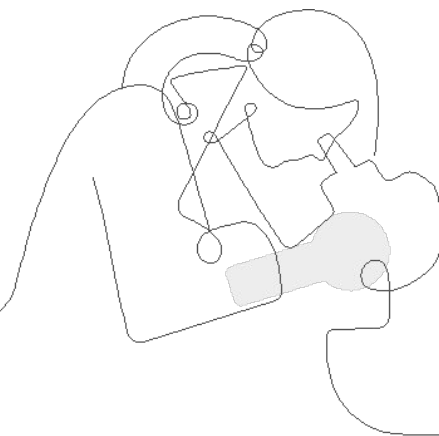


Amplify Science

4/5 Supporting All Learners with Complex Texts

Strengthening workshop-Part 1

LAUSD
March 2022
Presented by:



Phenomena-based Instruction

Inquire like a scientist.

Think like a scientist.

Quantify like a scientist.

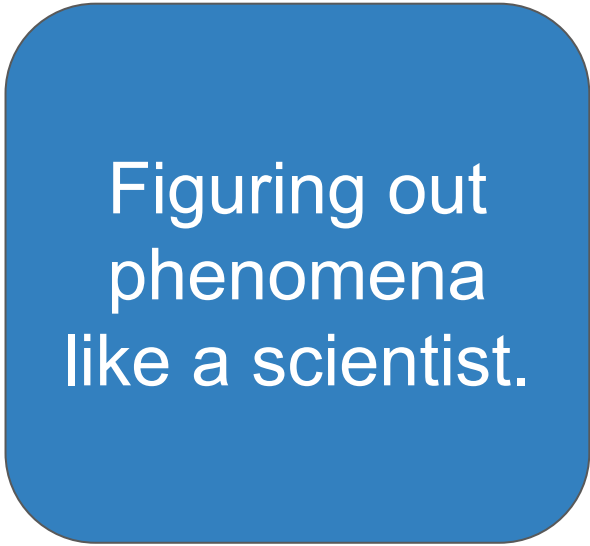
✓ **Read** like a scientist.

Talk like a scientist.

✓ **Write** like a scientist.

Critique like a scientist.

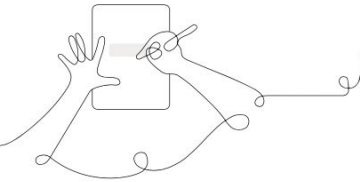
Argue like a scientist.



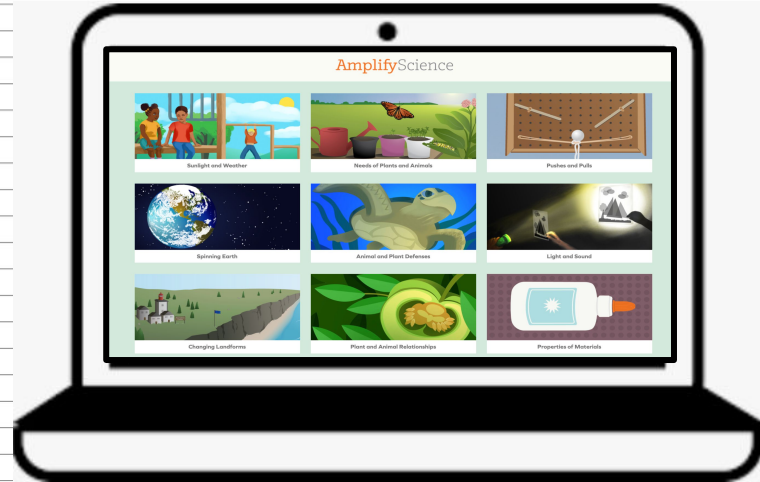
Figuring out
phenomena
like a scientist.

Participant Notebook

Supporting All Learners with Complex Texts
Grades K-5



Make sure to have paper and pencil for note taking.



Amplify's Purpose Statement

Dear teachers,

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

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

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

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

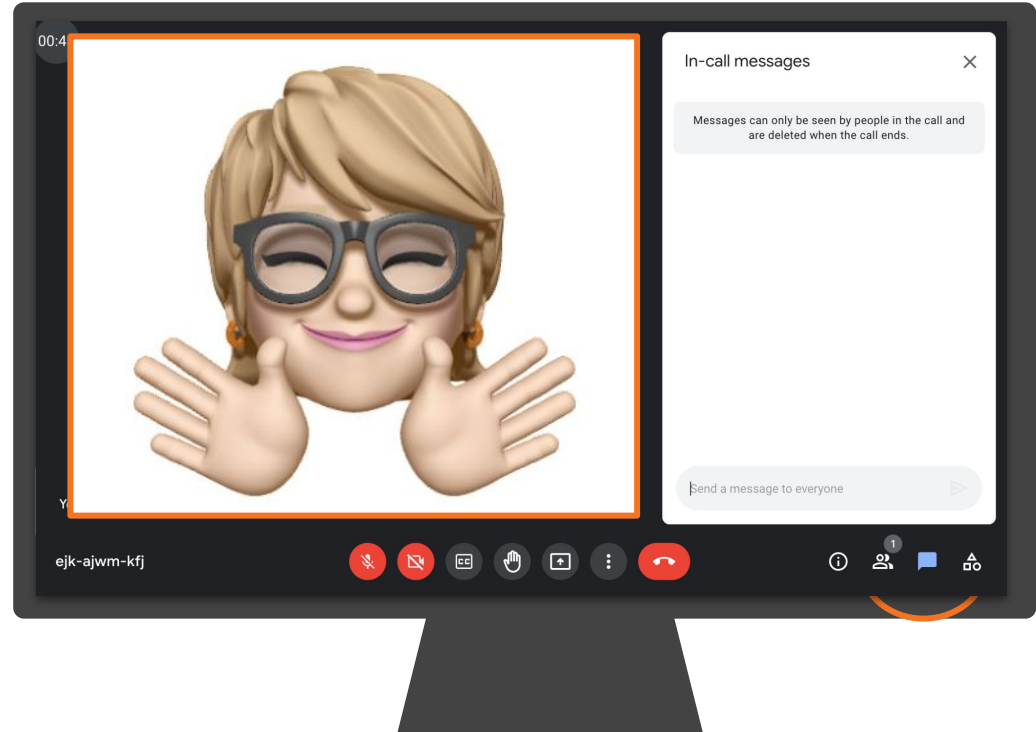
Sincerely,
Amplify

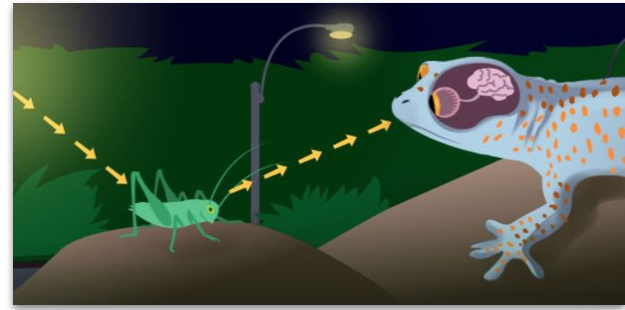
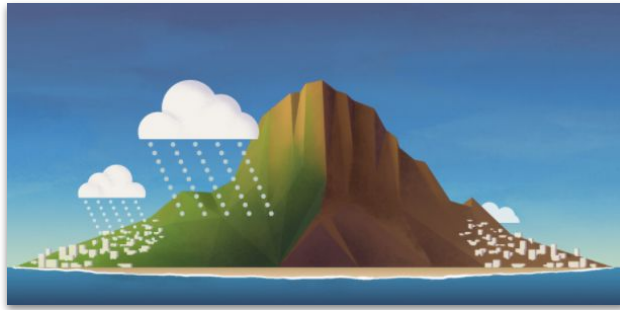
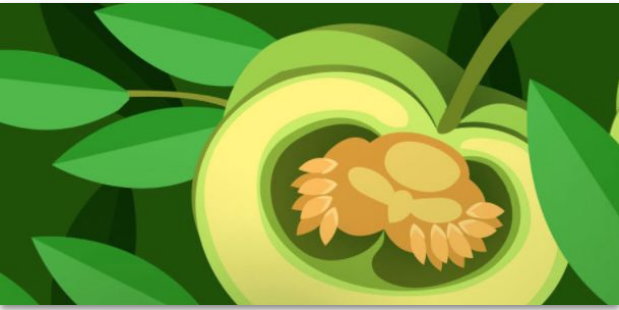
Ice Breaker!

