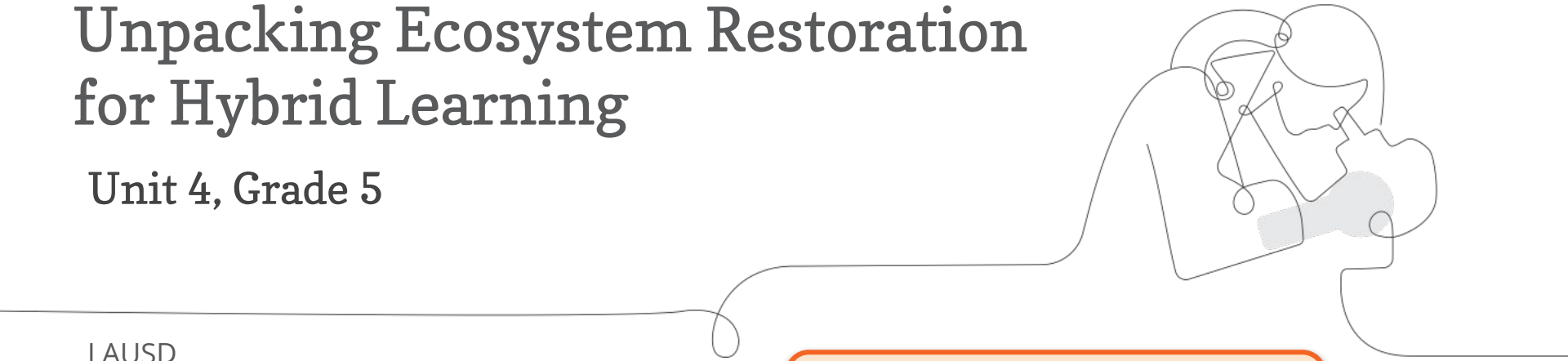
Do Now: *In the chat, share one new skill you and/or your students have learned this year during remote learning.*

Amplify Science

Unpacking Ecosystem Restoration for Hybrid Learning

Unit 4, Grade 5



LAUSD

4/x/2021

Presented by Your Name

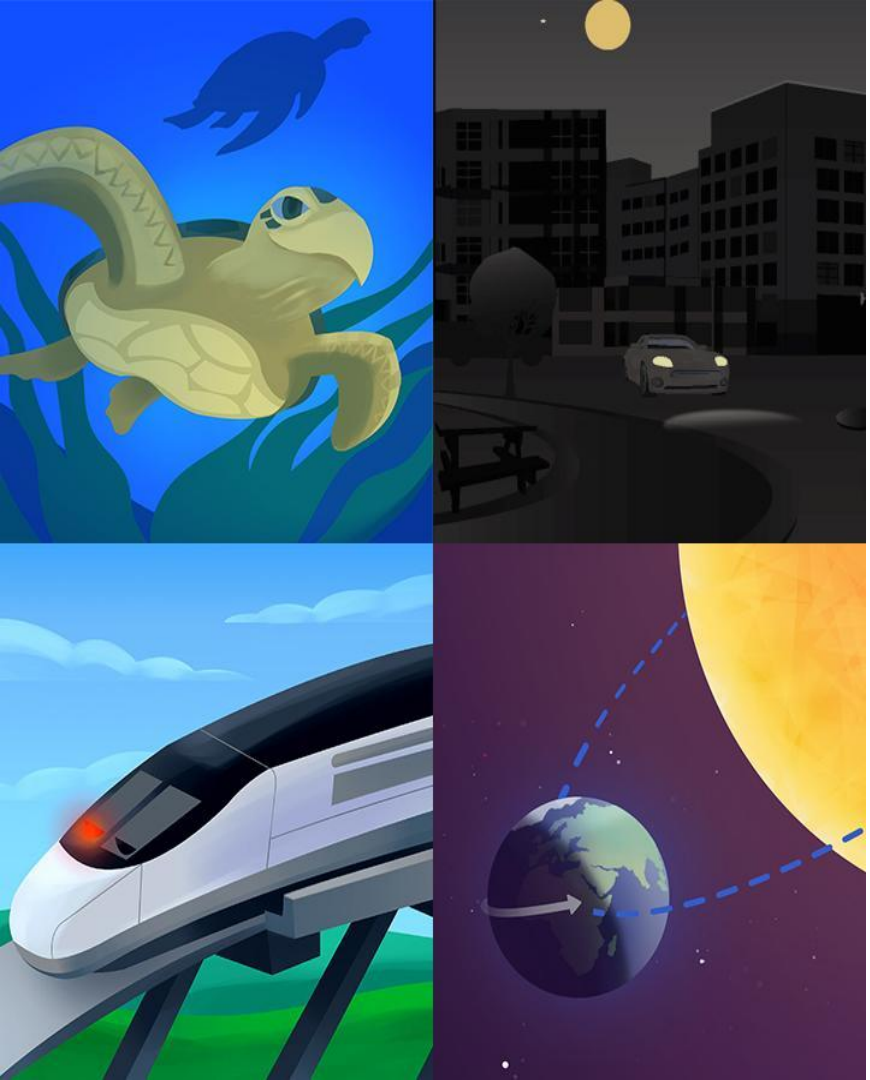
In a new tab, please log in to your Amplify Science account through Schoology.

Amplify.

Objectives

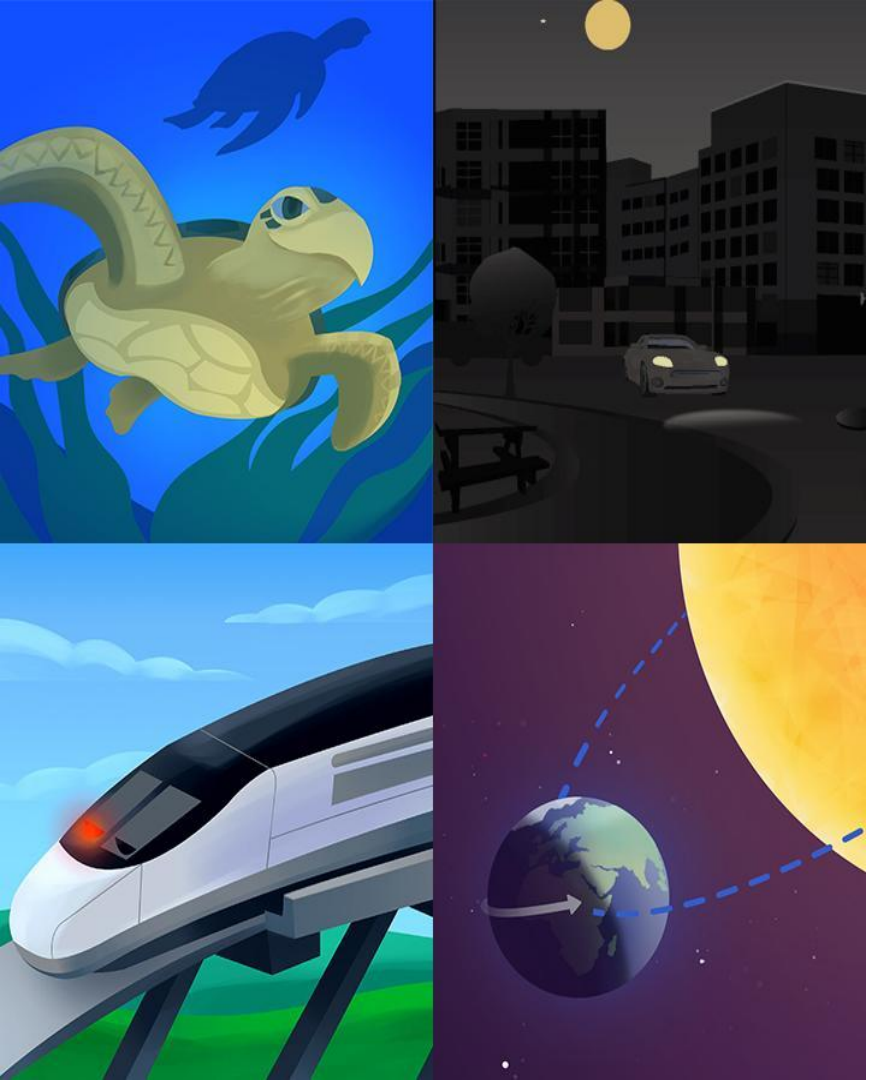
By the end of this workshop, you will be able to…

- Describe how students' conceptual understanding builds through the unit
- Explain how students figure out the phenomenon throughout the unit
- Make a plan for implementing Amplify Science within your class schedule and instructional format



Plan for the day

- **Framing the day**
  - Remote learning reflection
  - Revisiting the Amplify Approach
- **Phenomenon at the unit level**
  - Navigation refresher (standard curriculum)
  - Storyline and science concepts
- **Planning to teach**
  - Navigation refresher (@Home resources)
  - Lesson walkthrough
  - Collaborative planning time
- **Closing**
  - Reflection & survey



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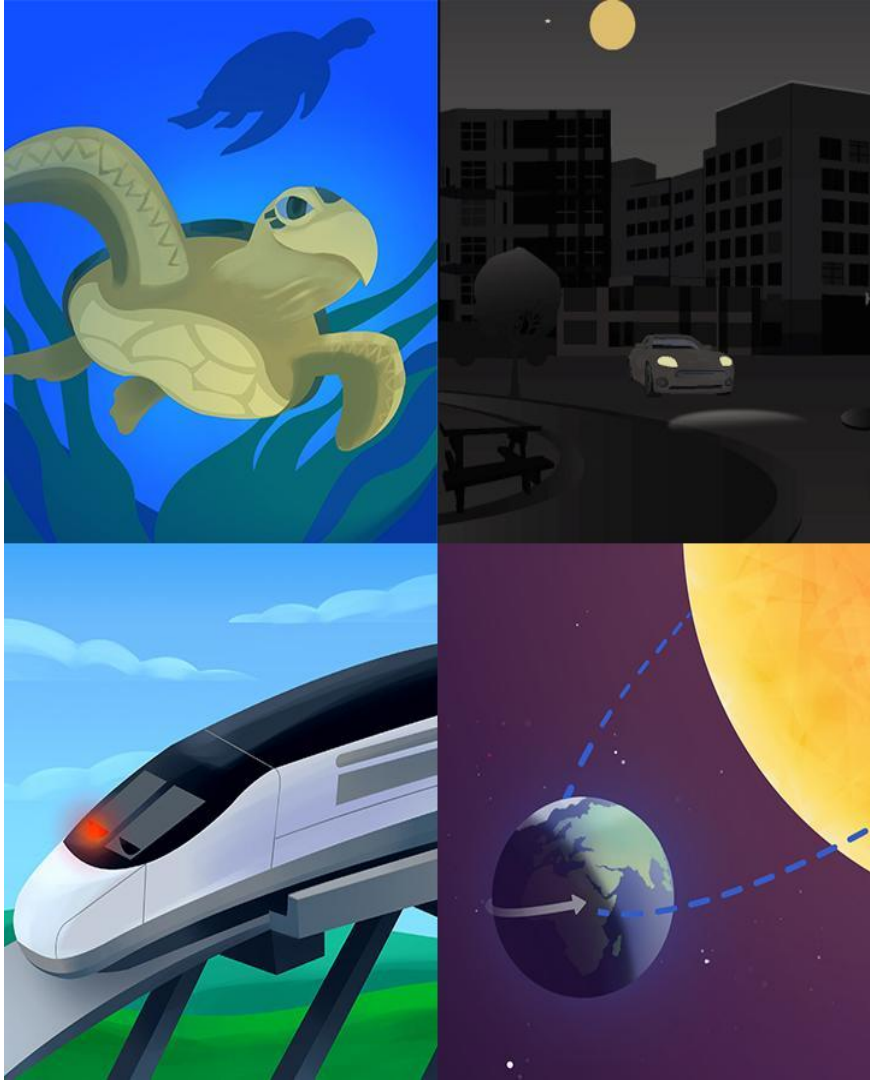
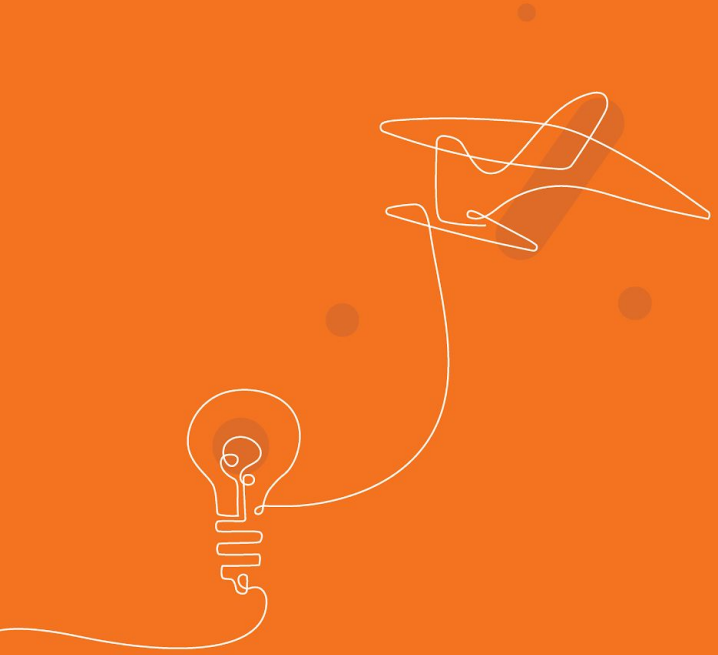
Opening reflection

Jamboard

Having taught Amplify Science in a remote setting, what **skills and/or practices** have you developed with your students that you can **leverage as your shift to hybrid learning?**





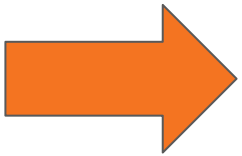
Key aspects of the Amplify Science instructional approach

Phenomenon-based instruction

A shift in science instruction

from learning about

(like a student)



to figuring out

(like a scientist)

Scientific phenomenon: An observable event in the natural world you can use science ideas to explain or predict

Coherent storylines

Chapter 1 Question

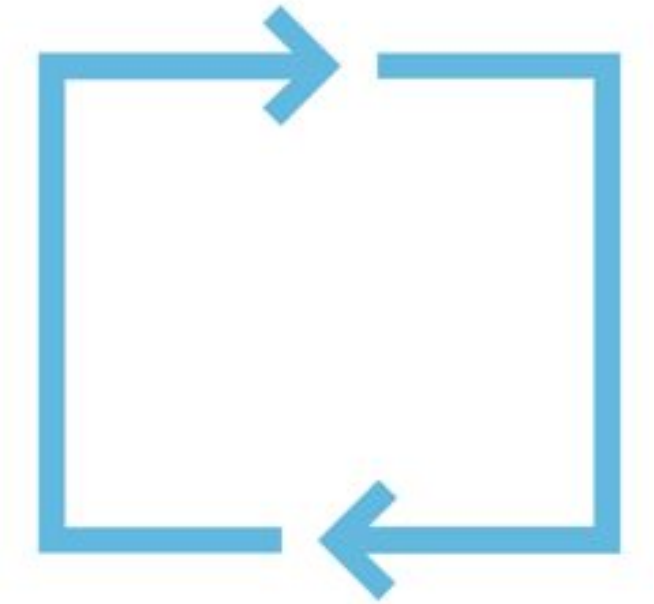
Why aren't the jaguars and sloths growing and thriving?

Chapter 2 Question

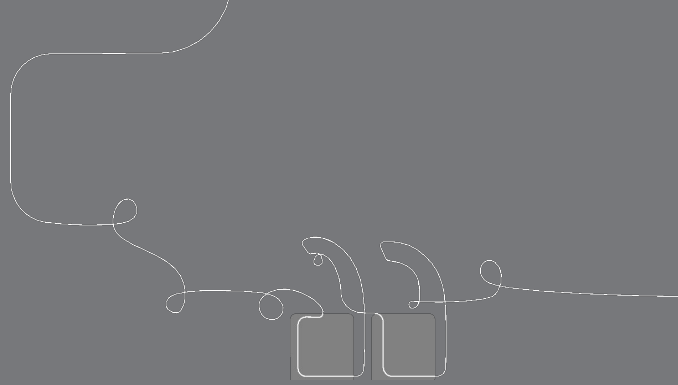
Why aren't the cecropia trees growing and thriving?

