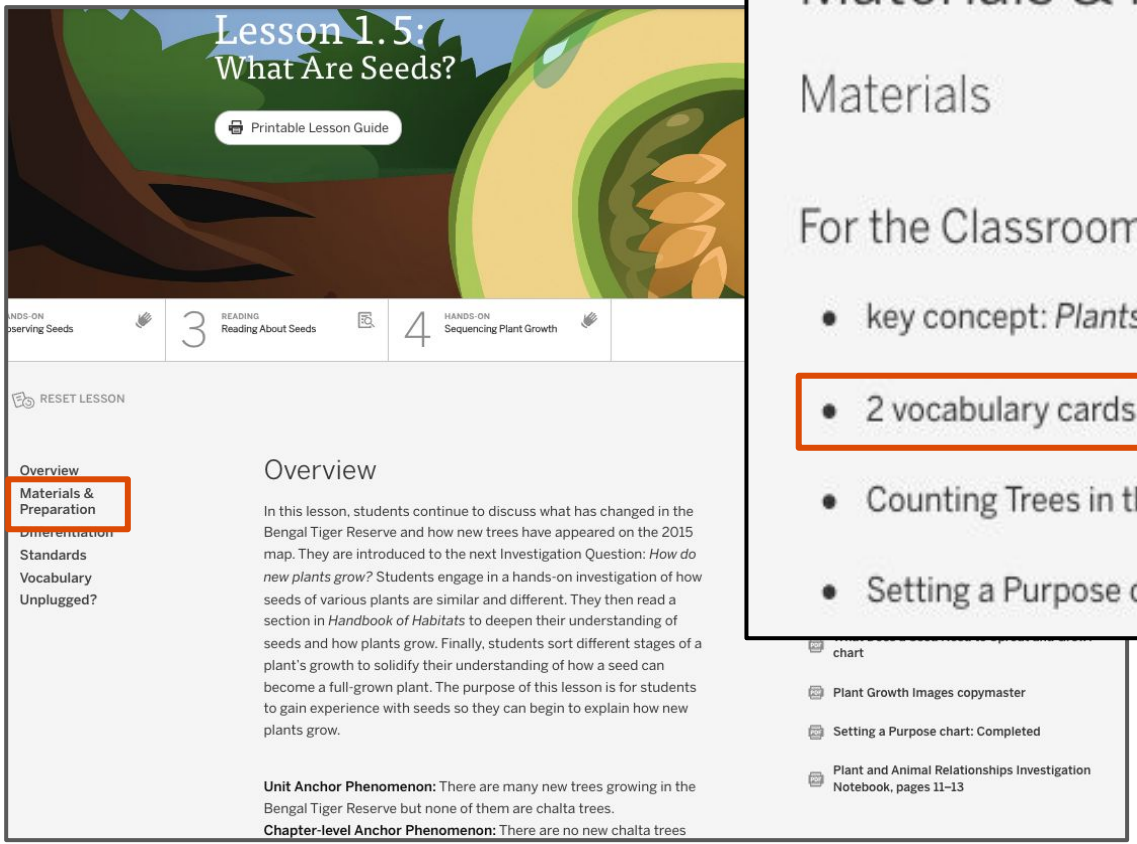
4: Sequencing Plant Growth (10 min.)
As students sequence a series of images depicting a plant's growth, they consolidate their understanding of how a seed becomes a new plant and leverage core vocabulary.

The Lesson Brief



Coherence Flowchart

Vocabulary



Materials & Preparation

Materials

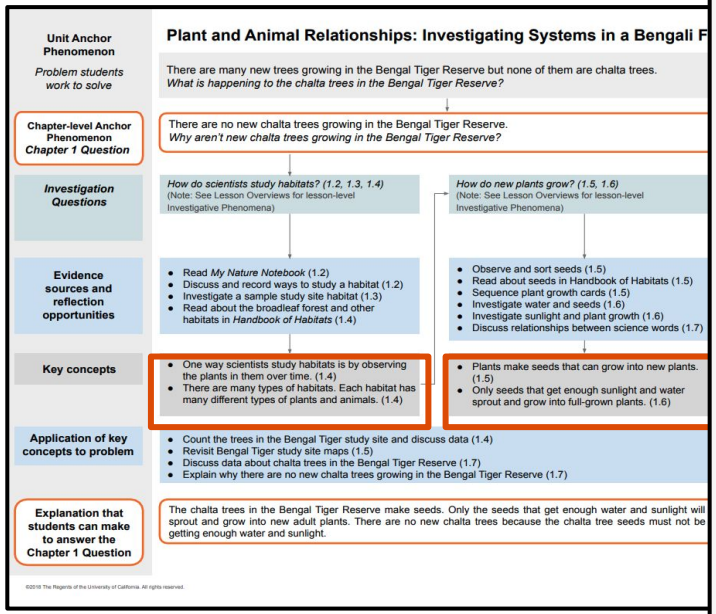
For the Classroom Wall

- key concept: *Plants make seeds that can grow into new plants.*
- 2 vocabulary cards: *seeds*, *sprout*
- Counting Trees in the Sample Study Site chart
- Setting a Purpose chart

Lesson Brief:

Amplify.

Key Concepts



Unit Anchor Phenomenon
Problem students work to solve

Plant and Animal Relationships: Investigating Systems in a Bengali F

There are many new trees growing in the Bengal Tiger Reserve but none of them are chalta trees.
What is happening to the chalta trees in the Bengal Tiger Reserve?

Chapter-level Anchor Phenomenon
Chapter 1 Question

There are no new chalta trees growing in the Bengal Tiger Reserve.
Why aren't new chalta trees growing in the Bengal Tiger Reserve?

Investigation Questions

How do scientists study habitats? (1.2, 1.3, 1.4)
(Note: See Lesson Overviews for lesson-level Investigative Phenomena)

How do new plants grow? (1.5, 1.6)
(Note: See Lesson Overviews for lesson-level Investigative Phenomena)

Evidence sources and reflection opportunities

- Read *My Nature Notebook* (1.2)
- Discuss and record ways to study a habitat (1.2)
- Investigate a sample study site habitat (1.3)
- Read about the broadleaf forest and other habitats in *Handbook of Habitats* (1.4)

- Observe and sort seeds (1.5)
- Read about seeds in Handbook of Habitats (1.5)
- Sequence plant growth cards (1.5)
- Investigate water and seeds (1.6)
- Investigate sunlight and plant growth (1.6)
- Discuss relationships between science words (1.7)

Key concepts

- One way scientists study habitats is by observing the plants in them over time. (1.4)
- There are many types of habitats. Each habitat has many different types of plants and animals. (1.4)

- Plants make seeds that can grow into new plants. (1.5)
- Only seeds that get enough sunlight and water sprout and grow into full-grown plants. (1.6)

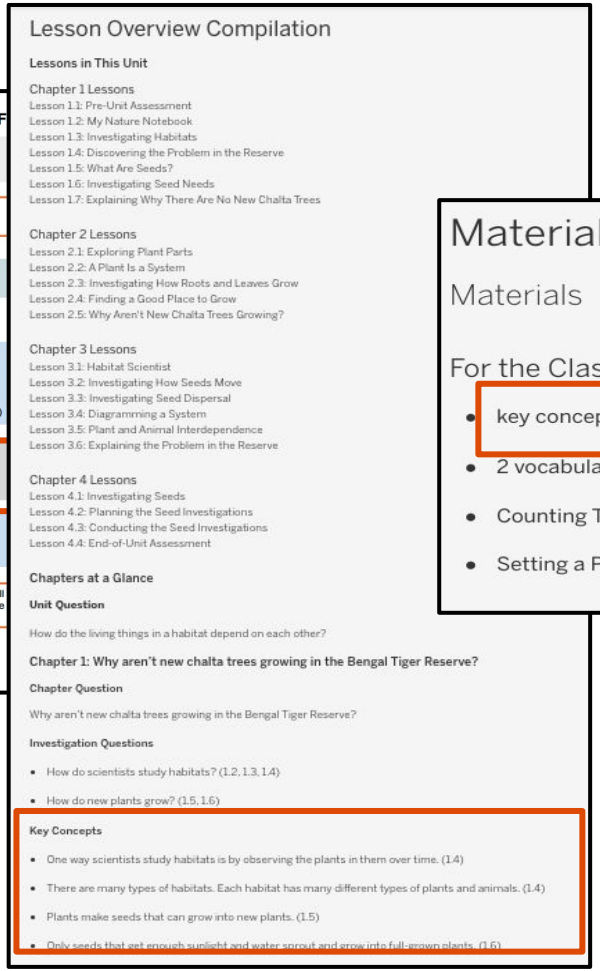
Application of key concepts to problem

- Count the trees in the Bengal Tiger study site and discuss data (1.4)
- Revisit Bengal Tiger study site maps (1.5)
- Discuss data about chalta trees in the Bengal Tiger Reserve (1.7)
- Explain why there are no new chalta trees growing in the Bengal Tiger Reserve (1.7)

Explanation that students can make to answer the Chapter 1 Question

The chalta trees in the Bengal Tiger Reserve make seeds. Only the seeds that get enough water and sunlight will sprout and grow into new adult plants. There are no new chalta trees because the chalta tree seeds must not be getting enough water and sunlight.

Coherence Flowchart



Lesson Overview Compilation

Lessons in This Unit

Chapter 1 Lessons
Lesson 1.1: Pre-Unit Assessment
Lesson 1.2: My Nature Notebook
Lesson 1.3: Investigating Habitats
Lesson 1.4: Discovering the Problem in the Reserve
Lesson 1.5: What Are Seeds?
Lesson 1.6: Investigating Seed Needs
Lesson 1.7: Explaining Why There Are No New Chalta Trees

Chapter 2 Lessons
Lesson 2.1: Exploring Plant Parts
Lesson 2.2: A Plant Is a System
Lesson 2.3: Investigating How Roots and Leaves Grow
Lesson 2.4: Finding a Good Place to Grow
Lesson 2.5: Why Aren't New Chalta Trees Growing?

