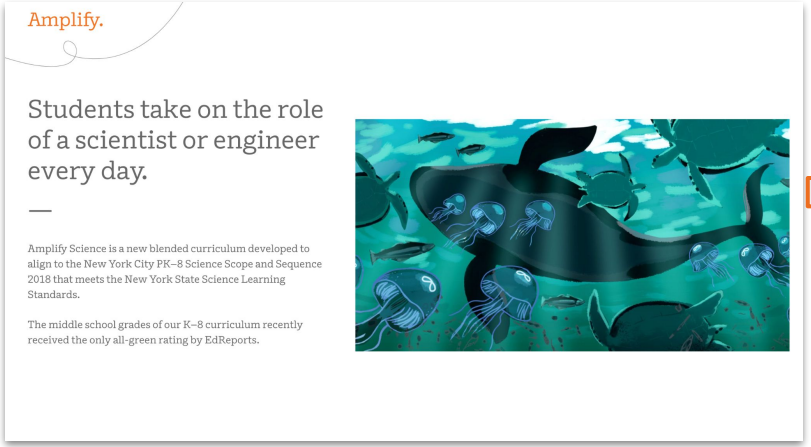
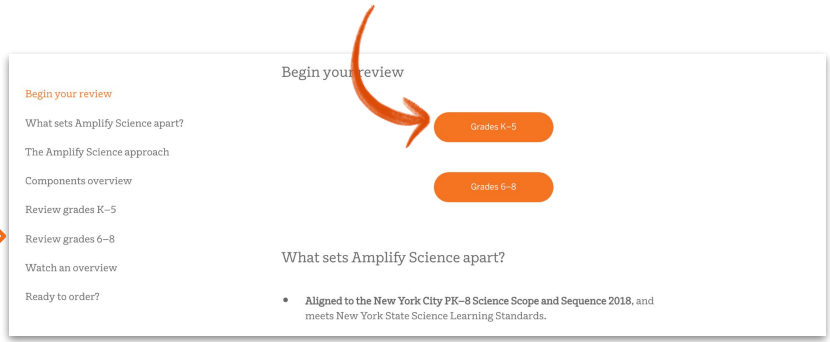
Welcome to Amplify Science!

Do Now: Open auto-login site & explore as we wait to begin

Go to **https://amplify.com/amplify-science-nyc-doe-review/**





Click your grade band & then follow prompts

Amplify Science
New York City

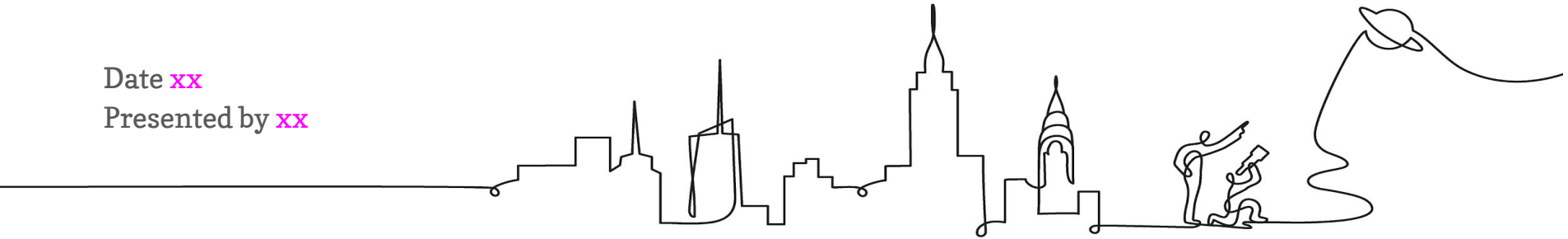
Exploring the Amplify Science Curriculum

Grades K-2

Part 2

Date xx

Presented by xx



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.

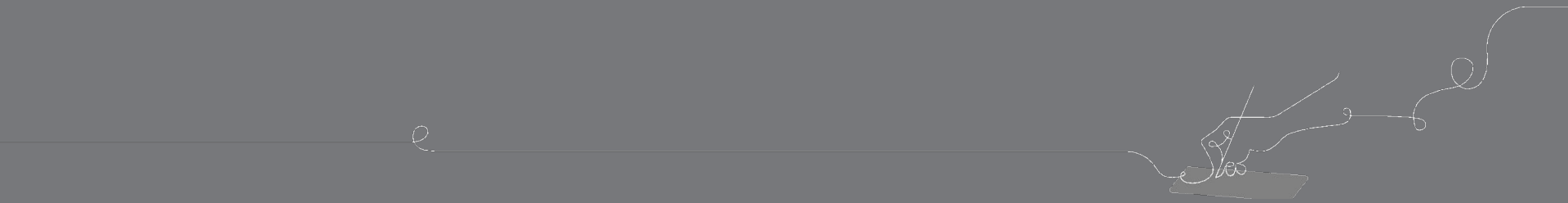
We share your goal of **inspiring all students to think deeply, creatively, and for themselves.**

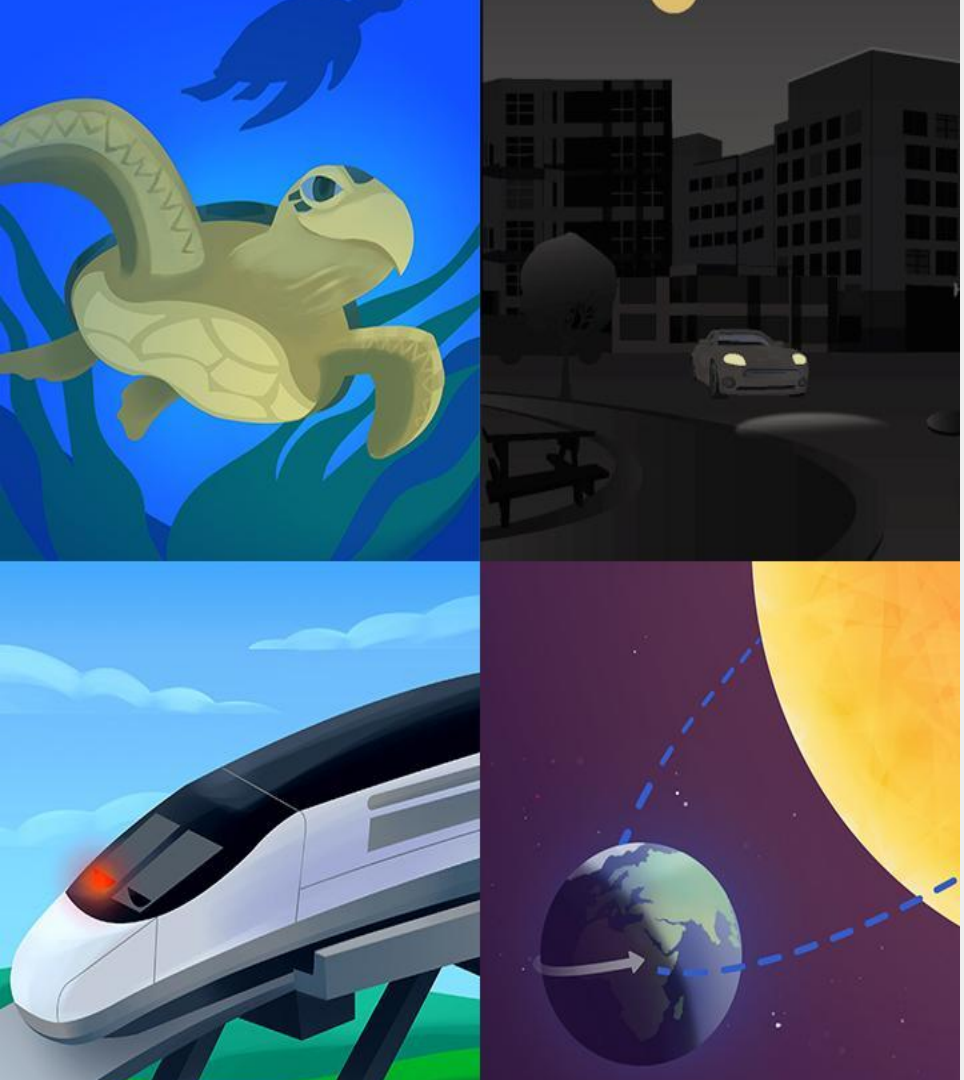
Sincerely,
Amplify

Goals for Part 2 session

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

- ❑ Unpack the progress build.
- ❑ Understand the coherence of an exemplar unit.
- ❑ Describe how Amplify Science supports CR-SE.





Plan for part 2

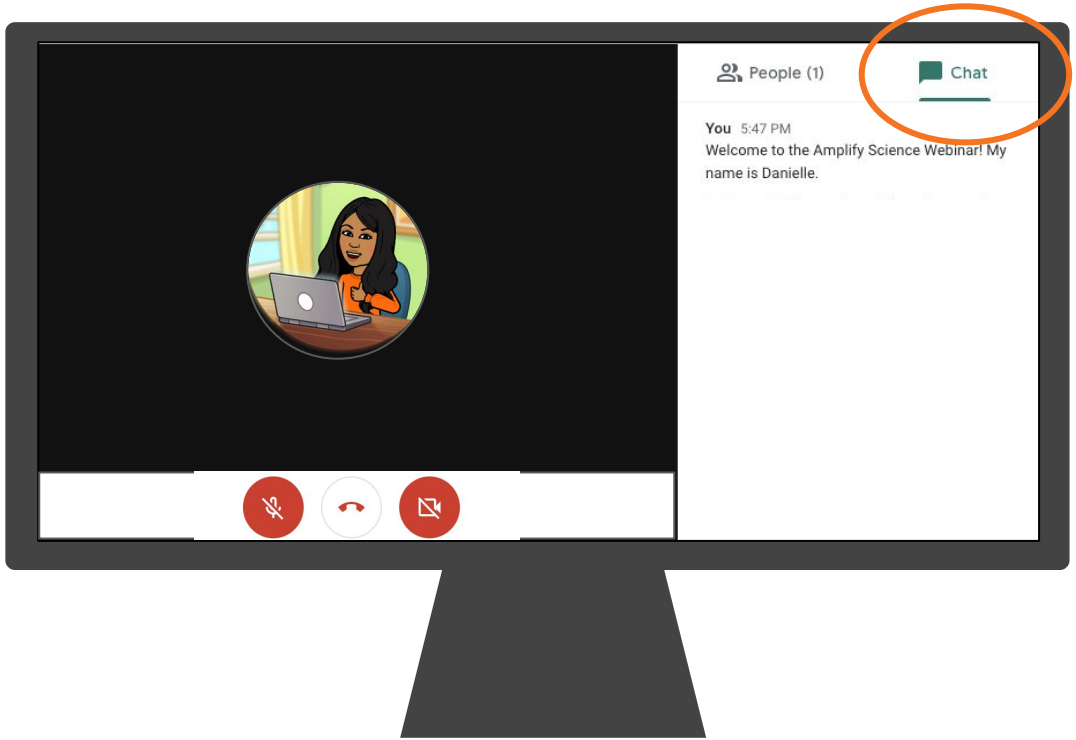
- **Framing the day**
  - Welcome
- **Unit Exploration**
  - Unpacking the Progress Build
- **Unit Coherence**
  - Unpacking unit coherence in your first unit
- **Planning for CR-SE**
  - Unpacking - Eliciting and Leveraging Students' Prior Knowledge
- **Closing**
  - Final Questions & Feedback

Ice Breaker!

How's everyone today?

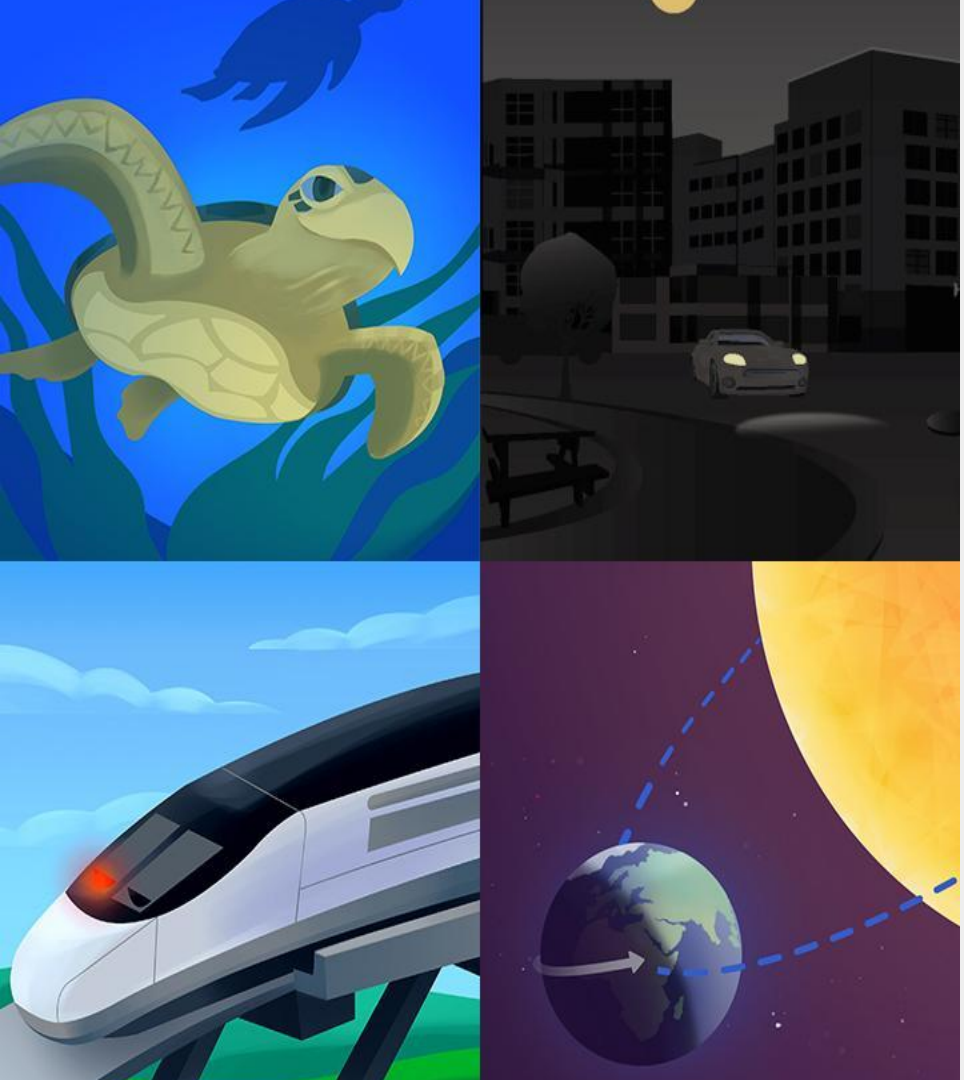
- **Prompt 1:** Drop an emoji in the chat that describes how you're feeling today.

- **Prompt 2:** What can we do to energize & excite you about Amplify Science today?



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.