Multimodal learning

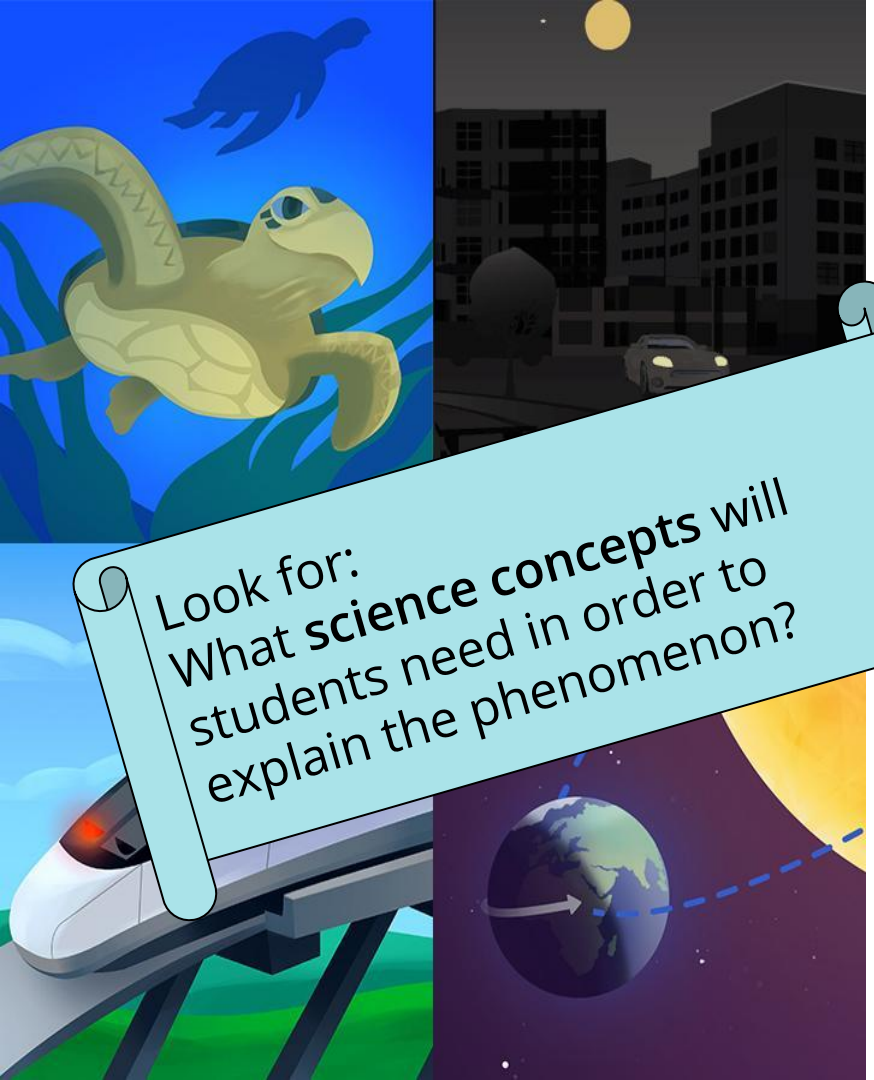
Gathering evidence over multiple lessons



Do,
Talk,
Read,
Write,
Visualize



Questions?



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  - Reflection & survey

Explaining the phenomenon: science concepts

Please respond in the chat

What **science concepts** do you think students need to understand in order to construct an explanation to explain why the organisms in a part of a Costa Rican rain forest aren't growing and thriving ?

Natural Resources Rescue
PROTECTING EARTH'S FRAGILE ECOSYSTEMS

Costa Rican Rain Forest Restoration: Project Report #1

10 years ago

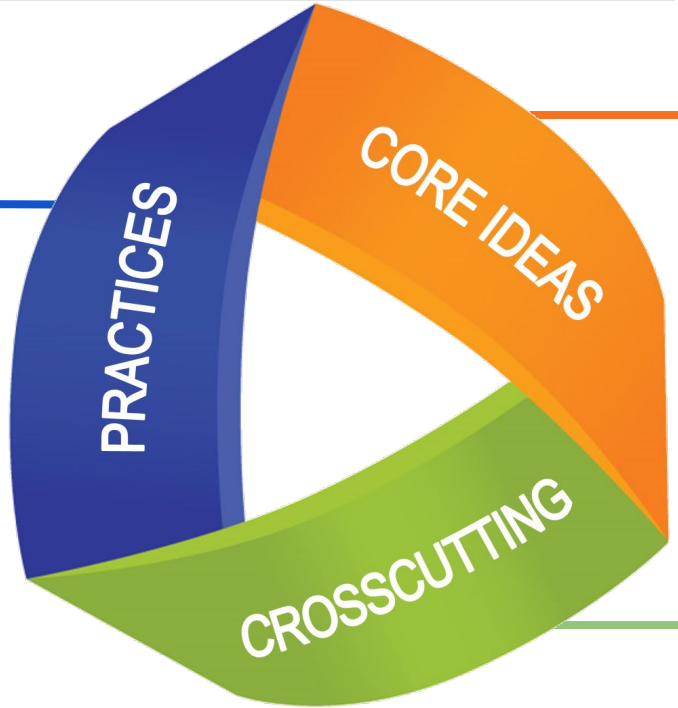
Today

Next Generation Science Standards

Designed to help students build a cohesive understanding of science

What scientists do

Science and Engineering Practices



What scientists want to know

Disciplinary Core Ideas

How scientists think

Crosscutting Concepts

Key

Practices **Disciplinary Core Ideas** **Crosscutting Concepts**

Unit Level

Students use models to investigate why a reforested area of a Costa Rican rain forest is not thriving (energy and matter, systems and system models, cause and effect). Students use evidence to construct oral and written arguments about why the living things in this rain forest ecosystem are not growing and thriving (energy and matter, systems and system models, cause and effect).

Navigation Temperature Check

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

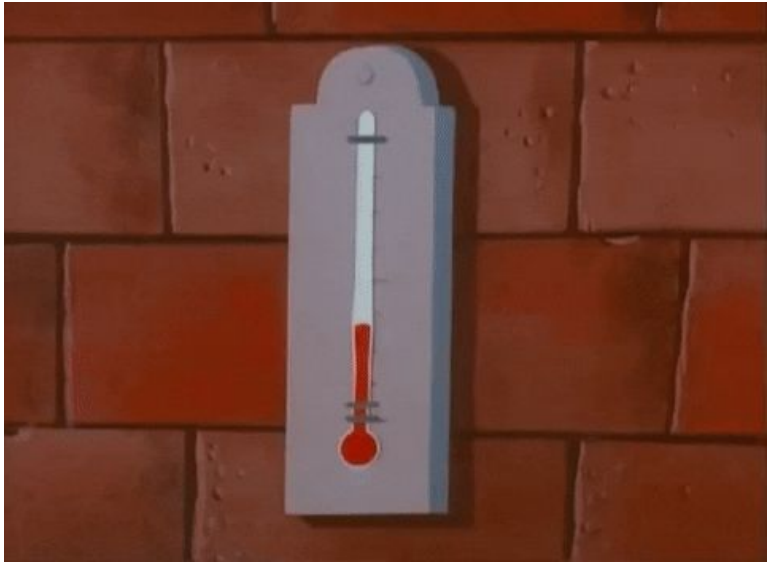
1 = Extremely Uncomfortable

2 = Uncomfortable

3 = Mild

4 = Comfortable

5 = Extremely Comfortable



Unit

Chapters

Chapter 1: Why aren't the jaguars and sloths growing and thriving?

8 Lessons

Chapter 2: Why aren't the cecropia trees growing and thriving?

7 Lessons

Chapter 3: Why aren't the cecropia trees growing and thriving in the soil?

7 Lessons

Lessons

Lesson 1.1: Pre-Unit Assessment

Lesson 1.2: Introducing Ecosystems

Lesson 1.3: Matter Makes It All Up

Lesson 1.4: Investigating How Animals Grow

Lesson 1.5: Modeling How Animals Use Food Matter

Lesson 1.6: The Role of Food in an Ecosystem

Lesson 1.7: Modeling Food Webs

Lesson 1.8: Arguments About Animals in the Ecosystem

Activities

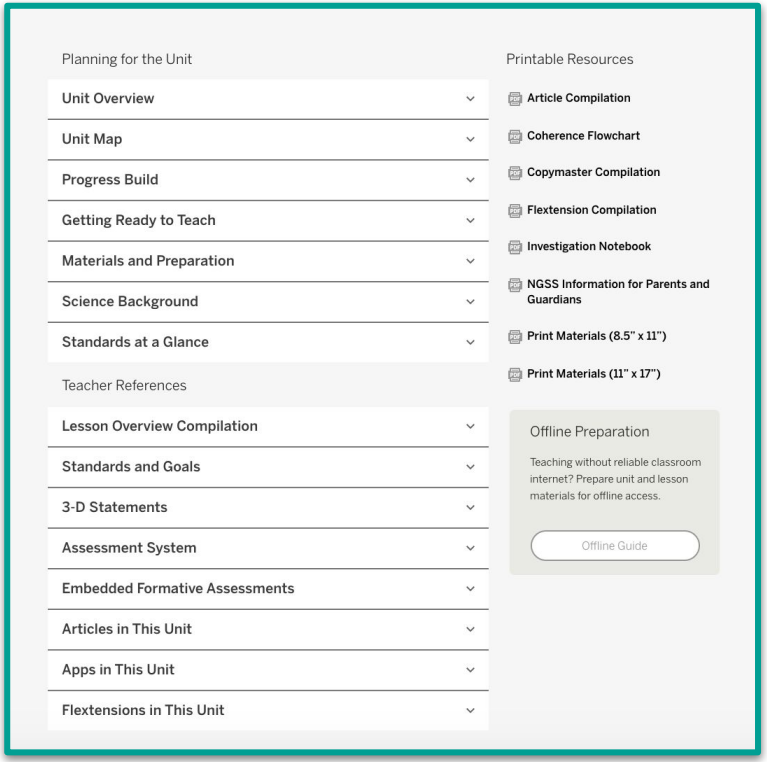
1 TEACHER-LED DISCUSSION Introducing the Unit

2 WRITING Writing Initial Arguments

3 SIM Exploring the Simulation

4 TEACHER-LED DISCUSSION Introducing the Investigation Notebook

Unit Guide Resources



Unit Guide resources

Once a unit is selected, select **JUMP DOWN TO UNIT GUIDE** in order to access all unit-level resources in an Amplify Science unit.

Planning for the unit

Unit Overview	Describes what's in each unit, the rationale, and how students learn across chapters
Unit Map	Provides an overview of what students figure out in each chapter, and how they figure it out
Progress Build	Explains the learning progression of ideas students figure out in the unit
Getting Ready to Teach	Provides tips for effectively preparing to teach and teaching the unit in your classroom
Materials and Preparation	Lists materials included in the unit's kit, items to be provided by the teacher, and briefly outlines preparation requirements for each lesson
Science Background	Adult-level primer on the science content students figure out in the unit
Standards at a Glance	Lists Next Generation Science Standards (NGSS) (Performance Expectations, Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts), Common Core State Standards for English Language Arts, and Common Core State Standards for Mathematics

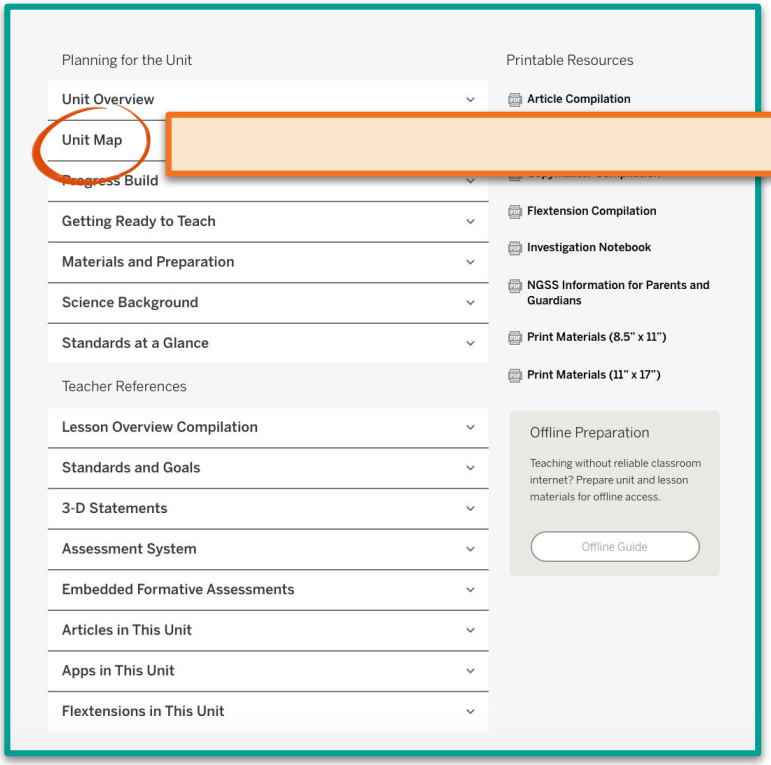
Teacher references

Lesson Overview Compilation	Lesson Overview of each lesson in the unit, including lesson summary, activity purposes, and timing
Standards and Goals	Lists NGSS (Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts) and CCSS (English Language Arts and Mathematics) in the unit, explains how the standards are reached
3-D Statements	Describes 3-D learning across the unit, chapters, and in individual lessons
Assessment System	Describes components of the Amplify Science Assessment System, identifies each 3-D assessment opportunity in the unit
Embedded Formative Assessments	Includes full text of formative assessments in the unit
Books in This Unit	Summarizes each unit text and explains how the text supports instruction
Apps in This Unit	Outlines functionality of digital tools and how students use them (in grades 2-5)

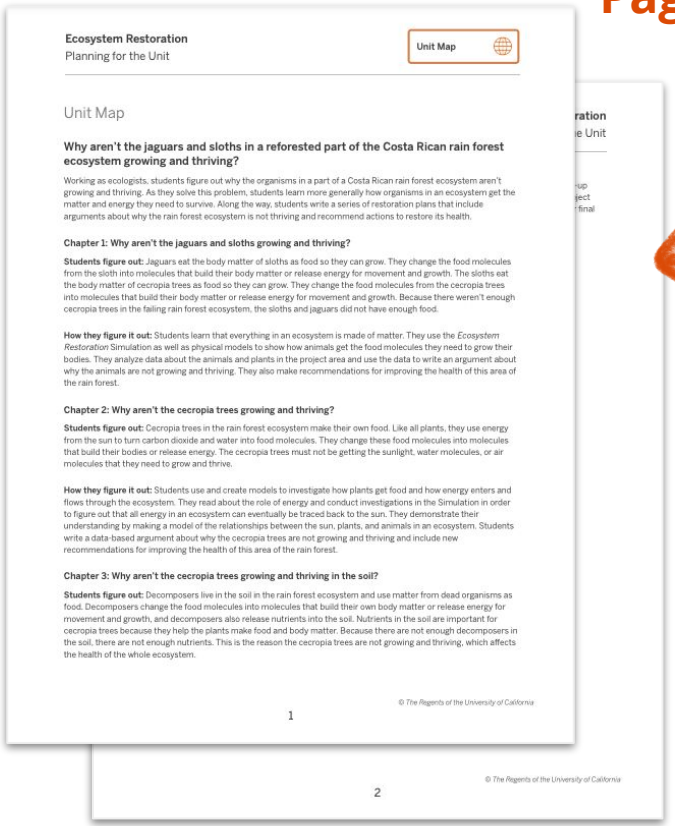
Printable resources

Copymaster Compilation	Compilation of all copymasters for the teacher to print and copy throughout the unit
Investigation Notebook	Digital version of the Investigation Notebook, for copying and projecting
Multi-Language Glossary	Glossary of unit vocabulary in multiple languages
Print Materials (8.5" x 11")	Digital compilation of printed cards (i.e. vocabulary cards, student card sets) provided in the kit
Print Materials (11" x 17")	Digital compilation of printed Unit Question, Chapter Questions, and Key Concepts provided in the kit

Unit Map



Pages 2-3



Ecosystem Restoration
Planning for the Unit

Unit Map

Unit Map

Why aren't the jaguars and sloths in a reforested part of the Costa Rican rain forest ecosystem growing and thriving?

