Amplify Science

Unit 4: Ecosystem Restorati (with a focus on Science & Engineering Practices)

Grade 5, Part 1

School/District Name: LAUSD Date: Presented by:



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Reading K-5



Science



Vocabulary











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• To join Amplify ES Group: W4PK-W466-63F5B



Part 1





Ice Breaker!

• Question: In the chat, share one or two of the Science and Engineering Practices in NGSS.





Plan for the day: Part 1

- Framing and Review
- Introducing the Unit
- Unit Internalization
- Identifying the Science and Engineering Practices
- Closing

Overarching goals

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

- □ Internalize the unit
- Identify the Science and Engineering Practices within the unit



Next Generation Science Standards

Designed to help students build a cohesive understanding of science



Next Generation Science Standards

Science and Engineering Practices



- 1. Asking questions (for science) and defining problems (for engineering)
- 2. Developing and using models
- 3. Planning and carrying out investigations
- 4. Analyzing and interpreting data
- 5. Using mathematics and computational thinking
- 6. Constructing explanations (for science) and designing solutions (for engineering)
- 7. Engaging in argument from evidence
- 8. Obtaining, evaluating, and communicating information

Amplify Science Approach

Introduce a **phenomenon** and a related problem Collect **evidence** from multiple sources Build increasingly complex **explanations** **Apply** knowledge to solve a different problem

S



Plan for the day: Part 1

- Framing and Review
- Introducing the Unit
- Unit Internalization
- Identifying the Science and Engineering Practices
- Closing

Grade 5 | Ecosystem Restoration Lesson 1.2: Introducing Ecosystems

11



Activity 1 Introducing the Rain Forest Problem





Remember, in this unit, we are taking on the role of **ecologists**—scientists who study ecosystems.

Ecologists observe ecosystems to draw conclusions about them.



Today, we will learn about a problem with the ecosystem in **Costa Rica**.

We can see from this map that Costa Rica is a country in Central America.



This is a photograph of an ecosystem in Costa Rica.

What kind of **ecosystem** do you think this is?

What **organisms** (living things) might live here?

Costa Rican Rain Forest Ecosystem



jaguar



three-toed sloth





millipede



cecropia tree



We will take on the role of ecologists working for **Natural Resources Rescue**, a group that works to protect and save fragile ecosystems around the world.

Natural Resources Rescue PROTECTING EARTH'S FRAGILE ECOSYSTEMS

Costa Rican Rain Forest Restoration: Project Report #1



10 years ago

Today

We have a Project Report from Natural Resources Rescue about a problem in part of the Costa Rican rain forest ecosystem. For the next few weeks, we'll think about how to solve this problem.



10 years ago

The **project area** used to be a healthy rain forest.

Then, cattle ranchers burned down the rain forest so they could use the land as grazing area for their cows.



Today

This photo shows the same project area today. A few years ago, the cattle ranchers left and took the cows with them. They planted trees so the area would become a rain forest again.



Natural Resources Rescue worked with volunteers to replant the project area. They brought in young cecropia trees and other important rain forest plants and planted them.

Next, we will look at some information comparing the project area to a **healthy rain forest area** nearby.

The area nearby was not burned for cattle ranching and remains in its original state.

	Organism count in project area	Organism count in healthy rain forest
Jaguars	1	4
Three-toed sloths	16	28
Cecropia trees	188	596
Land area	100 sq km (38.6 sq miles)	100 sq km (38.6 sq miles)
	•	J

This table compares the numbers of several organisms in the two areas.

What do you notice about the information in this table?

	Average weight of adult animals in project area	Average weight of adult animals in healthy rain forest
Jaguars	168 kg (370.4 lbs)	205 kg (452 lbs)
Three-toed sloths	4.42 kg (9.75 lbs)	4.76 kg (10.5 lbs)

This table shows the average weights of jaguars and sloths in the two areas.

What do you notice about the information in this table?

Natural Resources Rescue PROTECTING EARTH'S FRAGILE ECOSYSTEMS

Project goal: Restoration of the project area Restore this section of the Costa Rican rain forest ecosystem and improve its health.

Your tasks:

- Investigate why the animals aren't growing and thriving in the project area.
- 2. Make a plan to improve the health of the animals in the ecosystem.



Think back to the data tables we looked at before.