Plan for part 2

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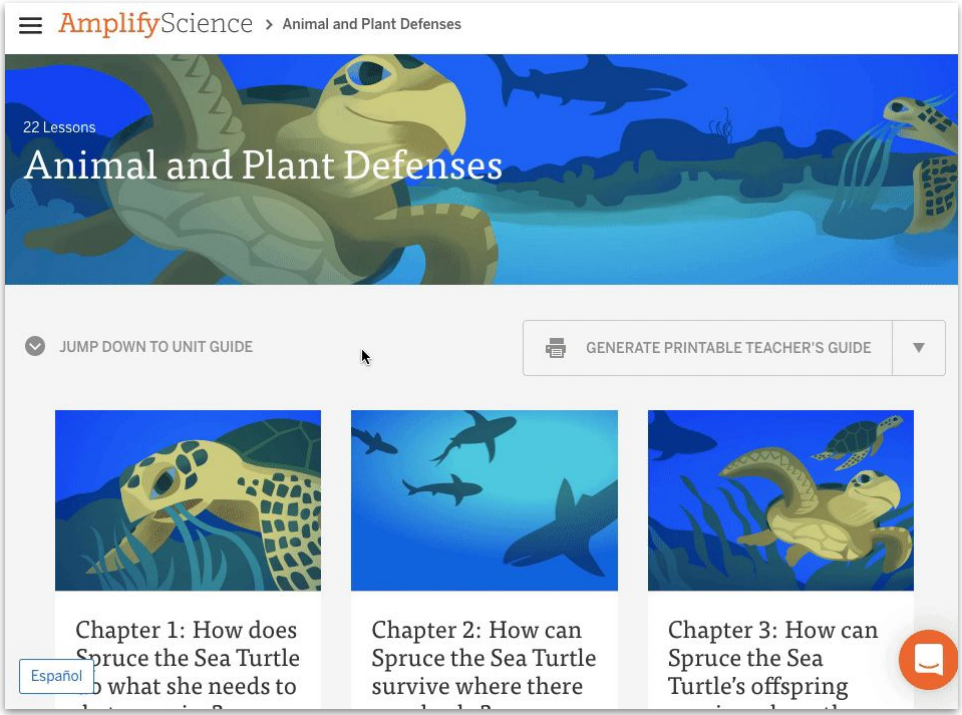
  - Unpacking - Eliciting and Leveraging Students' Prior Knowledge
- **Closing**
  - Final Questions & Feedback

Unit Guide

The Unit Guide is a collection of resources to support planning and day-to-day instruction in the unit.

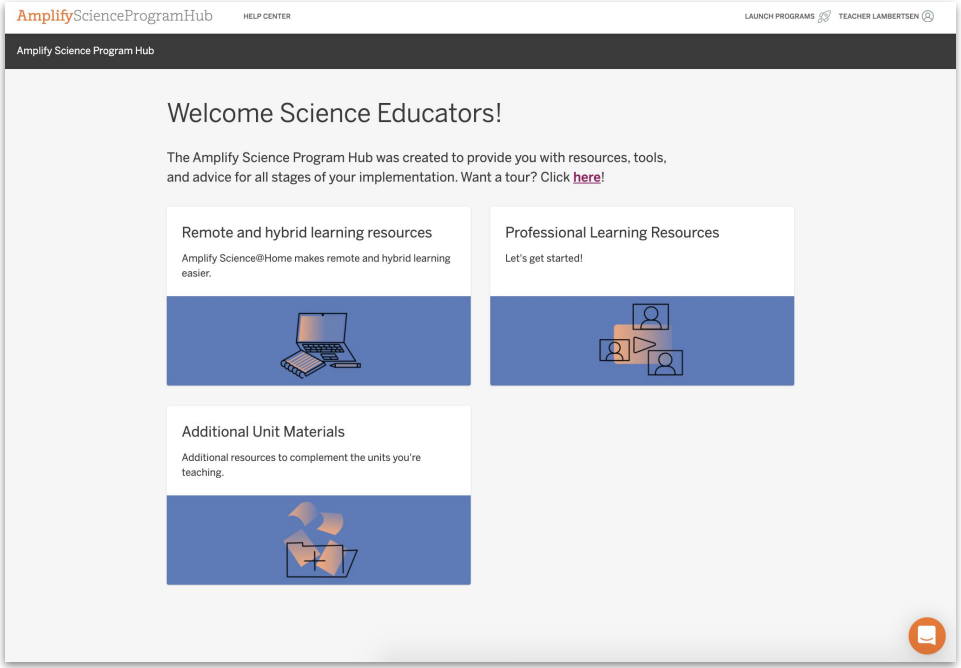
You can access the Unit Guide on the Unit landing page below the chapter buttons.

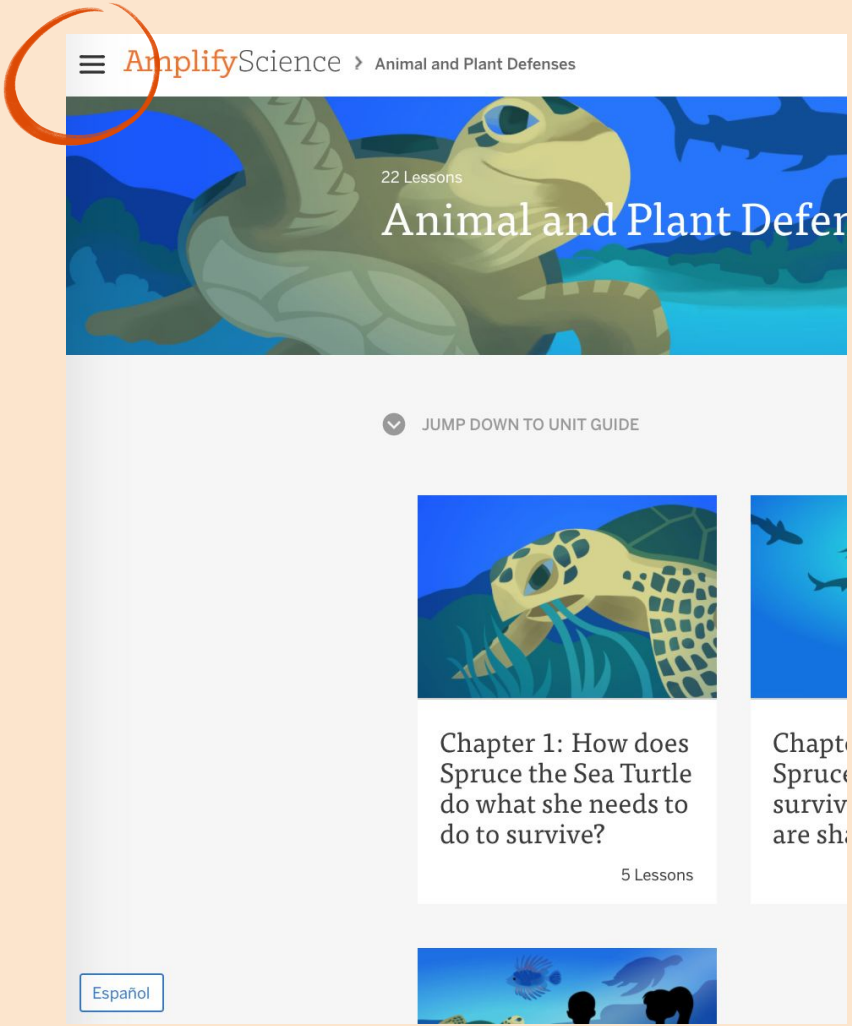


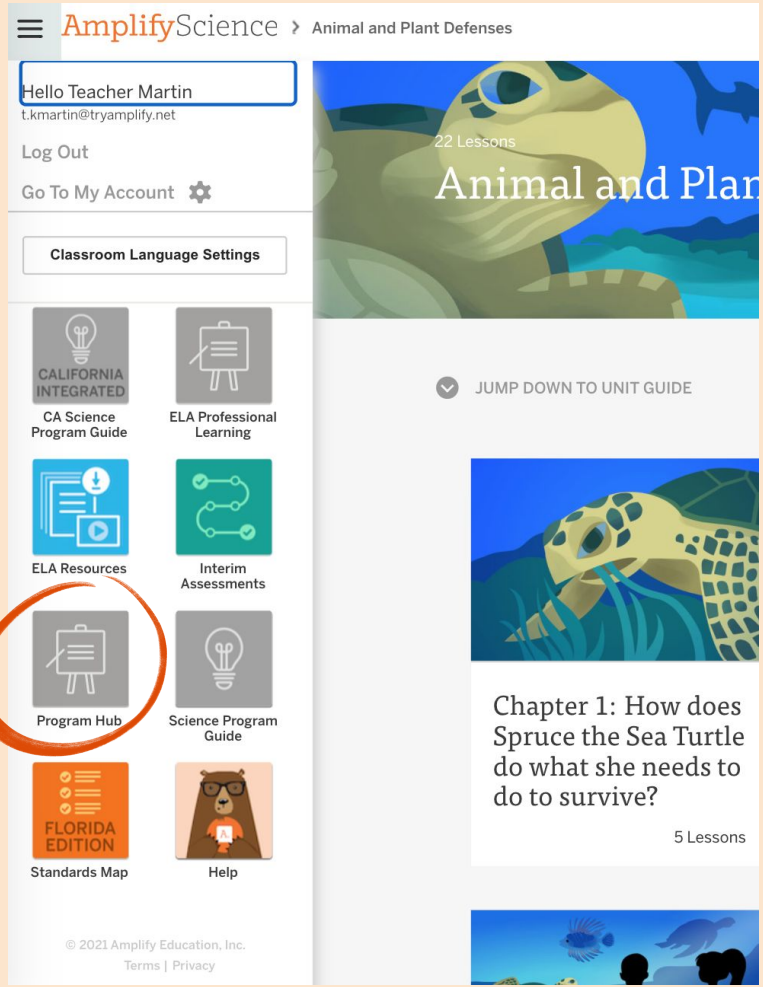
Program Hub

Use the Amplify Science Program Hub to find useful resources for implementing Amplify Science, including unit overview videos and planning tools.

The Program Hub also contains remote and hybrid learning resources.




AmplifyScience › Animal and Plant Defenses
22 Lessons
Animal and Plant Defer
JUMP DOWN TO UNIT GUIDE
Chapter 1: How does Spruce the Sea Turtle do what she needs to do to survive?
5 Lessons
Español


AmplifyScience › Animal and Plant Defenses
Hello Teacher Martin
t.kmartin@tryamplify.net
Log Out
Go To My Account
Classroom Language Settings
CALIFORNIA INTEGRATED
CA Science Program Guide
ELA Professional Learning
ELA Resources
Interim Assessments
Program Hub
Science Program Guide
FLORIDA EDITION
Standards Map
Help
© 2021 Amplify Education, Inc.
Terms | Privacy
22 Lessons
Animal and Plan
JUMP DOWN TO UNIT GUIDE
Chapter 1: How does Spruce the Sea Turtle do what she needs to do to survive?
5 Lessons

AmplifyScienceProgramHub HELP CENTER LAUNCH PROGRAMS TEACHER LAMBERTSEN

Amplify Science Program Hub

Welcome Science Educators!

The Amplify Science Program Hub was created to provide you with resources, tools, and advice for all stages of your implementation. Want a tour? Click here!

Remote and hybrid learning resources

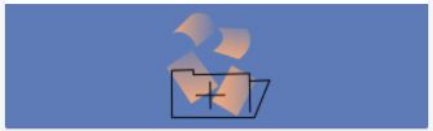
Amplify Science@Home makes remote and hybrid learning easier.

Professional Learning Resources

Let's get started!

Additional Unit Materials

Additional resources to complement the units you're teaching.



AmplifyScienceProgramHub HELP CENTER

Amplify Science Program Hub > Additional Unit Materials

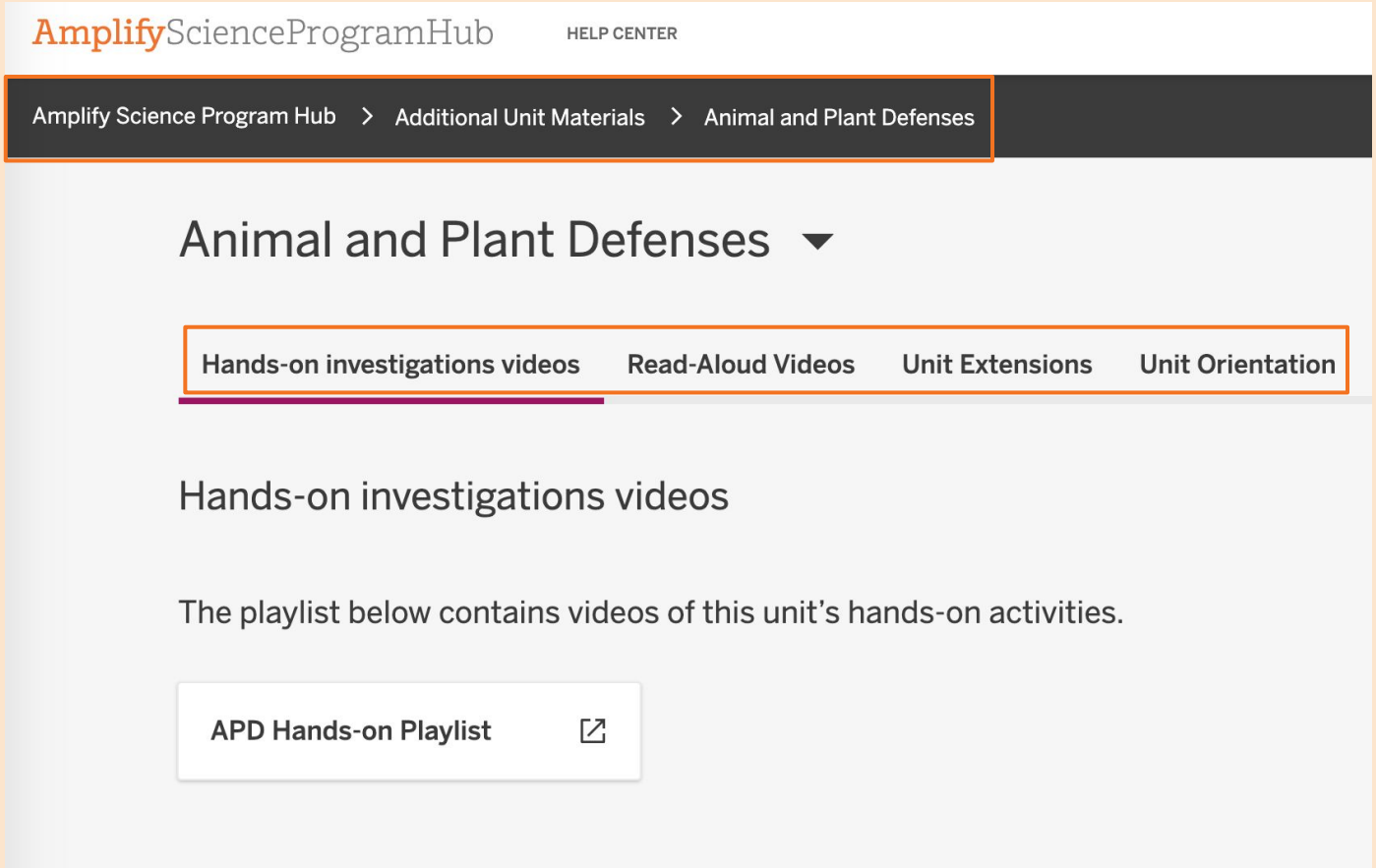
Additional Unit Materials

Grade Level Units

Grade TK

Grade K	Grade 6	NYC Grade 6
Grade 1	Grade 7	NYC Grade 7
Grade 2	Grade 8	NYC Grade 8
Grade 3	Earth	
Grade 4	Life	
Grade 5	Physical	

Transiti


AmplifyScienceProgramHub
HELP CENTER
Amplify Science Program Hub > Additional Unit Materials > Animal and Plant Defenses
Animal and Plant Defenses
Hands-on investigations videos
Read-Aloud Videos
Unit Extensions
Unit Orientation
Hands-on investigations videos
The playlist below contains videos of this unit's hands-on activities.
APD Hands-on Playlist

AmplifyScienceProgramHub HELP CENTER LAUNCH PROGRAMS TEACHER LAMBERTSEN

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Additional resources to complement the units you're teaching.

Professional Learning Resources

This section will provide you with the knowledge and skills you need to start teaching with Amplify Science. You'll find **self-study** professional learning videos and resources.