Working as ecologists, students figure out why the organisms in a part of a Costa Rican rain forest ecosystem aren't growing and thriving. As they solve this problem, students learn more generally how organisms in an ecosystem get the matter and energy they need to survive. Along the way, students write a series of restoration plans that include arguments about why the rain forest ecosystem is not thriving and recommend actions to restore its health.

Chapter 1: Why aren't the jaguars and sloths growing and thriving?

Students figure out: Jaguars eat the body matter of sloths as food so they can grow. They change the food molecules from the sloth into molecules that build their body matter or release energy for movement and growth. The sloths eat the body matter of cecropia trees as food so they can grow. They change the food molecules from the cecropia trees into molecules that build their body matter or release energy for movement and growth. Because there weren't enough cecropia trees in the failing rain forest ecosystem, the sloths and jaguars did not have enough food.

How they figure it out: Students learn that everything in an ecosystem is made of matter. They use the *Ecosystem Restoration* Simulation as well as physical models to show how animals get the food molecules they need to grow their bodies. They analyze data about the animals and plants in the project area and use the data to write an argument about why the animals are not growing and thriving. They also make recommendations for improving the health of this area of the rain forest.

Chapter 2: Why aren't the cecropia trees growing and thriving?

Students figure out: Cecropia trees in the rain forest ecosystem make their own food. Like all plants, they use energy from the sun to turn carbon dioxide and water into food molecules. They change these food molecules into molecules that build their bodies or release energy. The cecropia trees must not be getting the sunlight, water molecules, or air molecules that they need to grow and thrive.

How they figure it out: Students use and create models to investigate how plants get food and how energy enters and flows through the ecosystem. They read about the role of energy and conduct investigations in the Simulation in order to figure out that all energy in an ecosystem can eventually be traced back to the sun. They demonstrate their understanding by making a model of the relationships between the sun, plants, and animals in an ecosystem. Students write a data-based argument about why the cecropia trees are not growing and thriving and include new recommendations for improving the health of this area of the rain forest.

Chapter 3: Why aren't the cecropia trees growing and thriving in the soil?

Students figure out: Decomposers live in the soil in the rain forest ecosystem and use matter from dead organisms as food. Decomposers change the food molecules into molecules that build their own body matter or release energy for movement and growth, and decomposers also release nutrients into the soil. Nutrients in the soil are important for cecropia trees because they help the plants make food and body matter. Because there are not enough decomposers in the soil, there are not enough nutrients. This is the reason the cecropia trees are not growing and thriving, which affects the health of the whole ecosystem.

Applying conceptual understanding to explain the phenomenon

Use ideas from the Progress Build and Unit Map to make notes about the conceptual and explanatory builds in your unit.

	Science concepts	Explanation of the phenomenon
	Students figure out...	*So they can explain...*
Chapter 1	Everything is made of matter. Matter is made of molecules. Animals grow by changing food molecules into body molecules that can build their bodies. Animals use some food molecules to release energy for movement and growth. Food molecules in an ecosystem can always be tracked back to pants.	Jaguars eat the body matter of sloths and sloths eat the body matter of cecropia trees as food. They change the food molecules into molecules that build their body matter or release energy for movement and growth. Since there weren't enough cecropia trees in the failing rain forest ecosystem, neither animal had enough food.
Chapter 2		

Chapter 1: Why aren't the jaguars and sloths growing and thriving?

Students figure out: Jaguars eat the body matter of sloths as food so they can grow. They change the food molecules from the sloth into molecules that build their body matter or release energy for movement and growth. The sloths eat the body matter of cecropia trees as food so they can grow. They change the food molecules from the cecropia trees into molecules that build their body matter or release energy for movement and growth. Because there weren't enough cecropia trees in the failing rain forest ecosystem, the sloths and jaguars did not have enough food.

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Chapter 2	Plants use water molecules, carbon dioxide molecules from the air, and energy from the sun to make food. Energy in an ecosystem can always be traced back to the sun.. Scientists convince others that their claims are correct by using data and ideas as evidence.	Cecropia trees in the rain forest ecosystem make their own food. Like all plants, they use energy from the sun to turn carbon dioxide and water into food molecules. They change these food molecules into molecules that build their bodies or release energy. The cecropia trees must not be getting what they need to grow and thrive.
Chapter 3		

Chapter 2: Why aren't the cecropia trees growing and thriving?

Students figure out: Cecropia trees in the rain forest ecosystem make their own food. Like all plants, they use energy from the sun to turn carbon dioxide and water into food molecules. They change these food molecules into molecules that build their bodies or release energy. The cecropia trees must not be getting the sunlight, water molecules, or air molecules that they need to grow and thrive.

Chapter 3: Why aren't the cecropia trees growing and thriving in the soil?

Students figure out: Decomposers live in the soil in the rain forest ecosystem and use matter from dead organisms as food. Decomposers change the food molecules into molecules that build their own body matter or release energy for movement and growth, and decomposers also release nutrients into the soil. Nutrients in the soil are important for cecropia trees because they help the plants make food and body matter. Because there are not enough decomposers in the soil, there are not enough nutrients. This is the reason the cecropia trees are not growing and thriving, which affects the health of the whole ecosystem.

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Chapter 3	Decomposers release nutrients from dead plants and animals into the soil. Animals, plants, and decomposers grow by changing food molecules into body molecules that can build their bodies. Animals, plants, and decomposers use some food molecules to release energy for movement and growth. Plants need nutrients to help make food molecules for energy and body matter.	Decomposers live in the soil in the rain forest ecosystem and use matter from dead organisms as food. Decomposers change the food molecules into molecules that build their own body matter or release energy for movement and growth. Decomposers also release nutrients into the soil, which are important for cecropia trees because they help them make food and body matter. Since there are not enough decomposers in the soil, there are not enough nutrients for the trees.
Chapter 4		

Applying conceptual understanding to explain the phenomenon

Use ideas from the Progress Build and Unit Map to make notes about the conceptual and explanatory builds in your unit.

	Science concepts	Explanation of the phenomenon
	Students figure out...	*So they can explain...*
Chapter 1	Everything is made of matter. Matter is made of molecules. Animals grow by changing food molecules into body molecules that can build their bodies. Animals use some food molecules to release energy for movement and growth. Food molecules in an ecosystem can always be tracked back to pants.	Jaguars eat the body matter of sloths and sloths eat the body matter of cecropia trees as food. They change the food molecules into molecules that build their body matter or release energy for movement and growth. Since there weren't enough cecropia trees in the failing rain forest ecosystem, neither animal had enough food.
Chapter 2	Plants use water molecules, carbon dioxide molecules from the air, and energy from the sun to make food. Energy in an ecosystem can always be traced back to the sun.. Scientists convince others that their claims are correct by using data and ideas as evidence.	Cecropia trees in the rain forest ecosystem make their own food. Like all plants, they use energy from the sun to turn carbon dioxide and water into food molecules. They change these food molecules into molecules that build their bodies or release energy. The cecropia trees must not be getting what they need to grow and thrive.
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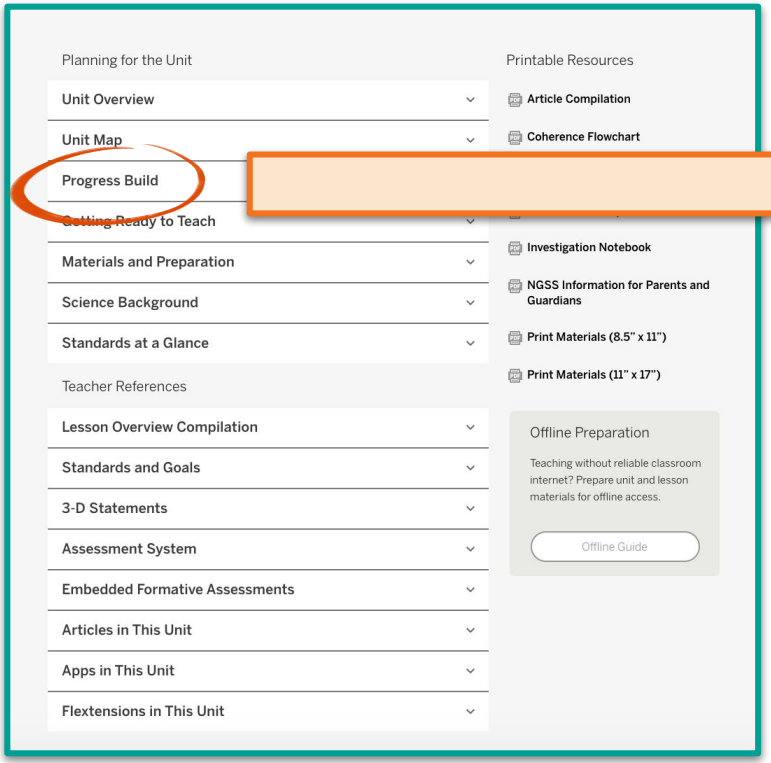
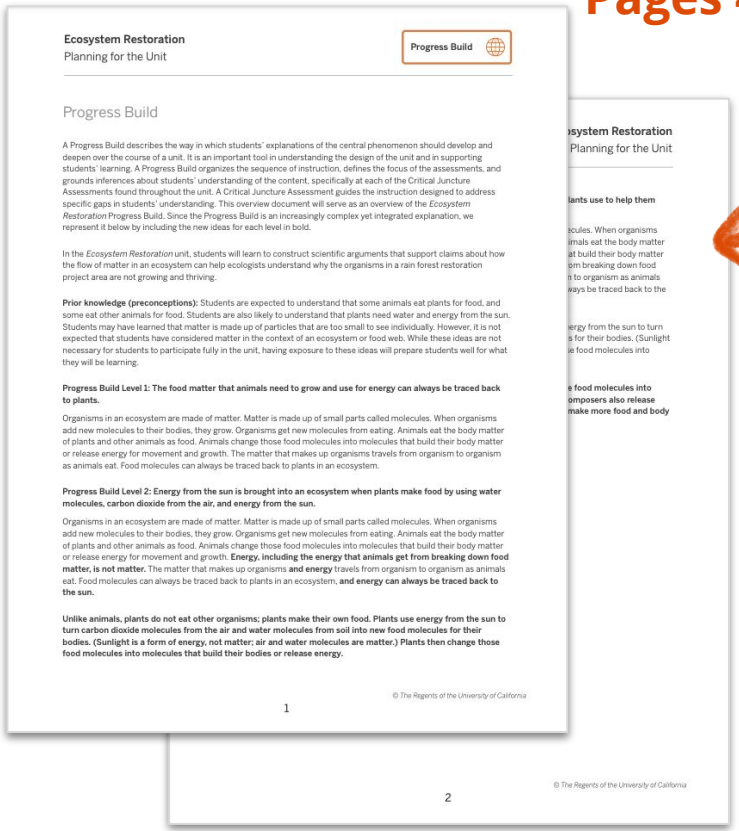
Chapter 4		

Progress Build

Pages 4-5





Ecosystem Restoration
Planning for the Unit

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 overview document will serve as an overview of the *Ecosystem Restoration* 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 *Ecosystem Restoration* unit, students will learn to construct scientific arguments that support claims about how the flow of matter in an ecosystem can help ecologists understand why the organisms in a rain forest restoration project area are not growing and thriving.

Prior knowledge (preconceptions): Students are expected to understand that some animals eat plants for food, and some eat other animals for food. Students are also likely to understand that plants need water and energy from the sun. Students may have learned that matter is made up of particles that are too small to see individually. However, it is not expected that students have considered matter in the context of an ecosystem or food web. While these ideas are not necessary for students to participate fully in the unit, having exposure to these ideas will prepare students well for what they will be learning.

Progress Build Level 1: The food matter that animals need to grow and use for energy can always be traced back to plants.

Organisms in an ecosystem are made of matter. Matter is made up of small parts called molecules. When organisms add new molecules to their bodies, they grow. Organisms get new molecules from eating. Animals eat the body matter of plants and other animals as food. Animals change those food molecules into molecules that build their body matter or release energy for movement and growth. The matter that makes up organisms travels from organism to organism as animals eat. Food molecules can always be traced back to plants in an ecosystem.

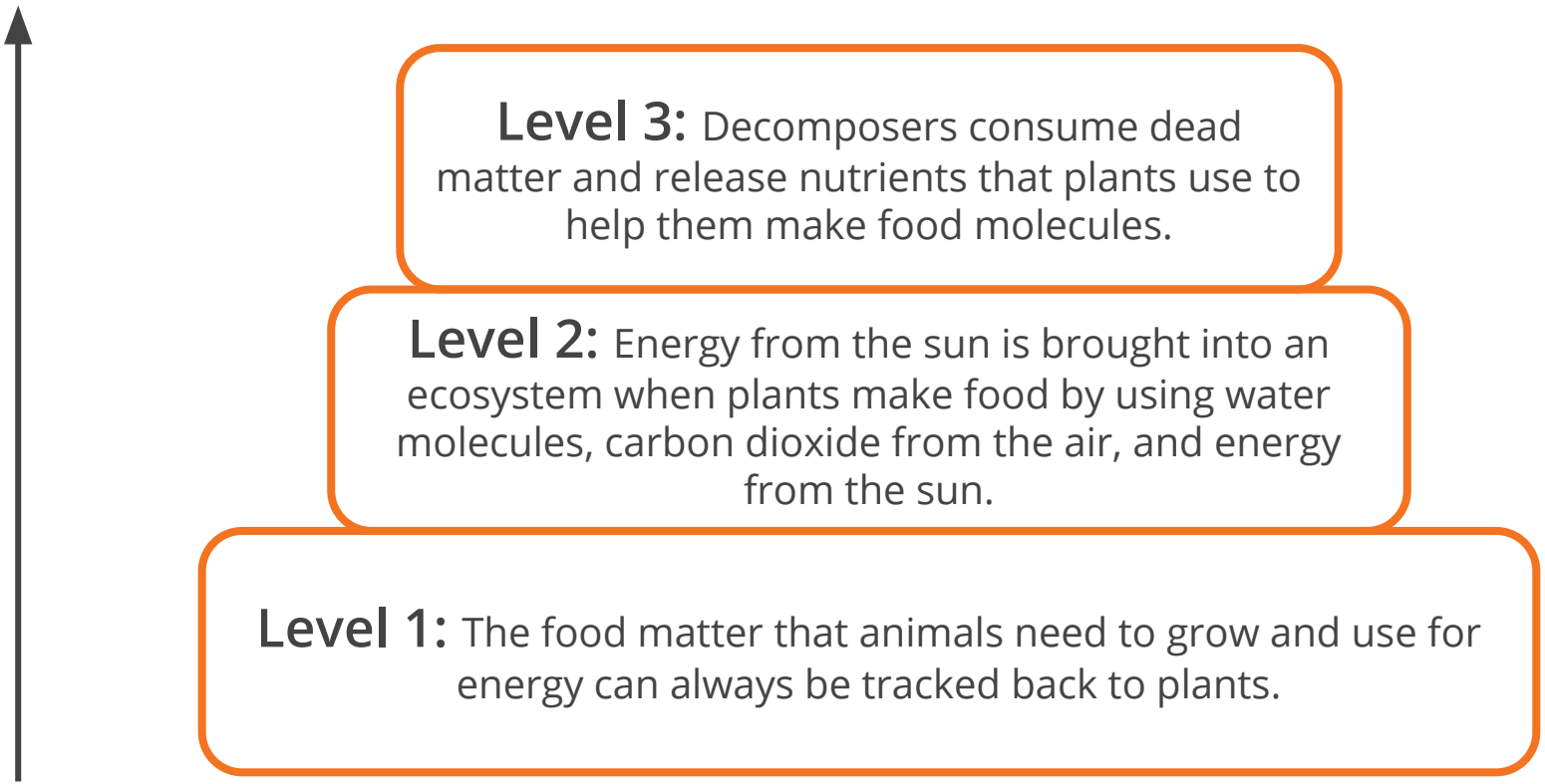
Progress Build Level 2: Energy from the sun is brought into an ecosystem when plants make food by using water molecules, carbon dioxide from the air, and energy from the sun.