Chapter 3 Lessons
Lesson 3.1: Habitat Scientist
Lesson 3.2: Investigating How Seeds Move
Lesson 3.3: Investigating Seed Dispersal
Lesson 3.4: Diagramming a System
Lesson 3.5: Plant and Animal Interdependence
Lesson 3.6: Explaining the Problem in the Reserve

Chapter 4 Lessons
Lesson 4.1: Investigating Seeds
Lesson 4.2: Planning the Seed Investigations
Lesson 4.3: Conducting the Seed Investigations
Lesson 4.4: End-of-Unit Assessment

Chapters at a Glance

Unit Question

How do the living things in a habitat depend on each other?

Chapter 1: Why aren't new chalta trees growing in the Bengal Tiger Reserve?

Chapter Question

Why aren't new chalta trees growing in the Bengal Tiger Reserve?

Investigation Questions

- How do scientists study habitats? (1.2, 1.3, 1.4)
- How do new plants grow? (1.5, 1.6)

Key Concepts

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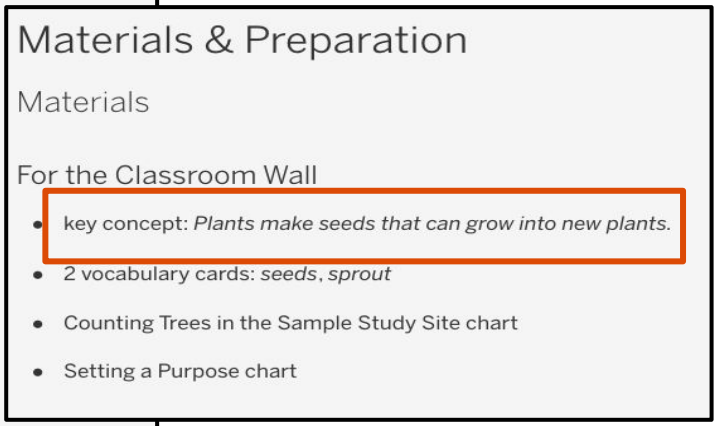

Materials & Preparation

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- Setting a Purpose chart

Materials and Preparation

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Investigating Seed Needs

LESSON 1.7
Explaining Why There Are No New Chalta Trees

Plant and Animal Relationships: Investigating Systems in a Bengali Forest

Unit Anchor Phenomenon

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Chapter-level Anchor Phenomenon
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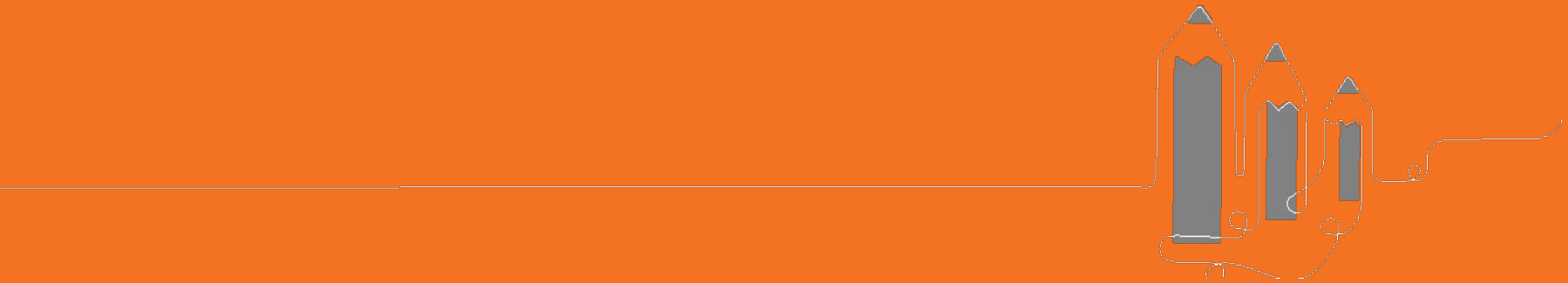
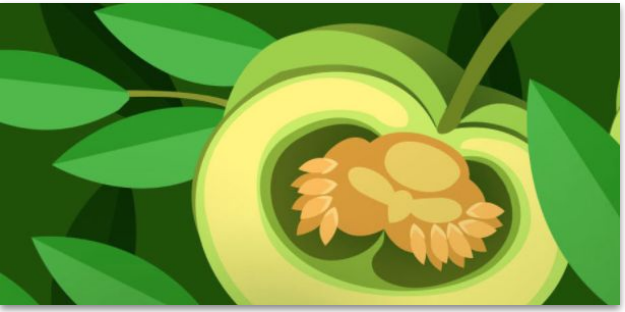
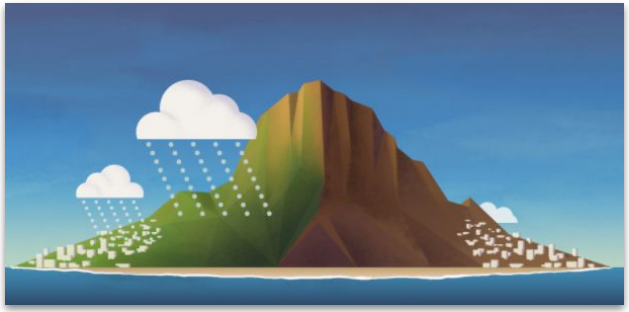
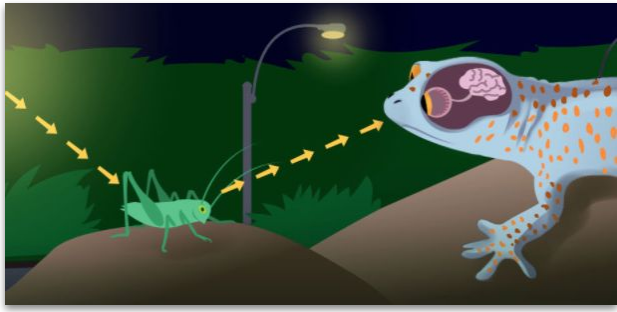
Explanation that students can make to answer the Chapter 1 Question

The chalta trees in the Bengal Tiger Reserve make seeds. Only the seeds that get enough water and sunlight will sprout and grow into new adult plants. There are no new chalta trees because the chalta tree seeds must not be getting enough water and sunlight.

Amplify.

Break



Plan for the day

- Introduction and framing
- Unit Internalization
- Digging into Chapter 1
- Model Lesson
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Plant and Animal Relationships: Lesson 1.5

Chapter 1: Why aren't new chalta trees growing in the Bengal Tiger Reserve?

LESSON 1.1
Pre-Unit Assessment

LESSON 1.2
My Nature Notebook

LESSON 1.3
Investigating Habitats

LESSON 1.4
Discovering the Problem in the Reserve

LESSON 1.5
What Are Seeds?

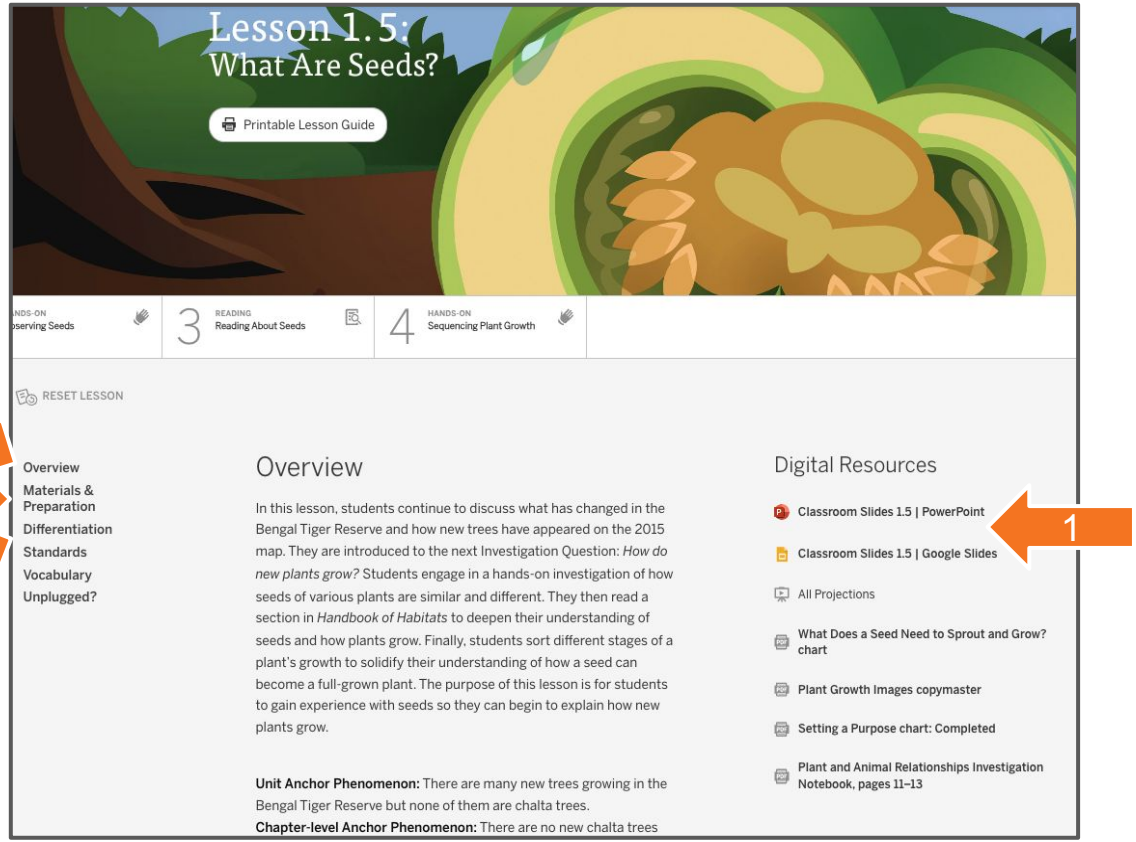
LESSON 1.6
Investigating Seed Needs

LESSON 1.7
Explaining Why There Are No New Chalta Trees

4 Easy Steps to Teaching a lesson

DIRECTIONS:

1. Download the **Classroom Slides** for **Lesson 1.1** and review them.
2. Read the **Overview**.
3. Explore the **Materials & Preparation** document.
4. Read the **Differentiation** document.