Navigation?

Question:

- On a scale from 1-5, 5 being the highest, how would you rate yourself on navigating the online curriculum?





Plan for the day

- Introduction
- Complex text: what and why
- Supporting students with complex text
- Closing

Workshop goal

How can we teach in a way that supports **all** students to meaningfully engage with complex text in Amplify Science?



Norms: Establishing a culture of learners

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

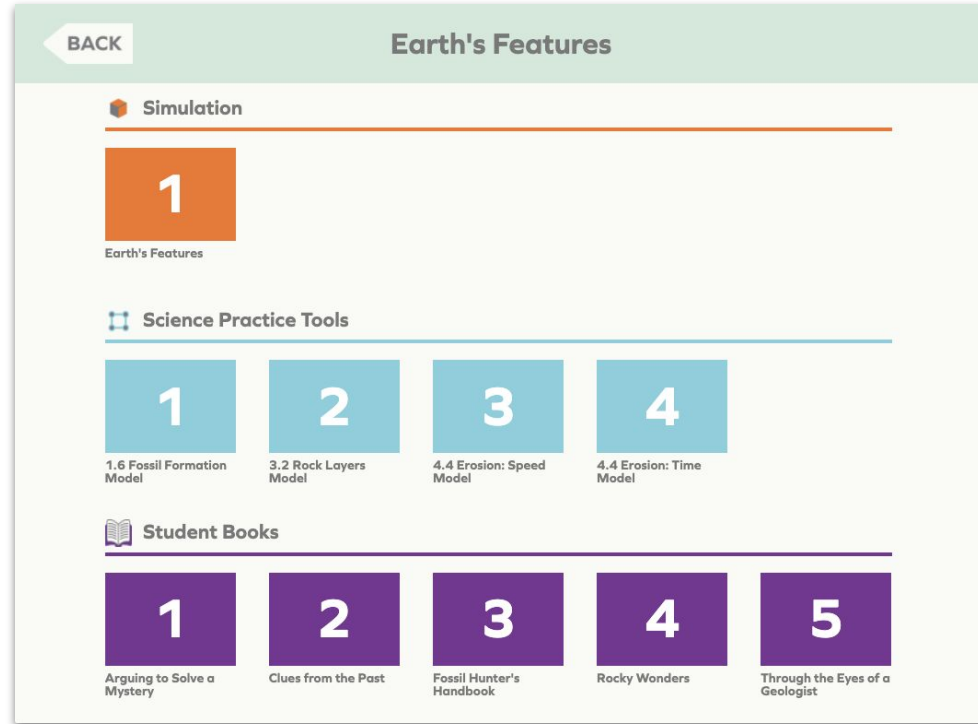
Complex text in Amplify Science

What are the books like in Amplify Science units?



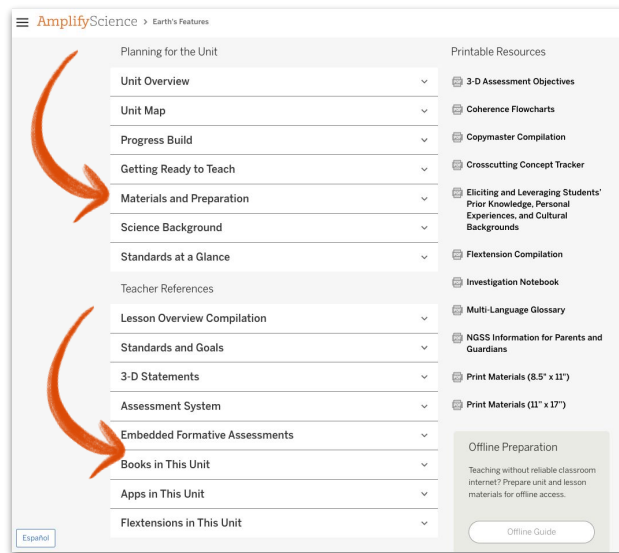
Complex text in Amplify Science

- 5 texts per unit
 - 1 title is a reference book
- 18 student copies of each title included in unit kit - designed for partner reading
- (K-1) 1 big book copy of each title
- Digital copies available with interactive e-reader



Supporting All Learners with Complex Texts

1. Use the Materials and Preparation document in the Unit Guide to figure see the lessons where the books are taught.
2. Read the summary of each book in **"Books in this Unit"** to give you background information about each text.



AmplifyScience > Earth's Features

Planning for the Unit

- Unit Overview
- Unit Map
- Progress Build
- Getting Ready to Teach
- Materials and Preparation
- Science Background
- Standards at a Glance

Teacher References

- Lesson Overview Compilation
- Standards and Goals
- 3-D Statements
- Assessment System
- Embedded Formative Assessments
- Books in This Unit
- Apps in This Unit
- Flexensions in This Unit

Printable Resources


- 3-D Assessment Objectives
- Coherence Flowcharts
- Copymaster Compilation
- Crosscutting Concept Tracker
- Eliciting and Leveraging Students' Prior Knowledge, Personal Experiences, and Cultural Backgrounds
- Flexension Compilation
- Investigation Notebook
- Multi-Language Glossary
- NGSS Information for Parents and Guardians
- Print Materials (8.5" x 11")
- Print Materials (11" x 17")

Offline Preparation

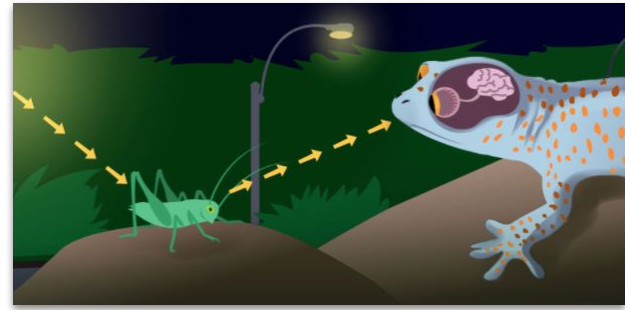
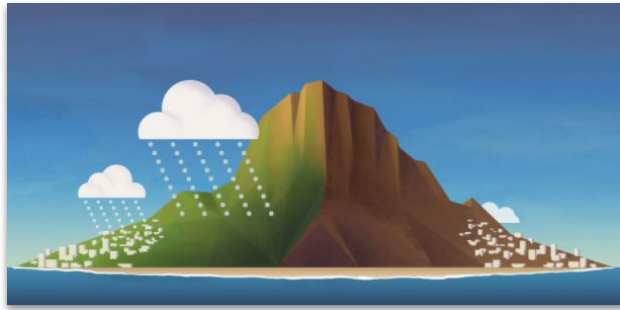
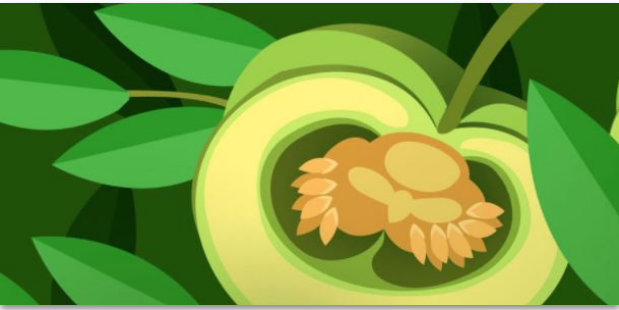
Teaching without reliable classroom internet? Prepare unit and lesson materials for offline access.