Organisms in an ecosystem are made of matter. Matter is made up of small parts called molecules. When organisms add new molecules to their bodies, they grow. Organisms get new molecules from eating. Animals eat the body matter of plants and other animals as food. Animals change those food molecules into molecules that build their body matter or release energy for movement and growth. **Energy, including the energy that animals get from breaking down food matter, is not matter.** The matter that makes up organisms **and energy** travels from organism to organism as animals eat. Food molecules can always be traced back to plants in an ecosystem, **and energy can always be traced back to the sun.**

Unlike animals, plants do not eat other organisms; plants make their own food. Plants use energy from the sun to turn carbon dioxide molecules from the air and water molecules from soil into new food molecules for their bodies. (Sunlight is a form of energy, not matter; air and water molecules are matter.) Plants then change those food molecules into molecules that build their bodies or release energy.

Amplify.

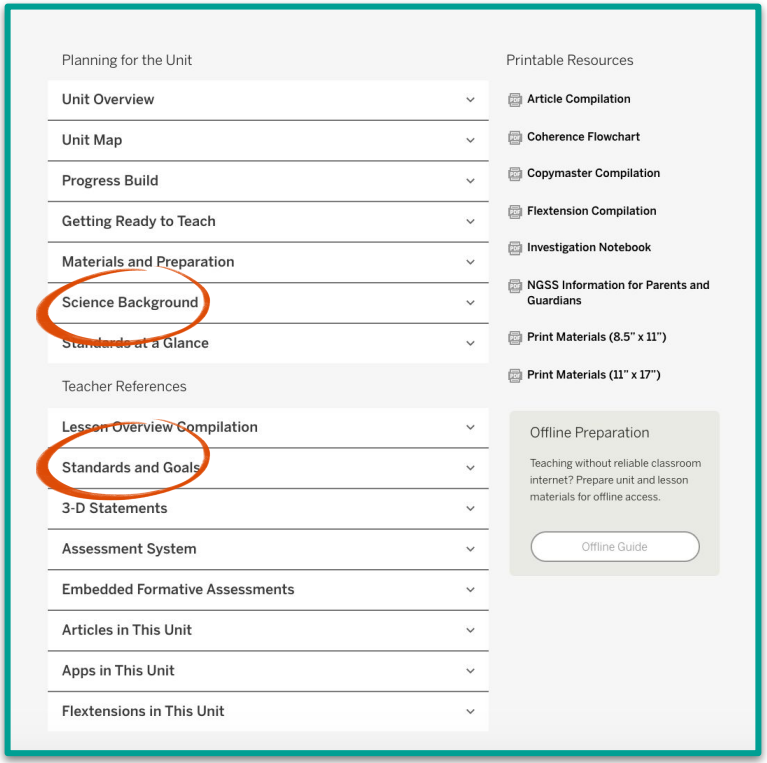
Progress Build



Additional science concept resources for teachers

Science Background:
Adult-level summary of unit science concepts

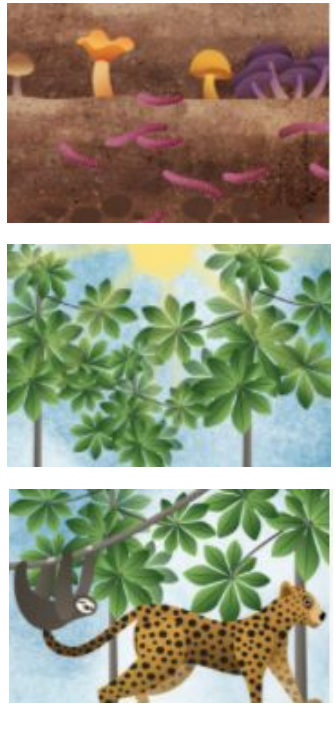
Standards and Goals:
Information about NGSS standards and how they're achieved in the unit



Key Takeaway

Conceptual build and explanatory build

Throughout the unit, students' conceptual understanding grows deeper, allowing their explanations of the phenomenon to become more complete and complex.



Level 3: Decomposers consume dead matter and release nutrients that plants use to help them make food molecules.

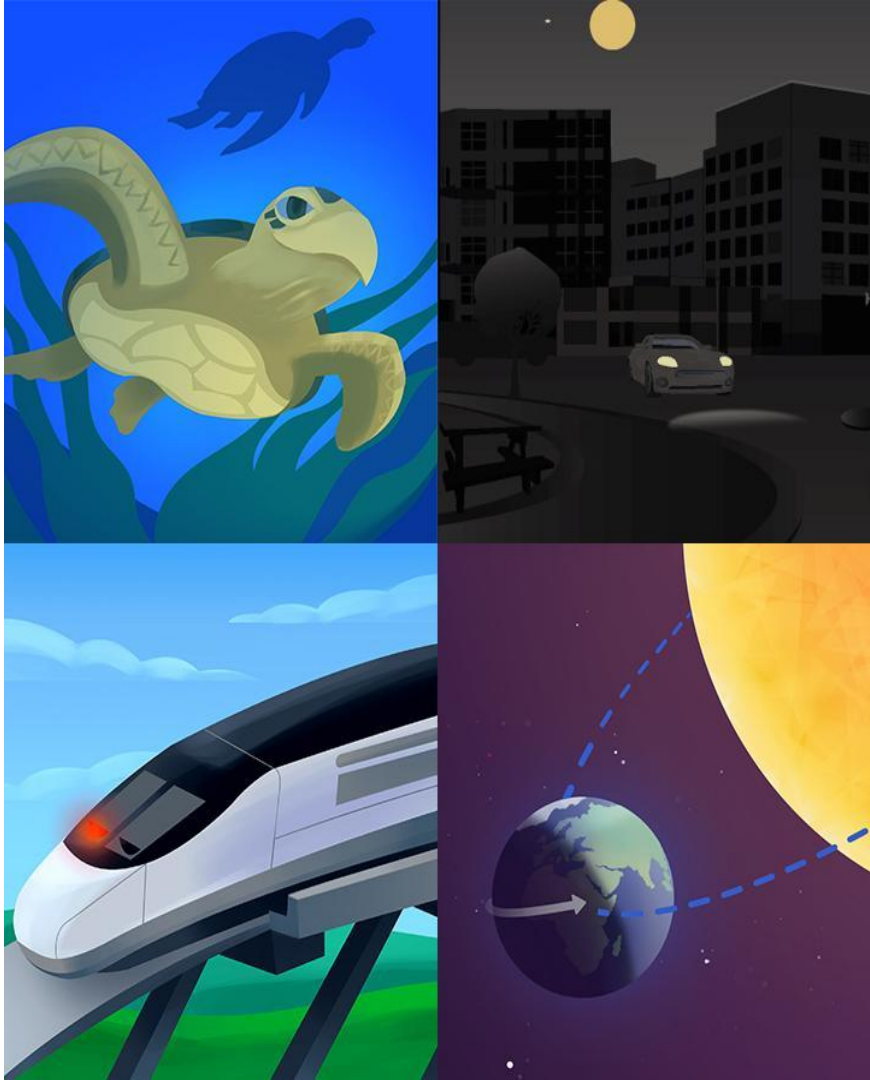
Level 2: Energy from the sun is brought into an ecosystem when plants make food by using water molecules, carbon dioxide from the air, and energy from the sun.

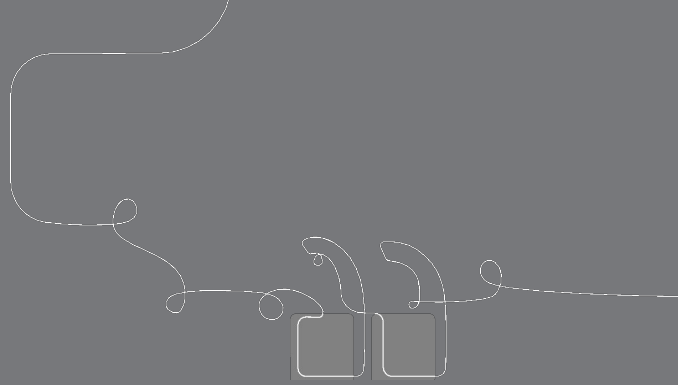
Level 1: The food matter that animals need to grow and use for energy can always be tracked back to plants.

Reflection

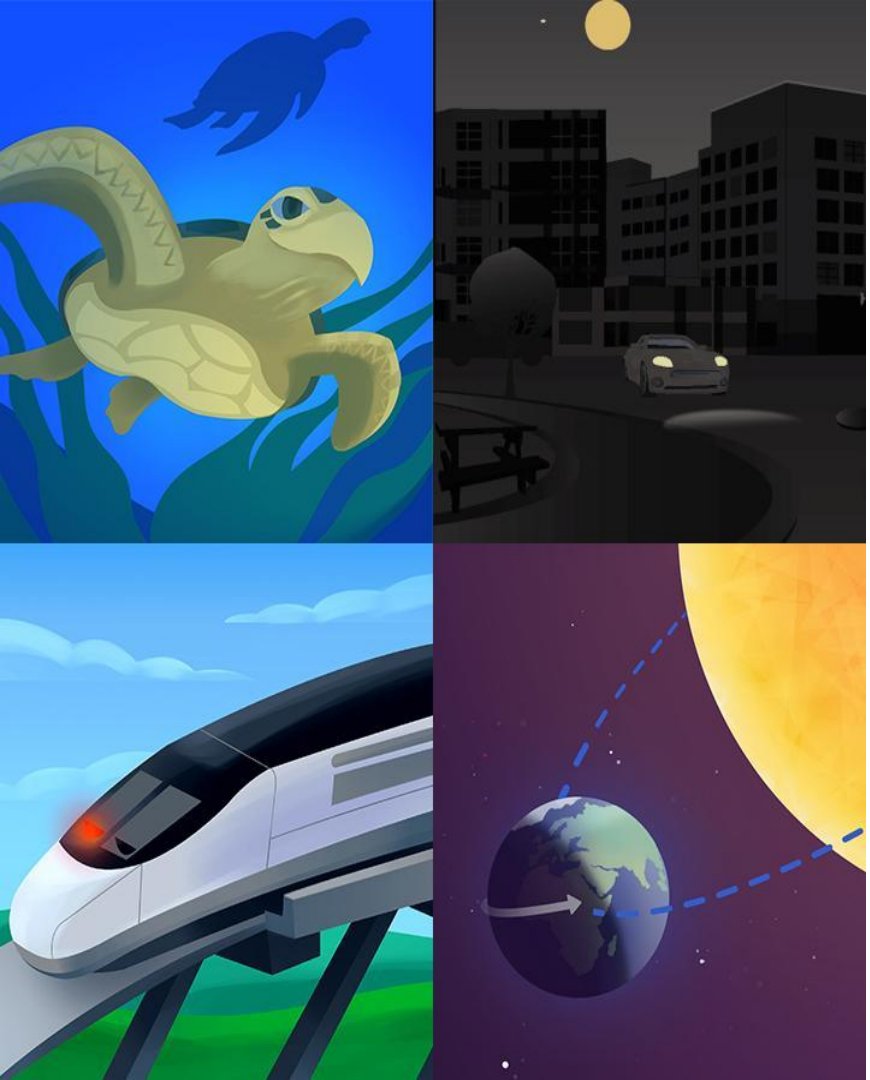
Jamboard

How will understanding the unit's **storyline** help you during **remote instruction**?





Questions?

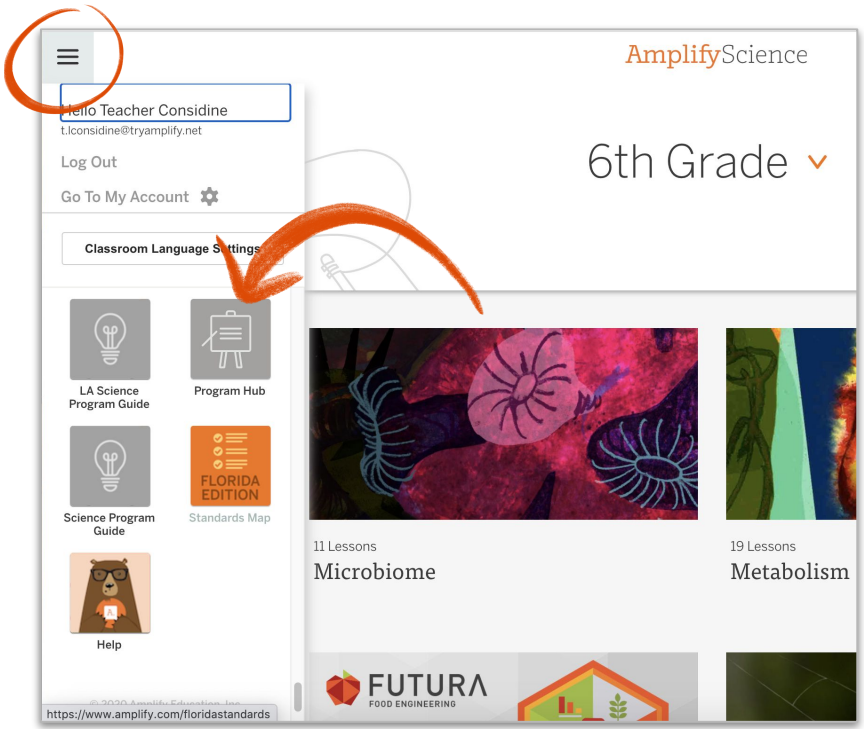


Plan for the day

- **Framing the day**
  - Remote learning reflection
  - Revisiting the Amplify Approach
- **Phenomenon at the unit level**
  - Navigation refresher (standard curriculum)
  - Storyline and science concepts
- **Planning to teach**
  - Navigation refresher (@Home resources)
  - Lesson walkthrough
  - Collaborative planning time
- **Closing**
  - Reflection & survey

Accessing the Program Hub

Page 8



Amplify Science@Home resources reference

Use this guide to keep track of the different resources available for remote and hybrid learning.

Instructional materials: Click Remote and hybrid learning resources, then select your grade level from the dropdown menu. Select your unit.	
@Home Unit resources: These will appear when you select your unit.	
Teacher Overview	General information for teaching with @Home Units, planning information, chapter and lesson outlines
Lesson Index	Lists the original Amplify Science lessons associated with each @Home lesson, and the Investigation Notebook pages, copymasters, and print materials associated with the @Home Unit Student Sheets
Family Overview	Information to send home to families to help them support students with remote learning
Student lesson materials for @Home Units	Printable or digital lessons condensed to be about 30 minutes long. You can access compilations of all student materials for your unit, or select from individual lessons.
@Home Video resources: After selecting your grade level and unit, select the @Home Videos tab below your unit title.	
@Home Video links	Links to video lessons that include all activities from the original units. Lesson playlists are on YouTube, and they autoplay in a playlist form.
Additional remote and hybrid instructional materials: These can be accessed from the tabs below your unit title.	
Hands-on investigations support	Videos of every unit's hands-on activities (note, these videos also appear in the student lesson materials).
Read-aloud videos	Link to a YouTube playlist of read-aloud videos of all books in your unit.
Orientation and Tutorials: Click Remote and hybrid learning resources, then select your grade from the dropdown menu. Click Orientation and Tutorials. You'll not only find videos to help you use the resources, but also videos you can share with students and caregivers.	