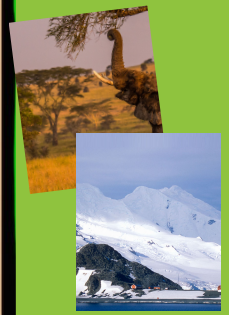
Unit: Plant and Animal Relationships Lesson: 1.5

Purpose: The purpose of this lesson is for students to gain experience with seeds so they can begin to explain how new plants grow.

Materials and Preparation: Before the Lesson

1. Write the Investigation Question on the board. Write “How do new plants grow?”
2. Create the “What Does A Seed Need to sprout and Grow? Chart
3. Prepare cups of seeds.

Plant and Animal Relationships



Unit Question

How do the living things in a habitat depend on each other?

Chapter 1 Question

Why aren't new chalta trees growing in the Bengal Tiger Reserve?

Investigation Question: How do scientists study habitats?

Key Concepts

One way scientists study habitats is by observing the plants in them over time.

There are many types of habitats. Each habitat has many different types of plants and animals.

Vocabulary

habitat

observe

Grade 2 | Plant and Animal Relationships

Lesson 1.5: What Are Seeds?

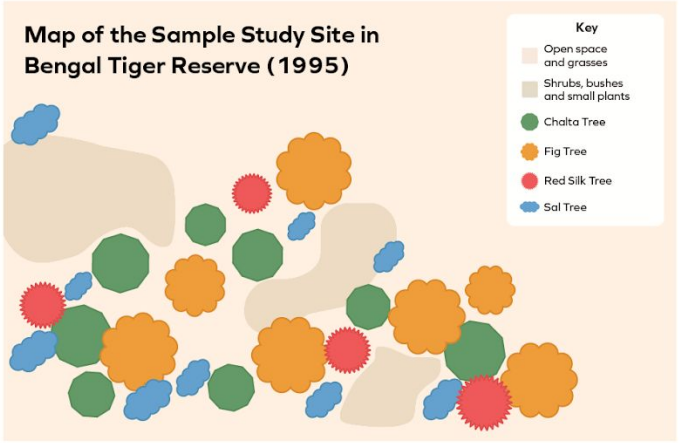
AmplifyScience

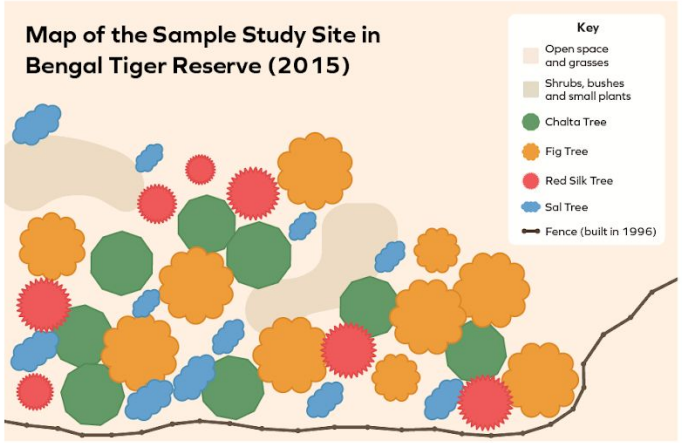
Activity 1

New Trees in the Bengal Tiger Reserve

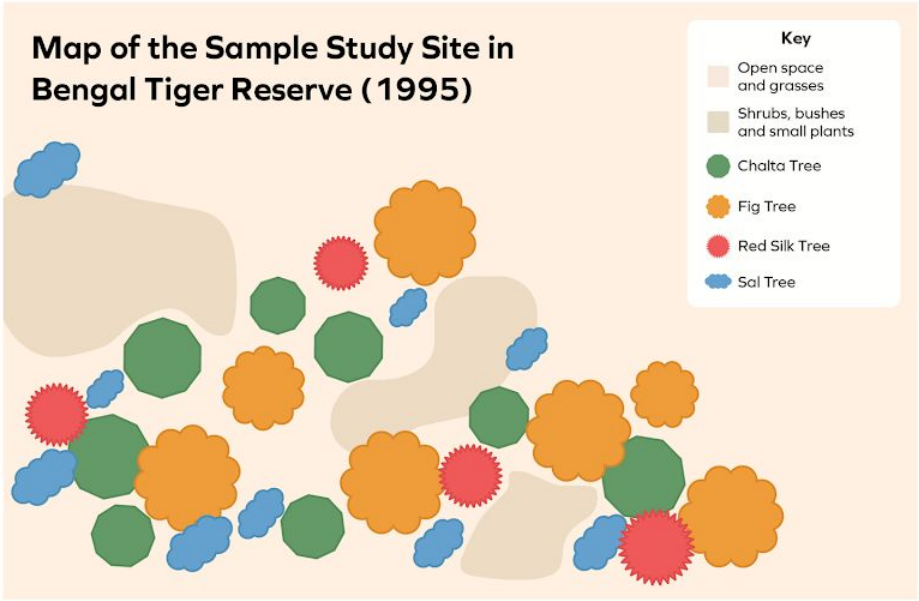
We explored the plants in the Bengal Tiger Reserve.

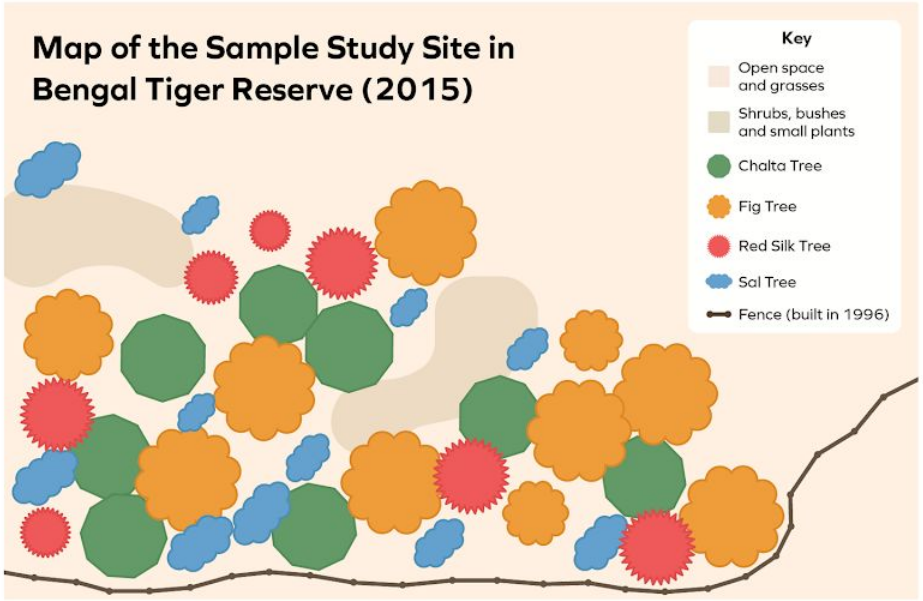
What did we **discover** about the plants?





Which plants on the 2015 map are new plants?





I think _____ is a new plant.

Today, we are going to investigate this question:

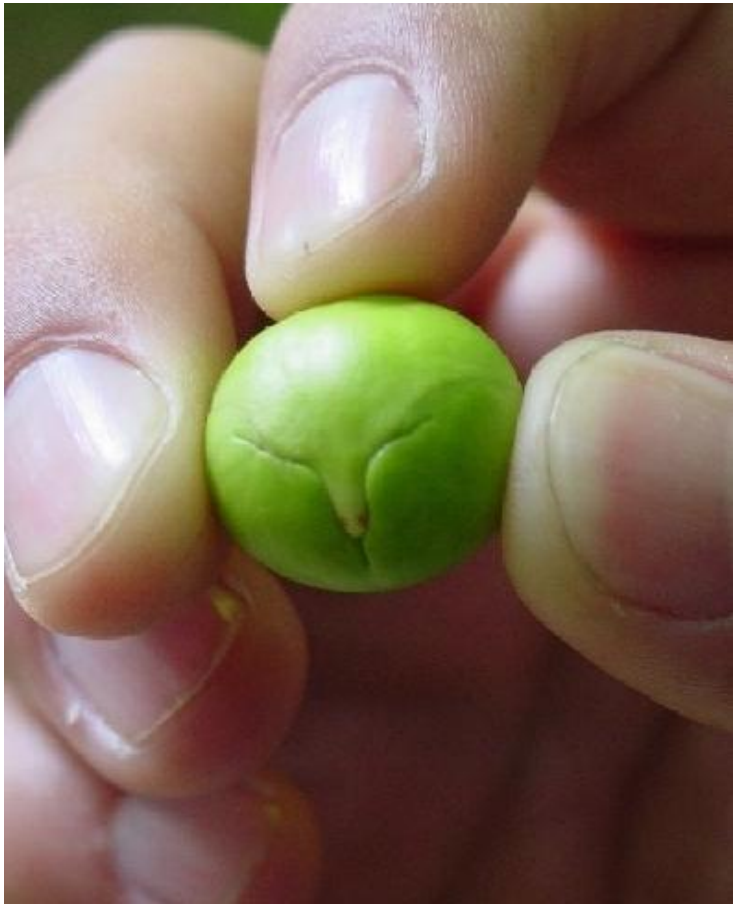
How do new plants grow?