Offline Guide

Español



Quantity in kit	Student books	Used in lesson
18	<i>Arguing to Solve a Mystery</i>	3.3
18	<i>Clues from the Past</i>	1.2, 1.3, 1.5
18	<i>Fossil Hunter's Handbook</i>	2.2, 2.3, 2.4, 2.5, 3.2, 3.4
18	<i>Rocky Wonders</i>	4.1, 4.2, 4.3
18	<i>Through the Eyes of a Geologist</i>	2.1



Plan for the day

- Introduction
- **Complex text: what and why**
- Supporting students with complex text
- Closing

What makes a science text complex?

Read “The Shape of a Moon’s Orbit.”

As you read, consider what could be **complex** or **challenging** about this science text.

THE SHAPE OF A MOON’S ORBIT

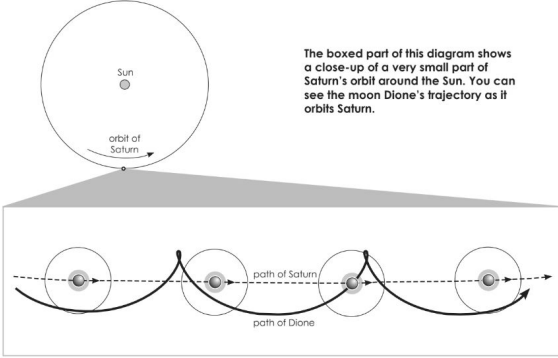
Dione, a moon of Saturn

When is a circle not a circle? Many objects in the Solar System move in orbits that are very circular. For instance, Dione is a moon that moves around the planet Saturn in an orbit that is almost a perfect circle. It seems perfectly logical to say that the trajectory of Dione is circular. But is it really?

While Dione is circling around Saturn, Saturn is not sitting still. Saturn is moving around the Sun. The gravitational pull of the Sun affects Saturn and all its moons, so they all move around the Sun together. Saturn moves in an orbit that is almost a perfect circle, but what kind of trajectory does a moon like Dione follow?

The path of a moon around the Sun can be quite complicated. It depends on how fast the planet is moving, how fast the moon is orbiting, and how far away the moon is from the planet. Dione moves around the Sun in a wavy path that makes a little loop every time it orbits around Saturn. Every time Saturn orbits the Sun once, Dione orbits Saturn about 3,931 times, so the trajectory that Dione follows is an intricate path with thousands of waves and loops.

The boxed part of this diagram shows a close-up of a very small part of Saturn’s orbit around the Sun. You can see the moon Dione’s trajectory as it orbits Saturn.



The diagram illustrates the complex trajectory of a moon like Dione around the Sun. At the top, the Sun is shown as a small circle. A large circle represents Saturn's orbit around the Sun. Below this, a rectangular box provides a magnified view of a small segment of Saturn's orbit. Within this box, Saturn's path is shown as a dashed line with small loops, and Dione's path is shown as a solid line with many more frequent, tighter loops. To the right of the main text, there are two circular images of the moon Dione, one labeled 'NASA' and another partially visible on the right edge labeled 'LHS'.

Amplify Science

LHS

4

What makes a science text complex?

- Specialized vocabulary
- Sophisticated content that requires background knowledge
- Complex visual representations
- Sentence structure
- Density of content



Scientists and complex text

What types of texts do scientists use?

How do scientists engage with text?



Disciplinary literacy

The specialized reading practices and strategies required to make sense of the unique types of text found within a discipline.



Traditional model of literacy 'stages' in school

Disciplinary literacy:

specialized strategies to
access discipline's texts

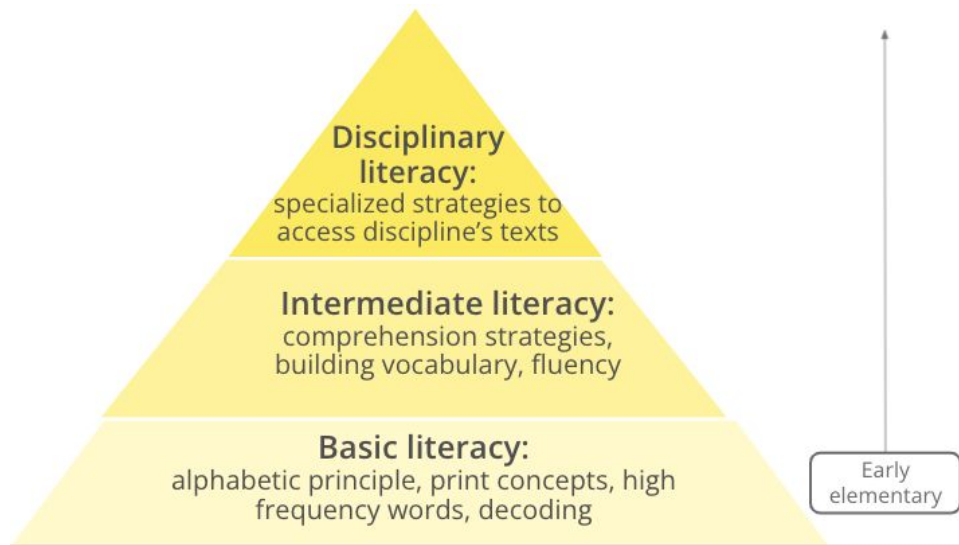
Intermediate literacy:
comprehension strategies,
building vocabulary, fluency

Basic literacy:
alphabetic principle, print concepts, high
frequency words, decoding

Early
elementary

Problems with this model

- Gaps in students' basic and intermediate literacy in upper grades
- Lack of explicit disciplinary literacy instruction across subject areas



A new model

Integration of literacy stages

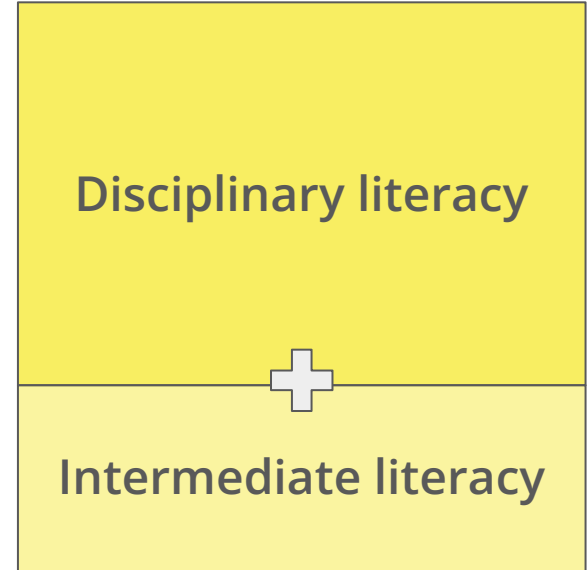
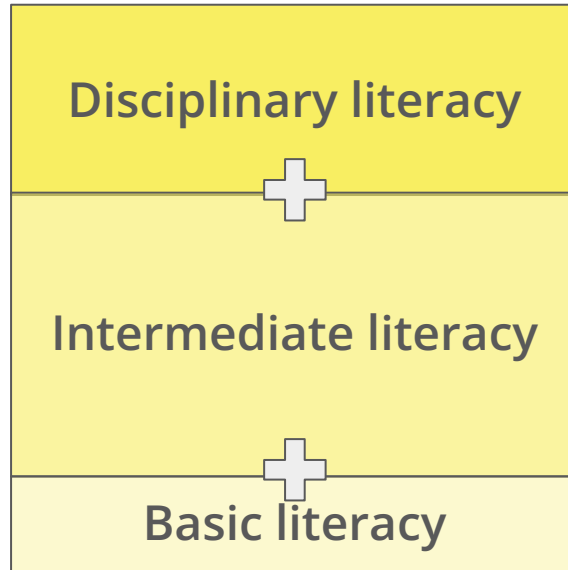
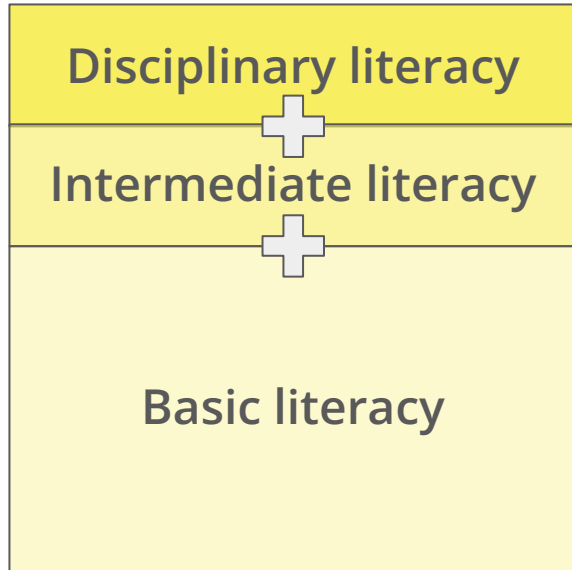
- Explicit disciplinary literacy instruction at all grade levels
- Sustained basic and intermediate literacy instruction at all grade levels