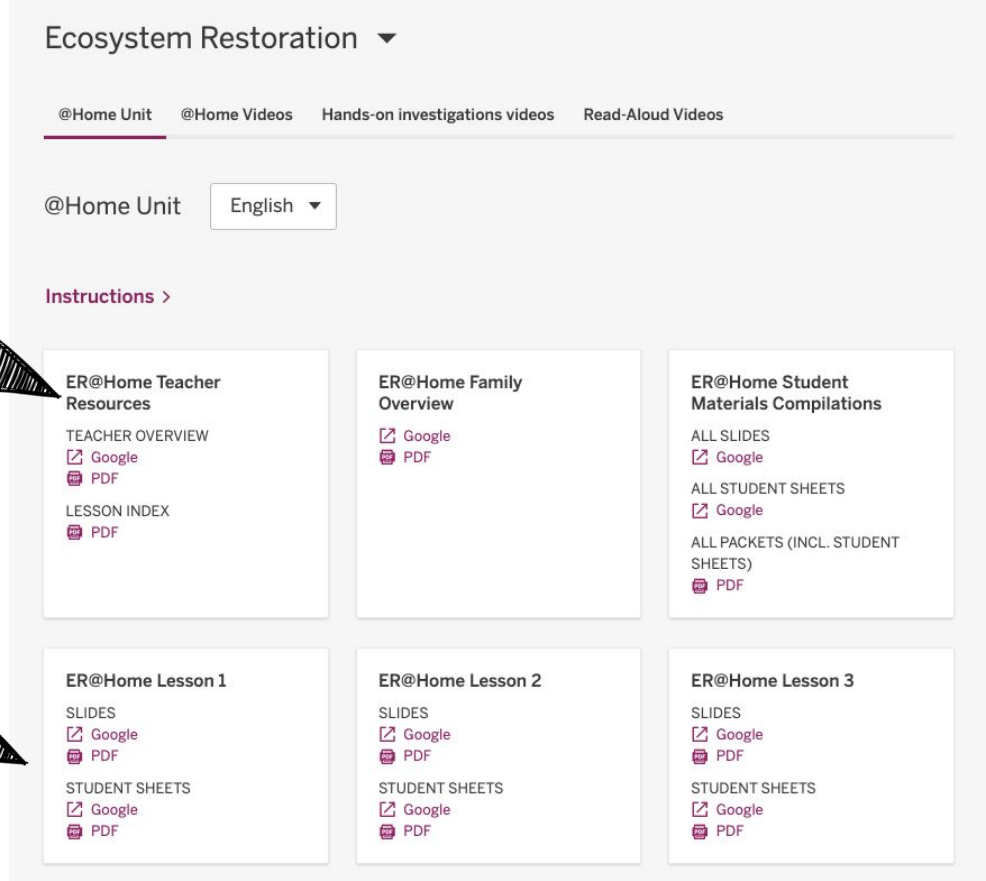
Program Hub work time

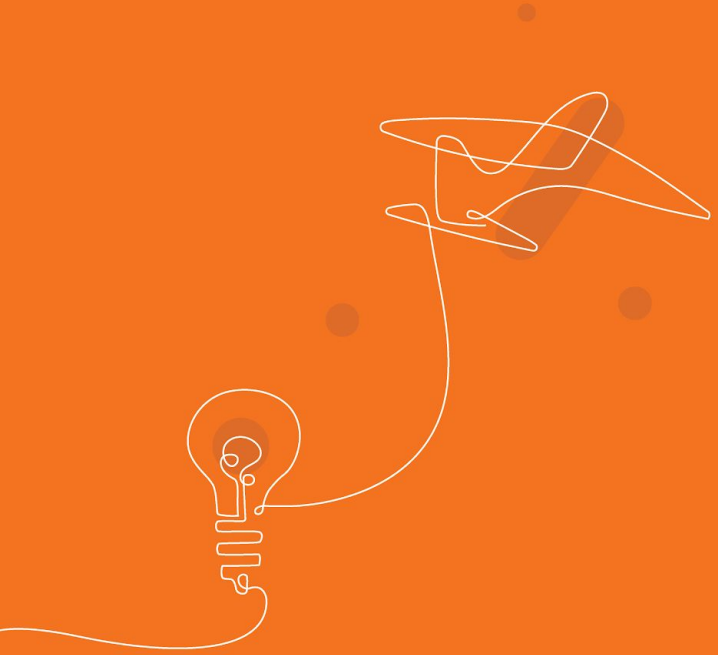
5 minutes

Navigate to the Program Hub. Open:

- Teacher Overview
- Lesson Index
- @Home Lesson 1
  - Slides- Google
  - Student Sheets- Google

If you have extra time, explore the other tabs.





Lesson Walkthrough

Adapted from: Amplify Science *Ecosystem Restoration* Lesson 1.1

Key activities

- **Talk:** Students discuss their initial ideas about what living things can be found in a variety of ecosystems and what those living things might need to grow.
- **Introducing the Unit:** Students are introduced to the Unit Question and to their role as ecologists.
- **Write:** Students record their initial ideas about key unit content by completing a pre-unit writing activity about a problem in a forest ecosystem.

Ideas for synchronous or in-person instruction

While meeting, display the photographs of various ecosystems and invite students to share their initial ideas about what living things can be found in those ecosystems and what those living things might need to grow. Then, introduce the Unit Question and students' role as ecologists.

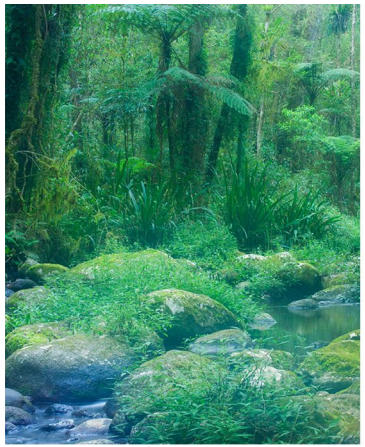
@Home Lesson 1

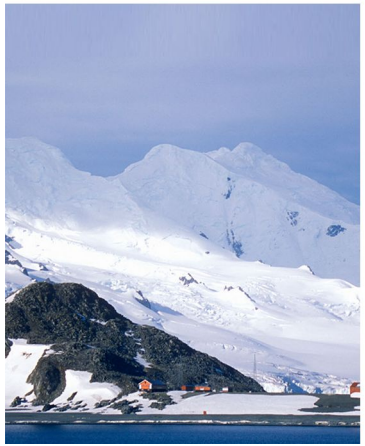
Ecosystem Restoration

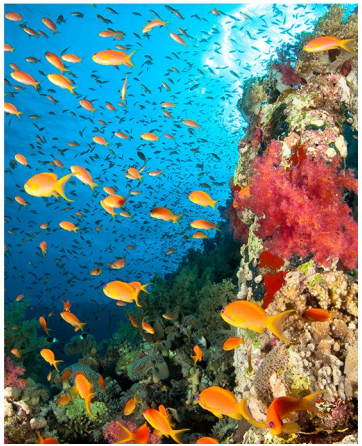
AmplifyScience

We are beginning a new science unit about **ecosystems**. Today, we will begin to explore ecosystems in order to understand what they are.

To begin, we are going to look at some photographs of different ecosystems.







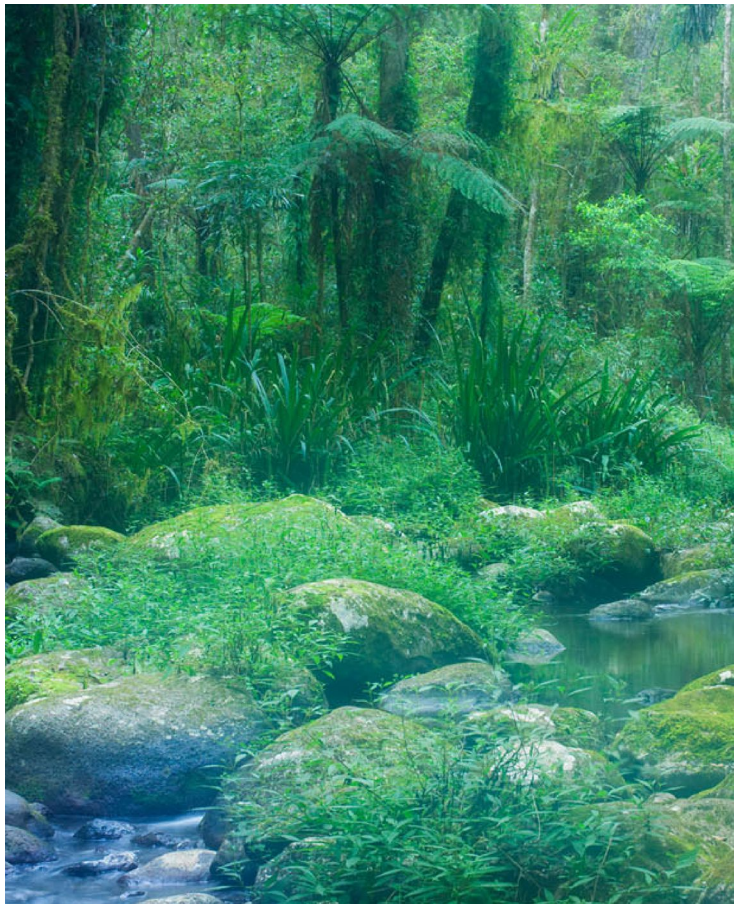
These photographs show examples of ecosystems.

What do you know about **ecosystems**?

We can think of ecosystems as places where **animals and plants live together** in their **environment**.

There are many different kinds of ecosystems, and different types of living things live in different ecosystems.

Now, you will **talk to a partner** about some examples of different ecosystems.
Your partner can be a family member, a friend or classmate on the phone, a stuffed animal, or even a pet!



This is a rain forest in Border Ranges National Park in Australia.

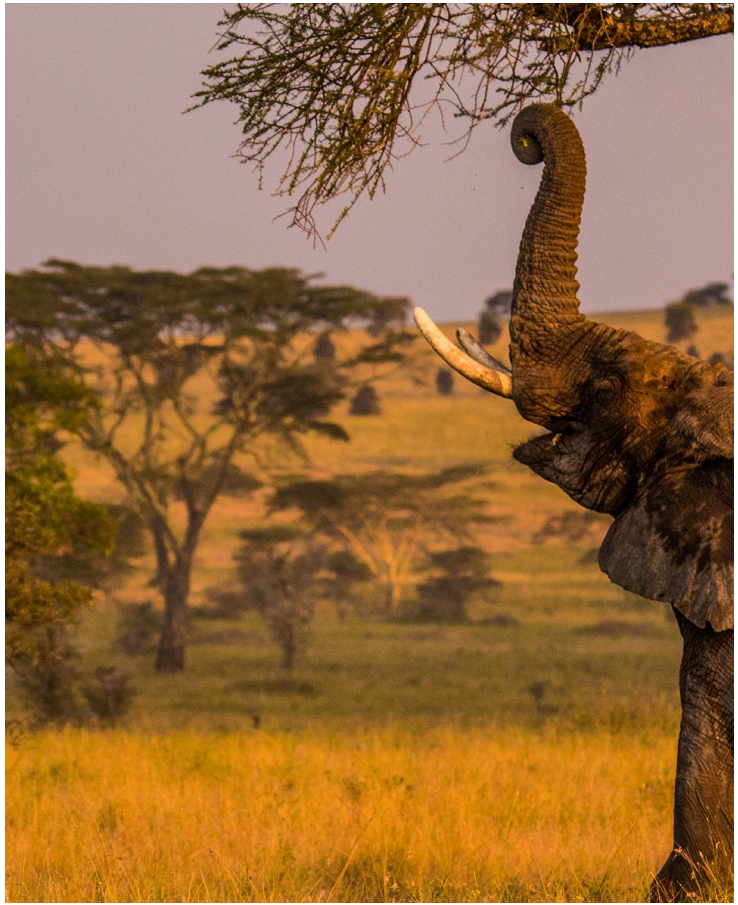
What living things do you think we would find in a **rain forest ecosystem**? What might those living things need to grow?

This is a desert in Signal Peak, Arizona, United States.

What living things do you think we would find in a **desert ecosystem**? What might those living things need to grow?

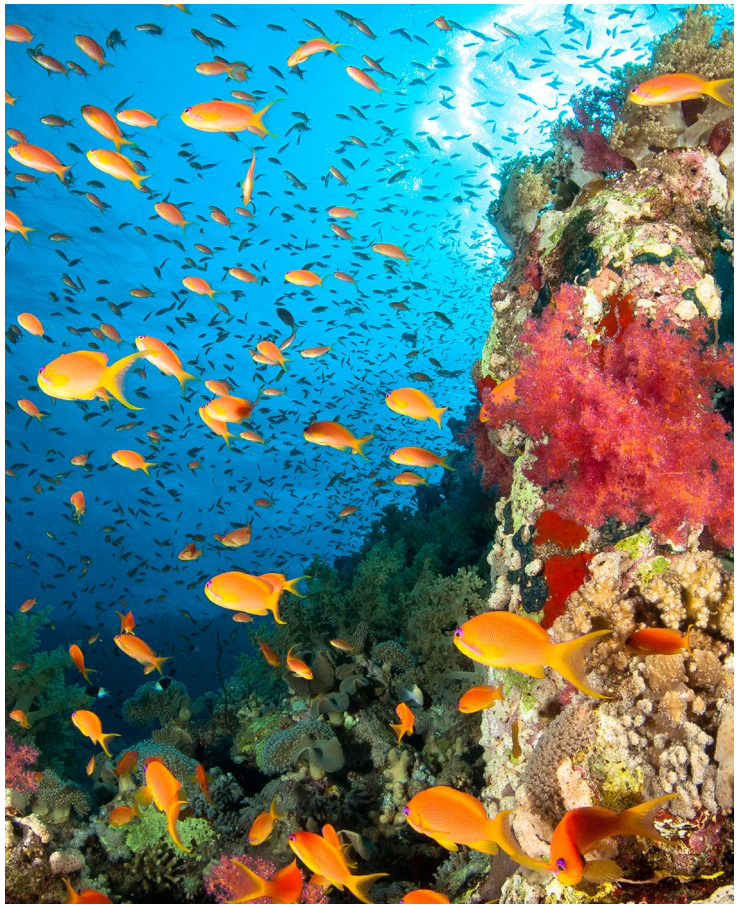
This is a tundra near Bransfield Strait, Antarctica.

What living things do you think we would find in a **tundra ecosystem**? What might those living things need to grow?



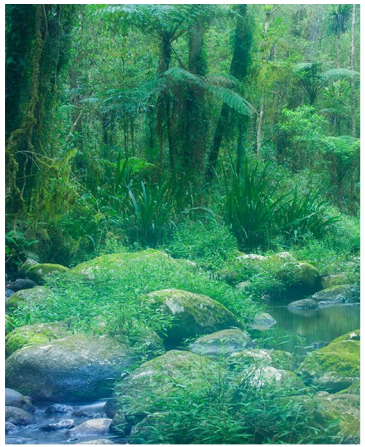
This is the savanna in Serengeti National Park, Tanzania, Africa.

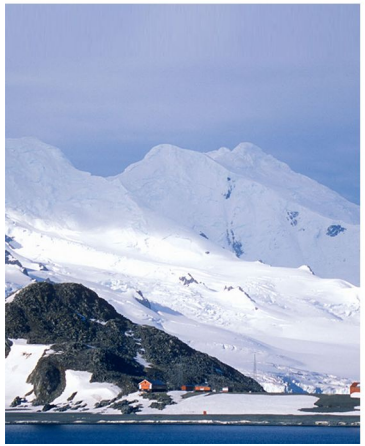
What living things do you think we would find in a **savanna ecosystem**? What might those living things need to grow?

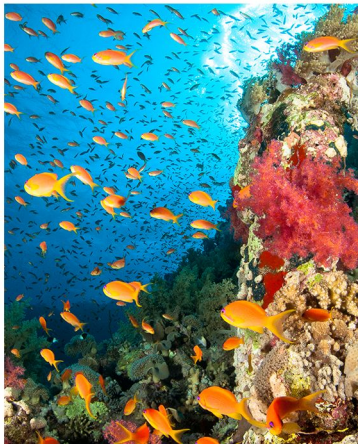


This is a coral reef in the Red Sea near Egypt.

What living things do you think we would find in a **coral reef ecosystem**? What might those living things need to grow?







Now we have talked about several different kinds of ecosystems.

Do you have any new ideas about what an **ecosystem** is?

This is the end of the partner work in this lesson.

Key activities

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Ideas for synchronous or in-person instruction

While meeting, display the photographs of various ecosystems and invite students to share their initial ideas about what living things can be found in those ecosystems and what those living things might need to grow. Then, introduce the Unit Question and students' role as ecologists.