What ideas do you already have about **how new plants—like trees, bushes, and grasses—grow?**

One idea I have about how new plants grow is _____.

Activity 2

Observing Seeds



We think that **seeds** might have something to do with how **new plants grow**.

Setting a Purpose

Reading	Investigating
	Investigate what seeds look like and find out how seeds from different plants are similar and different.

Let's record the **purpose** of our **investigation**.

Let’s observe the seeds to see **what they look like** and to see what we notice about how they are **similar and different.**

Observe and **sort** the seeds into groups based on what they look like.

What different **categories** did you use to **sort** your seeds?

One category I used to sort my seeds is _____.

Name: _____ Date: _____

Seed Observations

Directions:
1. Put your seeds in order from biggest to smallest.
2. Pick two seeds that are different sizes.
3. Draw a picture of each seed in the boxes below.
4. Label your drawings "bigger" and "smaller."
5. Complete the sentence in each box.

This seed is about the same size as a _____.	This seed is about the same size as a _____.

Turn to page 12 in your notebooks.

Let’s go over the directions together.

Name: _____ Date: _____

Seed Observations

Directions:
1. Put your seeds in order from biggest to smallest.
2. Pick two seeds that are different sizes.
3. Draw a picture of each seed in the boxes below.
4. Label your drawings "bigger" and "smaller."
5. Complete the sentence in each box.

This seed is about the same size as a _____.	This seed is about the same size as a _____.

Order your seeds from biggest to smallest.

Draw pictures of two seeds that are different sizes.

These are images of seeds like the ones you just observed.

What **plant** do you predict these **seeds** will grow into? What do you think the plants will look like?

Plants

Oak Tree

Marigold Plant

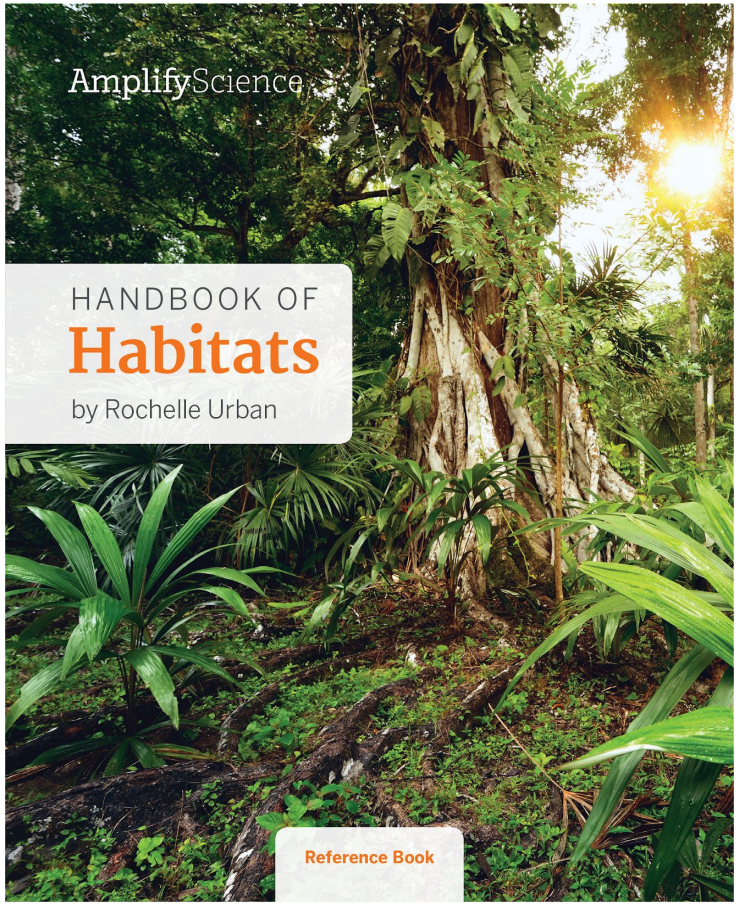
Lima Bean Plant

Activity 3

Reading About Seeds

Remember, we are investigating this question:

How do new plants grow?



Let's read in *Handbook of Habitats* to find out more about seeds and how new plants grow.

Setting a Purpose

Reading	Investigating
Find out more about seeds and how new plants grow.	Investigate what seeds look like and find out how seeds from different plants are similar and different.

Let's record our **purpose** for reading.

Contents

Turn to page 3.

Remember, the **table of contents** lists the sections of the book and tells us where to find them.

Making New Plants

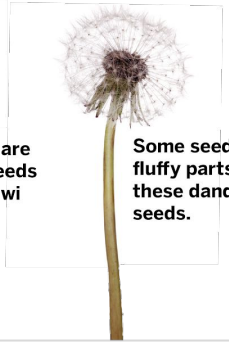
Plants start as **seeds**. A seed is something that can **sprout** and grow into a plant. Seeds may look very different. Still, every seed is made by a plant.

Some seeds are big. A coconut is a very big seed.

Some seeds are inside sweet fruits, like these apple seeds.

Some seeds are inside hard shells. A walnut is a seed with a very hard shell.

Some seeds are small. The seeds inside this kiwi are tiny.



Some seeds have fluffy parts, like these dandelion seeds.

7

Turn to page 7.

Read **pages 7–9** with your partner.

What **new** information did you find out about seeds?

What did you find out about **how new plants grow?**

What Does a Seed Need to Sprout and Grow?

We will use this chart to keep track of what a seed needs to grow.

Based on what we read in *Handbook of Habitats*, what are **two things that seeds need to grow?**

What Does a Seed Need to Sprout and Grow?

water

sunlight

We will **add to this chart** as we continue to investigate seeds.

Vocabulary

seeds

things a plant makes that can grow into new plants

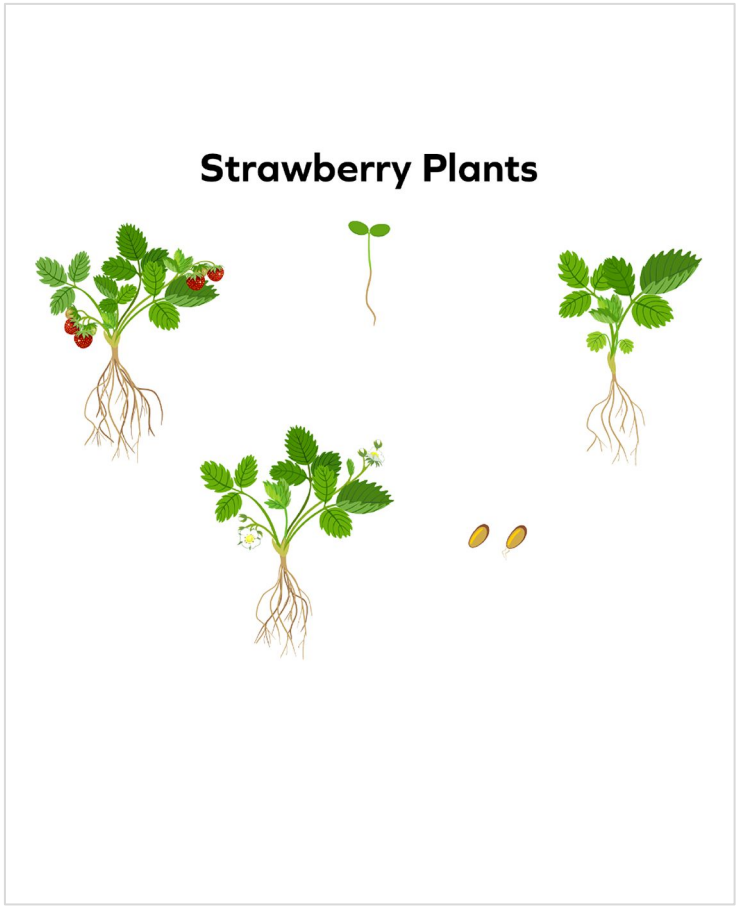
Vocabulary

sprout

to start to grow from a seed

Activity 4

Sequencing Plant Growth



We think we know **how seeds grow** into full-grown plants.

Name: _____ Date: _____

New Plant Growth

Directions:

1. Put the pictures in order of how you think the plant grows.
2. Glue one picture in each box below.
3. Decide which picture is a picture of seeds. Then label it “seeds.”
4. Decide which picture is a picture of a seed sprouting. Then label it “seed sprouting.”
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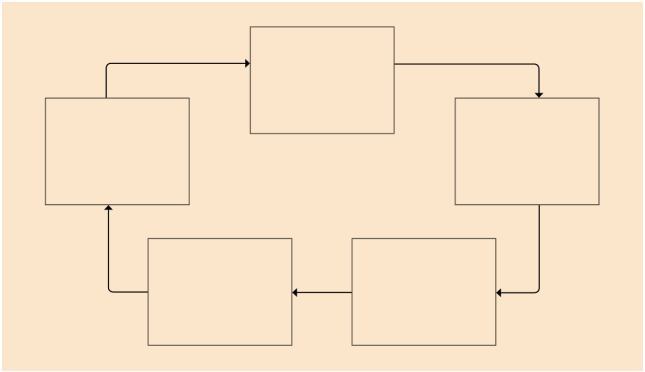

Plant and Animal Relationships—Lesson 1.5 **13**

Turn to page 13 in your notebooks.

Let’s use what we know to put pictures of a plant in **growing order**.

Based on what we've investigated so far, what do we know about **how new plants grow?**

Key Concept

Plants make seeds that can grow into new plants.