Getting started

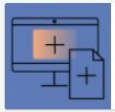
Planning

Videos and resources to help you plan

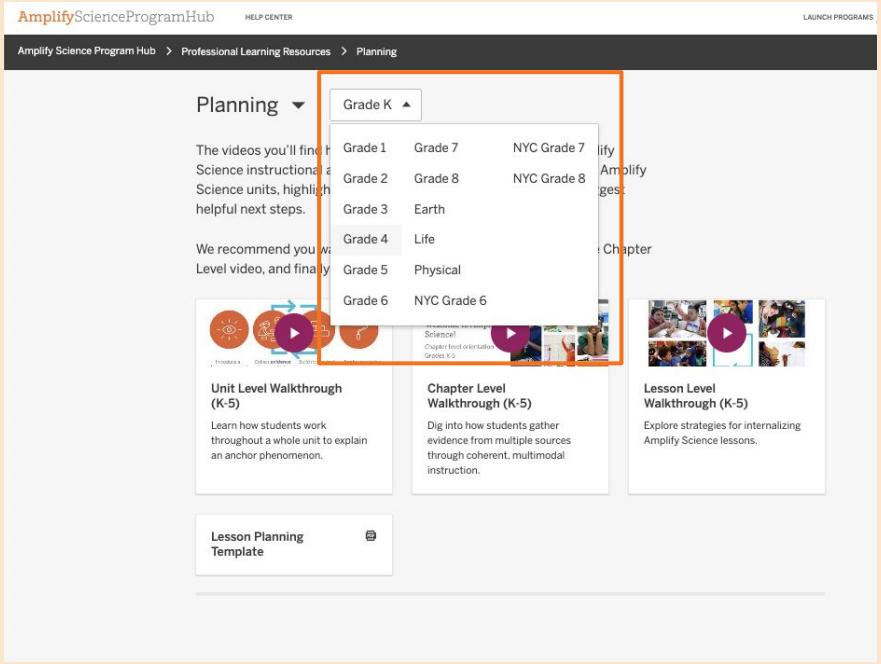
Assessment

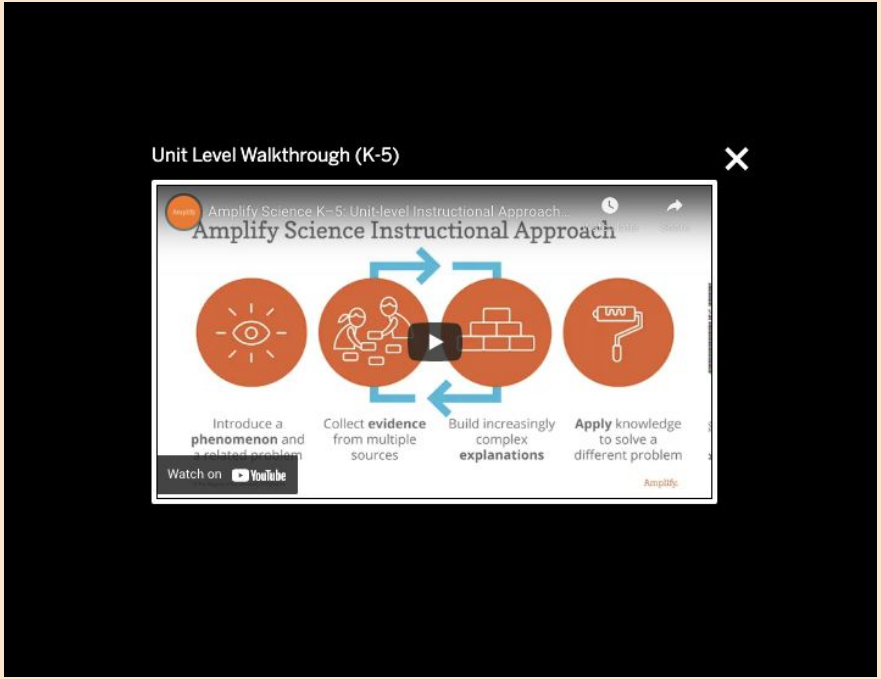
Student Assessments and Work

Unit Orientation



Additional Support

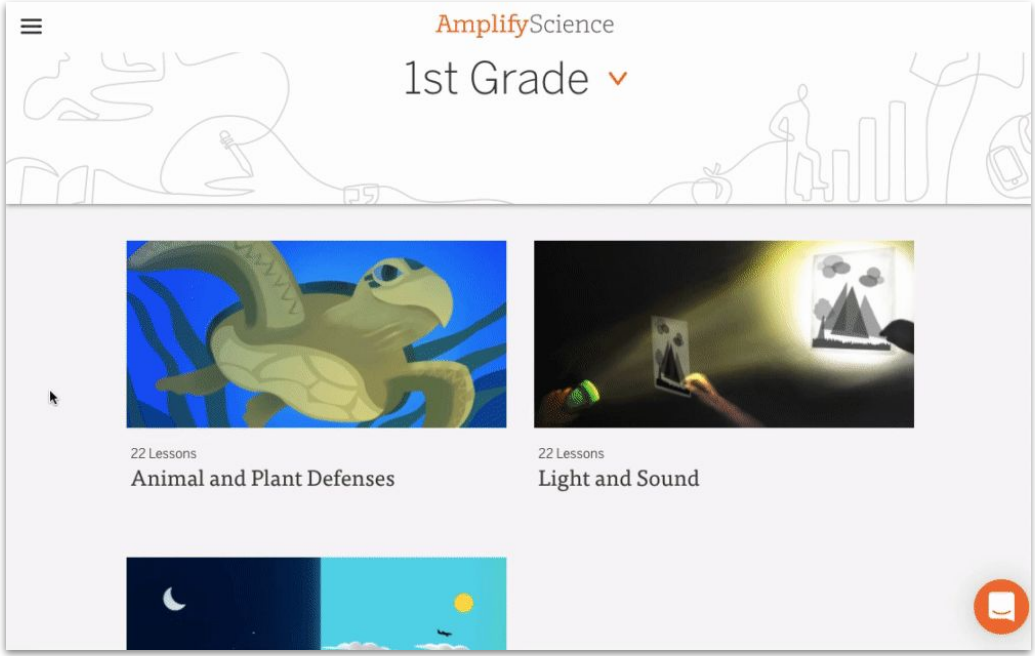

AmplifyScienceProgramHub
HELP CENTER
LAUNCH PROGRAMS
Amplify Science Program Hub > Professional Learning Resources > Planning
Planning
Grade K
Grade 1
Grade 2
Grade 3
Grade 4
Grade 5
Grade 6
Grade 7
Grade 8
Earth
Life
Physical
NYC Grade 6
NYC Grade 7
NYC Grade 8
Unit Level Walkthrough (K-5)
Learn how students work throughout a whole unit to explain an anchor phenomenon.
Chapter Level Walkthrough (K-5)
Dig into how students gather evidence from multiple sources through coherent, multimodal instruction.
Lesson Level Walkthrough (K-5)
Explore strategies for internalizing Amplify Science lessons.
Lesson Planning Template


Unit Level Walkthrough (K-5)
Amplify Science K–5: Unit-level Instructional Approach...
Amplify Science Instructional Approach
Introduce a phenomenon and
Collect evidence from multiple sources
Build increasingly complex explanations
Apply knowledge to solve a different problem
Watch on YouTube

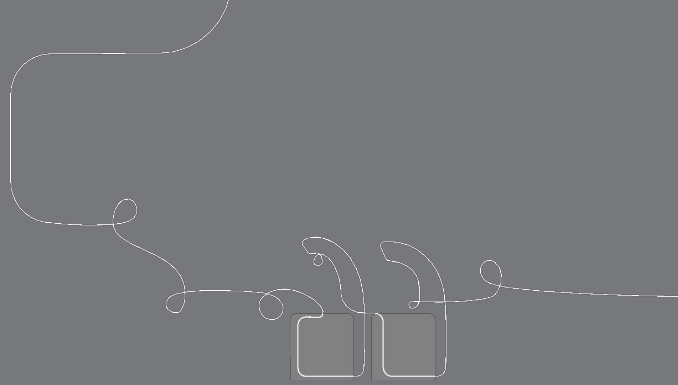
Explore the Program Hub

Familiarize yourself with the Program Hub.

Be ready to share one resource you've found that you'll use while planning and teaching.

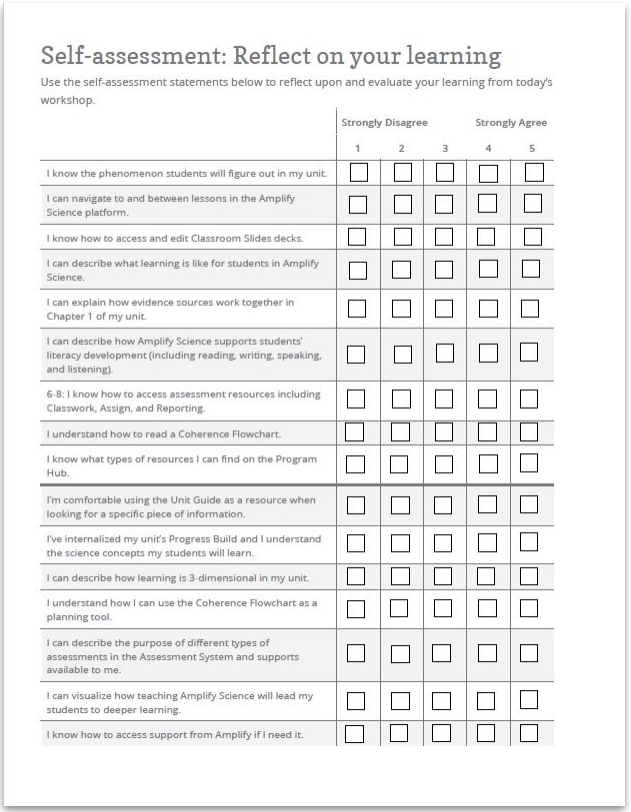


Questions?



Self-assessment

Reflect upon and celebrate your work so far by completing the first part of the self-assessment.



Self-assessment: Reflect on your learning

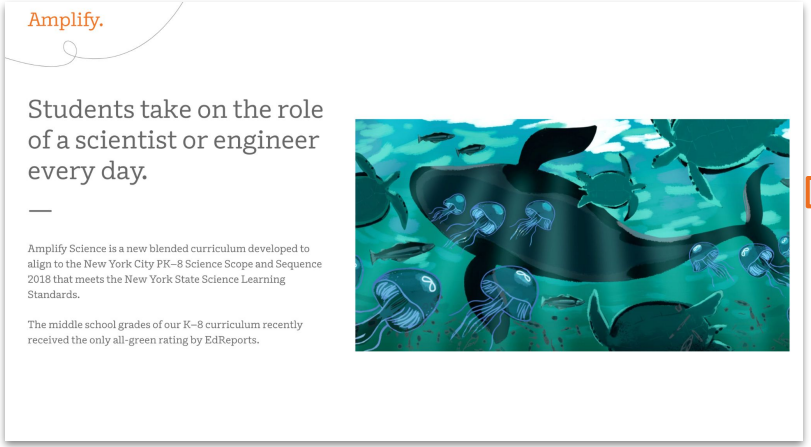
Use the self-assessment statements below to reflect upon and evaluate your learning from today's workshop.

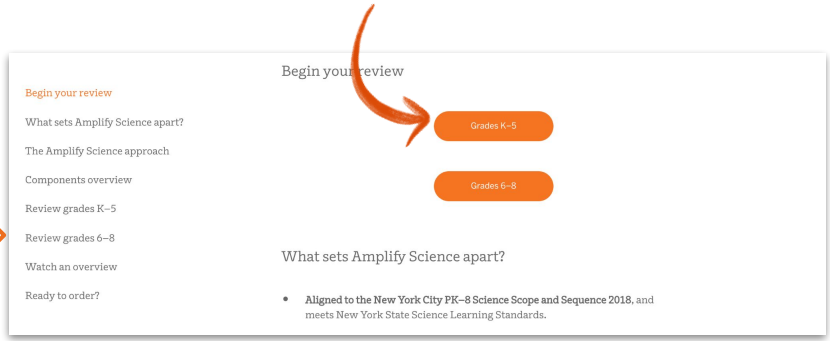
	Strongly Disagree				Strongly Agree
	1	2	3	4	5
I know the phenomenon students will figure out in my unit.	☐	☐	☐	☐	☐
I can navigate to and between lessons in the Amplify Science platform.	☐	☐	☐	☐	☐
I know how to access and edit Classroom Slides decks.	☐	☐	☐	☐	☐
I can describe what learning is like for students in Amplify Science.	☐	☐	☐	☐	☐
I can explain how evidence sources work together in Chapter 1 of my unit.	☐	☐	☐	☐	☐
I can describe how Amplify Science supports students' literacy development (including reading, writing, speaking, and listening).	☐	☐	☐	☐	☐
6-8: I know how to access assessment resources including Classwork, Assign, and Reporting.	☐	☐	☐	☐	☐
I understand how to read a Coherence Flowchart.	☐	☐	☐	☐	☐
I know what types of resources I can find on the Program Hub.	☐	☐	☐	☐	☐
I'm comfortable using the Unit Guide as a resource when looking for a specific piece of information.	☐	☐	☐	☐	☐
I've internalized my unit's Progress Build and I understand the science concepts my students will learn.	☐	☐	☐	☐	☐
I can describe how learning is 3-dimensional in my unit.	☐	☐	☐	☐	☐
I understand how I can use the Coherence Flowchart as a planning tool.	☐	☐	☐	☐	☐
I can describe the purpose of different types of assessments in the Assessment System and supports available to me.	☐	☐	☐	☐	☐
I can visualize how teaching Amplify Science will lead my students to deeper learning.	☐	☐	☐	☐	☐
I know how to access support from Amplify if I need it.	☐	☐	☐	☐	☐

Logging in

Safari or Chrome

Go to https://amplify.com/amplify-science-nyc-doe-review/

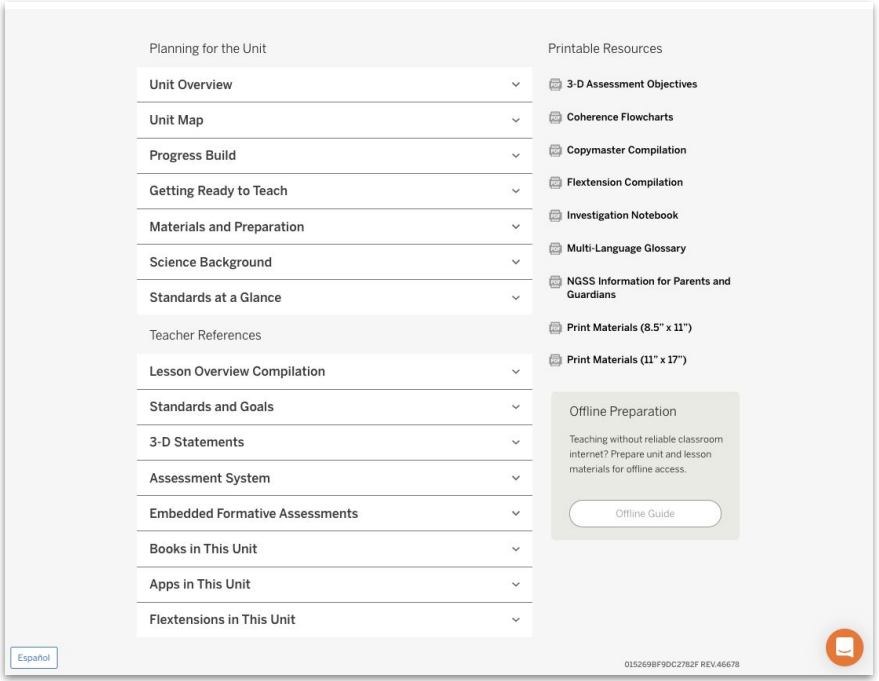




Click your grade band & then follow prompts

Unit Guide

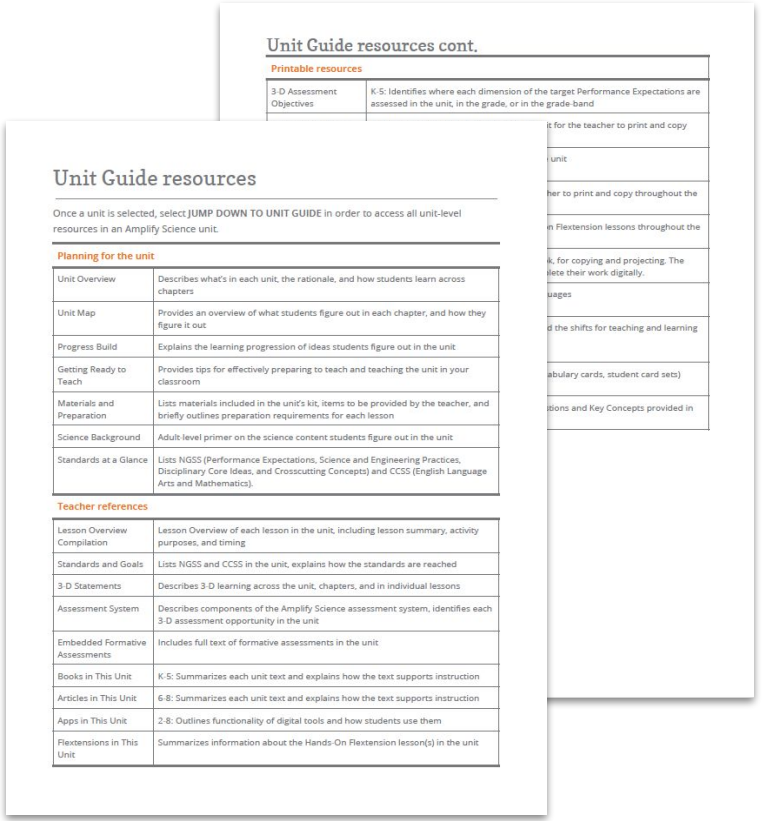
In this part of the day, we'll work on using the Unit Guide as a planning and teaching resource.