In this unit, we will work to answer this question:

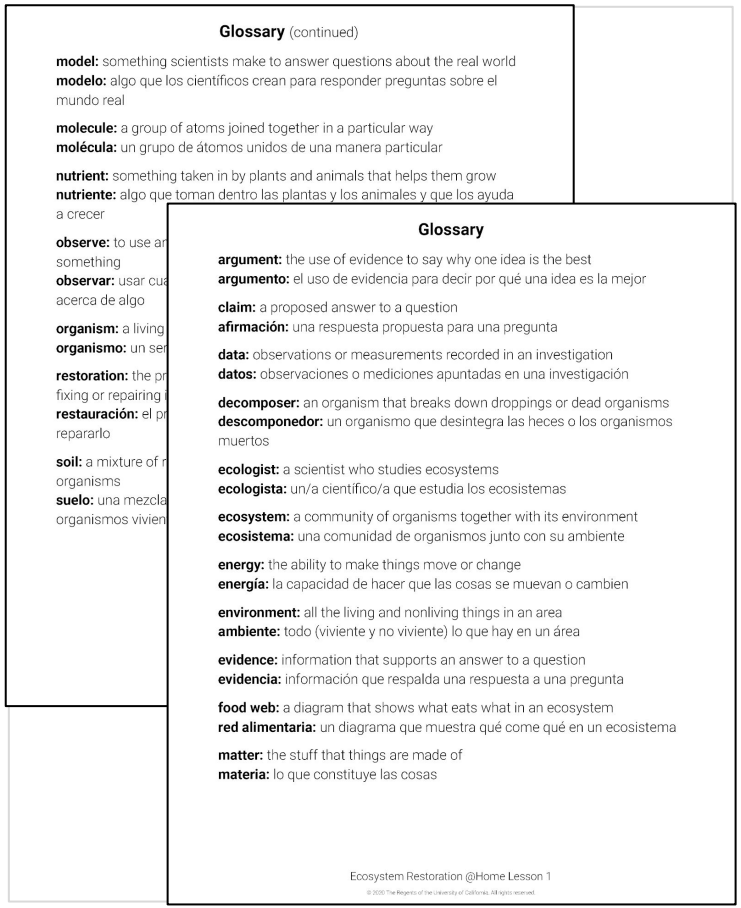
Unit Question

How do organisms in an ecosystem get the matter and energy they need to grow and thrive?

As we work to answer the Unit Question, we will take on the role of **ecologists**.

ecologist

a scientist who studies ecosystems



Glossary (continued)

model: something scientists make to answer questions about the real world
modelo: algo que los científicos crean para responder preguntas sobre el mundo real

molecule: a group of atoms joined together in a particular way
molécula: un grupo de átomos unidos de una manera particular

nutrient: something taken in by plants and animals that helps them grow
nutriente: algo que toman dentro las plantas y los animales y que los ayuda a crecer

observe: to use ar
something
observar: usar cua
acerca de algo

organism: a living
organismo: un ser

restoration: the pr
fixing or repairing
restauración: el pr
repararlo

soil: a mixture of r
organisms
suelo: una mezcla
organismos vivien

Glossary

argument: the use of evidence to say why one idea is the best
argumento: el uso de evidencia para decir por qué una idea es la mejor

claim: a proposed answer to a question
afirmación: una respuesta propuesta para una pregunta

data: observations or measurements recorded in an investigation
datos: observaciones o mediciones apuntadas en una investigación

decomposer: an organism that breaks down droppings or dead organisms
descomponedor: un organismo que desintegra las heces o los organismos muertos

ecologist: a scientist who studies ecosystems
ecologista: un/a científico/a que estudia los ecosistemas

ecosystem: a community of organisms together with its environment
ecosistema: una comunidad de organismos junto con su ambiente

energy: the ability to make things move or change
energía: la capacidad de hacer que las cosas se muevan o cambien

environment: all the living and nonliving things in an area
ambiente: todo (viviente y no viviente) lo que hay en un área

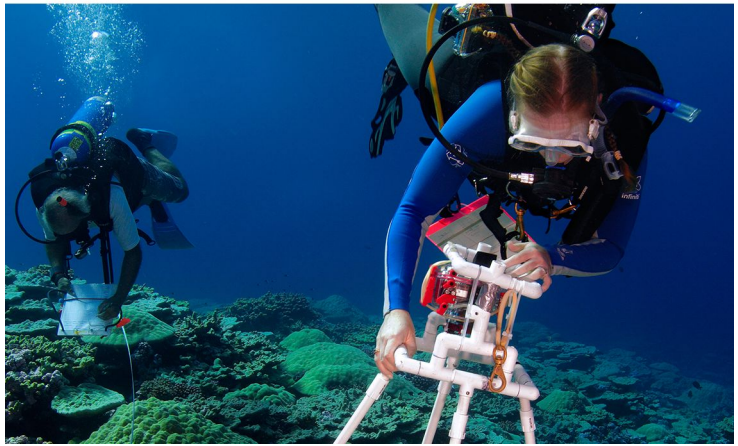
evidence: information that supports an answer to a question
evidencia: información que respalda una respuesta a una pregunta

food web: a diagram that shows what eats what in an ecosystem
red alimentaria: un diagrama que muestra qué come qué en un ecosistema

matter: the stuff that things are made of
materia: lo que constituye las cosas

Ecosystem Restoration @Home Lesson 1

You have a **Glossary** you can use if you need to find definitions for science words we are using.



These are **ecologists**. Ecologists **observe ecosystems** and their parts in order to **draw conclusions**. As ecologists, we will gather information that will help us draw conclusions about ecosystems and their parts.

Key activities

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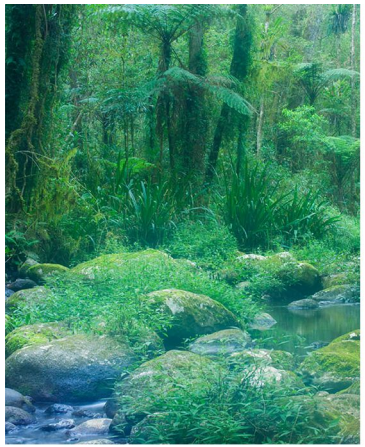
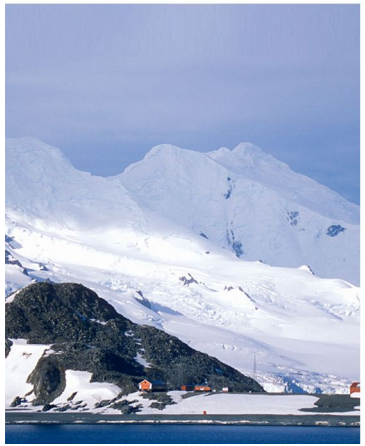
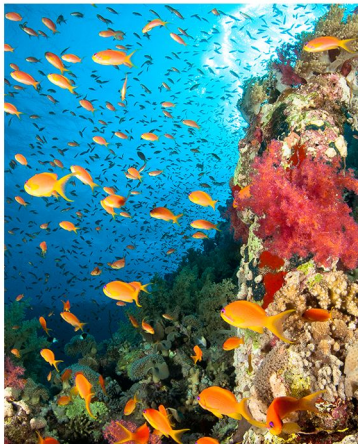
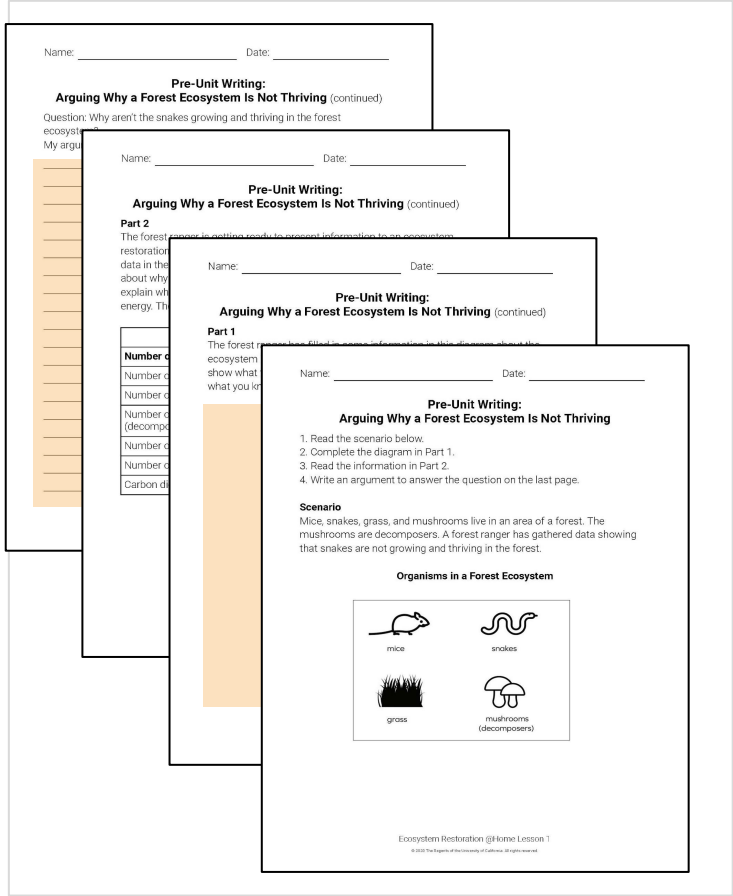






Before we start learning more, you will have an opportunity to **write** your very first ideas about a **problem in an ecosystem** and why it might be happening.



Find the Pre-Unit Writing: Arguing Why a Forest Ecosystem Is Not Thriving pages.

Complete the diagram and **write** about why you think the snakes are not growing and thriving in the forest ecosystem.

End of @Home Lesson

THE LAWRENCE HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

Amplify.

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Adapted from: Amplify Science *Ecosystem Restoration* Lesson 1.1

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Suggestions for Online Synchronous Time

Online synchronous time

Online discussions: It's worthwhile to establish norms and routines for online discussions in science to ensure equity of voice, turn-taking, etc.

Digital tool demonstrations: You can share your screen and demonstrate, or invite your students to share their screen and think-aloud as they use a Simulation or other digital tool.

Interactive read-alouds: Screen share a digital book or article, and pause to ask questions and invite discussion as you would in the classroom.

Shared Writing: This is a great opportunity for a collaborative document that all your students can contribute to.

Co-constructed class charts: You can create digital charts, or create physical charts in your home with student input.

page 9

Questioning Strategies

Pages 10-11

- Questions to assess students' knowledge and skills
- Questions to promote student-to-student discourse
- Questions to guide student learning

Questioning Strategies for Grades 2–5

Overview of the Role of Open-Ended Questioning

Repeated opportunities for students to listen to and speak with others are essential for promoting deep thinking and learning in science. Meaningful teacher-initiated questions create a rich context for promoting open-ended student dialogue and discussion. The *Science Framework for California Public Schools* explains that "Simply providing opportunities to talk is not enough. Effective questioning can scaffold student thinking" (*California Science Framework*, 2016, Chapter 11, p. 21). The Framework suggests that "Teacher-initiated questions are key to helping students expand their communication, reasoning, arguments, and representation of ideas in science" (*California Science Framework*, 2016, Chapter 11, p. 21). The types of questions that teachers pose are instrumental in supporting student understanding. The Framework calls for more open-ended teacher questioning that "prompts and facilitates students' discourse and thinking" and less teacher questioning that prompts "students to seek a confirmatory right answer" (*California Science Framework*, 2016, Chapter 11, p. 6).

The Amplify Science Teacher's Guide is infused with opportunities for students to discuss their developing ideas in response to open-ended prompts. Questions to promote student thinking and discussion are purposefully built into the Teacher's Guide instructional steps and Teacher Support notes that surround all our hands-on and reading activities. In addition, all units include discourse routines (e.g., Shared Listening, Think-Draw-Pair-Share, Write and Share, Word Relationships) that provide opportunities for students to use focal unit vocabulary as they think and talk with partners and the class about their understanding of key science content and practices. Many of the On-the-Fly Assessment suggestions provided throughout each unit offer open-ended follow-up questions that can be used to probe student thinking and formatively assess student understanding of the content. In addition, each unit includes multiple opportunities for students to respond to open-ended questions through additional modalities (e.g., in writing, with diagrams, through a kinesthetic model).

While the prompts embedded in each of the opportunities mentioned above provide fertile ground for student discussion, continued use of flexible, open-ended questions is invaluable for assessing students' knowledge and skills, promoting student-to-student discourse, and guiding student learning. A collection of grade-appropriate questions follows that can be used for these purposes. You will also find a list of activity types included within the Amplify Science curriculum that are particularly conducive to the use of these questions. You may choose to print out these questions and activity types for reference throughout your instruction.

- Discussion of photographs and videos
- Discourse routines (e.g., Thought Swap, Think-Draw-Pair-Share)
- Science Practice Tool activities (modeling, sorting, graphing, diagramming, data)
- Simulation activities (grades 4–5)
- Evidence Card sorts
- Evidence Circles
- Roundtable Discussions

Hands-on Suggestions

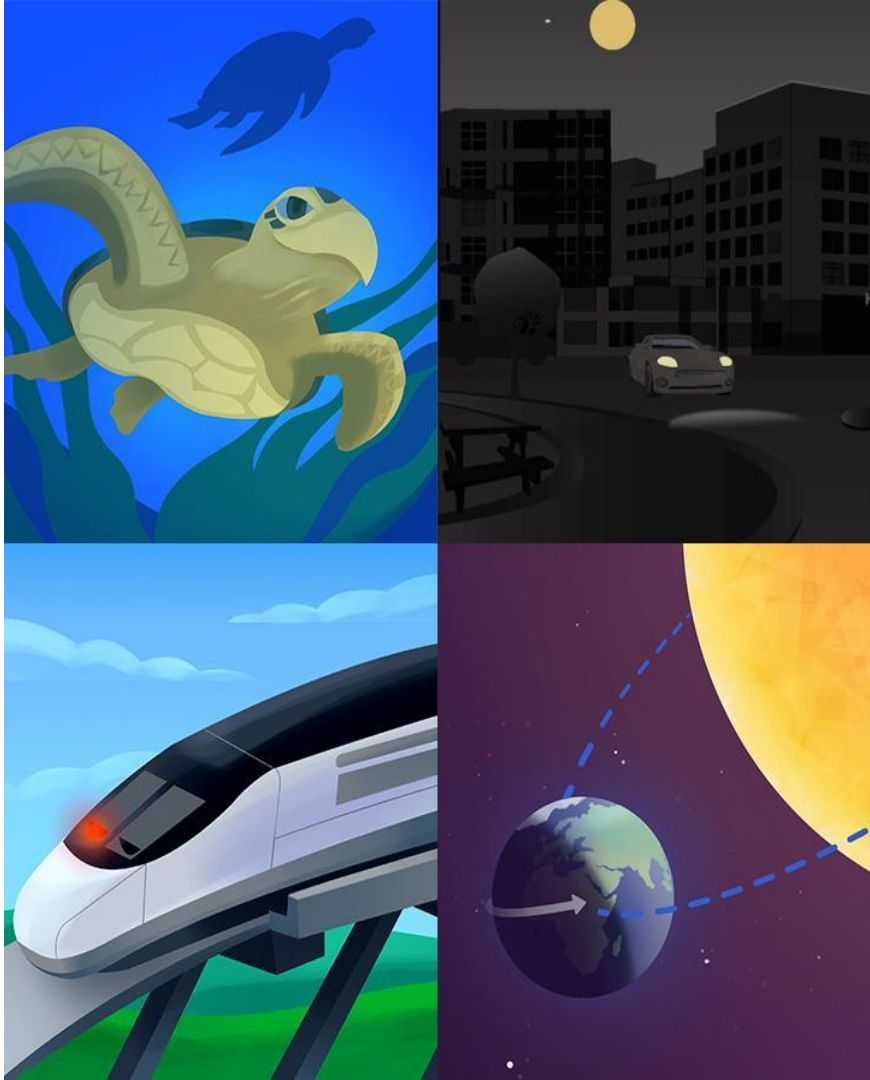
Grade 5 **Unit:** Ecosystem Restoration Hands-On Investigation Video Playlist