What you think it means when the Natural Resources Rescue report says "the animals aren't growing and thriving in the project area"?

Chapter 1 Question

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

Ecosystem Restoration

Problem: Why aren't the jaguars and sloths in a reforested part of the Costa Rican rainforest ecosystem growing and thriving?

Role: Ecologists

Ecosystem Restoration

Coherent Storylines



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

Ecosystem Restoration

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

Explaining the phenomenon: Science Concepts

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

Ecosystem Restoration, Progress Build

Assumed 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.

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 3

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

Level 1

The food matter that animals need to grow and use for energy can always be traced back to plants.

> Deep, causal understanding

Prior knowledge


Plan for the day: Part 1

- Framing and Review
- Introducing the Unit
- Unit Internalization
- Identifying the Science and Engineering Practices
- Closing

Navigate to the Unit Page



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Key Unit Guide Documents for Planning

Planning for the Unit		Printable Resources
Unit Overview	~	Coherence Flowcharts
Unit Map	~	Copymaster Compilation
Progress Build	~	Flextension Compilation
Getting Ready to Teach	~	Investigation Notebook
Materials and Preparation	~	Multi-Language Glossary
Science Background	~	MGSS Information for Parents and Guardians
Standards at a Glance	~	Print Materials (8.5" x 11")
Teacher References		Print Materials (11" x 17")
Lesson Overview Compilation	~	
Standards and Goals	~	Offline Preparation
3-D Statements	~	Teaching without reliable classroom internet? Prepare unit and lesson
Assessment System	~	materials for offline access.
Embedded Formative Assessments	~	Offline Guide
Books in This Unit	~	
Apps in This Unit	~	
Flextensions in This Unit	~	

Core Unit Planning & Internalization

Unit Title:

Overview

[Resources: Unit Overview, Teacher's Guide, Coherence Flowchart, Unit Map, 3-D Statements]

What is the phenomenon/real-world problem students are investiga your unit?	ting in Student Role:
	\sim
	2 3
Unit Question:	Relationship between the Unit Phenomenon and Unit
	4 5
By the end of the unit, students figure out	
	\sim
	6
How do students engage with three-dimensional learning to figure o	ut the phenomenon/real-world problem in your unit?
	7
	1

Unit Guide resources:

- Unit Overview
- Unit Map

1

• Coherence Flowchart

Unit Guide resources:

- Lesson Overview Compilation
- Unit Overview

Unit Guide resources:

• Unit Map

Unit Guide resources:

• 3D Statements at the Unit Level

Core Unit Planning & Internalization

Unit Title:

Ecosystem Restoration

Overview Resources: Unit Overview Teacher's Guide Coherence Flowchart, Unit Man, 3-D Statements]	
What is the phenomenon/real-world problem students are investigating in	Student Role:
Why aren't the jaguars and sloths in a reforested part of the Costa Rican rainforest ecosystem growing and thriving?	of Ecologist
Unit Question:	Relationship between the Unit Phenomenon and Unit
How do organisms in an ecosystem get the matter and energy they need to grow and thrive?	Students explore what it means to grow and how living things get the matter and energy they need to grow.
By the end of the unit, students figure out Because there are not enough decomposers in the soil, the the reason the cecropia trees are not growing and thrivi whole ecosystem.	here are not enough nutrients. This is ng, which affects the health of the
How do students engage with three-dimensional learning to figure out the pl	nenomenon/real-world problem in your unit?
Students use models to investigate why a reforested a thriving (energy and matter, systems and system mod evidence to construct oral and written arguments about ecosystem are not growing and thriving (energy and m and effect).	rea of a Costa Rican rain forest is not lels, cause and effect). Students use it why the living things in this rain forest latter, systems and system models, cause

1



Plan for the day: Part 1

- Framing and Review
- Introducing the Unit
- Unit Internalization
- Identifying the Science and Engineering Practices
- Closing

Key Documents for Planning Work Time

Planning for the Unit		Printable Resources
Unit Overview	~	Coherence Flowcharts
Unit Map	~	🔤 Copymaster Compilation
Progress Build	~	Flextension Compilation
Getting Ready to Teach	~	Investigation Notebook
Materials and Preparation	~	🔯 Multi-Language Glossary
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Embedded Formative Assessments	~	Offline Guide
Books in This Unit	~	
Apps in This Unit	~	
Flextensions in This Unit	~	

Ecosystem Restoration 3D Statements

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).