Unit Guide scavenger hunt

Pgs. 20-21

Practice identifying which Unit Guide document has the information you need.



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 NGSS (Performance Expectations, Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts) and CCSS (English Language Arts and 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 and CCSS 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	K-5: Summarizes each unit text and explains how the text supports instruction
Articles in This Unit	6-8: Summarizes each unit text and explains how the text supports instruction
Apps in This Unit	2-8: Outlines functionality of digital tools and how students use them
Flextensions in This Unit	Summarizes information about the Hands-On Flextension lesson(s) in the unit

Unit Guide resources cont.

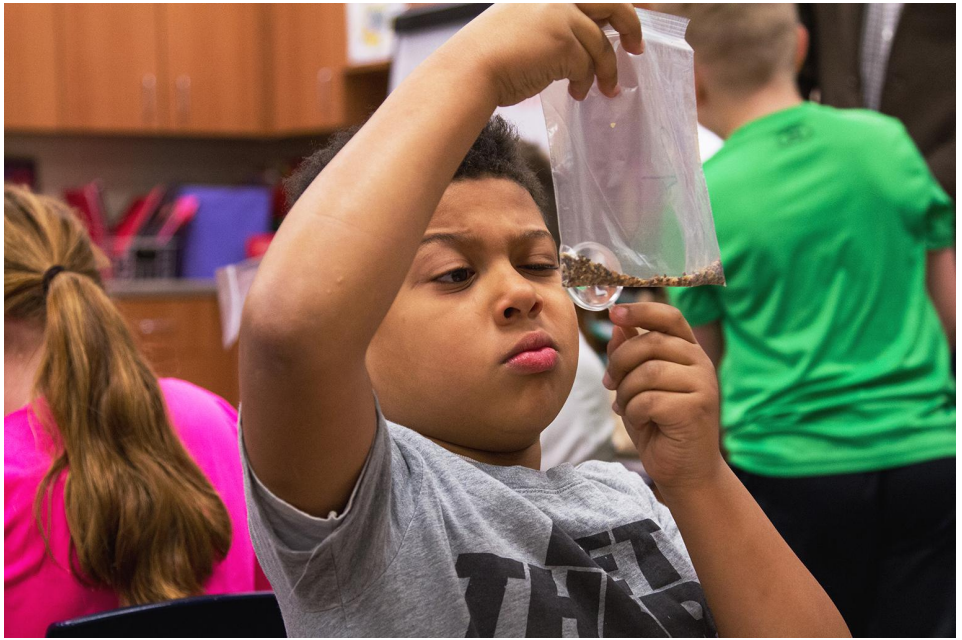
Printable resources

3-D Assessment Objectives	K-5: Identifies where each dimension of the target Performance Expectations are assessed in the unit, in the grade, or in the grade-band

Unit Guide scavenger hunt

Where would I look to find…

the 3-D Statement for Chapter 1?

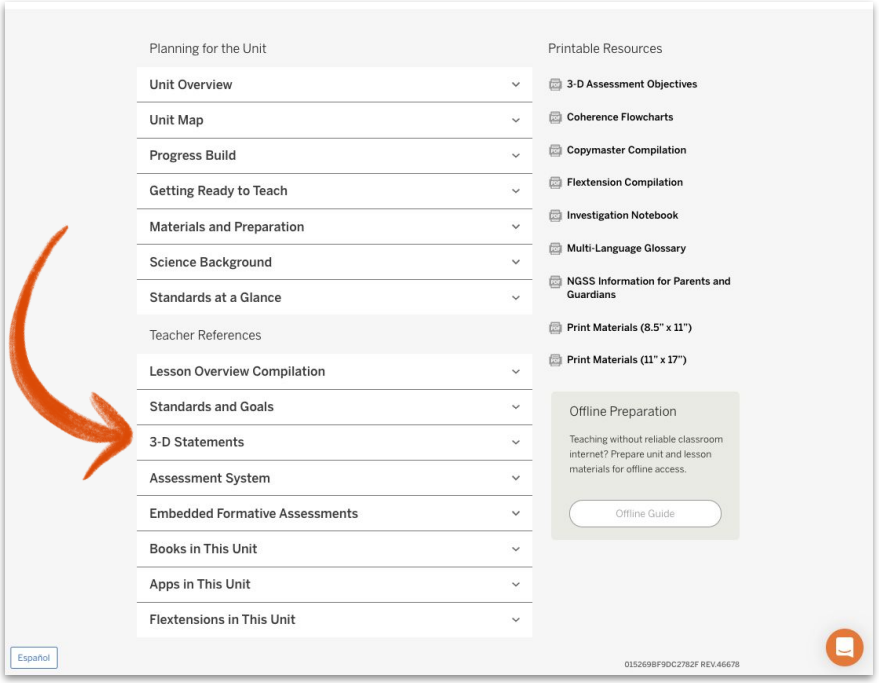


Unit Guide scavenger hunt

Where would I look to find…

the 3-D Statement for Chapter 1?

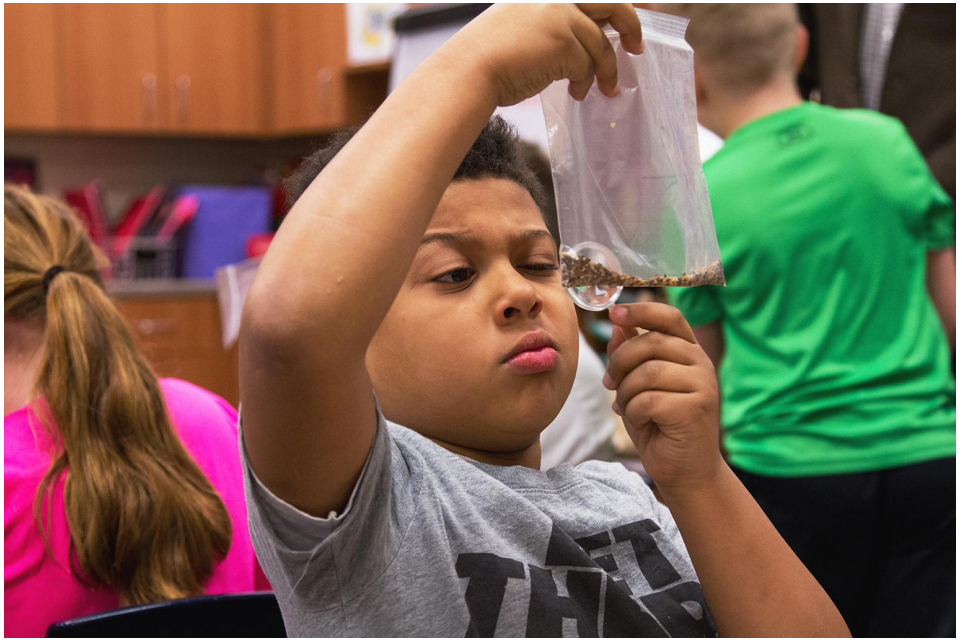
- The **3-D Statements doc** has 3-D statements for the whole unit, each chapter, and each individual lesson.



Unit Guide scavenger hunt

Where would I look to find…

more background information about a Key Concept I’m not sure I understand?

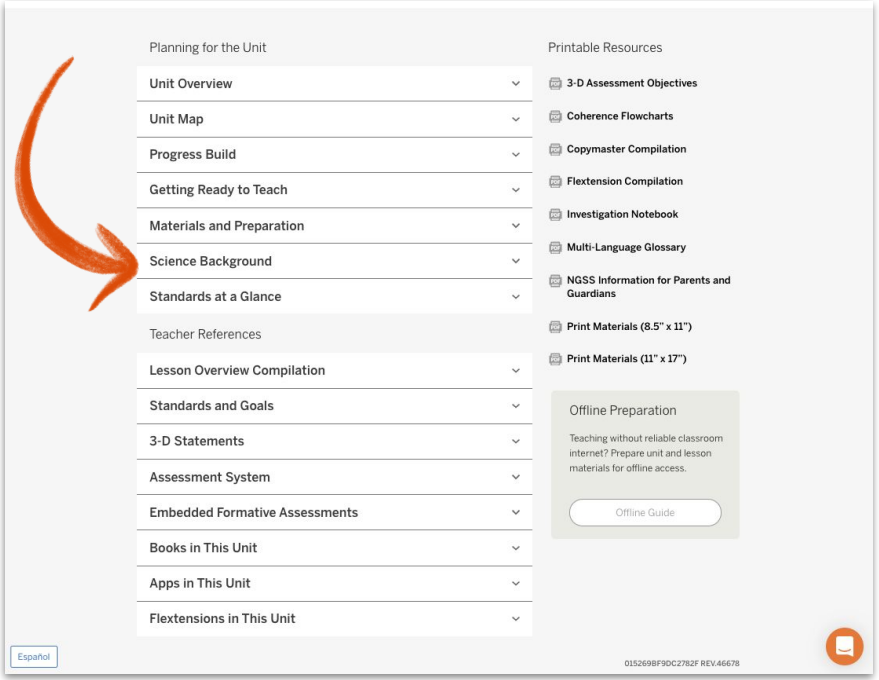


Unit Guide scavenger hunt

Where would I look to find…

more background information about a Key Concept I'm not sure I understand?

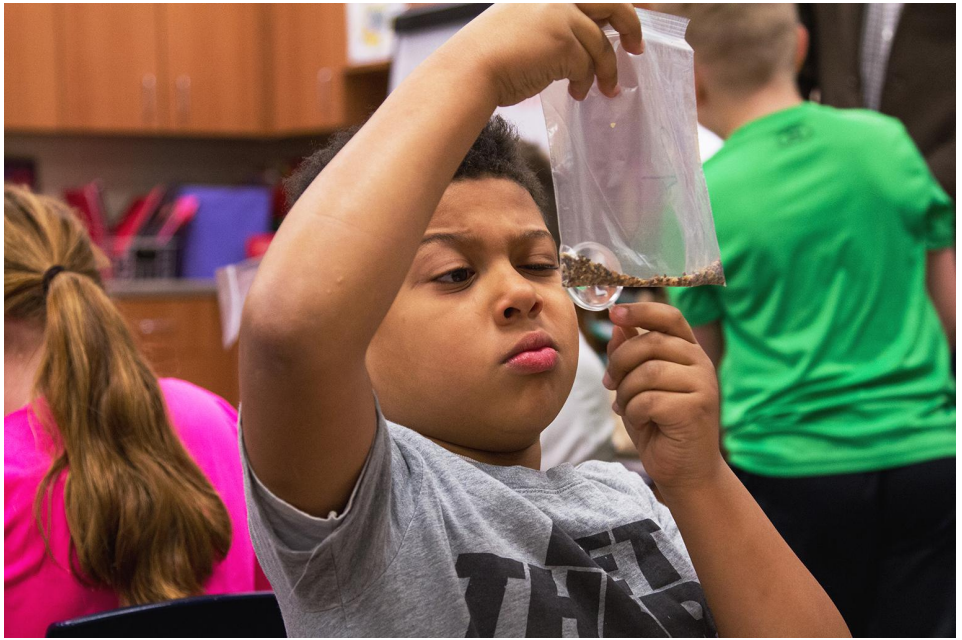
- The **Science Background** doc explains the unit's science content at an adult level. It also includes information about student thinking and 3-D learning in the unit.



Unit Guide scavenger hunt

Where would I look to find…

a list of the teacher-provided materials I'll need to gather before I start teaching?

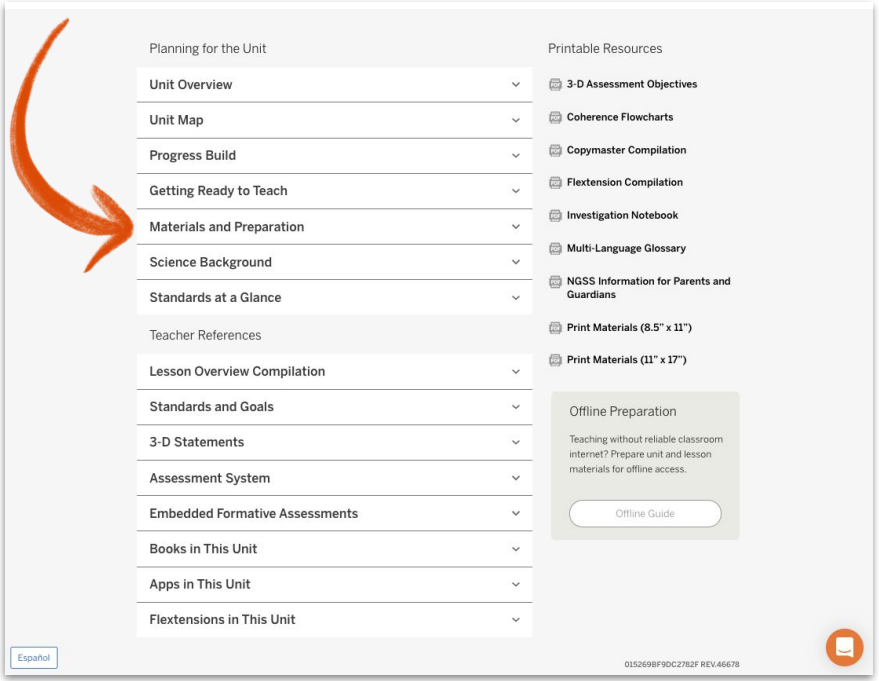


Unit Guide scavenger hunt

Where would I look to find…

a list of the teacher-provided materials I'll need to gather before I start teaching?

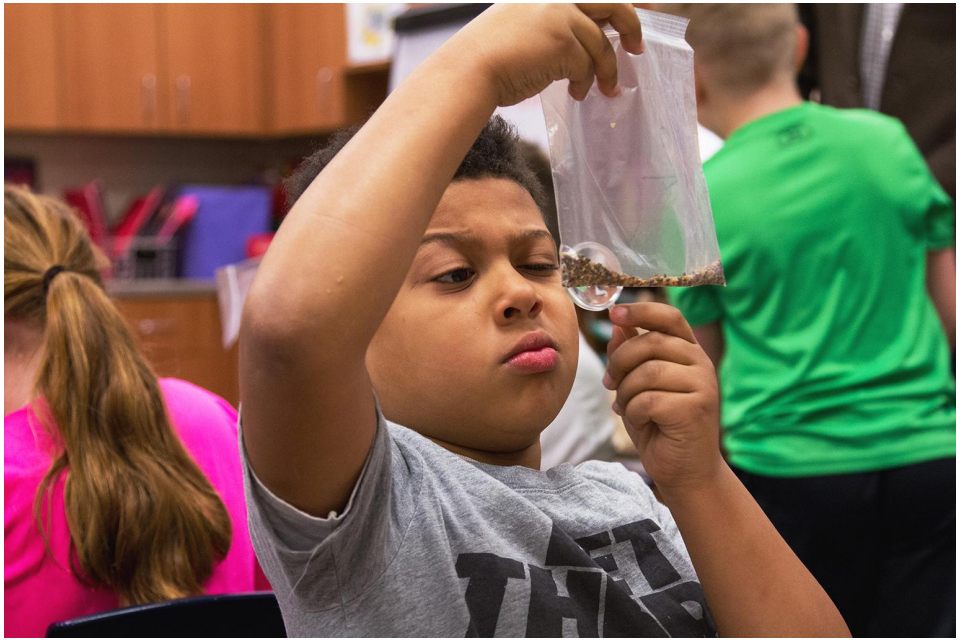
- The **Materials and Preparation** doc lists kit and teacher-provided materials and has information about prepping for each lesson.