Lesson	Activity	@Home Lesson	Activity Description	Suggested Modality	Reasoning	Teacher/Student Provided Materials	Consumable Materials	Non-Consumable Materials	LAUSD Replacement Materials
1.2	2	2	Students build familiarity with the parts of an ecosystem through the firsthand experience of building terrariums.—a small-scale model of an ecosystem. They will use terrariums as a way to think about other ecosystems that can't be directly observed.	watch video	In order to begin thinking about the living and nonliving parts of an ecosystem, students create terrariums to serve as model ecosystems. They make careful observations and begin thinking about how their terrariums might help them learn about ecosystems throughout the unit.This could be assigned as a hands-on activity if students are able to enlist the help of someone at home. If not, students can observe the video demonstration. Caution students not to place soil in their mouths. Be aware of any students who might have allergies to mold or other soil matter. Ensure that students thoroughly wash their hands after every soil investigation.			
1.4	3	4 (This activity is not included in the home unit lesson)	Students make models of animals growing by using cubes representing food molecules and body molecules.	hands-on	Students create models of how animals grow and revise their models using evidence gathered from the reading. Students reflect on these activities and begin to construct an understanding that animals get their food molecules from the molecules of plants or other animals,	*Matter Makes It All Up* student books, Ecosystem Restoration Investigation Notebook pgs. 11-13 (pgs. 11 and 13 are not included in the Home Unit Student Sheets)	1 Plastic Cup per student	10 blue interlocking cubes per student	# plastic cups and # blue cubes
3.1	2	3 (This activity is not included in the home unit lesson)	Students are going to observe two soil samples. We couldn't take soil from Costa Rica, but we do have a soil sample that is similar to the soil in the healthy rain forest (Cup A), and one that is similar to the soil in the project area (Cup B).	hands-on	Students determine that neither water, sun, nor air are preventing the cecropia trees from thriving. They then review soil observations from an ecologist's notebook and determine that the soil might affect how plants grow and thrive. Students are given soil samples from two areas and make careful observations and comparisons of each. Caution students not to place soil in their mouths. Be aware of any students who might have allergies to mold or other soil matter. Ensure that students thoroughly wash their hands after every soil investigation.	1 hand lense, 1 pair of safety goggles, 1 copy of the *Notes on Soil Observations* student sheet*, and *Ecosystem Restoration Investigation Notebook* (pages 55–58), per student (not included in the Home Unit Student Sheets) **Notes on Soil Observations* located on *Ecosystem Restoration* Unit Landing page, under Printable Resources (right hand side), *Copymaster Compilation*, pg. 16	3 Plastic Cups,(2 for soil samples and 1 for water) 2 plastic spoons, and 2 sheets of white copy paper, per student	Soil, nutrient rich and poor	hand lenses and safety goggles, plastic cups and spoons

Reflection

Jamboard

How would you teach this lesson?
How might you include suggestions for online synchronous time and/or questioning strategies?



Multi-day planning, including planning for differentiation and evidence of student work

Day @Home Lesson 1

Minutes for science: 30 min.

Instructional format:
- ❑ Asynchronous
- ☒ Synchronous

Lesson or part of lesson:
(slides 1-16) Talk & Introducing the Unit

Mode of instruction:
- ❑ Preview
- ❑ Review
- ❑ Teach full lesson live
- ☒ Teach using synchronous suggestions
- ❑ Students work independently using:
  - ❑ Printed @Home Slides
  - ☒ Digital @Home Slides
  - ❑ @Home Videos

Students will...	Teacher will...
Discuss their initial ideas as the teacher walks them through slides 1-11. Understand the unit question and their role as ecologists. Listen to the directions for the pre-unit assessments.	Walk students through slides 1-11 giving students opportunities to share their ideas. Introduce the unit question and the word, ecologist. Then set students up to complete the pre-unit assessment during asynchronous time.

Minutes for science: _____

Instructional format:
- ☒ Asynchronous
- ❑ Synchronous

Lesson or part of lesson:

Mode of instruction:
- ❑ Preview
- ❑ Review
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Students will...	Teacher will...

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Minutes for science: 30 min

Instructional format:
- ☒ Asynchronous
- ☐ Synchronous

Lesson or part of lesson:
(slides 16-18) Pre-Unit Assessment

Mode of instruction:
- ☐ Preview
- ☐ Review
- ☐ Teach full lesson live
- ☐ Teach using synchronous suggestions
- ☒ Students work independently using:
  - ☐ Printed @Home Slides
  - ☒ Digital @Home Slides
  - ☐ @Home Videos

Students will...	Teacher will...
Complete the Pre-Unit Assessment.	Assign the Pre-Unit Assessment.

Look at the *Students will* columns. What are students working in the lesson(s) that you could collect, review, or provide feedback on?
See Some Types of Written Work in Amplify Science to the right for guidance.

If there isn't a work product listed above, do you want to add one? Make notes below.

Synchronous: students jot down their initial ideas before sharing out

Asynchronous: students complete the written pre-unit assessment

How will students submit this work product to you?
See the Completing and Submitting Written Work tables to the right for guidance on how students can complete and submit work.

Synchronous: students can jot ideas on a Jamboard, Google Doc or scrap paper

Asynchronous: Students will use the student sheets to complete their assessment. I can use Cami to make the sheets fillable and assign through Schoology so that students can complete digitally and submit back to me.

Some Types of Written Work in Amplify Science

- Daily written reflections
- Homework tasks
- Investigation notebook pages
- Written explanations (typically at the end of Chapter)
- Diagrams
- Recording pages for Sim uses, investigations, etc

Completing Written Work	Submitting Written Work
• Plain paper and pencil (videos include prompts for setup) • (6-8) Student platform • Investigation Notebook • Record video or audio file describing work/answering prompt • Teacher-created digital format (Google Classroom, etc)	• Take a picture with a smartphone and email or text to teacher • Through teacher-created digital format • During in-school time (hybrid model) or lunch/materials pick-up times • (6-8) Hand-in button on student platform

How will you differentiate this lesson for diverse learners? (Navigate to the lesson level on the standard Amplify Science platform and click on differentiation in the left menu.)

Look at the *Students will* columns. What are students working in the lesson(s) that you could collect, review, or provide feedback on?
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If there isn't a work product listed above, do you want to add one? Make notes below.

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See the Completing and Submitting Written Work tables to the right for guidance on how students can complete and submit work.

Synchronous: students can jot ideas on a Jamboard, Google Doc or scrap paper

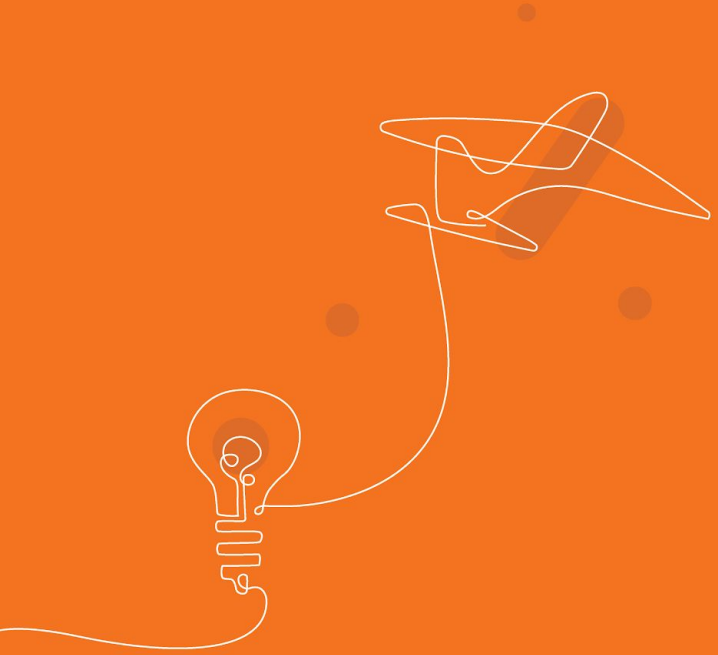
Asynchronous: Students will use the student sheets to complete their assessment. I can use Cami to make the sheets fillable and assign through Schoology so that students can complete digitally and submit back to me.

Completing Written Work	Submitting Written Work
• Plain paper and pencil (videos include prompts for setup) • (6-8) Student platform • Investigation Notebook • Record video or audio file describing work/answering prompt • Teacher-created digital format (Google Classroom, etc)	• Take a picture with a smartphone and email or text to teacher • Through teacher-created digital format • During in-school time (hybrid model) or lunch/materials pick-up times • (6-8) Hand-in button on student platform

How will you differentiate this lesson for diverse learners? (Navigate to the lesson level on the standard Amplify Science platform and click on differentiation in the left menu.)

Supports:

- Encourage students to engage in student-to-student discussion
- Provide students with the Multi-Language Glossary, where appropriate, add images
- Leverage primary language for discussions
- Strategic grouping
- You may want to extend the lesson and provide more whole class time to talk about the different ecosystems.
- Expand on the introduction of the word organism by having students write/draw/diagram to describe an organism they are familiar with. This is something they can come back to throughout the unit as their knowledge grows.



Collaborative Planning

Breakout groups

pages 14-17

Discussion prompts

Planning:

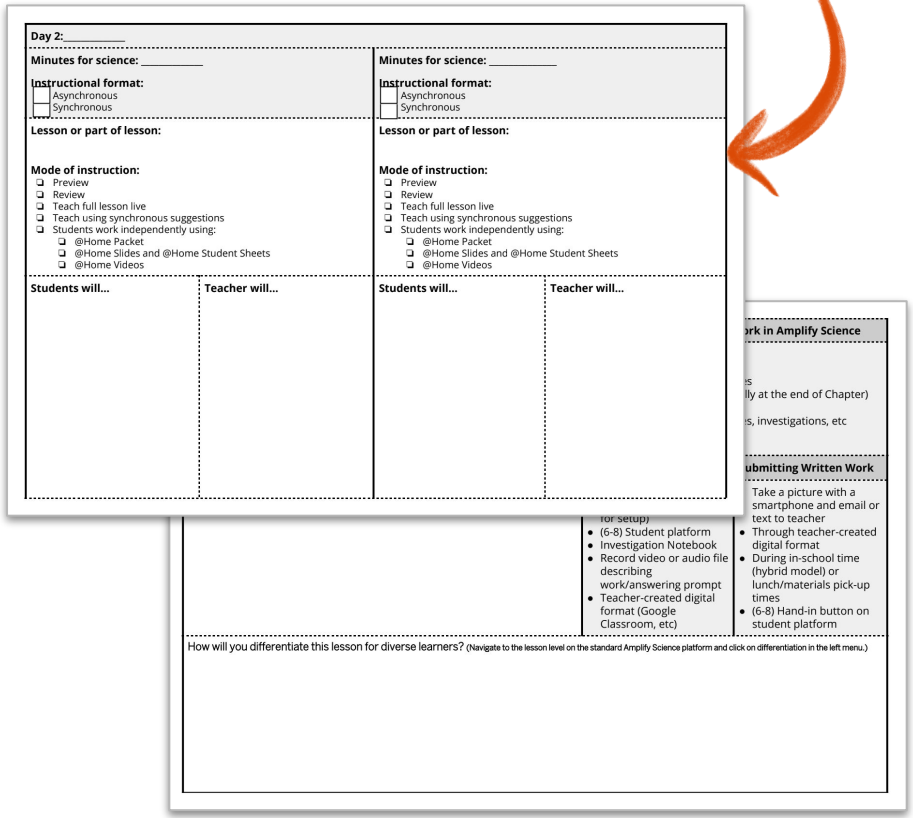
- Dig into the @Home Resources for lesson 2. Discuss what you will prioritize for synchronous vs. asynchronous time

Student work:

- Discuss how you can collect evidence of student work

Differentiation:

- Consider how you might differentiate the lesson for diverse learners



Breakout groups

pages 14-17

Please choose a person from your group to share out!

Planning:

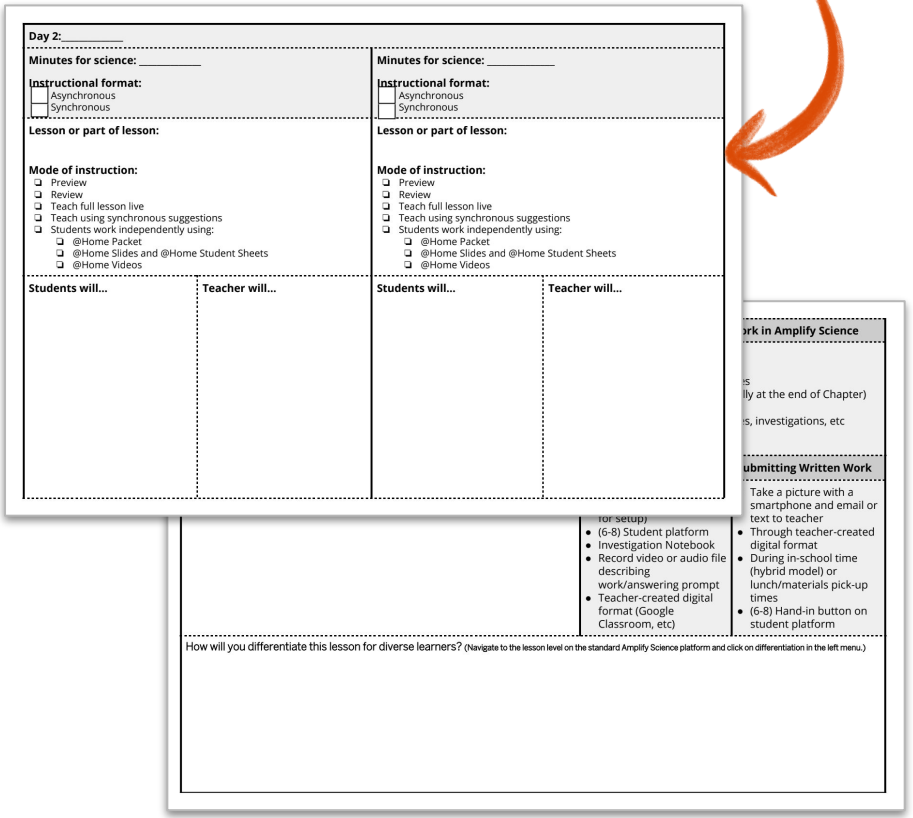
- What did you will prioritize for synchronous vs. asynchronous time?

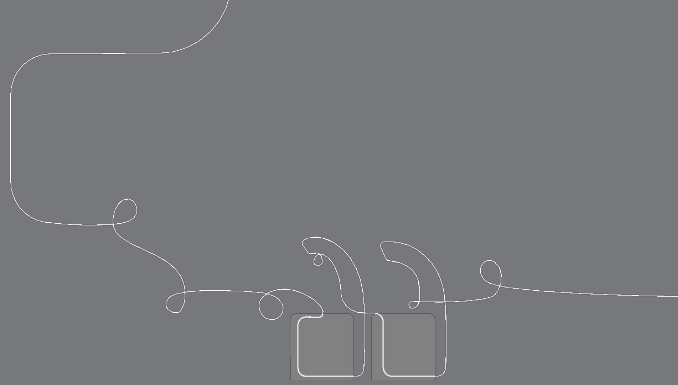
Student work:

- How do you plan to collect evidence of student work?