Integration of literacy stages

Early
elementary

High school



Complex text and disciplinary literacy

Reflection

How did you leverage
discipline-specific reading skills
when you read “The Shape of a
Moon’s Orbit”?

How did you read like a scientist?

THE SHAPE OF A MOON’S ORBIT

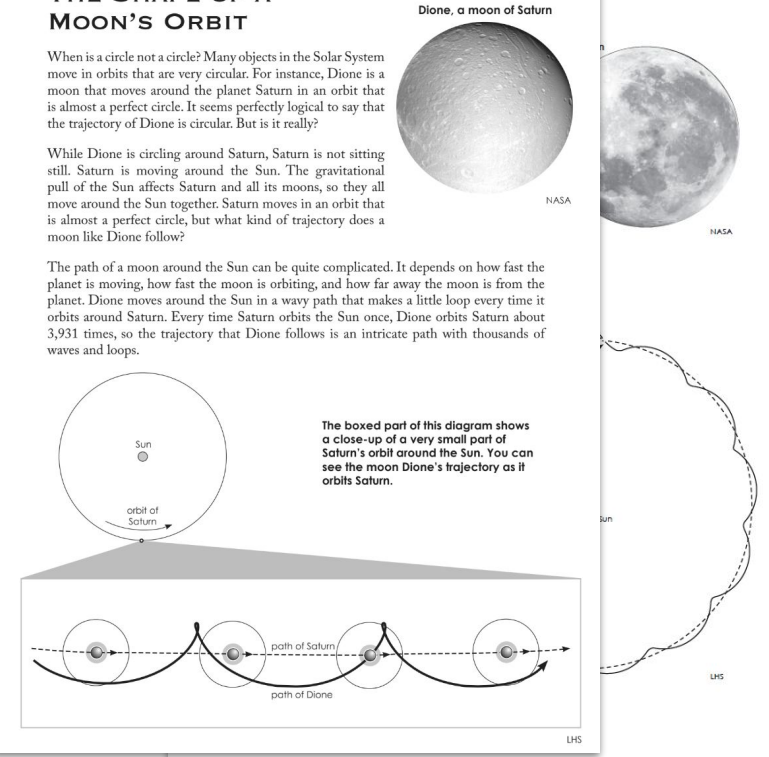
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The boxed part of this diagram shows a close-up of a very small part of Saturn’s orbit around the Sun. You can see the moon Dione’s trajectory as it orbits Saturn.



The diagram illustrates the complex trajectory of a moon like Dione around the Sun. It starts with a large circle representing the Sun. A smaller circle represents Saturn's orbit around the Sun. A dashed line shows the path of Saturn around the Sun. A solid line shows the path of Dione around Saturn. The path of Dione is a series of loops that follow Saturn's orbit. A boxed part of the diagram shows a close-up of a very small part of Saturn's orbit around the Sun, where the path of Dione is shown as a series of loops.

NASA

LHS

Amplify Science

4

Establishing connections among concepts

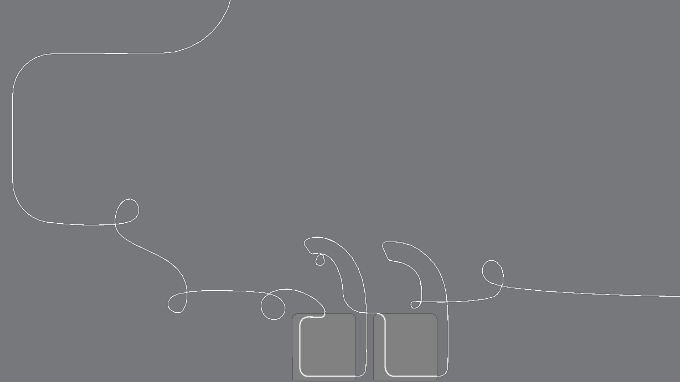
Disciplinary
literacy

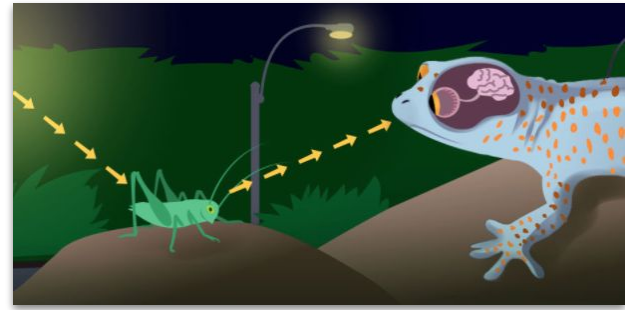
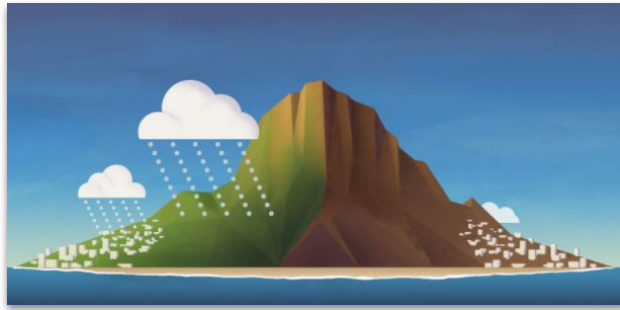
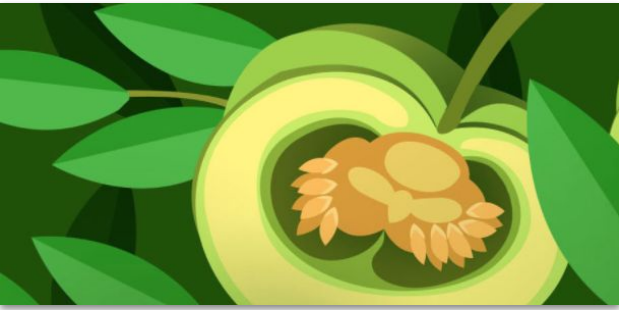
Complex
text



Instructional
support

Questions?