Ecosystem Restoration 3D Statements

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).

Ecosystem Restoration

Science & Engineering Practices



These are the two main categories of Science and Engineering Practices that the students will be engaged with in this unit.



Ecosystem Restoration

22 Lessons Ecosystem Restora	idon		
JUMP DOWN TO UNIT GUIDE	GENER/ GUIDE	ATE PRINTABLE TEACHER'S	
Chapter 1: Why aren't the jaguars and sloths growing and thriving?	Chapter 2: Why aren't the cecropia trees growing and triving?	Chapter 3: Why aren't the cecropia trees growing and thriving in the soil?	
Planning for the Unit		Printable Resources	
Unit Overview	•	3-D Assessment Objectives	
Unit Map	ř	Coherence Flowcharts	
Progress Build	~	Copymaster Compliation	
Getting Ready to Teach	~	Crosscutting Concept Tracker	
Materials and Preparation	~	Eliciting and Leveraging Studen	ts'

3D Statements



Chapter Level

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

Students use models to investigate what animals need to grow and thrive (energy and matter). Students use evidence to construct an argument about why jaguars and sloths in an area of a rainforest ecosystem are not growing and thriving (energy and matter, systems and system models).

Science & Engineering Practices



Ecosystem Restoration Chapter 1 Overview





3D Statements Work time

- 1. Go to the **3D Statement** on the **Unit Page.**
- Look at the 3D Statement
 for each chapter
- 3. Identify the **Science and Engineering Practices** for each chapter.
- 4. Categorize them.

	Planning for the Unit		Printable Resources
Weather and Climate		~	Coherence Flowcharts
Teacher References	3-D Statements 👔	~	Copymaster Compilation
		~	Flextension Compilation
3-D Statements	Key Practices Disciplinary Core Ideas Crosscutting Concepts	~	Investigation Notebook
Unit Level		~	🔯 Multi-Language Glossary
Students learn to make weather measurements and r analyze a day, then a month, then a year of weather d precipitation and temperature, students discover (pal	nake sense of them (scale, proportion, and quantity). They ata for three fictional locations. Using the <mark>climate patterns of</mark> tterns) how to construct evidence-based arguments about which	~	NGSS Information for Parents and Guardians
location would be the best habitat for an orangutan re most similar to that of Borneo (stability and change),	serve, with a long-term climate (despite shorter-term changes) where orangutans live.	~	Print Materials (8.5" x 11")
Chapter Level			न Print Materials (11" v 17")
Chapter 1: Which island's weather would be bes	t for orangutans?		
Tasked with figuring out which of three islands has we students plan and conduct investigations to measure then analyze quantitative data to compare Borneo's w an argument about which island would be the best ha	ather most similar to that of orangutans' habitat on Borneo, rainfall and temperature (scale, proportion, and quantity). They eather to the weather on three islands (patterns) as evidence in bitat for orangutans.	· · ·	Offline Preparation
Chapter 2: Which island's weather will continue	to be best for orangutans?		Teaching without reliable classroom internet? Prepare unit and lesson materials for offline access
Students analyze and interpret a month of temperatu day to day, so in order to identify patterns in weather data collected over a longer span of time into total mo	re data from the three islands and realize that weather changes (patterns), students use computational thinking to summarize inthly precipitation and monthly temperature range.	, ,	
Chapter 3: Over many years, which island's wea	ther will be best for orangutans?	~	Offline Guide
Students use mathematics and computational thinkin many years (scale, proportion, and quantity). They fig	ng as they compare bar graphs representing weather data over ure out that the weather in a place typically changes throughout	~	
the year, but its seasons repeat in a stable pattern (st. place's climate (patterns). Students communicate thi	ability and change) and that meteorologists call that pattern a is information by revising their arguments about the orangutan	~	
sanctuary for a final time based on new climate evider	nce.		
Chapter 4: How can the WPO prepare for natura	al hazards that might damage their offices?	~	
After obtaining information from a book and analyzing occur in a spatial pattern (patterns), students design wind of a hurricane. They make arguments for how an weather.	g map data to figure out that weather-related natural hazards building prototypes that can withstand the simulated rain and organization in Florida should prepare its building for local severe		

Let's Review Ecosystem Restoration





Questions?