End of Lesson

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UNIVERSITY OF CALIFORNIA, BERKELEY

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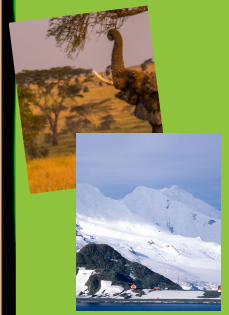
Plant and Animal Relationships



Unit Question

How do the living things in a habitat depend on each other?

Chapter 1 Question

Why aren't new chalta trees growing in the Bengal Tiger Reserve?

Investigation Question: How do scientists study habitats?

Investigation Question: How do new plants grow?

Key Concepts

One way scientists study habitats is by observing the plants in them over time.

There are many types of habitats. Each habitat has many different types of plants and animals.

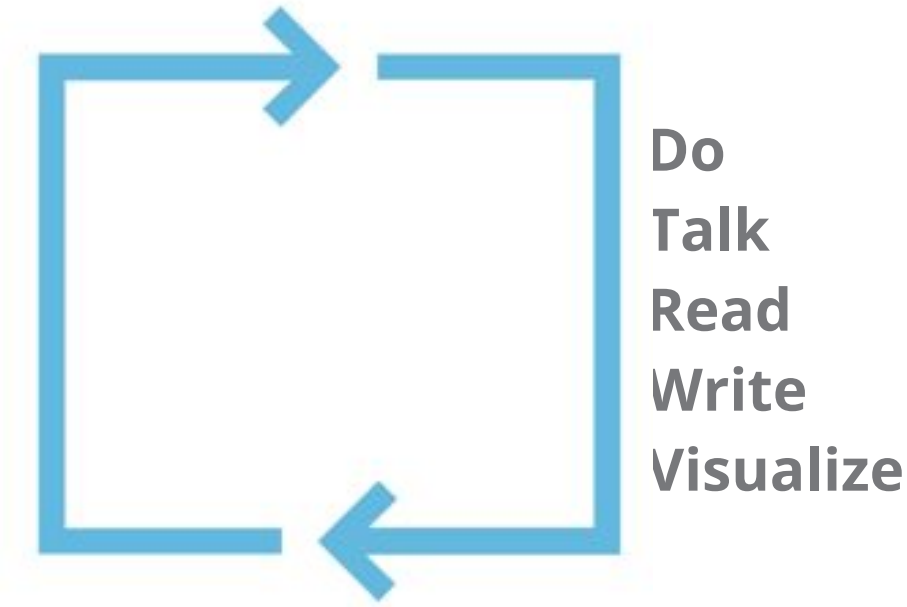
Vocabulary

- habitat
- observe
- seeds
- sprout

Plant and Animal Relationships

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.

Lesson 1.5 Multimodal learning

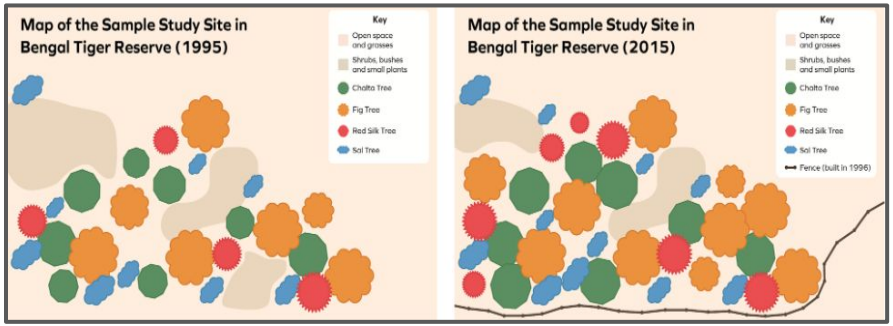


Plant and Animal Relationships Lesson 1.5

Visualize: Investigate New Trees in the Bengal Tiger Reserve

Students investigate the Bengal Tiger Reserve Sample Study Site Maps.

A new Investigation Question initiates seed and plant investigations



Plant and Animal Relationships Lesson 1.5

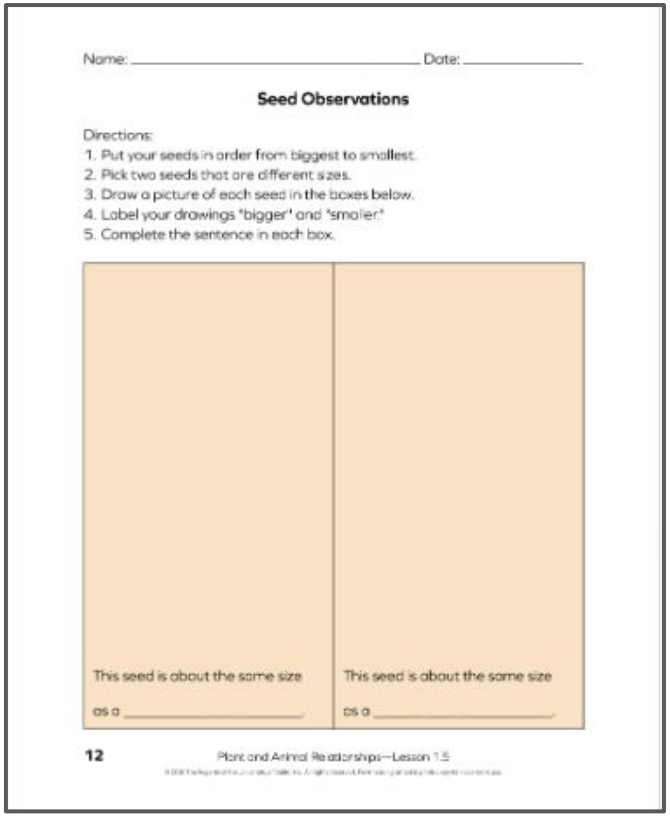
Do: Observing and Sorting Seeds

- Students observe a variety of seeds to make note of the ways that seeds from different plants are similar or different
- Students sort seeds by size

Plant and Animal Relationships Lesson 1.5

Write: Draw/Write Pictures of Seeds

Students draw pictures of two seeds that are different sizes by using relative scales such as bigger and smaller to describe and categorize objects.



Name: _____ Date: _____

Seed Observations

Directions:
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2. Pick two seeds that are different sizes.
3. Draw a picture of each seed in the boxes below.
4. Label your drawings "bigger" and "smaller."
5. Complete the sentence in each box.

This seed is about the same size as a _____

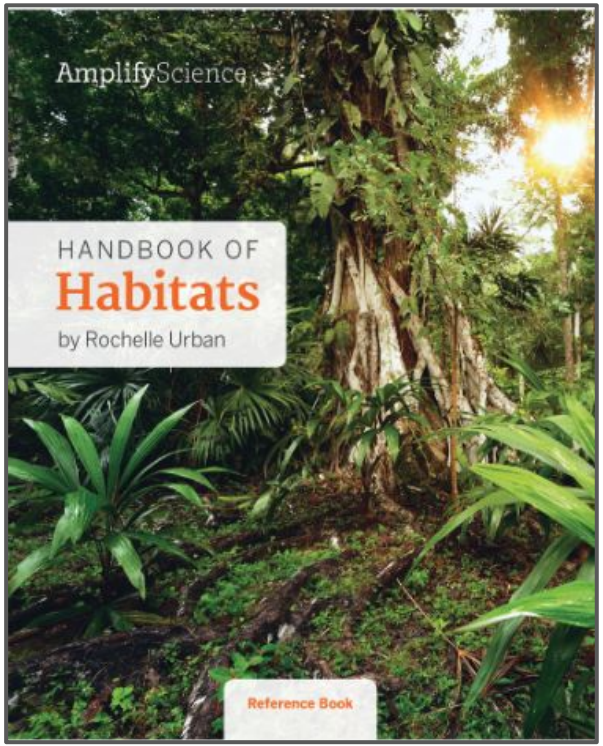
This seed is about the same size as a _____

12 Plant and Animal Relationships—Lesson 1.5

Plant and Animal Relationships Lesson 1.5

Read: About seeds

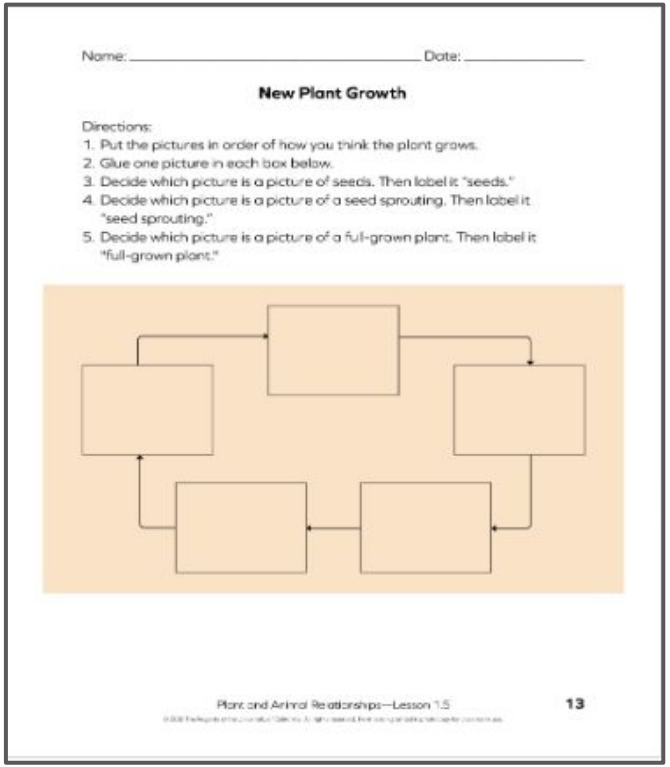
Students deepen their understanding of seeds and how new plants grow as they read a section of Handbook of Habitats.