Plan for the day

- Introduction
- Complex text: what and why
- **Supporting students with complex text**
- Closing

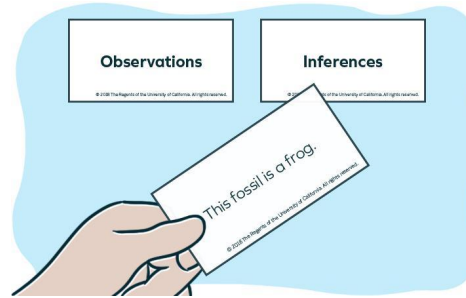
Instructional supports



Strategic text
roles



Talking about
reading



Sense-making
strategies



Multimodal
instruction

Instructional supports

Text roles

- **Model** a scientific process or practice
- Deliver **content**
- **Set context** by situating science in the real world
- Provide data for students to interpret (**secondhand investigation**)
- Provide information for investigation (**first hand investigation**)



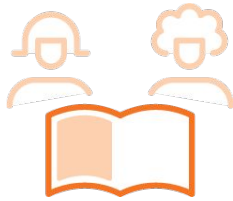
Instructional supports

Talking about reading

- Teacher models expert science reading
- Partner reading
- Class discussion
- Discourse routines



Partner Reading

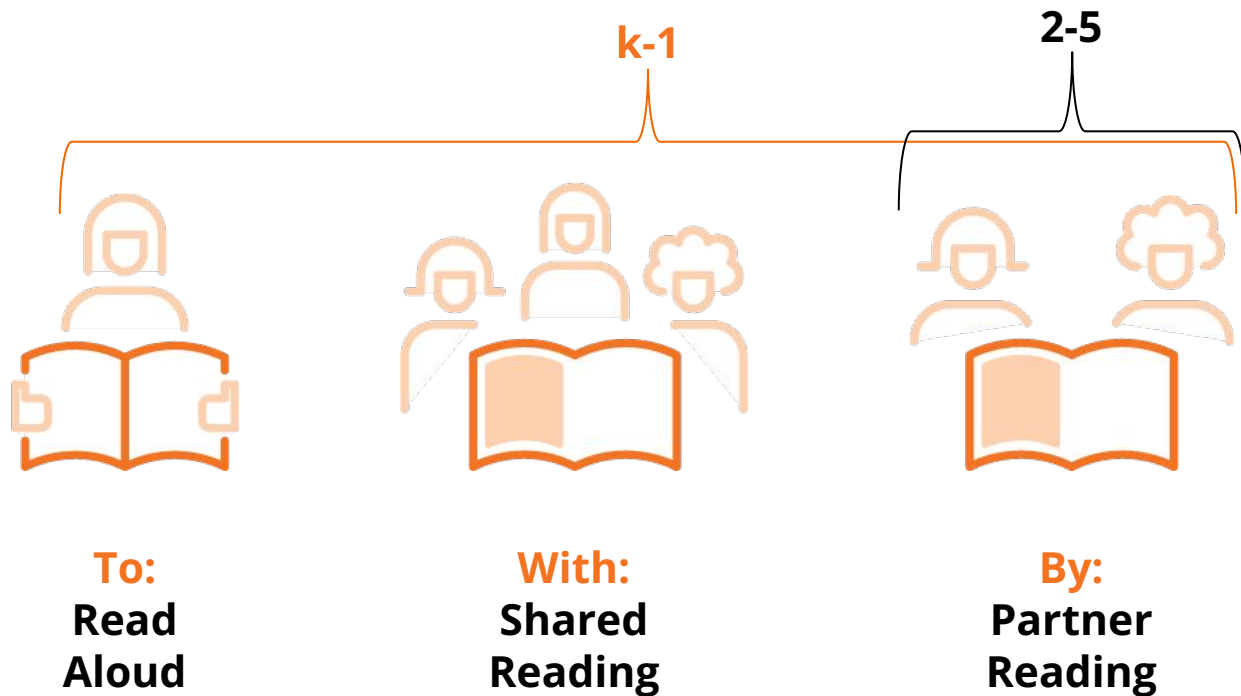


2-5

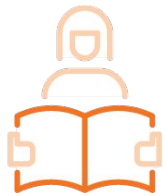
Partner Reading Guidelines

1. Sit next to your partner and place the book between you.
2. Take turns reading.
3. Read in a quiet voice.
4. Be respectful and polite to your partner.
5. Ask your partner for help if you need it. Work together to make sure you both understand what you read.

Modes of Reading in Amplify Science



Read Aloud



K-1

Light and Sound- Grade 1



Teacher action:

Read pages 4–5 out loud.



Suggested teacher talk:

I read a question here: *Is there any light in the theater?* I have another question because there is something I do not understand. I think there is light in the theater because I see light in the illustration. The thing I do not understand—or my question—is *Where is the light coming from?*



Suggested teacher talk:

I am going to keep reading to find an answer to my question.



Think of a movie theater. You walk in after the movie starts. It is hard to see, but you can still find a seat. You can see a little bit. Is there any light in the theater?

Shared Reading

K-1



Here is what a scientist or engineer would say:

The wagon and Faheem moved because Francis exerted a force on the wagon.

8

Pushes and Pulls- Grade K

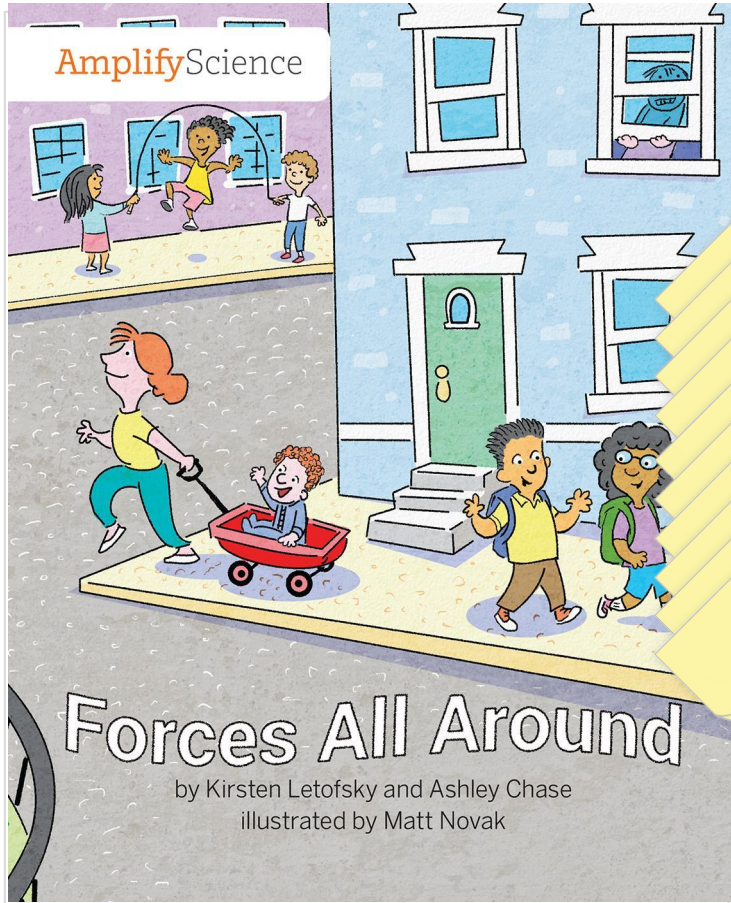


Teacher action:

Read the first paragraph on page 7, and then pause to think out loud to model visualizing a pull. Talk about what you visualize and include a pulling hand motion in which you pull your hands toward your body. Ask students to gesture with their hands the movement of pulling a wagon.

Partner Reading

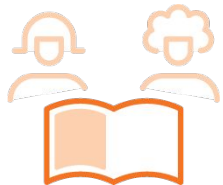
Activity 2



Read the book and mark examples of forces you find with sticky notes.