Unit Guide scavenger hunt

Where would I look to find…

the timing of the activities in Lesson 3.2?

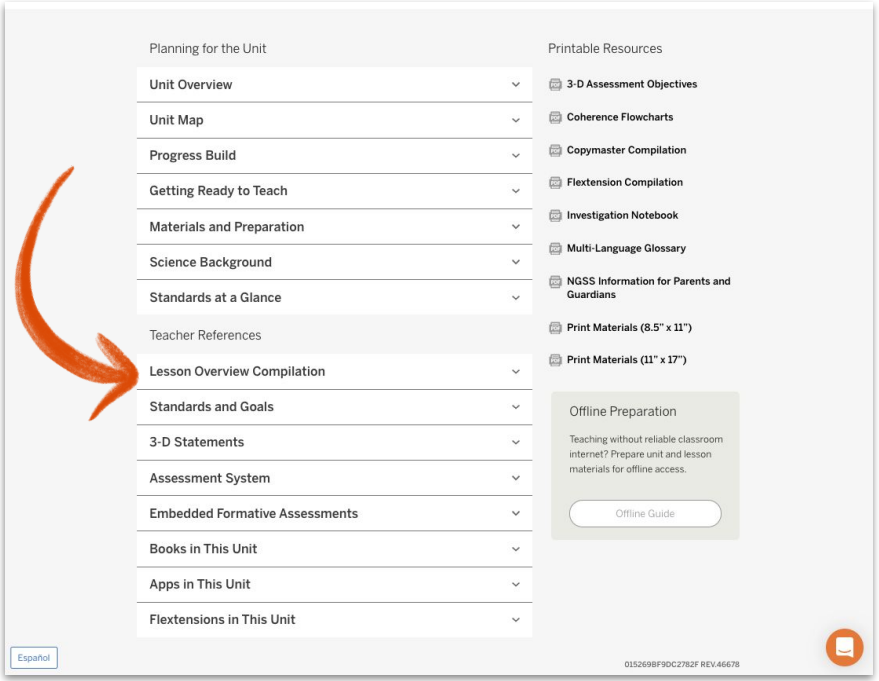


Unit Guide scavenger hunt

Where would I look to find…

the timing of the activities in Lesson 3.2?

- Use the **Lesson Overview Compilation** to see all the Lesson Overviews together in one document.

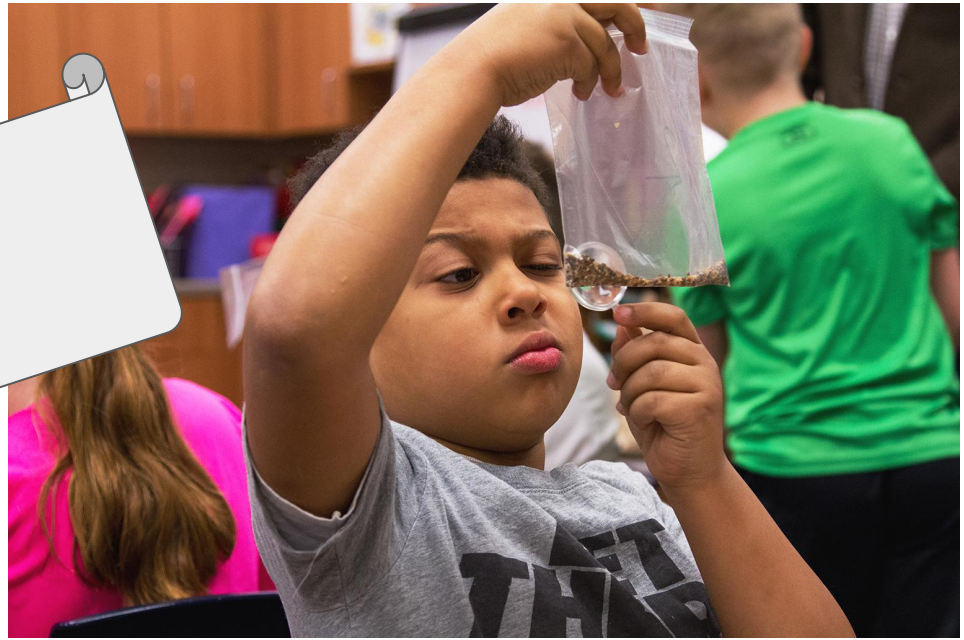


Unit Guide scavenger hunt

Where would I look to find…

which Crosscutting Concepts are emphasized in the unit?

Two possible answers!

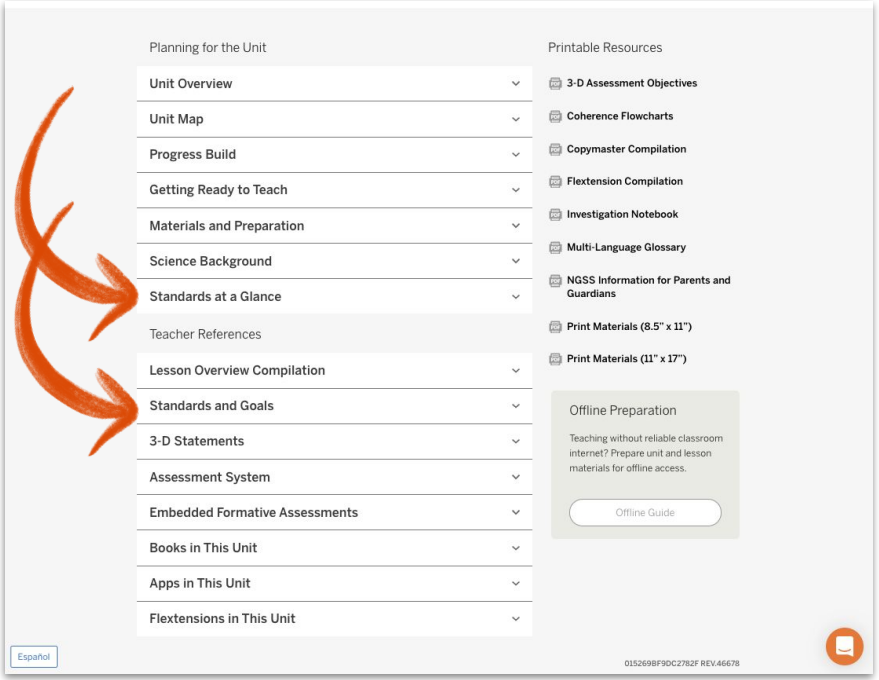


Unit Guide scavenger hunt

Where would I look to find…

which Crosscutting Concepts are emphasized in the unit?

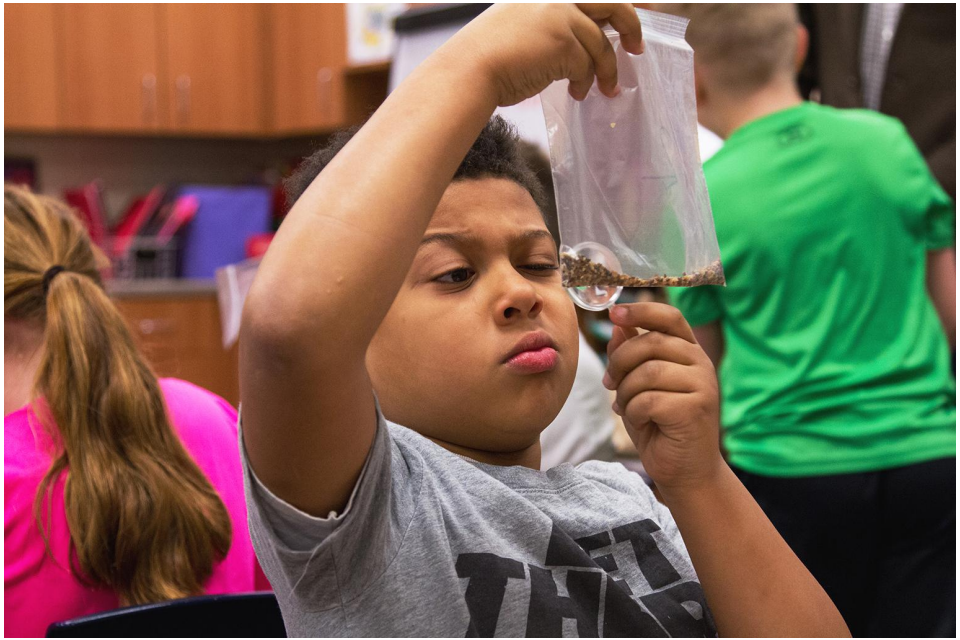
- **Standards at a Glance** lists NGSS and CCSS standards.
- **Standards and Goals** lists the standards and explains how students reach them.



Unit Guide scavenger hunt

Where would I look to find…

the titles of the books students read in the unit?

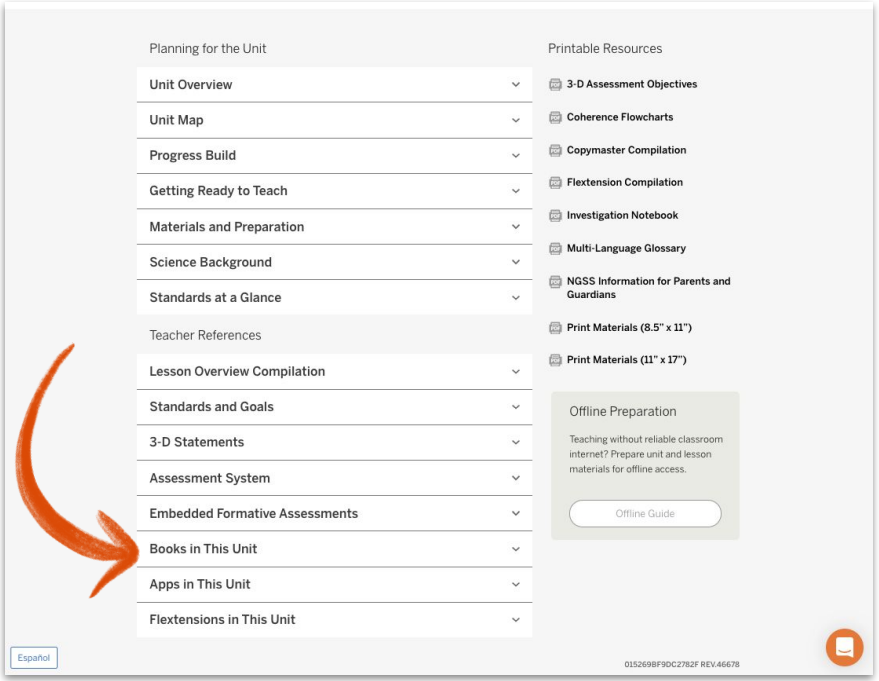


Unit Guide scavenger hunt

Where would I look to find…

the titles of the books students read in the unit?

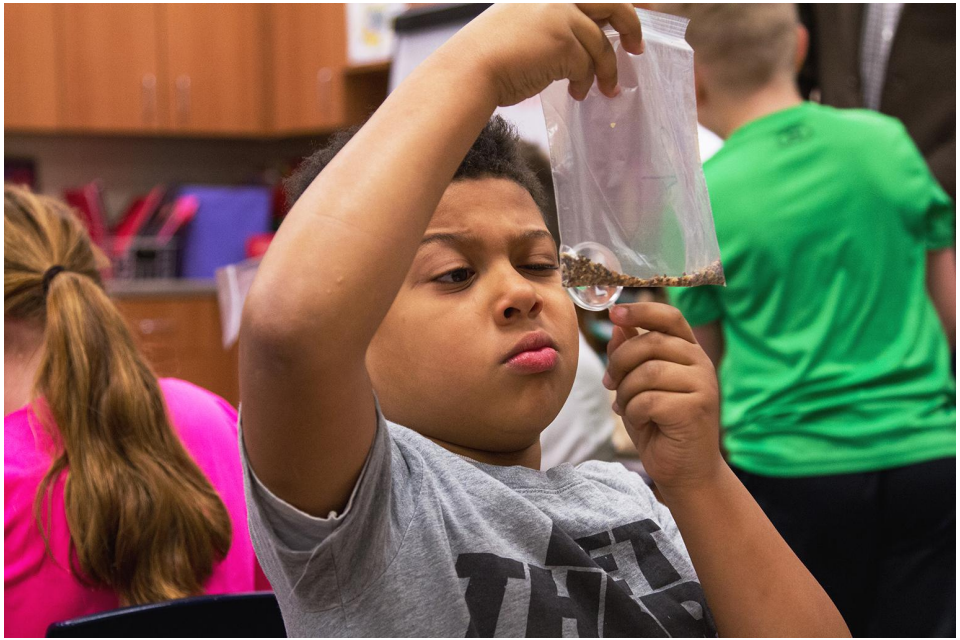
- **Books in This Unit** summarizes each book and explains when and how students work with them.



Unit Guide scavenger hunt

Where would I look to find…

a tool to help visualize the structure of each chapter in the unit?



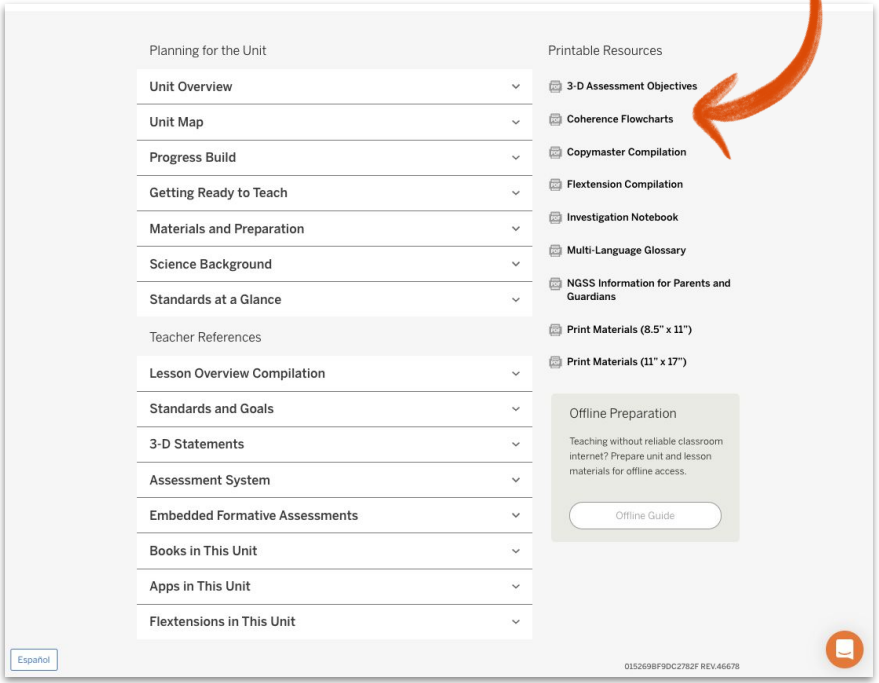
Unit Guide scavenger hunt

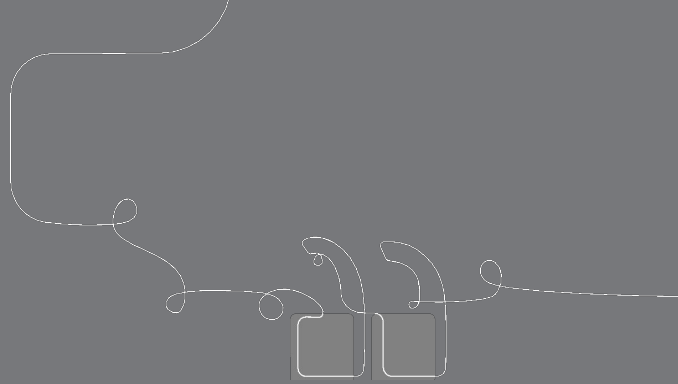
Where would I look to find…

a tool to help visualize the structure of each chapter in the unit?