Plant and Animal Relationships Lesson 1.5

Do: Sequencing Plan Growth

Students sequence a series of images depicting a plant's growth, they consolidate their understanding of how a seed becomes a new plant and leverage core vocabulary.



Name: _____ Date: _____

New Plant Growth

Directions:

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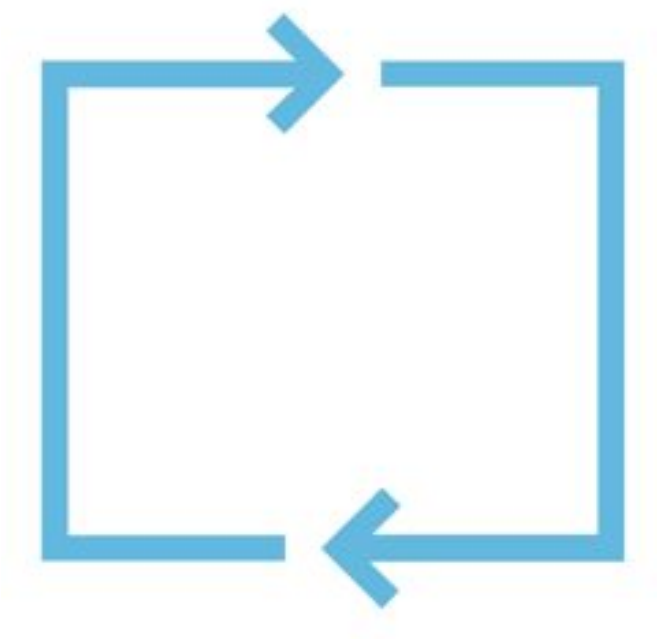
Plant and Animal Relationships—Lesson 1.5 13

Lesson 1.5 Multimodal learning



Do Observing and sorting seeds.
Sequencing Plant Growth

Talk

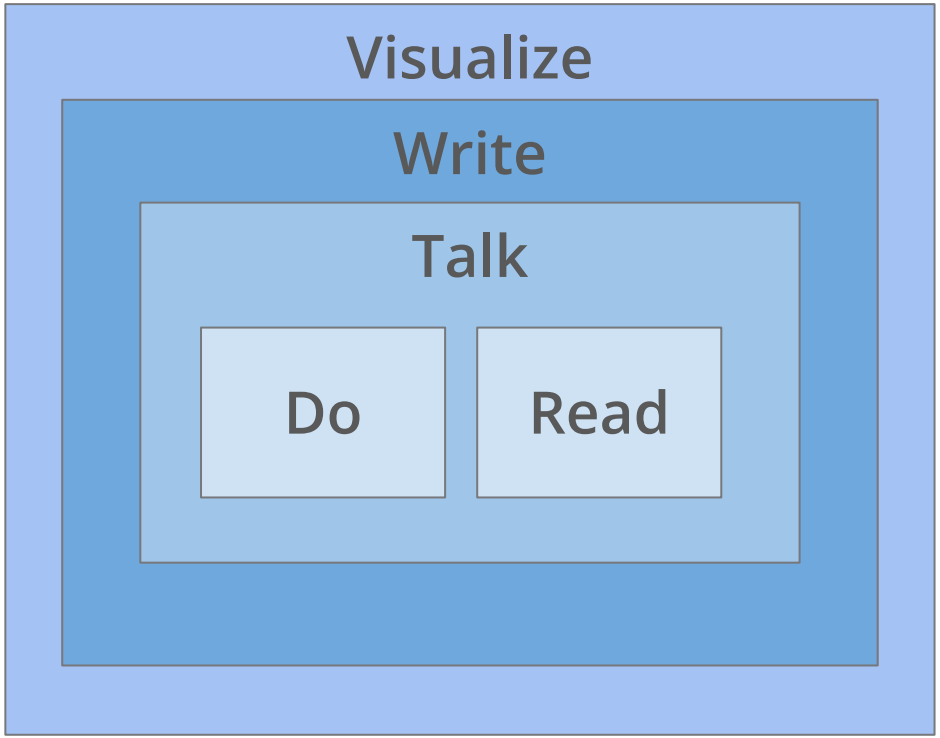
Read Reading about Seeds

Write Drawing pictures of two seeds
Recording the sequence of Plant Growth

Visualize Investigating the Bengal Tiger Reseerve
Sample Study Site Map

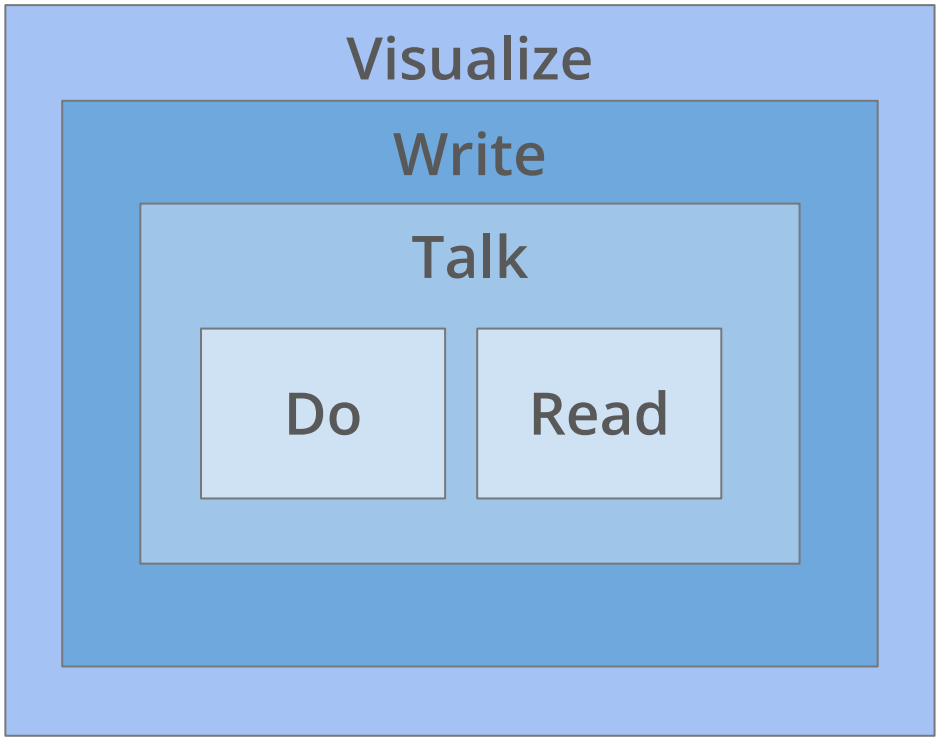
Multimodal instruction (multiple at bats)

Activities of different modalities are intentionally sequenced to support deep understanding of complex concepts.



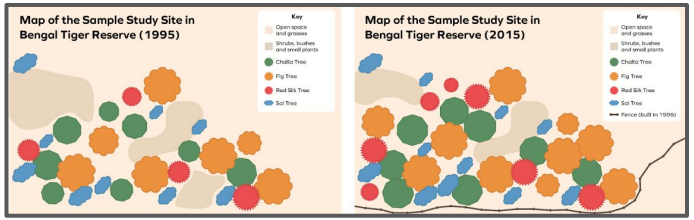
Reflection

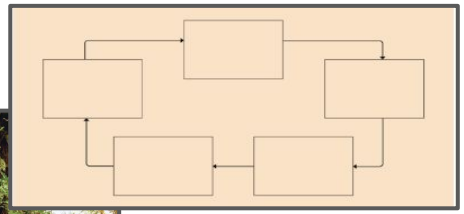
How will multiple at-bats with multimodal evidence sources support diverse learners in your class to master complex science ideas?

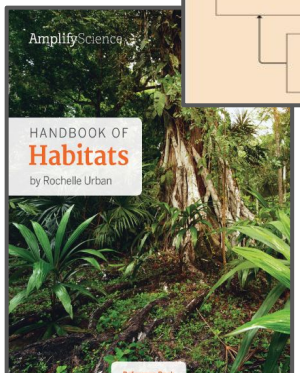


Evidence sources work together

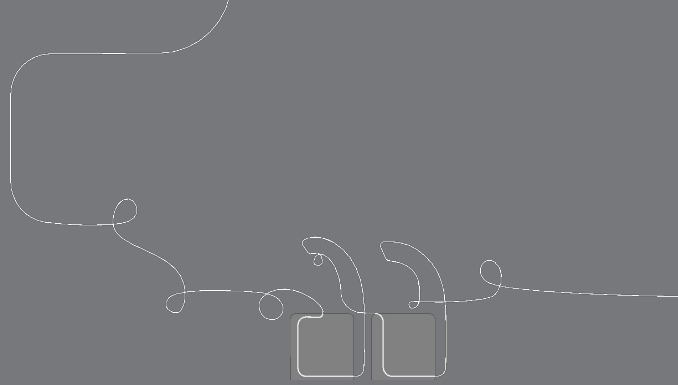
Teacher tip: Every evidence source plays an important role in student learning. Be sure to teach every activity in order!