Forces All Around- Grade 3

K-5



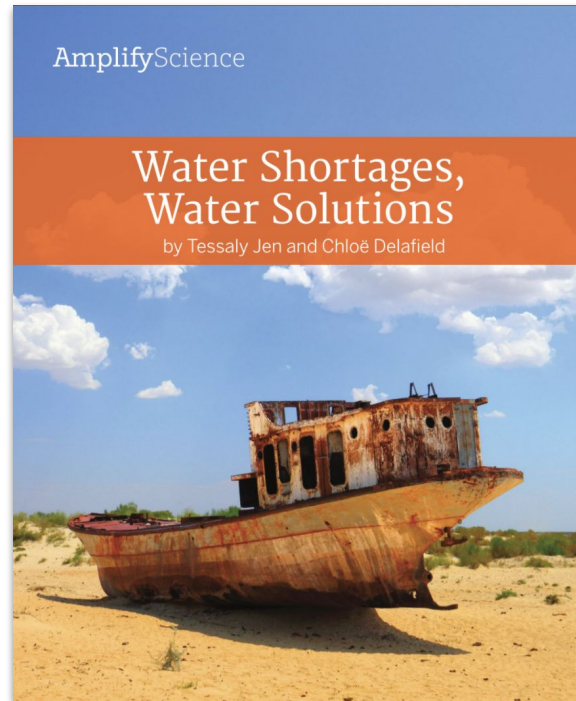
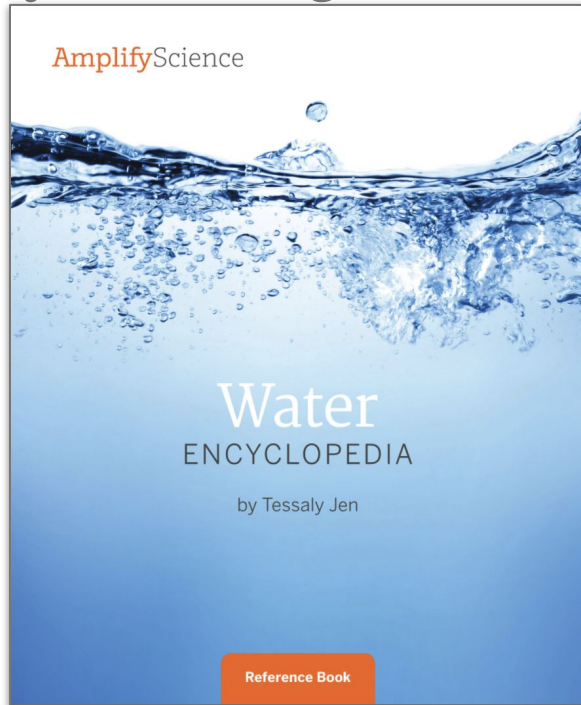
Instructional supports

Sense-making strategies: How are students reading?

- Setting a purpose
- Visualizing
- Making predictions
- Asking questions
- Making inferences
- Synthesizing



Example: Grade 5 Synthesizing



Name: _____ Date: _____

Synthesizing Ideas About Water Shortages

1. Read the question below.
2. Recall big ideas from *Water Encyclopedia* that help you answer the question, and record them in the first box.
3. Read pages 4–7 of *Water Shortages, Water Solutions* and record big ideas that help you answer the question in the second box.
4. Connect ideas together to come up with a new understanding that answers the question.
5. Record your new understanding in the box below the arrow.

Question: How can people affect how much freshwater is available?

Source: <i>Water Encyclopedia</i> Ideas:
Source: <i>Water Shortages, Water Solutions</i> Ideas:

↓

New understanding:

4 The Earth System—Lesson 1.2
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- ***The Earth System***-5th Grade
- Synthesizing Big Ideas from two different texts
- Investigation Notebook

Instructional supports

Sense-making strategies

- 1 focal comprehension strategy per unit
- Used for reading and investigations

Unit essentials reference cont.



Grade	Unit	Student role	Unit type	Focal crosscutting concept	Sense-making strategy	Writing areas
K	Needs of Plants and Animals	scientist	investigation	systems	setting a purpose	explanation
	Pushes and Pulls	pinball engineer	design	cause and effect	visualizing	explanation
	Sunlight and Weather	weather scientist	modeling	cause and effect	making predictions	explanation
1	Animal and Plant Defenses	aquarium scientist	modeling	structure and function	visualizing	explanation
	Light and Sound	light and sound engineer	design	cause and effect	asking questions	explanation
	Spinning Earth	sky scientist	investigation	patterns	making predictions	explanation
2	Plant and Animal Relationships	plant scientist	investigation	systems	setting a purpose	explanation
	Properties of Materials	glue engineer	design	cause and effect	making predictions	design argument
	Changing Landforms	geologist	modeling	scale, proportion, and quantity	visualizing	explanation
3	Balancing Forces	scientist	modeling	stability and change	setting a purpose	explanation
	Inheritance and Traits	wildlife biologist	investigation	patterns	asking questions	explanation
	Environments and Survival	biomimicry engineer	design	structure and function	making inferences	explanation
	Weather and Climate	meteorologist	argumentation	patterns	visualizing	scientific argument
4	Energy Conversions	systems engineer	design	systems	synthesizing	design argument
	Vision and Light	conservation biologist	investigation	structure and function	asking questions	explanation
	Earth's Features	geologist	argumentation	stability and change	making inferences	scientific argument
5	Waves, Energy, and Information	marine scientist	modeling	patterns	visualizing	explanation
	Patterns of Earth and Sky	astronomer	investigation	patterns	visualizing	explanation
	Modeling Matter	food scientist	modeling	scale, proportion, and quantity	making inferences	explanation
	The Earth System	water resource engineer	design	systems	synthesizing	explanation
	Ecosystem Restoration	ecologist	argumentation	energy and matter	making inference and synthesizing	scientific argument

Instructional supports

Multimodal instruction

How can the activities that surround a reading opportunity help students access the text?

Do



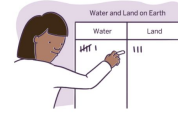
Water and Land on Earth



Step 1
We will toss the globe to one another.

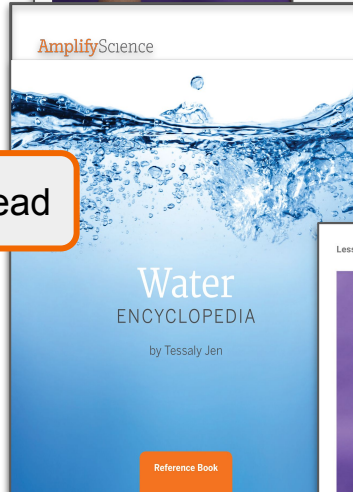


Step 2
When you catch the globe, announce where **each** of your thumbs landed—on **water or land**.

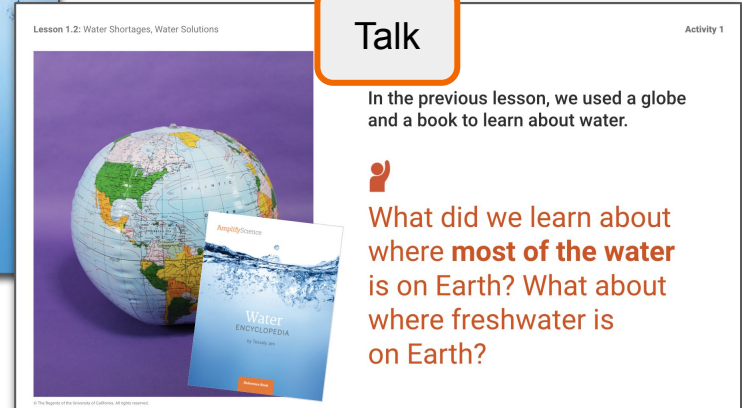


Step 3
On the board, we will record a tally of how many times thumbs end up on water and how many times they end up on land.