- The **Coherence Flowchart** diagrams the coherent flow of questions, evidence, and ideas in the unit.

Pg. 19





Deeper learning

"When the goal is to prepare students to be successful in solving new problems and adapting to new situations, then **deeper learning** is called for."

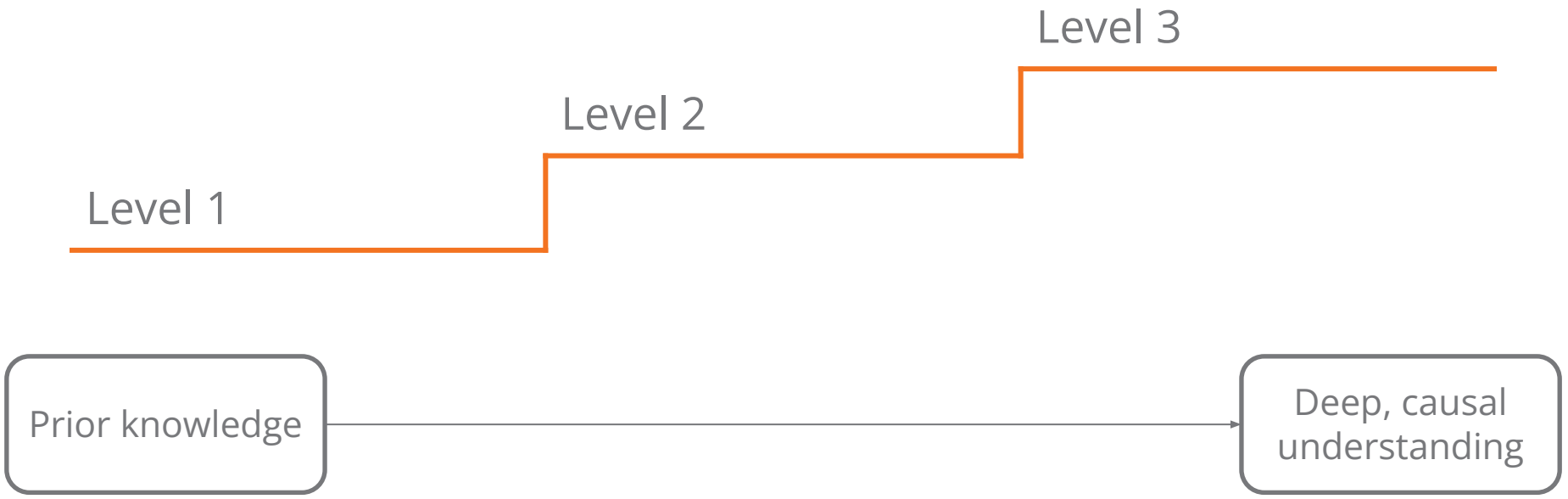
National Research Council. 2012. Education for Life and Work: Developing Transferable Knowledge and Skills in the 21st Century. Washington, DC: The National Academies Press. https://doi.org/10.17226/13398.

Deeper learning

- Conceptual knowledge that moves **past the what to the why or how**
- Analysis, reasoning, communication, and other skills
- Beyond retention, an ability to **transfer** and apply knowledge and skills to new contexts

Progress Build

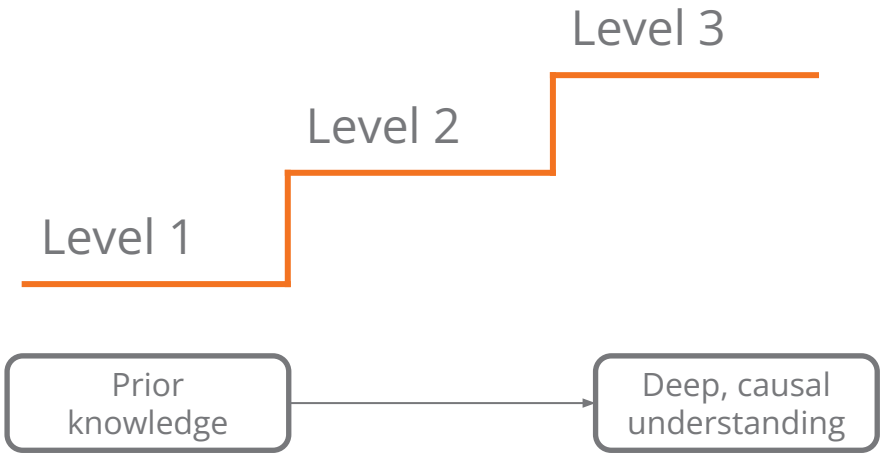
A unit-specific learning progression



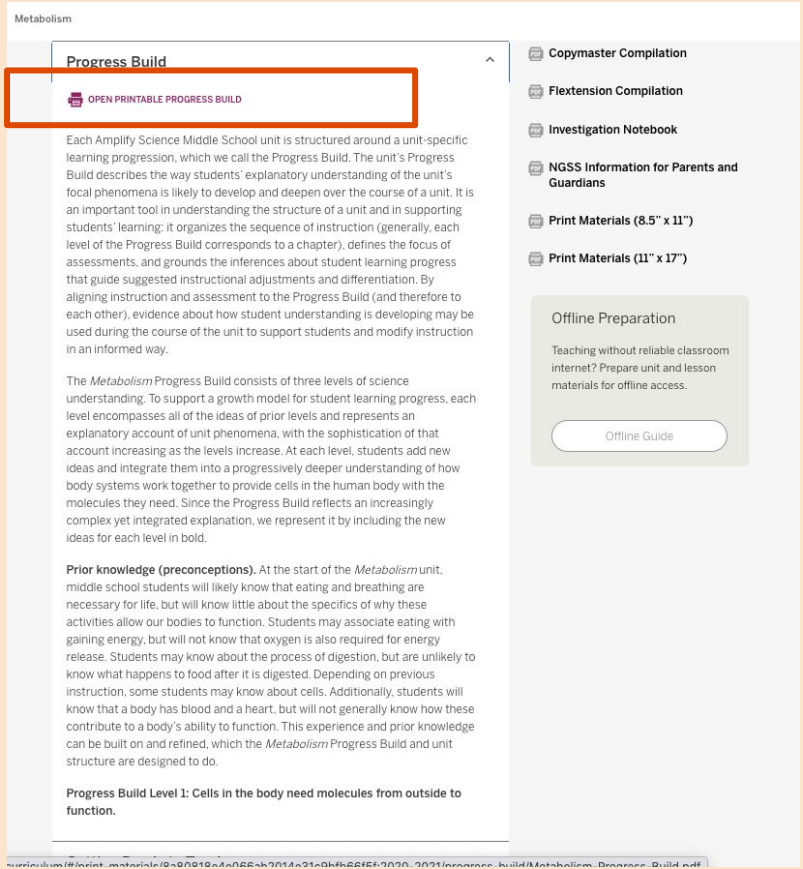
Unpacking the Progress Build

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

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



Hidden Slide: Progress Build



Progress Build

Each Amplify Science Middle School unit is structured around a unit-specific learning progression, which we call the Progress Build. The unit's Progress Build describes the way students' explanatory understanding of the unit's focal phenomena is likely to develop and deepen over the course of a unit. It is an important tool in understanding the structure of a unit and in supporting students' learning: it organizes the sequence of instruction (generally, each level of the Progress Build corresponds to a chapter), defines the focus of assessments, and grounds the inferences about student learning progress that guide suggested instructional adjustments and differentiation. By aligning instruction and assessment to the Progress Build (and therefore to each other), evidence about how student understanding is developing may be used during the course of the unit to support students and modify instruction in an informed way.

The *Metabolism* Progress Build consists of three levels of science understanding. To support a growth model for student learning progress, each level encompasses all of the ideas of prior levels and represents an explanatory account of unit phenomena, with the sophistication of that account increasing as the levels increase. At each level, students add new ideas and integrate them into a progressively deeper understanding of how body systems work together to provide cells in the human body with the molecules they need. Since the Progress Build reflects an increasingly complex yet integrated explanation, we represent it by including the new ideas for each level in bold.

Prior knowledge (preconceptions). At the start of the *Metabolism* unit, middle school students will likely know that eating and breathing are necessary for life, but will know little about the specifics of why these activities allow our bodies to function. Students may associate eating with gaining energy, but will not know that oxygen is also required for energy release. Students may know about the process of digestion, but are unlikely to know what happens to food after it is digested. Depending on previous instruction, some students may know about cells. Additionally, students will know that a body has blood and a heart, but will not generally know how these contribute to a body's ability to function. This experience and prior knowledge can be built on and refined, which the *Metabolism* Progress Build and unit structure are designed to do.

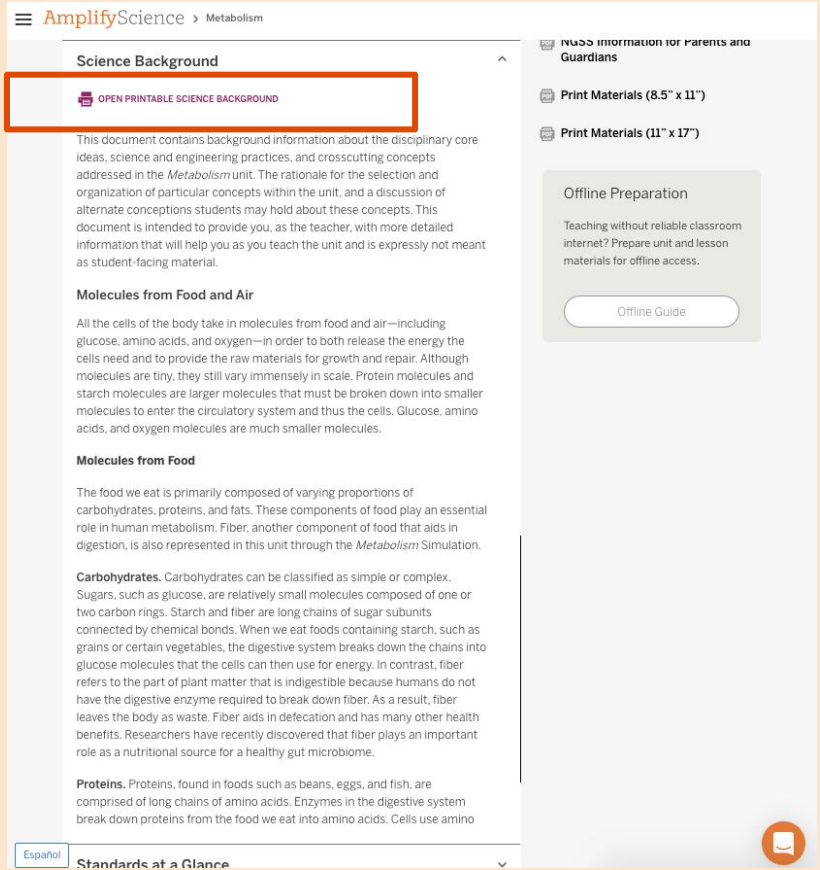
Progress Build Level 1: Cells in the body need molecules from outside to function.

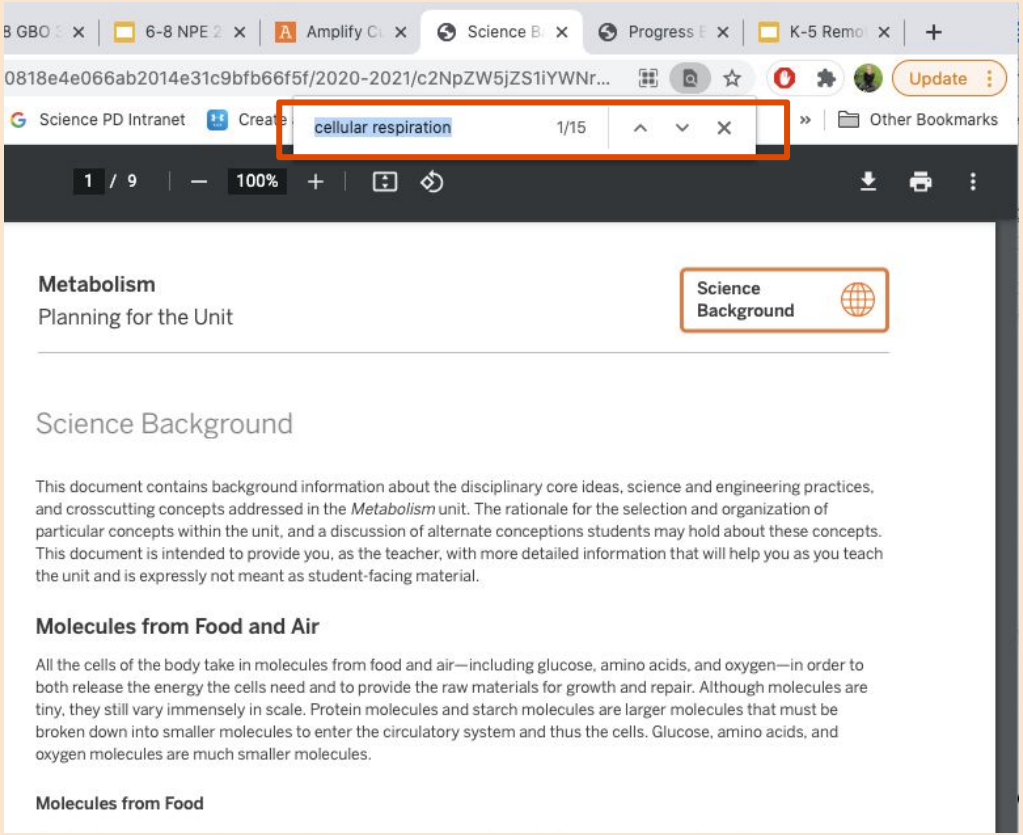
The body can function when the cells of the body are getting and using molecules that come from outside the body—from the food we eat and the air we breathe. Oxygen, glucose, and amino acids are molecules the cells need that come from outside the body.

Progress Build Level 2: Systems in the body work together to take in, break down, and deliver needed molecules to the cells.

The body can function when the cells of the body are getting and using molecules that come from outside the body—from the food we eat and the air we breathe. Oxygen, glucose, and amino acids are molecules the cells need that come from outside the body. **The digestive system breaks down starch and protein molecules from food into glucose and amino acids, and then the circulatory system transports these molecules to the cells. Also, the respiratory system takes in oxygen molecules from the air, and the circulatory system transports those molecules unchanged to the cells because oxygen molecules are already small enough to fit into cells.**

Hidden Slide: Science Background



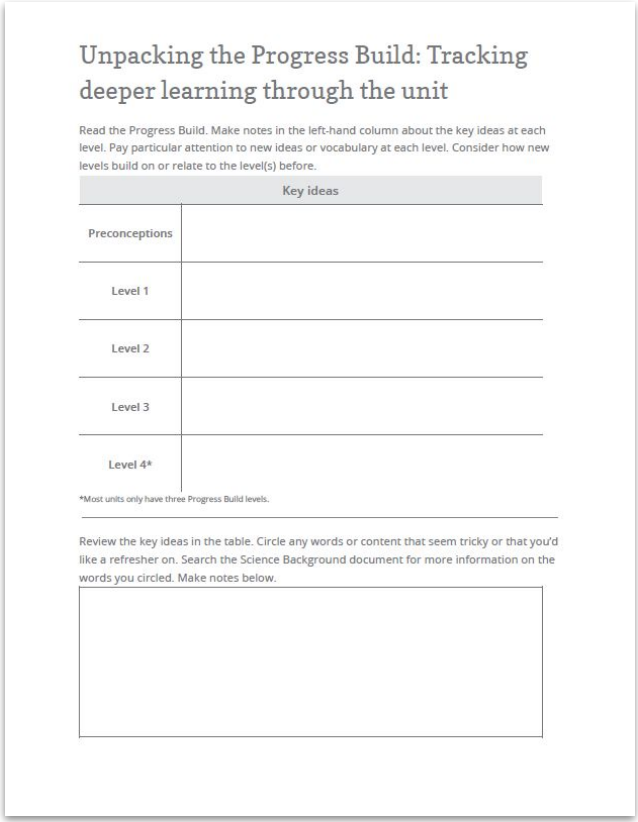


Unpacking the Progress Build

Work time

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

Next, you'll work with a group to think about how the Progress Build drives students to deeper learning.