Science & Engineering Practices

Building the practices incrementally, chapter by chapter.







Plan for the day: Part 1

- Framing and Review
- Introducing the Unit
- Unit Internalization
- Identifying the Science and Engineering Practices
- Closing

Overarching goals

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

- □ Internalize the unit
- Identify the Science and Engineering Practices within the unit



Additional resources

Welcome, caregivers!

EDREPORTS A

Grades 6-8





We hope you enjoy learning more about Amplify Science and what students are learning in science this year.

Para acceder a este sitio en español haga clic aquí.

Amplify welcomes you and your learner to the Science program for the new school vear. We are verv excited to



LAUSD Micrositehttps://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.



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Amplify Chat



End of Part 1





Amplify Science

Unit 4: Ecosystem Restoration (with a focus on SEP)

Grade 5, Part 2

School/District Name: LAUSD Date: Presented by:









Overarching goals

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

 Identify the Science and Engineering Practices within a lesson and how they are taught.

Amplify

□ Apply this knowledge to prepare to teach.



Plan for the day: Part 2

• Review

- Science and Engineering Practices within a lesson
- Lesson Planning
- Closing

Next Generation Science Standards

Designed to help students build a cohesive understanding of science



Next Generation Science Standards

Science and Engineering Practices



- 1. Asking questions (for science) and defining problems (for engineering)
- 2. Developing and using models
- 3. Planning and carrying out investigations
- 4. Analyzing and interpreting data
- 5. Using mathematics and computational thinking
- 6. Constructing explanations (for science) and designing solutions (for engineering)
- 7. Engaging in argument from evidence
- 8. Obtaining, evaluating, and communicating information

Ecosystem Restoration

Problem: Why aren't the jaguars and sloths in a reforested part of the Costa Rican rainforest ecosystem growing and thriving?

Role: Ecologists

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Ecosystem Restoration Unit 3D Statements

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).

Ecosystem Restoration Chapter 3D Statements Key Practices Disciplinary Core Ideas Crosscutting Concepts

Chapter Level

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

Students use models to investigate what animals need to grow and thrive (energy and matter). Students use evidence to construct an argument about why jaguars and sloths in an area of a rainforest ecosystem are not growing and thriving (energy and matter, systems and system models).

Let's Review Ecosystem Restoration





Plan for the day: Part 2

- Review
- Science and Engineering Practices within a lesson
- Lesson Planning
- Closing

Ecosystem Restoration


3D Statements, Lesson 1.1

Key

Practices

Disciplinary Core Ideas

Crosscutting Concepts

Students write initial arguments and explore a digital model about the growth of organisms in an ecosystem (energy and matter, systems and system models).

Grade 5 | Ecosystem Restoration Lesson 1.1: Pre-Unit Assessment

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Activity 1 Introducing the Unit





These photos 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. Let's think about a few examples.



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? Did you notice anything else you would like to share?

Unit Question

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



a scientist who studies ecosystems





These are **ecologists**. Ecologists observe ecosystems and their parts in order to draw conclusions.

In this unit, we will take on the role of ecologists.



Activity 2 Writing Initial Arguments



Date: Name Pre-Unit Writing: Arguing Why a Forest Ecosystem Is Not Thriving 1. Read the scenario below. Complete the diagram in Part 1. 3. Read the information in Part 2. Write an argument to answer the question on the last page. Scenario Mice, snakes, grass, and mushrooms live in an area of a forest. The mushrooms are decomposers. A forest ranger has gathered data showing that snakes are not growing and thriving in the forest. Organisms in a Forest Ecosystem snakes arass mushrooms (decomposers) Ecosystem Restoration—Lesson 1.1 1 2 Ecosystem Restoration-Lesson 1.1 @ 2016 The Regents of the University of California All rights reserved. Permission granted to photocopy for classroom us Ecosystem Restoration—Lesson 1.1 © 2016 The Resents of the University of California. All rights reserved. Permission granted to photocopy for c Ecosystem Restoration-Lesson 11 © 2016 The Regents of the University of California. All rights reserved. Permission granted to photocopy for classroom us

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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.