Read



Talk



In the previous lesson, we used a globe and a book to learn about water.

What did we learn about where **most of the water** is on Earth? What about where **freshwater** is on Earth?

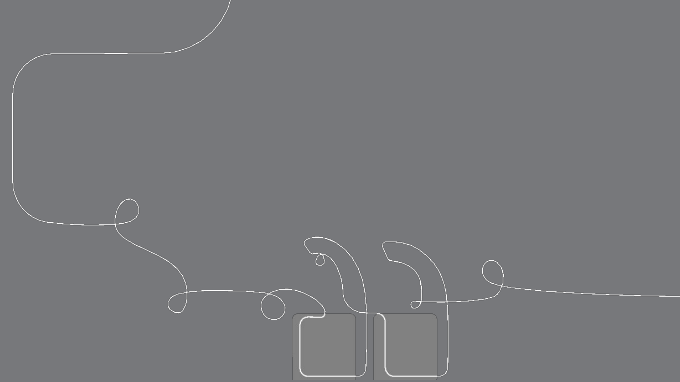
Visualize

Lesson 1.2: Water Shortages, Water Solutions



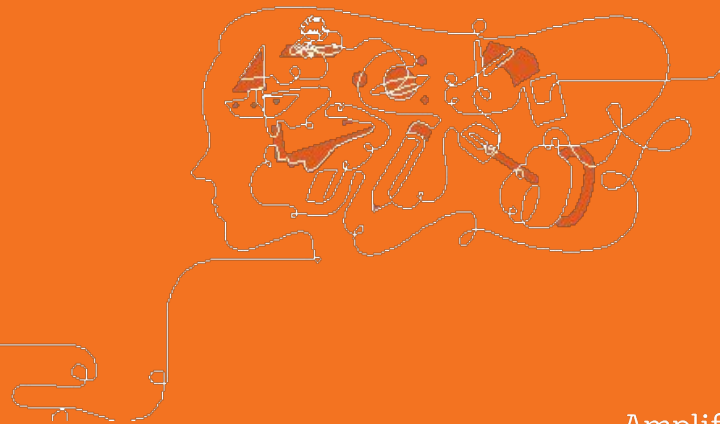
East Ferris is on an island, so it is surrounded by **salt water** in the ocean. Like us, people on Ferris Island need **freshwater**, not salt water, for their daily activities.

Questions?



Additional Support

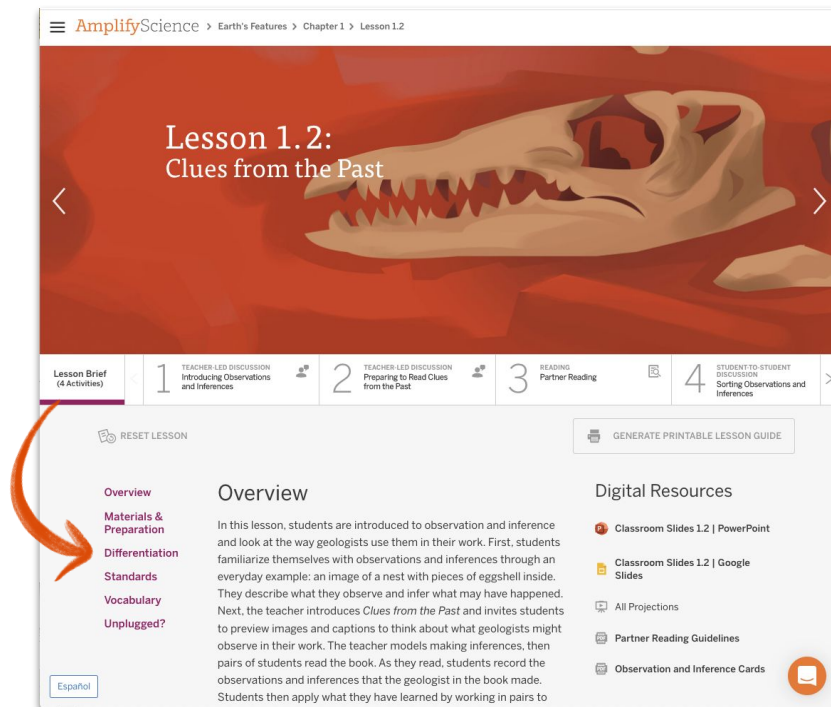
Differentiation- Reading Support



Additional supports

Lesson-specific differentiation

- Embedded supports
- Potential challenges
- Strategies for:
 - English Learners
 - Students who need more support
 - Students who need more challenge



The screenshot displays the AmplifyScience interface for Lesson 1.2, "Clues from the Past". The top navigation bar shows the path: AmplifyScience > Earth's Features > Chapter 1 > Lesson 1.2. The main header features a large image of a dinosaur skull with the lesson title "Lesson 1.2: Clues from the Past". Below the header is a progress bar with four steps: 1. Lesson Brief (4 Activities), 2. Teacher-Led Discussion: Introducing Observations and Inferences, 3. Reading: Partner Reading, and 4. Student-to-Student Discussion: Sorting Observations and Inferences. A red arrow points from the "Differentiation" link in the left sidebar to the "Overview" section. The sidebar includes links for Overview, Materials & Preparation, Differentiation, Standards, Vocabulary, and Unplugged?. The main content area shows the "Overview" section, which describes the lesson's focus on observation and inference. The right sidebar lists digital resources: Classroom Slides 1.2 | PowerPoint, Classroom Slides 1.2 | Google Slides, All Projections, Partner Reading Guidelines, and Observation and Inference Cards. A "Generate Printable Lesson Guide" button is also present.

AmplifyScience > Earth's Features > Chapter 1 > Lesson 1.2

Lesson 1.2: Clues from the Past

Lesson Brief (4 Activities) 1 TEACHER-LED DISCUSSION Introducing Observations and Inferences 2 TEACHER-LED DISCUSSION Preparing to Read Clues from the Past 3 READING Partner Reading 4 STUDENT-TO-STUDENT DISCUSSION Sorting Observations and Inferences

RESET LESSON

GENERATE PRINTABLE LESSON GUIDE

Differentiation

Overview

In this lesson, students are introduced to observation and inference and look at the way geologists use them in their work. First, students familiarize themselves with observations and inferences through an everyday example: an image of a nest with pieces of eggshell inside. They describe what they observe and infer what may have happened. Next, the teacher introduces *Clues from the Past* and invites students to preview images and captions to think about what geologists might observe in their work. The teacher models making inferences, then pairs of students read the book. As they read, students record the observations and inferences that the geologist in the book made. Students then apply what they have learned by working in pairs to

Digital Resources

- Classroom Slides 1.2 | PowerPoint
- Classroom Slides 1.2 | Google Slides
- All Projections
- Partner Reading Guidelines
- Observation and Inference Cards

Español

Work Time: Differentiation 4/5

1. Have paper & pencil ready.
2. Browse the book listed below
 - a. Elementary Student App (Global Navigation)
3. Open the lesson indicated in the chart below.
4. Read the Differentiation section in the Lesson Brief.

[illegible]

Grade 4	<i>Systems</i>	Lesson 1.2	Energy Conversions
Grade 5	<i>How Big is Big? How Far is Far?</i>	Lesson 1.3	Patterns of Earth and Sky

Work Time: 10 minutes

Read the Differentiation Section of the lesson indicated below to answer the following questions:

1. What is the Sense-making Strategy for this unit?
2. What might be challenging about this text for some of your students?
3. How can you leverage and build upon the Amplify Science embedded supports to ensure all students in your class are accessing complex texts in Amplify Science?