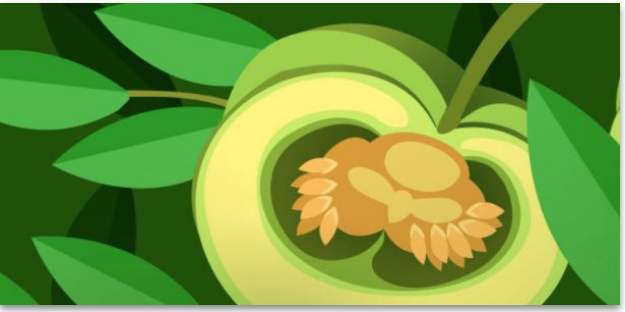
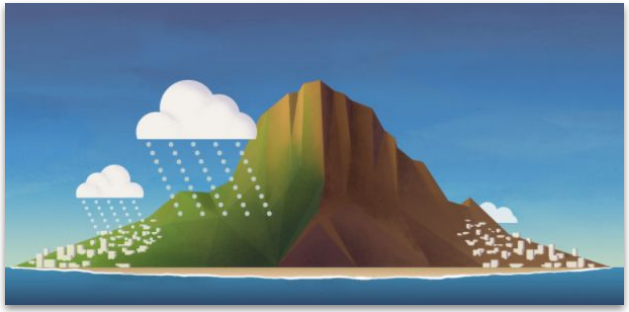
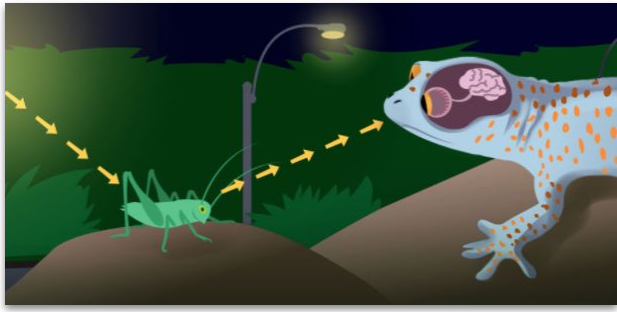






Questions?



Plan for the day

- Introduction and framing
- Unit Internalization
- Digging into Chapter 1
- Model Lesson
- Digging into Chapter 2
- Planning
- Closing

Plant and Animal Relationships: Chapter 2

Chapter 2: Why aren't the chalta seeds getting what they need to grow?

LESSON 2.1
Exploring Plant Parts

LESSON 2.2
A Plant Is a System

LESSON 2.3
Investigating How Roots and Leaves Grow

LESSON 2.4
Finding a Good Place to Grow

LESSON 2.5
Why Aren't New Chalta Trees Growing?

Digging into Chapter 2

Group Work time

1. In your group, pick a lesson in Chapter 2 (from 2.1 to 2.5)
2. Using the **classroom slides**, each group member will present an activity
3. Be prepared to **teach** at least 1 activity in the lesson.
4. Remember to state the purpose of the lesson

Presentations

Chapter 2: Why aren't the chalta seeds getting what they need to grow?

LESSON 2.1
Exploring Plant Parts

LESSON 2.2
A Plant Is a System

LESSON 2.3
Investigating How Roots and Leaves Grow

LESSON 2.4
Finding a Good Place to Grow

LESSON 2.5
Why Aren't New Chalta Trees Growing?

Plant and Animal Relationships: Investigating Systems in a Bengali Forest

Unit Anchor Phenomenon

Problem students work to solve

There are many new trees growing in the Bengal Tiger Reserve but none of them are chalta trees.
What is happening to the chalta trees in the Bengal Tiger Reserve?

Chapter-level Anchor Phenomenon
Chapter 2 Question

There are no new chalta trees growing in the Bengal Tiger Reserve.
Why aren't the chalta seeds getting what they need to grow?

Investigation Questions

How do plants get the water and sunlight that they need to grow? (2.1, 2.2)
(Note: See Lesson Overviews for lesson-level Investigative Phenomena)

Why can't plants always get the sunlight and water they need to grow? (2.3, 2.4, 2.5)
(Note: See Lesson Overviews for lesson-level Investigative Phenomena)

Evidence sources and reflection opportunities

- Observe and measure roots and leaves (2.1)
- Read *A Plant Is a System* (2.2)
- Discuss and record relationships between science words (2.2)

- Write about roots and leaves (2.3)
- Play Growing Roots game (2.3)
- Observe Sunlight and Leaves Model (2.3)
- Participate in Plant Growth Body Model (2.3)
- Test predictions of which seeds will grow with digital Modeling Tool (2.4)
- Write about a good place for a seed to grow (2.4)
- Discuss and test predictions with Modeling Tool (2.5)

Key concepts

- Plants have leaves that get sunlight. Plants have roots that get water from the soil. (2.2)

- Without enough space, plants can't get sunlight and water they need to grow. (2.4)
- Leaves need space to get sunlight. Roots need space in the soil to get water. (2.4)

Application of key concepts to problem

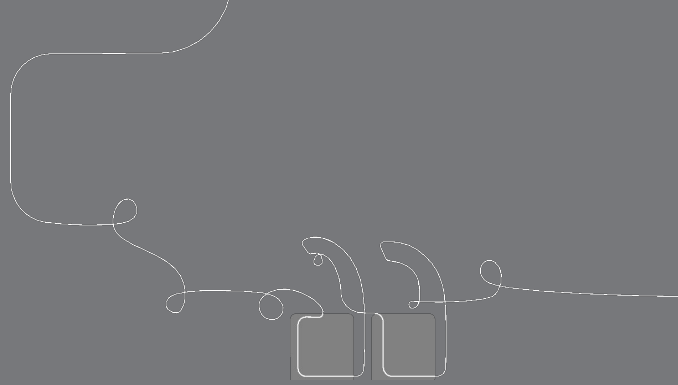
- Compose a scientific explanation about why the chalta seeds are not getting the sunlight and water they need to grow (2.5)

Explanation that students can make to answer the Chapter 2 Question

The chalta trees in the Bengal Tiger Reserve use their roots to get water from the soil and their leaves to get sunlight. The chalta tree seeds need to move away from other plants and get to a place where they can spread their roots and leaves to get what they need to grow. The chalta tree seeds must not be getting to a new place where they can grow.

Amplify.

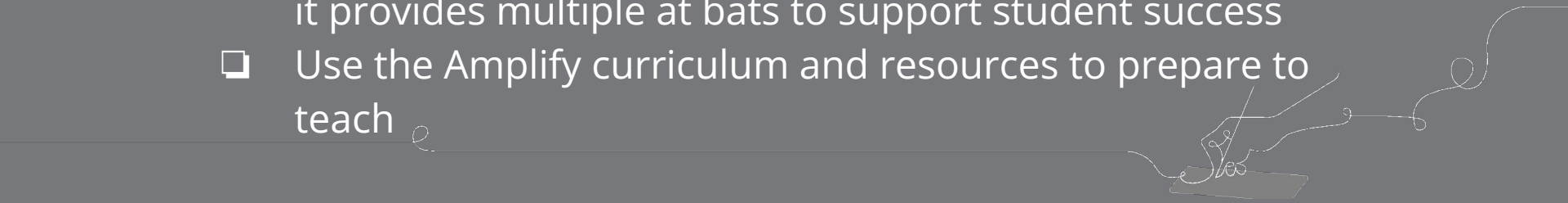
Questions?



Goals for the day:

By the end of the day, you will:

- ✓ Experience how all the instructional components fit together in the context of the unit
- ✓ Gain a deeper understanding of the purposeful sequencing of each activity and lesson within a chapter
- ✓ Become more familiar with multimodal instruction and how it provides multiple at bats to support student success
- ❑ Use the Amplify curriculum and resources to prepare to teach

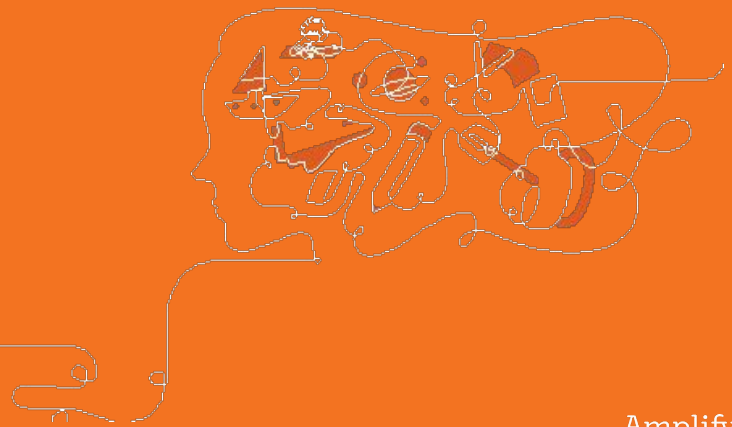


(reminder: after lunch)

LAUSD SUMMER INSTITUTE 2023

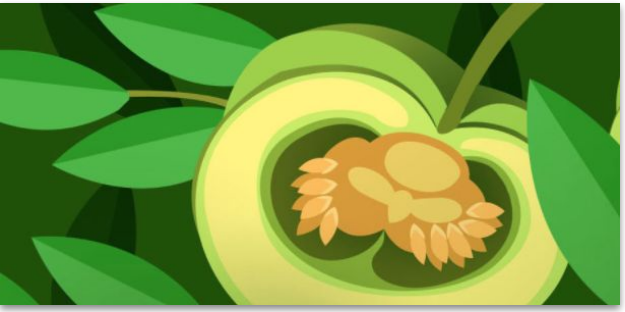
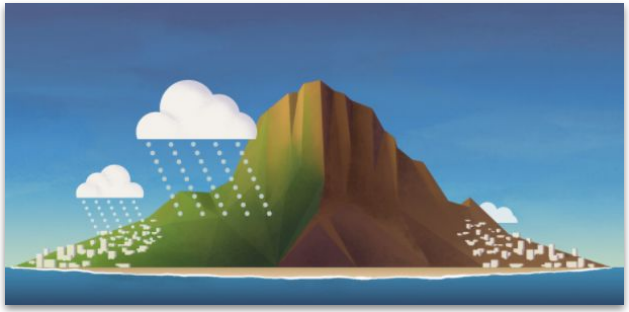
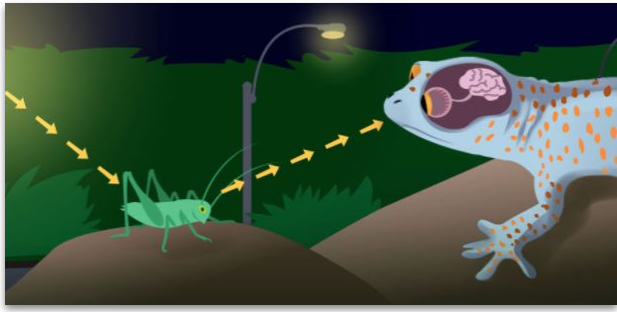
Session 2 (after lunch)
UCLA Center X Presentation