Date: Name: Pre-Unit Writing: Arguing Why a Forest Ecosystem Is Not Thriving 1. Read the scenario below. Complete the diagram in Part 1. 3. Read the information in Part 2. 4. Write an argument to answer the question on the last page. Scenario Mice, snakes, grass, and mushrooms live in an area of a forest. The mushrooms are decomposers. A forest ranger has gathered data showing that snakes are not growing and thriving in the forest. Organisms in a Forest Ecosystem snakes arass mushrooms (decomposers) Ecosystem Restoration—Lesson 1.1 1 2 Ecosystem Restoration—Lesson 1.1 © 2016 The Regents of the University of California All rights reserved. Permission granted to photocopy for classroom use Ecosystem Restoration—Lesson 1.1 © 2016 The Resents of the University of California. All rights reserved. Permission granted to photocopy for cli Ecosystem Restoration-Lesson 11 © 2016 The Reports of the University of California. All rights reserved. Permission granted to photocopy for classroom use

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There are **four pages** for this writing task.

Let's review the directions together.

Lesson 1.1: Pre-Unit Assessment



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



Activity 3 Exploring the Simulation





Throughout the unit, we will be using a **Sim** to help us figure out what an ecosystem is and what it needs in order to thrive.

Guidelines for Using Apps

- Only one person "drives" at a time.
- Anyone can make suggestions about how to use the app.
- Talk about what you observe.
- Rotate the role of "driver."

Open the Simulation



Step 1

Click on the <u>Student Apps</u> <u>Page</u> in your bookmarks.



Step 2

Scroll down and click on the *Ecosystem Restoration* unit.



Step 3

Click on the **orange box with a 1** to access the Sim.



Explore the State

Explore the Sim and try to figure out how it works.



What did you **observe** while exploring the Sim?

What did you figure out about how the Sim works?



What did the Sim exploration make you wonder about?

Activity 4 Introducing the Investigation Notebook

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Ecosystem Restoration:

Matter and Energy in a Rain Forest

As ecologists, we will use **Investigation Notebooks** to keep track of what we observe and our ideas and understandings about ecosystems.

Investigation Notebook

Lesson 1.1: Pre-Unit Assessment

End of Lesson





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Science and Engineering Practices

Describe the science and engineering practices the students were engaged in during this lesson.



Science & Engineering Practices: Ecosystem Restoration



Lesson Brief

Lesson at a Glance

1: Introducing the Orangutan Reserve (10 min.) Students learn about the Weather and Climate unit and their role as meteorologists who must a commend a suitable location for an orangutan reserve.

(Teacher Only) Introducing Weather (20 min.)

Students watch a video that shows different weather conditions and list weather-related words on sticky notes. Groups sort their sticky notes into categories. After a class discussion about the sorting results, they are introduced to precipitation. Students then practice observing and describing today's local weather. This invitational activity allows students to explore a variety of atmospheric conditions.

2: Pre-Unit Assessment (20 min.)

Students complete a pre-unit writing assessment to reveal their initial understanding of the core content of the unit, which can be assessed with the Assessment Guide: Interpreting Students' Pre-Unit Explanations About Weather Data (in Digital Resources). In addition to providing insight to the teacher, asking students to take stock of their initial knowledge helps prepare them to make connections to new knowledge.

3: Introducing Investigation Notebooks (10 min.) Students receive their Weather and Climate Investigation Notebooks and learn some ways that scientists use notebooks.



such, students' arguments offer a baseline from which to measure

Pre-Unit Writing: Arguing Why a Forest Ecosystem Is Not Thriving copymaster



Plan for the day: Part 2

- Review
- Science and Engineering Practices within a lesson
- Lesson Planning
- Closing

3D Statements Lesson Work time

- Identify what
 Science and
 Engineering
 Practices are
 addressed in each
 lesson in Chapter
 One.
- 2. Identify how the Science and Engineering Practices are addressed