Unpacking the Progress Build: Tracking deeper learning through the unit

Read the Progress Build. Make notes in the left-hand column about the key ideas at each level. Pay particular attention to new ideas or vocabulary at each level. Consider how new levels build on or relate to the level(s) before.

	Key ideas
Preconceptions	
Level 1	
Level 2	
Level 3	
Level 4*	

*Most units only have three Progress Build levels.

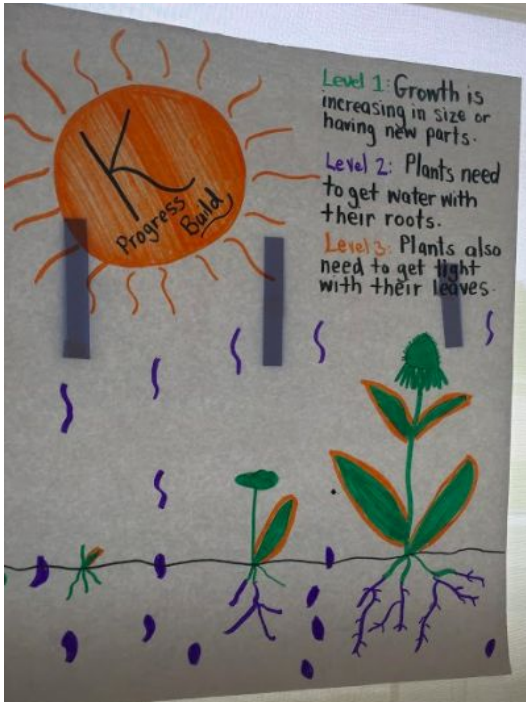
Review the key ideas in the table. Circle any words or content that seem tricky or that you'd like a refresher on. Search the Science Background document for more information on the words you circled. Make notes below.

Unpacking the Progress Build

Small group work: Create a visual

In small groups, share your independent work then create a **visual representation** of the Progress Build.

Your visual should represent all levels of the Progress Build and illustrate **how the different levels relate to one another**.



Deeper learning

- Conceptual knowledge that moves **past the what to the why or how**
- Analysis, reasoning, communication, and other skills
- Beyond retention, an ability to **transfer** and apply knowledge and skills to new contexts

Unpacking the Progress Build

Reflection

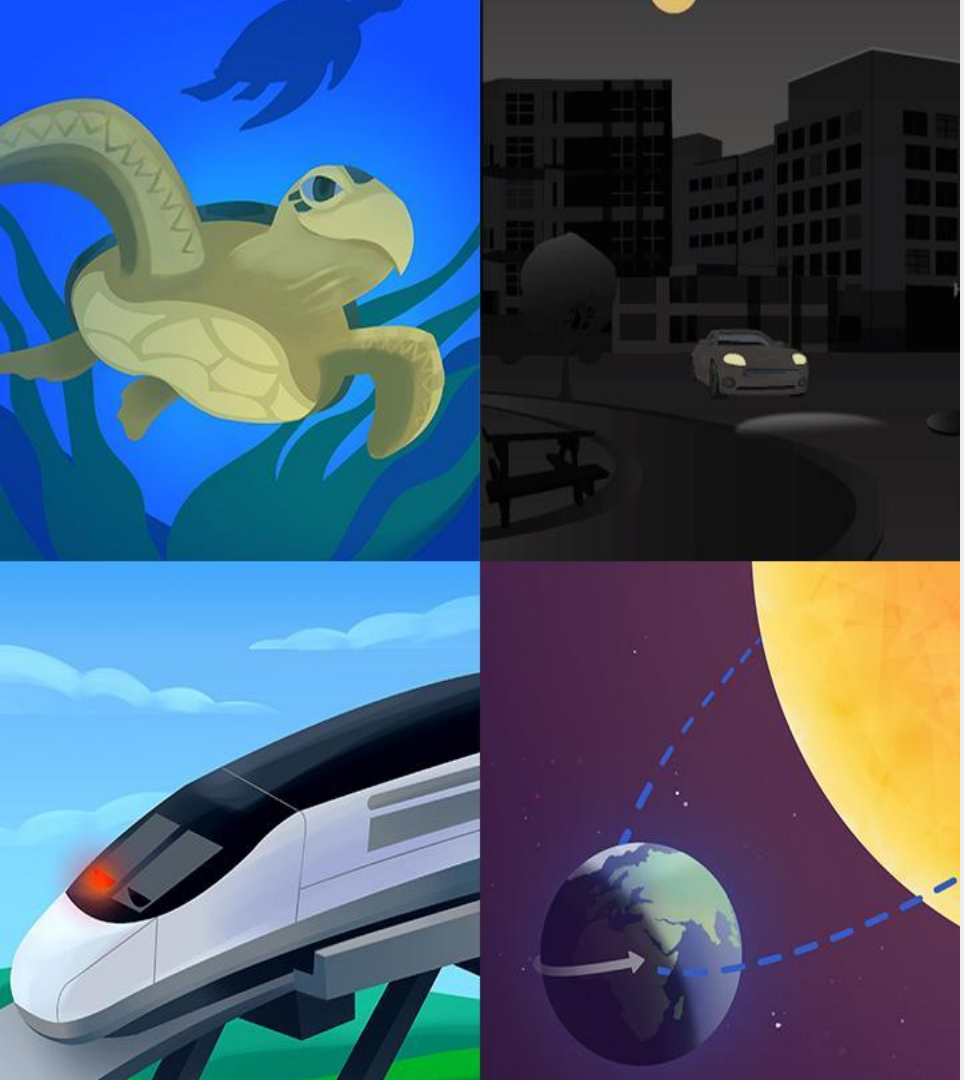
How does the Progress Build drive students to deeper learning of the science concepts in your unit?

Synthesizing our reflections

The Progress Build gives us a roadmap for how students' conceptual understanding grows deeper and more complex through the unit.

Tools for Deeper Learning

- *Progress Build*



Plan for part 2

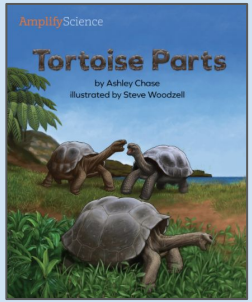
- **Framing the day**
  - Welcome
- **Unit Exploration**
  - Unpacking the Progress Build
- **Unit Coherence**
  - Unpacking unit coherence in your first unit
- **Planning for CR-SE**
  - Unpacking - Eliciting and Leveraging Students' Prior Knowledge
- **Closing**
  - Final Questions & Feedback

Gathering evidence

Animal and Plant Defenses Lesson 1.2

Chapter Question: How does Spruce the Sea Turtle do what she needs to do to survive?

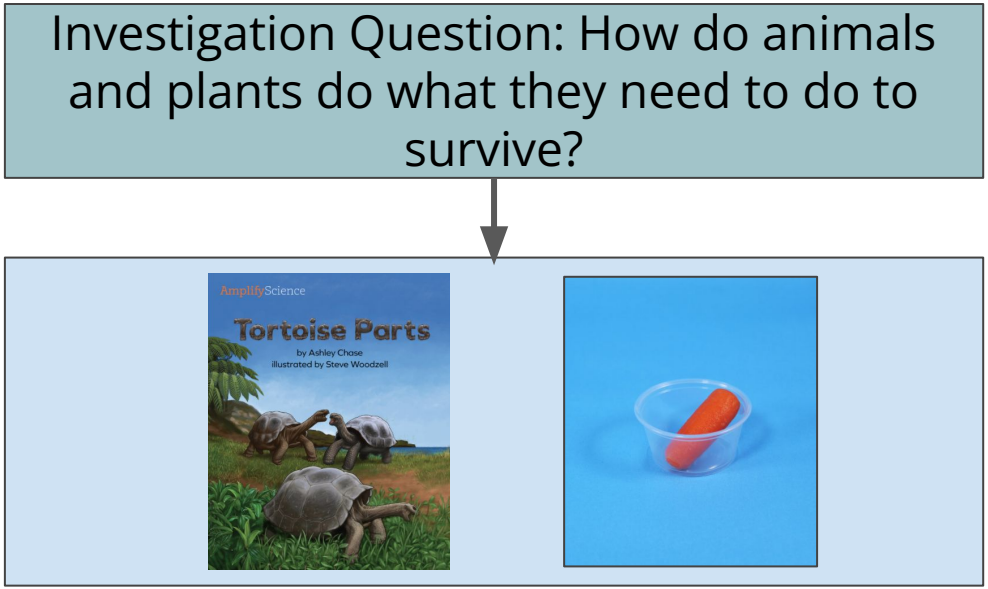
Investigation Question: How do animals and plants do what they need to do to survive?



Evidence sources work together

Reading *Tortoise Parts* and observing carrot eating

How do these activities **work together** to support understanding of how animals and plants do what they need to do to survive?



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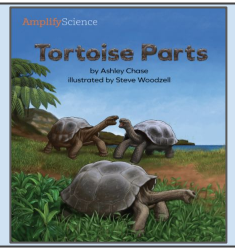
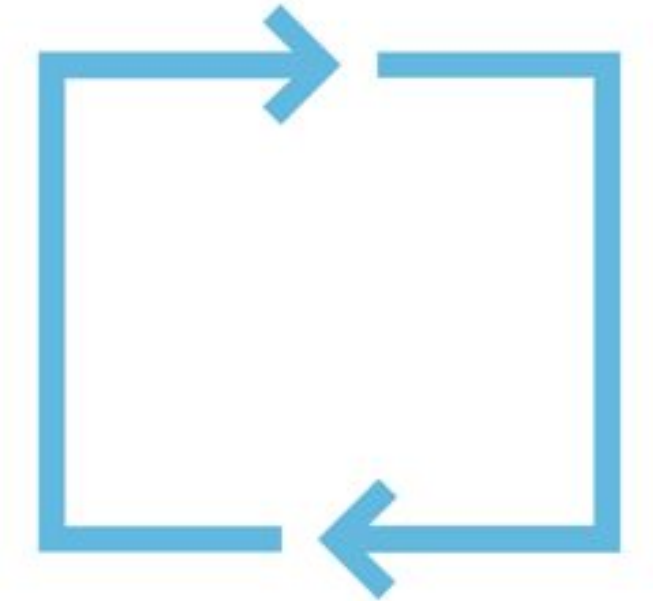


What have students figured out so far?

Multimodal learning

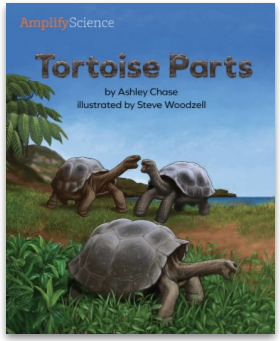
Gathering evidence over multiple lessons



Do,
Talk,
Read,
Write,
Visualize

Evidence sources work together

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



Coherence Flowchart

A diagram of student learning

Phenomenon
(Chapter Question)

↓

Investigation Question

↓

Multiple sources of evidence

↓

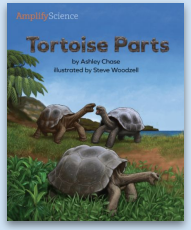
Key Concepts

Chapter Question: How does Spruce the Sea Turtle do what she needs to do to survive?

↓

Investigation Question: How do animals and plants do what they need to do to survive?

↓



Coherence Flowchart

Animal and Plant Defenses Lesson 1.2-1.3

Chapter Question: How does Spruce the Sea Turtle do what she needs to do to survive?

↓

Investigation Question: How do animals and plants do what they need to do to survive?

↓

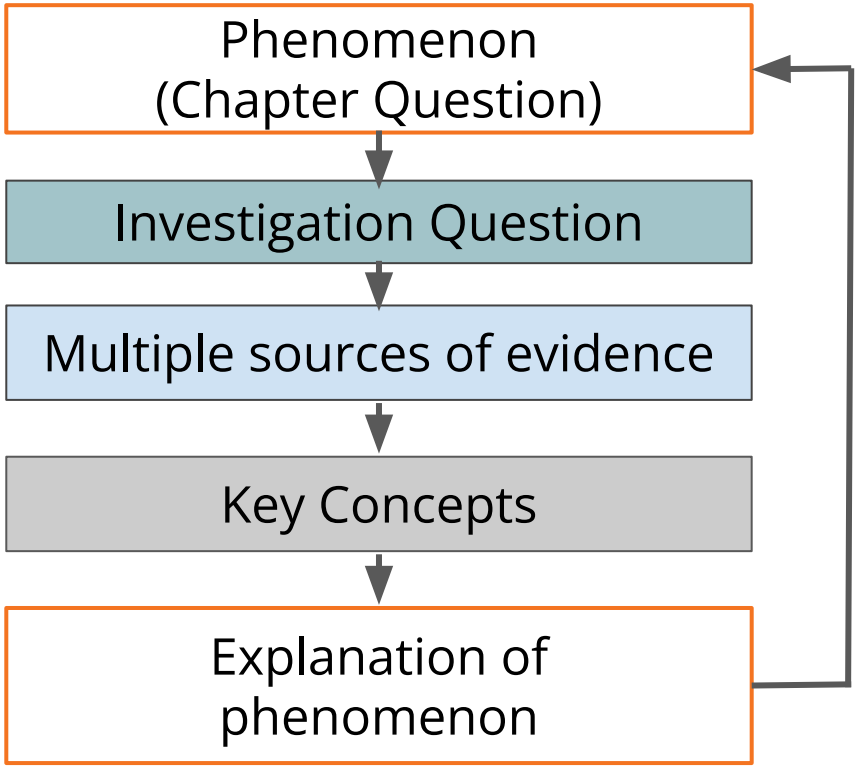
Evidence: Read *Tortoise Parts* (1.2)
Evidence: Observe students eating (1.2)
Evidence: Describe structures in *Tortoise Parts* (1.3)
Evidence: Watch videos of plant and animal structures (1.3)
Evidence: Read *Spikes, Spines, and Shells* (1.3)

↓

Key Concept: Animals and plants have structures that help them do what they need to do to survive. (1.3)