Page 6
of PN

Grade 4	<i>Systems</i>	Lesson 1.2	Energy Conversions
Grade 5	<i>How Big is Big? How Far is Far?</i>	Lesson 1.3	Patterns of Earth and Sky

Additional supports

Accessibility features

- Read-aloud function on digital books
- Read-aloud videos on Program Hub



Rodolfo Coria works with other scientists to study fossils.

By observing fossils, Coria and other scientists can make inferences about organisms from long ago. On the day he helped discover *Argentinosaurus*, Coria was out in the desert in Argentina. He was working with another scientist to dig up fossil bones.

Coria knows a lot about bones. He can observe the shape of a bone and **infer** what kind of animal it belongs to. He can also observe where the bone belongs and **infer** whether it is a leg bone or a tail bone.

10

YouTube

Search

South America

Pacific Ocean

Atlantic Ocean

Argentina

Rodolfo Coria is a scientist who studies dinosaurs. He lives in Argentina, a country in South America. The dinosaurs Coria studies are extinct—there are none left alive on Earth. To study dinosaurs, Coria has to make **inference**. An inference is something he figures out by putting together what he can **observe** and what he already knows.

This photo shows Rodolfo Coria observing a fossil in Argentina.

Coria can't observe living dinosaurs, but he can observe **fossils** of dinosaurs. Fossils are remains or parts of animals, plants, and other **organisms** that have been preserved in rock. Fossils can be found millions of years after an organism died.

RECORDED WITH SCINCAST

0:20 / 7:22

Grade 4 Earth's Features_Clues from the Past Read-Aloud

Unlisted

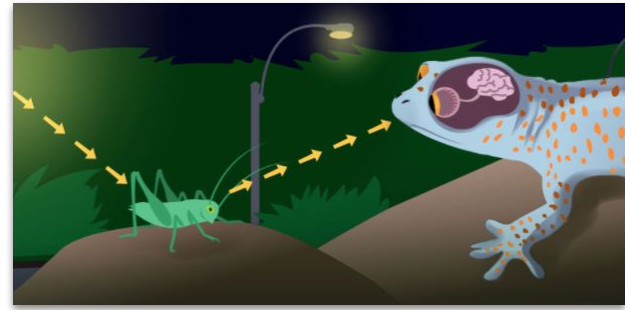
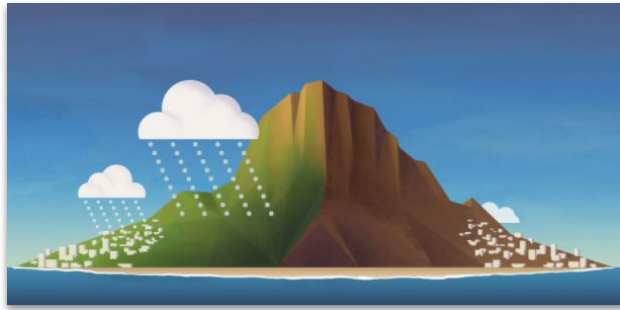
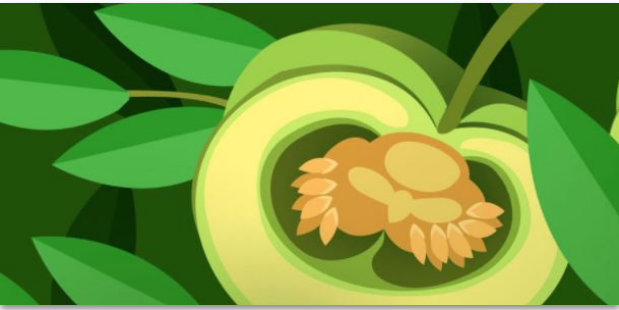
Explaining the connections among concepts in Amplify Science

Disciplinary
literacy

Complex
text



Instructional
support



Plan for the day

- Introduction
- Complex text: what and why
- Supporting students with complex text
- **Closing**

Workshop goal

How can we teach in a way that supports **all** students to meaningfully engage with complex text in Amplify Science?



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

Phenomena-based Instruction

Inquire like a scientist.

Think like a scientist.

Quantify like a scientist.

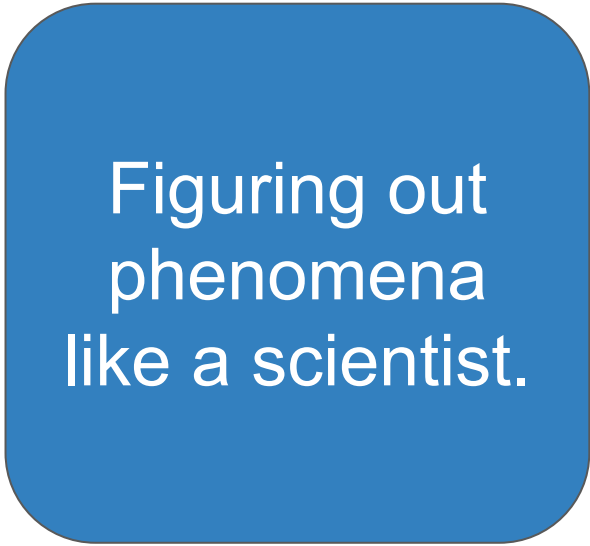
✓ **Read** like a scientist.

Talk like a scientist.

Write like a scientist.

Critique like a scientist.

Argue like a scientist.



Figuring out
phenomena
like a scientist.

Additional resources and ongoing support

Customer Care

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



help@amplify.com



800-823-1969

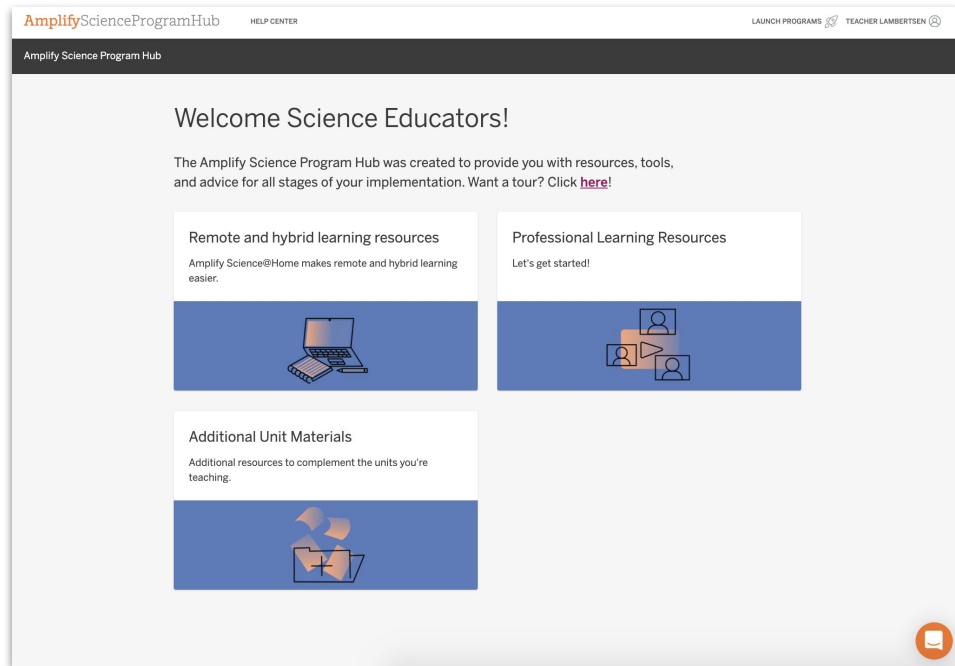


Amplify Chat



Program Hub

- Unit overview videos
- Planning tools
- Remote and hybrid learning resources.



Thank You!

End of Part 1

Presenter name:

Workshop title:

K-5 Supporting All Learners with Complex Texts- Part 1

Modality:

Remote