Ecosystem Restoration	2.D Statamente
Teacher References	3-D Statements
3-D Statements	Key
	Practices Disciplinary Core Ideas Crosscutting Concepts
Unit Level	
Students use models to investigate why a ref systems and system models, cause and effec why the living things in this rain forest ecosys models, cause and effect).	prested area of a Costa Rican rain forest is not thriving (energy and matter it). Students use evidence to construct oral and written arguments about item are not growing and thriving (energy and matter, systems and system
Chapter Level	
Chapter 1: Why aren't the jaguars and s	loths growing and thriving?
Students use models to investigate what anii to construct an argument about why jaguars thriving (energy and matter, systems and sys	mais need to grow and thrive (energy and matter). Students use evidence and sloths in an area of a rain forest ecosystem are not growing and atem models).
Chapter 2: Why aren't the cecropia tree	s growing and thriving?
Students use models to investigate how plan (energy and matter; systems and system mo the cecropia trees are not growing and thrivin system models; cause and effect).	ts get their food and how energy enters and flows through an ecosystem idels). Students then use evidence to construct an argument about why ng in an area of the rain forest ecosystem (energy and matter: systems an
Chapter 3: Why aren't the cecropia tree	s growing and thriving in the soil?
Students analyze and interpret new data to f (energy and matter: systems and system mo the eccropia trees are not growing and thrivia and system models; cause and effect).	igure out how plants grow and thrive in some soils but not in others idels). Students then use evidence to construct new arguments about why and in the rain forest ecceystem project area (energy and matter; systems
Lesson Level	
Lesson 1.1: Pre-Unit Assessment	
Students write initial arguments and explore and matter, systems and system models).	a digital model about the growth of organisms in an ecosystem (energy
Lesson 1.2: Introducing Ecosystems	
Students create a model ecosystem (system	s and system models) and make observations of different kinds of

Lesson 1.3: Matter Makes It All Up

Students read the book Matter Makes It All Up to obtain and evaluate information about how all parts of an ecosystem are made of matter, which in turn is made of molecules (energy and matter; scale, proportion, and quantity; systems and system models).

Planning for the Unit		Printable Resources
Unit Overview	~	Coherence Flowcharts
Unit Map	~	Copymaster Compilation
Progress Build	~	Flextension Compilation
Getting Ready to Teach	~	Investigation Notebook
Materials and Preparation	~	Multi-Language Glossary
Science Background	~	NGSS Information for Parents and Guardians
Standards at a Glance	~	Print Materials (8.5" x 11")
Teacher References		Print Materials (11" x 17")
Lesson Overview Compilation	~	
Standards and Goals	~	Offline Preparation
3-D Statements	~	leaching without reliable classroom internet? Prepare unit and lesson materials for offline access.
Assessment System	~	
Embedded Formative Assessments	~	Offline Guide
Books in This Unit	~	
Apps in This Unit	~	
Flextensions in This Unit	~	

3D Statements Share Out

Share the what and how of the Science and Engineering Practices addressed in each lesson.



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

Students use models to investigate how plants get their food and how energy enters and flows through an ecosystem (energy and matter systems and system models). Students then use evidence to construct and argument about with the accepta trees are not growing and thriving in an area of the rain forest ecosystem (energy and matter: systems and system models. Studes and effect).

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

Students analyze and interpret new data to figure out have plants grow and thrive in some soils but not in others (energy and matteric systems and system models). Students then use evidence to construct energy and matter: systems and system models: cause and effect).

Lesson Level

Lesson 1.1: Pre-Unit Assessment

Students write initial arguments and explore a digital model about the growth of organisms in an ecosystem (energy and matter, systems and system models).

Lesson 1.2: Introducing Ecosystems

Students create a model ecosystem (systems and system models) and make observations of different kinds of ecosystems (systems and system models).

Lesson 1.3: Matter Makes It All Up

Students read the book Matter Makes II All Up to obtain and evaluate information about how all parts of an ecosystem are made of matter, which in turn is made of molecules (energy and matter; scale, proportion, and quantity; systems and system models).

Planning for the Unit		Printable Resources
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Apps in This Unit	~	
Flextensions in This Unit	~	

Science & Engineering Practices: Ecosystem Restoration

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

Chapter 1: Use models to investigate

Chapter 1: Use evidence to construct oral and written arguments

Lesson 1.1 What - Explore a digital model How - Sim exploration

Lesson 1.2

What - Create a model, make observations How - Students build terrariums, Students work with illustrations of three ecosystems to practice making observations.

Lesson 1.3 What - Obtain and evaluate information How - Students read the first half of the book, *Matter Makes It All Up*, in order to gather information about how animals grow. Lesson 1.1 What - Write their initial argument How - Pre-Unit Assessment

Lesson 1.2

What - Make observations How - Students work with illustrations of three ecosystems to practice making observations.