Lunch Break



LAUSD SUMMER INSTITUTE 2023

Session 3
Planning

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- Digging into Chapter 2
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- Closing

Planning Resources Links

Amplify Science

Gr. 2 Plant and Animal Relationships

Participant Links

G2 Plant and Animal Relationships Deep Dive (pdf)

Planning Resources

Gr. 2 Unit 1 Lesson Planning Slides (forced copy)

Gr. 2 Plant and Animal Relationships Completed Material Prep Doc (pdf)

Gr. 2 Plant and Animal Relationships Chart LIst (pdf)

Gr. 2 Plant and Animal Relationships Investigation Questions (pdf)

Other Resources

Caregivers Site

Classroom Slides

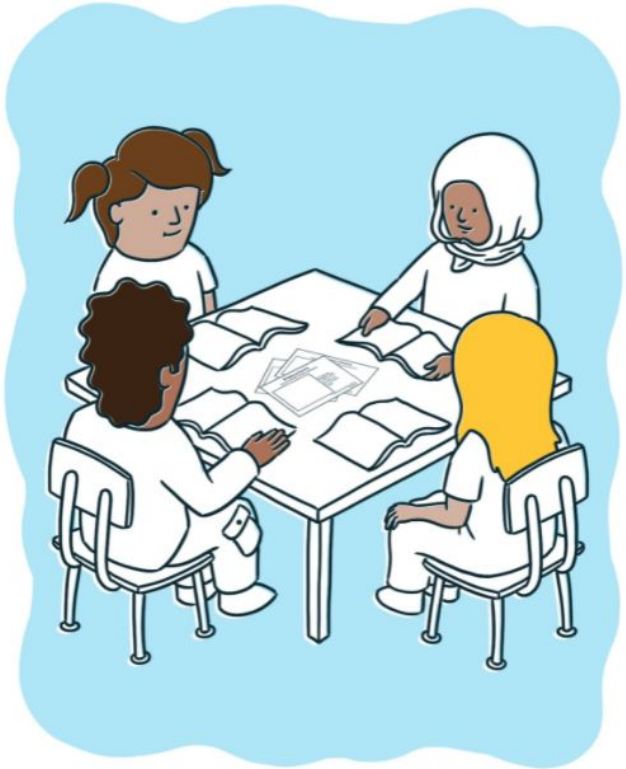
Unit Guide Resources

https://bit.ly/467Ue4S

Planning time

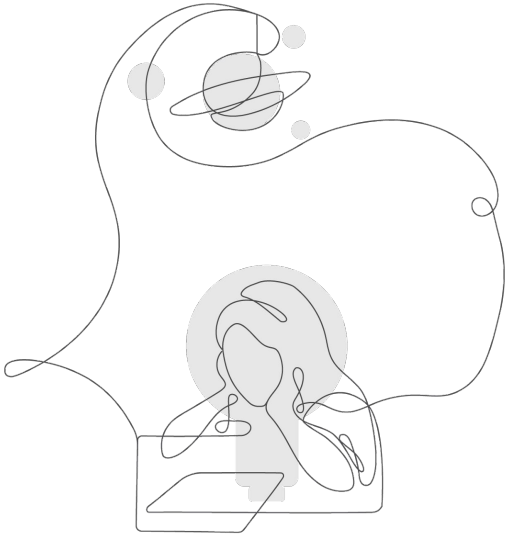
(Be prepared to share what you have been planning)

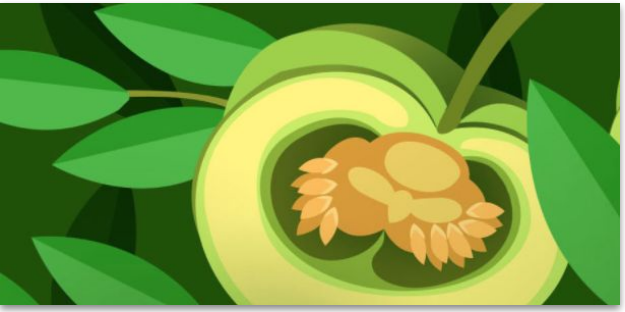
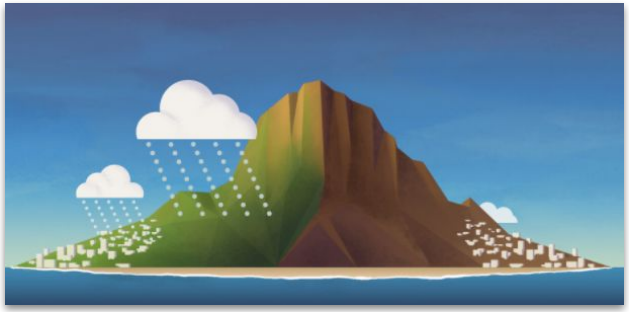
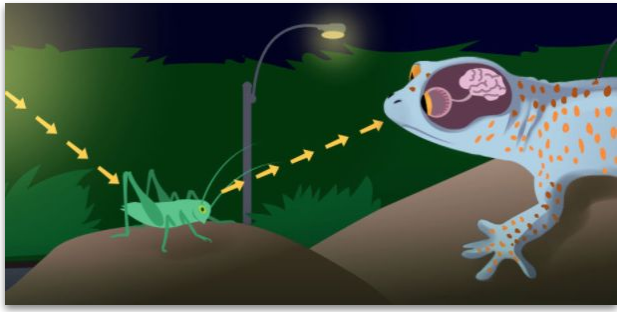
- Suggestions
  - Prep your charts
  - Read your unit's key documents
  - Familiarize yourself with the digital tools and sims
  - Familiarize yourself with the hands on activities
  - Preread the student texts
  - Download all the classroom slides for your unit and put in chapter folders
  - Review the differentiation in lessons and edit slides to meet the needs of your students.



Share Out

- Are you planning differently for the unit after our work today?
    - Have you made any additions to your planning?
    - Have you made any adjustments?



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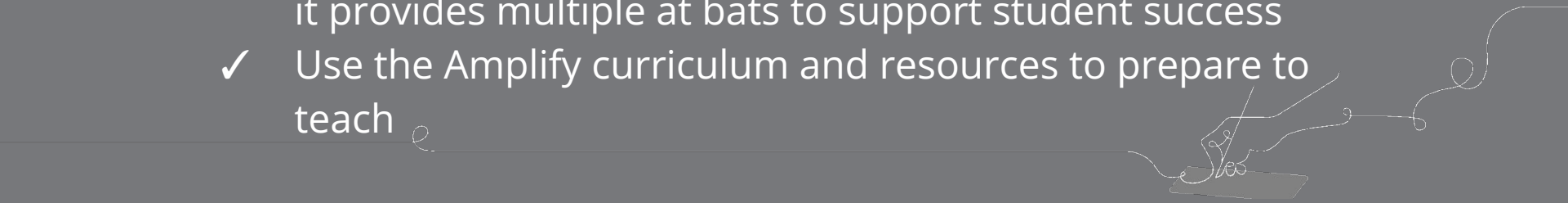
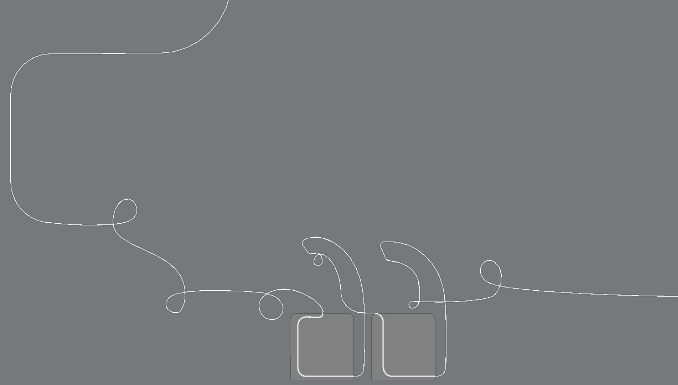


Teaching science



"Science [is] both a body of knowledge and an evidence-based, model and theory building enterprise that continually extends, refines, and revises knowledge."

"Three Dimensional Learning." Three Dimensional Learning | Next Generation Science Standards, www.nextgenscience.org/three-dimensions.

Closing reflection

Based on our work today in Part 2, share:

Head: something you'll keep in mind

Heart: something you're feeling

Feet: something you're planning to do

LAUSD Microsite- https://amplify.com/lausd-science

Welcome to Amplify Science!

This site contains supporting resources designed for the LAUSD Amplify Science adoption for grades TK–8.

- Access the Amplify Science Program Hub (To help orient you to the new design, watch this video and view this reference guide.)
- Find out more about Amplify Science@Home
- Share the Caregiver Hub (Eng/Span) with your families
- For LAUSD ES Teachers- Amplify Science & Benchmark Advance Crosswalk
- Instructional guidance for a Responsive Relaunch of Amplify Science in 21-22

Click the button below to preview the digital Teacher's Guide, and check back for exciting updates to this site!

Additional resources and ongoing support

Customer Care

Seek information specific to enrollment and rosters, technical support, materials and kits, and teaching support, weekdays 7AM-10PM EST and weekends 10AM-6PM EST.

help@amplify.com

800-823-1969

Amplify Chat

Please provide feedback!

Type:

Strengthen

Session title:

Unit one deep dive

Professional Learning Specialist name:

Insert name

(insert email, if you would like)