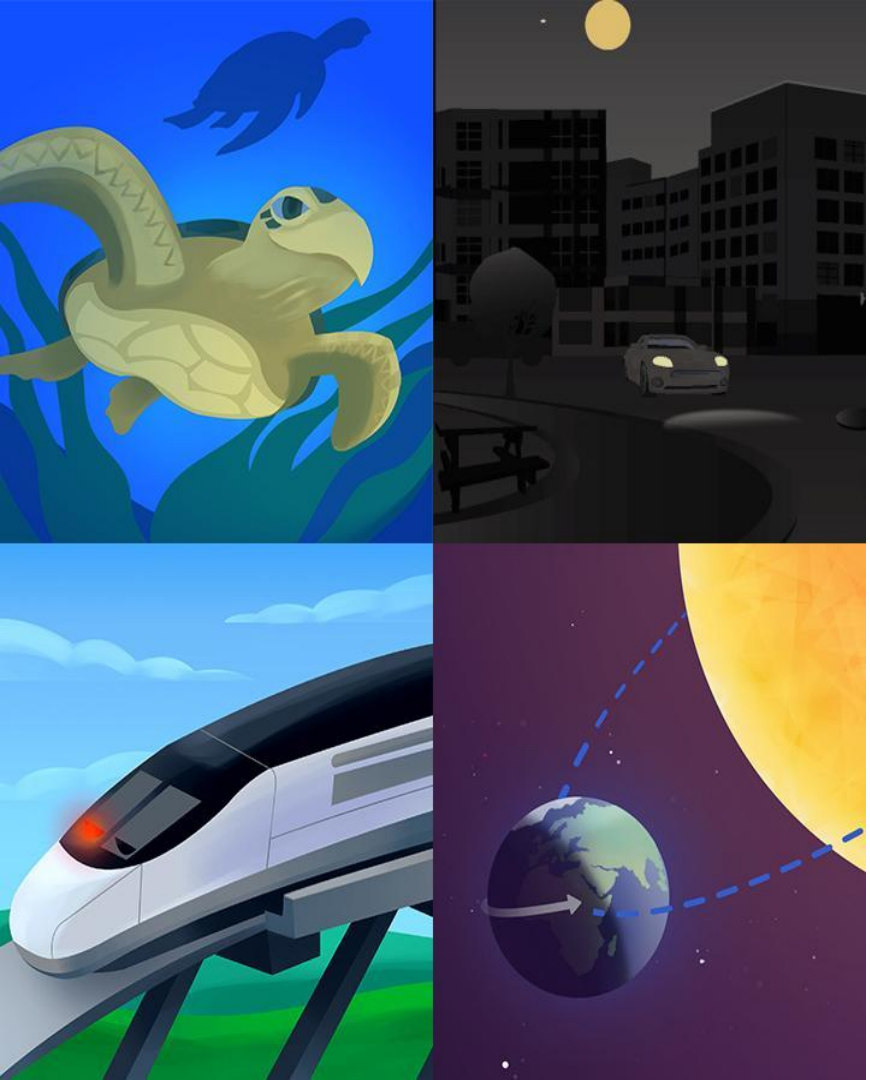
Differentiation:

- How do you plan to differentiate the lesson for diverse learners?





Questions?



Plan for the day

- **Framing the day**
  - Remote learning reflection
  - Revisiting the Amplify Approach
- **Phenomenon at the unit level**
  - Navigation refresher (standard curriculum)
  - Storyline and science concepts
- **Planning to teach**
  - Navigation refresher (@Home resources)
  - Lesson walkthrough
  - Collaborative planning time
- **Closing**
  - Reflection & survey

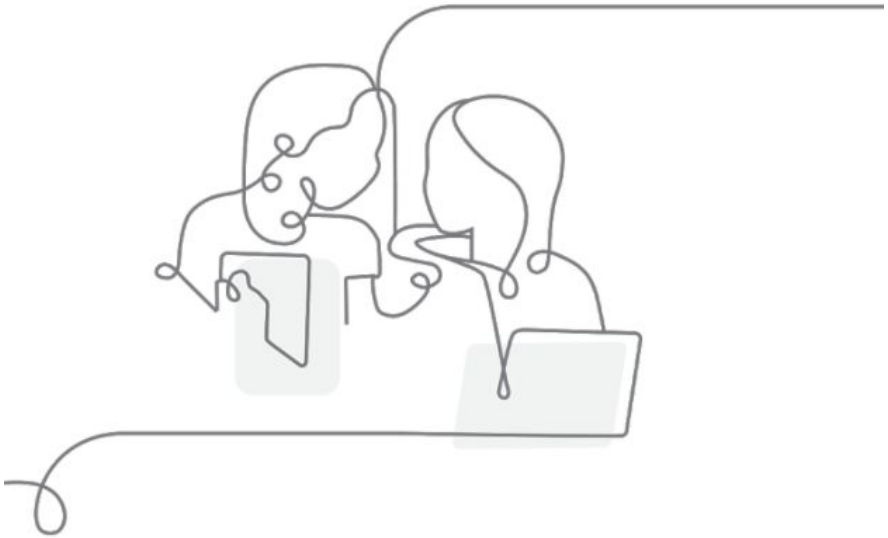
Head or hands reflection

Reflect independently, then volunteer to share

Based on our work today....

Head: What will you keep in mind while you plan?

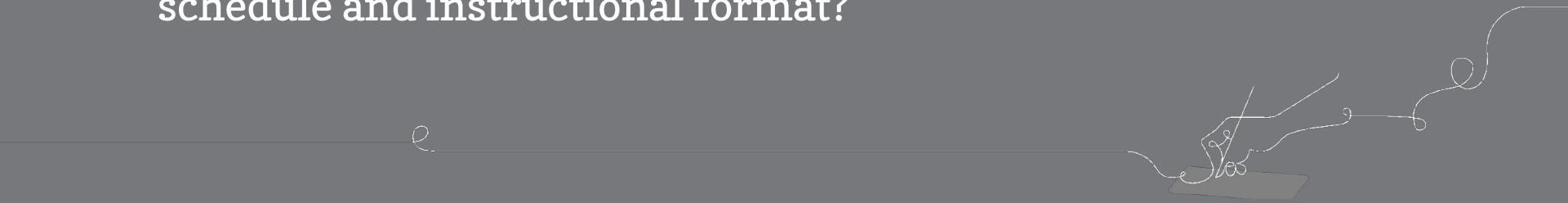
Hands: What will you do when you're teaching?

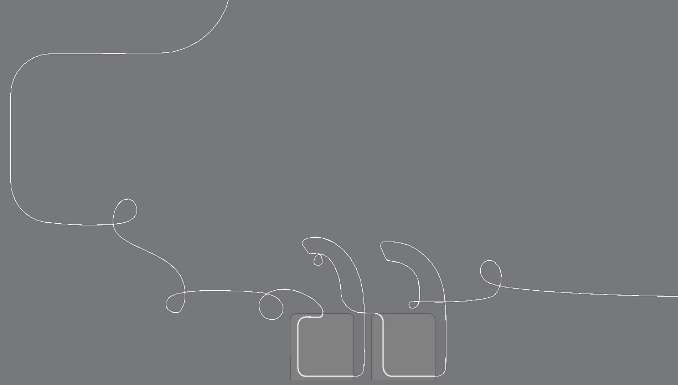


During this workshop did we meet our objectives?

Do you feel able to…

- Describe how students' conceptual understanding builds through the unit?
- Explain how students figure out the phenomenon throughout the unit?
- Make a plan for implementing Amplify Science within your class schedule and instructional format?



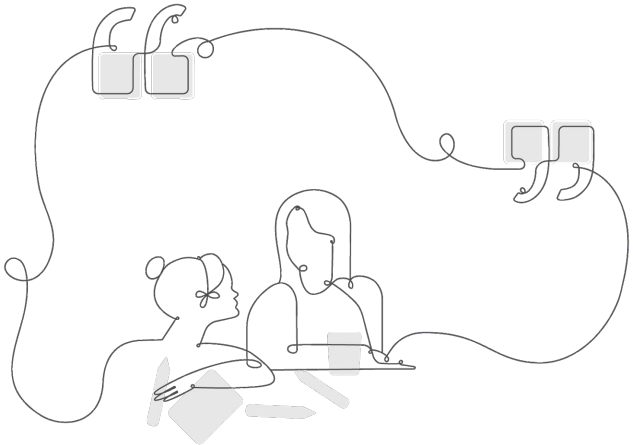


Final questions?

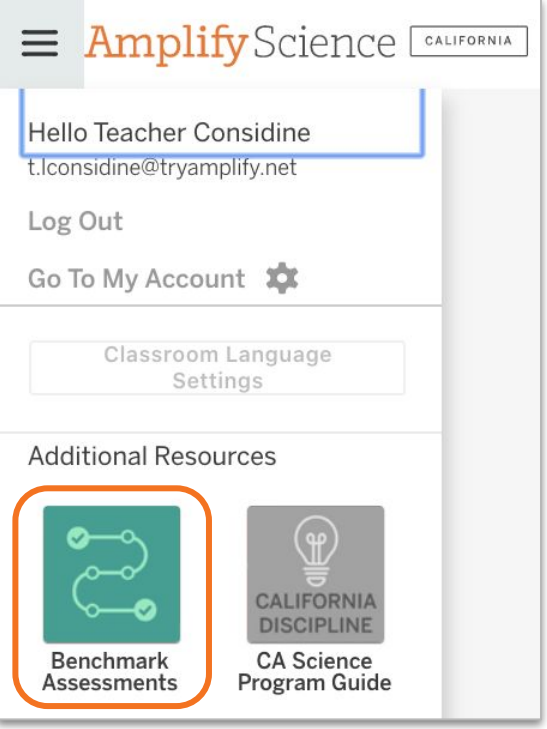
Upcoming LAUSD Office Hours

Twice Monthly on Thursdays, 4:30-5:30pm:

- April 8
- April 22
- May 13
- May 27



http://bit.ly/TK-6OfficeHours



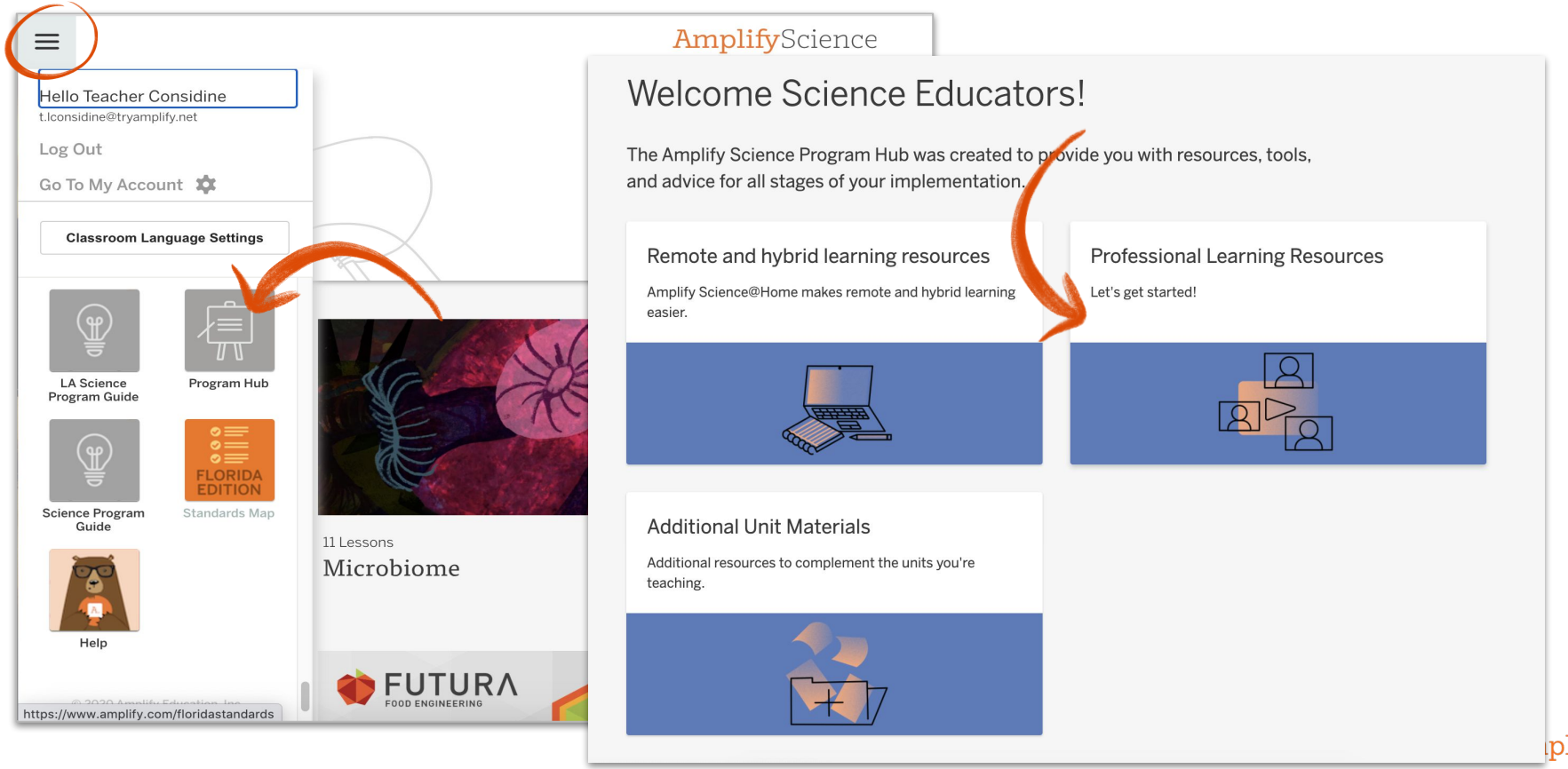
Benchmark Assessments

In conjunction with Amplify Science, teachers can administer benchmark assessments to evaluate students' progress toward meeting Next Generation Science Standards several times each school year.

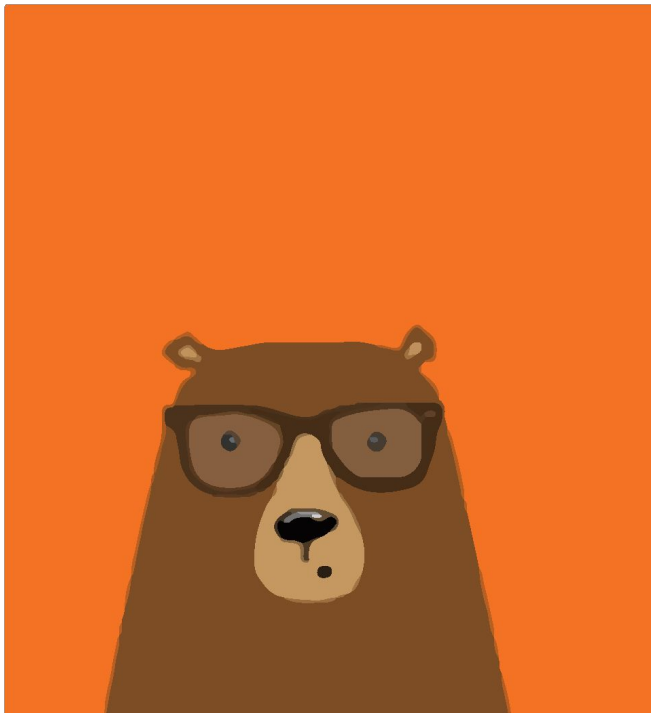
Designed to test all standards across grades 3-8. The assessment forms are paced to align with the Amplify Science curriculum sequence.

Benchmark Assessment Summary		
Grades 3-5	4 benchmarks per grade	14-15 items per form

Program Hub: Self Study Resources



Additional Amplify resources



Program Guide

Glean additional insight into the program's structure, intent, philosophies, supports, and flexibility.

https://cascience.wpengine.com/content/welcome-k-8/integrated-model/

Amplify Help

Find lots of advice and answers from the Amplify team.

my.amplify.com/help

Additional Amplify Support

Customer Care

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

scihelp@amplify.com

800-823-1969

Amplify Chat

When contacting the customer care team:

- Identify yourself as an Amplify Science user.
- Note the unit you are teaching.
- Note the type of device you are using (Chromebook, iPad, Windows, laptop).
- Note the web browser you are using (Chrome or Safari).
- Include a screenshot of the problem, if possible.
- Copy your district or site IT contact on emails.

Creating Assignments in Schoology

- Click Add Materials.
- Select Add Assignment.
- Fill out the Create Assignment form.
- Options. Use Options to turn on/off the following features: Use Individually Assign to only display the assignment to a specific member of the course or a grading group.
- Click Create to complete

LAUSD Shared Logins

AmplifyScience

Go to: my.amplify.com

A. Log In with Amplify

District Shared Logins		
Grade	**Username**	**Password**
Kindergarten	LAUSDscienceK	LAUSD1234
1	LAUSDscience1	LAUSD1234
2	LAUSDscience2	LAUSD1234
3	LAUSDscience3	LAUSD1234
4	LAUSDscience4	LAUSD1234
5	LAUSDscience5	LAUSD1234
6	LAUSDscience6	LAUSD1234
7	LAUSDscience7	LAUSD1234
8	LAUSDscience8	LAUSD1234