Lesson 1.3

What - Obtain and evaluate information

How - Students read the first half of the book, *Matter Makes It All Up*i, n order to gather information about how animals grow.
Science & Engineering Practices: Ecosystem Restoration

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

Chapter 1: Use models to investigate Chapter 1: Use evidence to construct oral and written arguments

Lesson 1.4 Lesson 1.4 What - Create physical models What - N/A How - Students make models of animals by using interlocking How - N/A cubes to represent matter. Lesson 1.5 Lesson 1.5 What - Use a digital model What - N/A How - Students work with the Ecosystem Restoration Simulation to How - N/A investigate more about how animals use food molecules Lesson 1.6 Lesson 1.6 What - Use a digital model What - N/A How - Students work with the digital Ecosystem Modeling Tool, How - N/A which allows them to demonstrate their growing understanding of how matter flows between organisms in an ecosystem.

Science & Engineering Practices: Ecosystem Restoration

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

Chapter 1: Use models to investigate

Chapter 1: Use evidence to construct oral and written arguments

Lesson 1.7

What - Create an ecosystem model How - in the model, students will be organisms in the Everglades Swamp ecosystem, as shown in the food web from *Matter Makes It All Up*. Lesson 1.7 What - N/A How - N/A

Lesson 1.8

What - Use evidence to construct written arguments How - Students are introduced to and participate in their first Evidence Circles, a structured routine for student-guided, small-group discussions about evidence.

Lesson 1.8 What - Design restoration plan How - The class writes action steps to create their first Rain Forest Restoration Plan of the unit.

Standards at a Glance

Planning for the Unit		Printable Resources
Unit Overview	~	E Coherence Flowcharts
Unit Map	~	Copymaster Compilation
Progress Build	~	Flextension Compilation
Getting Ready to Teach	~	Investigation Notebook
Materials and Preparation	~	Multi-Language Glossary
Science Background	~	MGSS Information for Parents Guardians
Standards at a Glance	~	📴 Print Materials (8.5" x 11")
Teacher References		Print Materials (11" x 17")
Lesson Overview Compilation	~	
Standards and Goals	~	Offline Preparation
3-D Statements	~	Teaching without reliable classro internet? Prepare unit and lessor
Assessment System	~	materials for offline access.
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Books in This Unit	~	
Apps in This Unit	~	
Flextensions in This Unit	~	

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JUMP DOWN TO UNIT GUIDE	GUIDE	
		T
Chapter 1: Why aren't the jaguars and sloths growing and thriving?	Chapter 2: Why aren't the cecropia trees growing and thriving? 7Lessons	Chapter 3: Why aren't the cecropia trees growing and thriving in the soil? 7Lessons
Planning for the Unit		Printable Resources
nit Overview ~		3-D Assessment Objectives
Unit Map	~	Coherence Flowcharts
Progress Build	~	Copymaster Compilation
Getting Ready to Teach	v.	Crosscutting Concept Tracker
Materials and Preparation	~	Eliciting and Leveraging Students' Prior Knowledge, Personal Superior and College
Science Background	~	Backgrounds
Standards at a Glance		Flextension Compilation
Teacher References		Investigation Notebook
Lesson Overview Compilation	~	Multi-Language Glossary
Standards and Goals	~	. I NGSS Information for Parents and Guardians
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Embedded Formative Assessment	s ~	Offline Preparation
Books in This Unit	~	Teaching without reliable classroom
Anns in This Unit	~	materials for offline access.
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Next Generation Science Standards

Science and Engineering Practices



Asking questions (for science) and defining Ch. 1-3 problems (for engineering) Developing and using models Ch. 1-3 Planning and carrying out investigations Ch. 2-3 Analyzing and interpreting data Ch. 1-3 Using mathematics and computational thinking Ch. 1-3 Constructing explanations (for science) and designing solutions (for engineering) Ch. 1-3 Engaging in argument from evidence Obtaining, evaluating, and communicating information

Science & Engineering Practices: Ecosystem Restoration



Questions?







Plan for the day: Part 2

- Review
- Science and Engineering Practices within a lesson
- Lesson Planning
- Closing

Overarching goals

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

 Identify the Science and Engineering Practices within a lesson and how they are taught.

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□ Apply this knowledge to prepare to teach.

Closing reflection

Based on our work today, share:

Head: something you'll keep in mind

Heart: something you're feeling

Feet: something you're planning to do

LAUSD Micrositehttps://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





Amplify Chat



End of Part 2