Coherence Flowchart

A diagram of student learning



Coherence Flowchart

Animal and Plant Defenses Lesson 1.2-1.3

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↓

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↓

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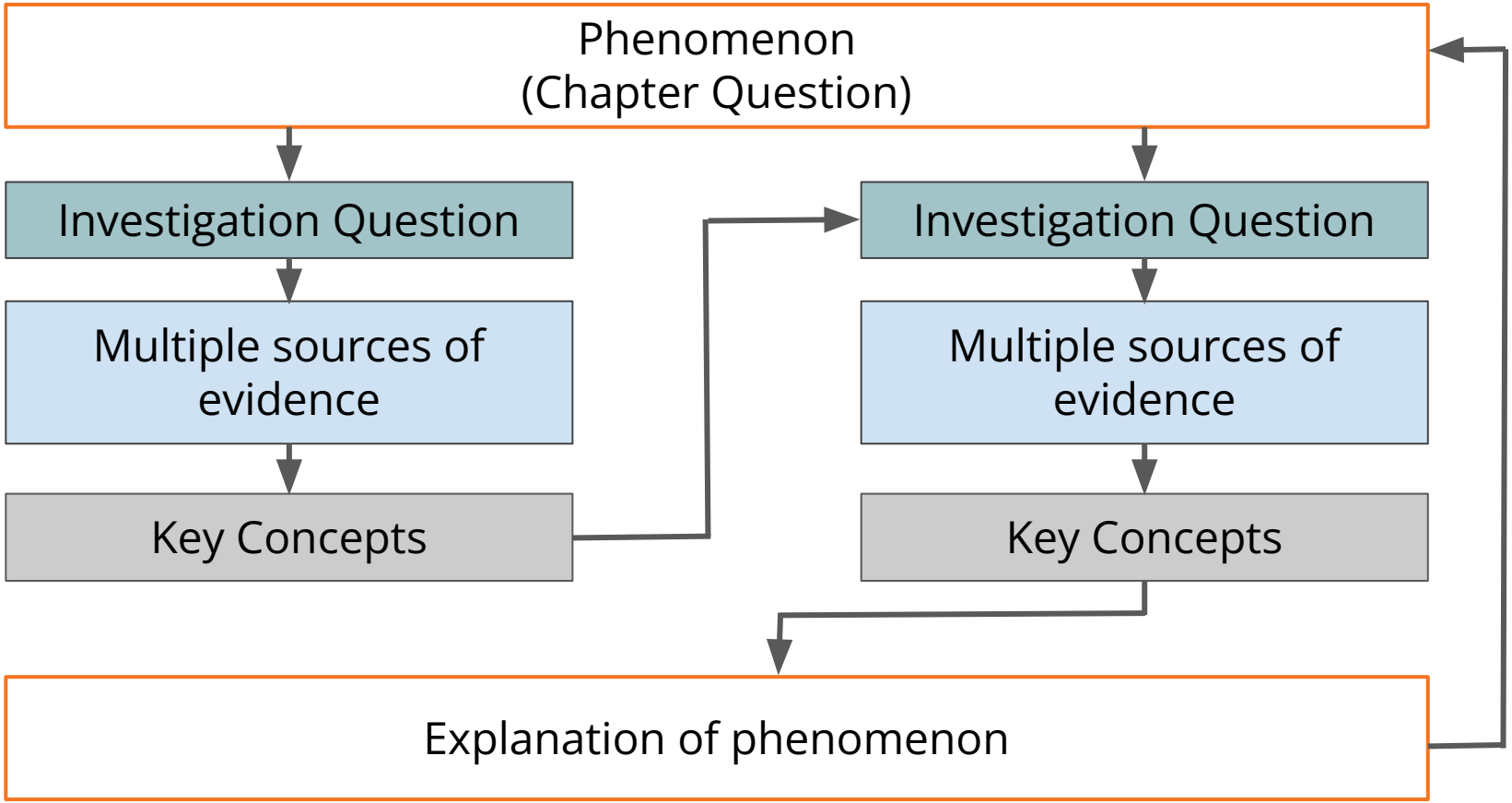
↓

Key Concept: Animals and plants have structures that help them do what they need to do to survive. (1.3)

Coherence Flowchart



Animal and Plant Defenses: Spikes, Shells, and Camouflage

Unit Anchor Phenomenon

Problem students work to solve

Spruce the Sea Turtle and her offspring survive in the ocean.
How can a sea turtle survive in the ocean after being released by an aquarium?

Chapter-level Anchor Phenomenon
Chapter 1 Question

Spruce the Sea Turtle survives in the ocean.
How does Spruce the Sea Turtle do what she needs to do to survive?

Investigative Phenomena
Investigation Questions

Sometimes plants and animals survive.
What do animals and plants need to do to survive? (1.1)

Plants and animals get water, air, and food.
How do animals and plants do what they need to do to survive? (1.2, 1.3, 1.4, 1.5)

Evidence sources and reflection opportunities

- Play the Survival Game (1.1)

- Read *Tortoise Parts* (1.2)
- Observe students eating (1.2)
- Describe structures in *Tortoise Parts* (1.3)
- Watch videos of plant and animal structures (1.3)
- Read *Spikes, Spines, and Shells* (1.3)
- Revisit the Survival Game (1.4)
- Write about how animals do what they need to do to survive. (1.4)

Key concepts

- To survive, animals and plants need to get water, air, and food. (1.1)

- Animals and plants have structures that help them do what they need to do to survive. (1.3)
- To survive, animals and plants need to get water, air, and food, and to not be eaten. (1.4)

Application of key concepts to problem

- Gather evidence about sea turtle structures and explain how they use those structures to survive (1.5)
- Write about how Spruce does what she needs to do to survive in the ocean (1.5)

Explanation that students can make to answer the Chapter 1 Question

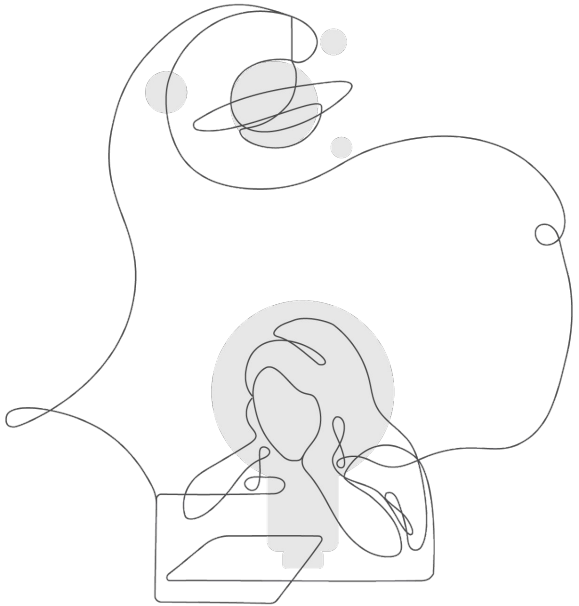
Sea turtles have body parts that help them get food, air, and water. In the ocean, there are predators that might try to eat the sea turtle. To survive in the ocean, she needs to avoid being eaten by predators.

Amplify.

Explore the Coherence Flowchart

Skim the Chapter 1 Coherence Flowchart.

Think about how you might use the Coherence Flowchart to summarize learning throughout Chapter 1.



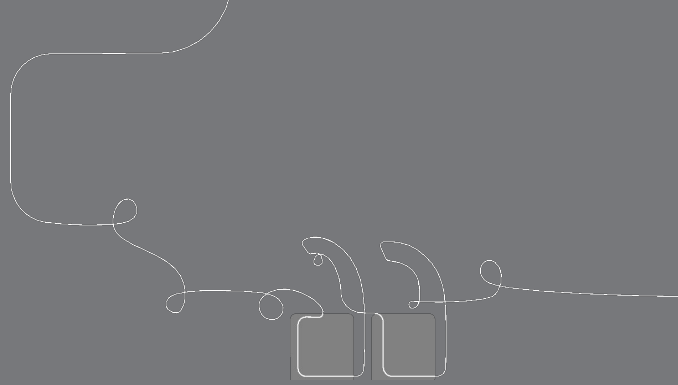
Reflection

Coherence Flowchart

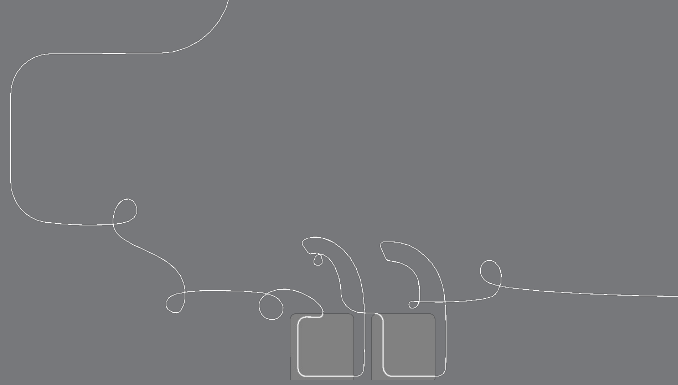
After looking over the Coherence Flowchart, what new insights do you have about teaching and learning with Amplify Science?

Teaching	Learning
	

Questions?



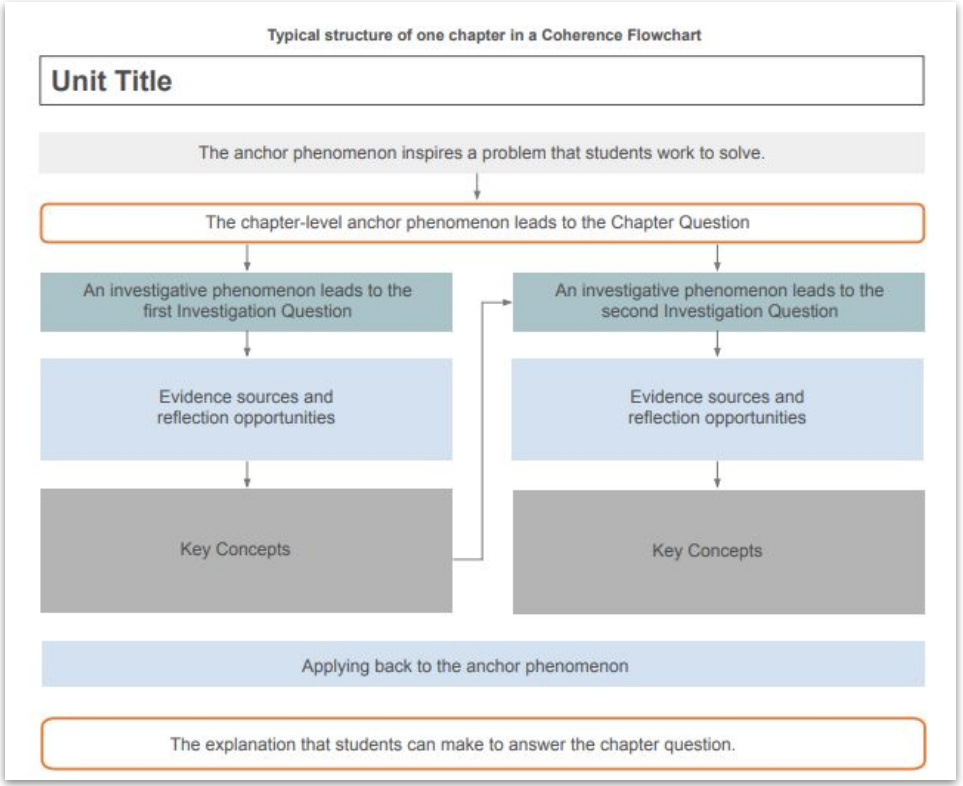
Break



Coherence Flowchart

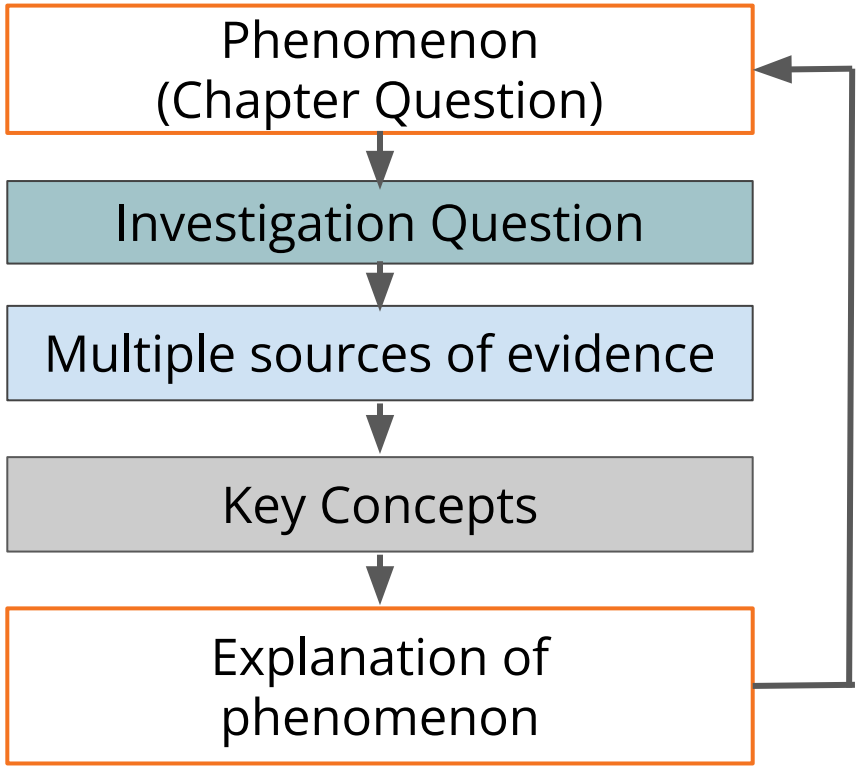
First, read over the Chapter 1 Coherence Flowchart.

Then try to find which part of the Coherence Flowchart seems connected to Level 1 of the Progress Build.



Coherence Flowchart

Key Concepts can be seen as building blocks to the Progress Build levels.



Coherence Flowchart

How do students figure out Key Concepts?

Teaching	Learning
	

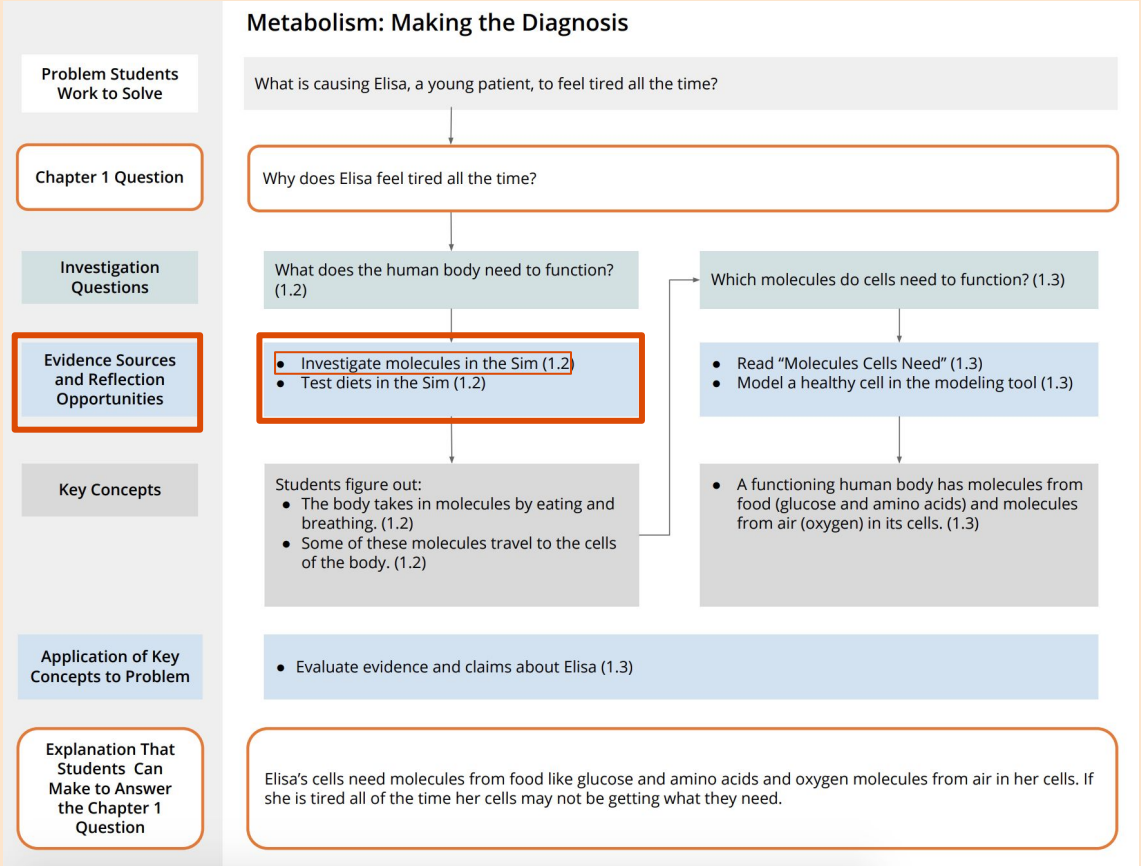
Pgs. 24-25

Grade-level jigsaw

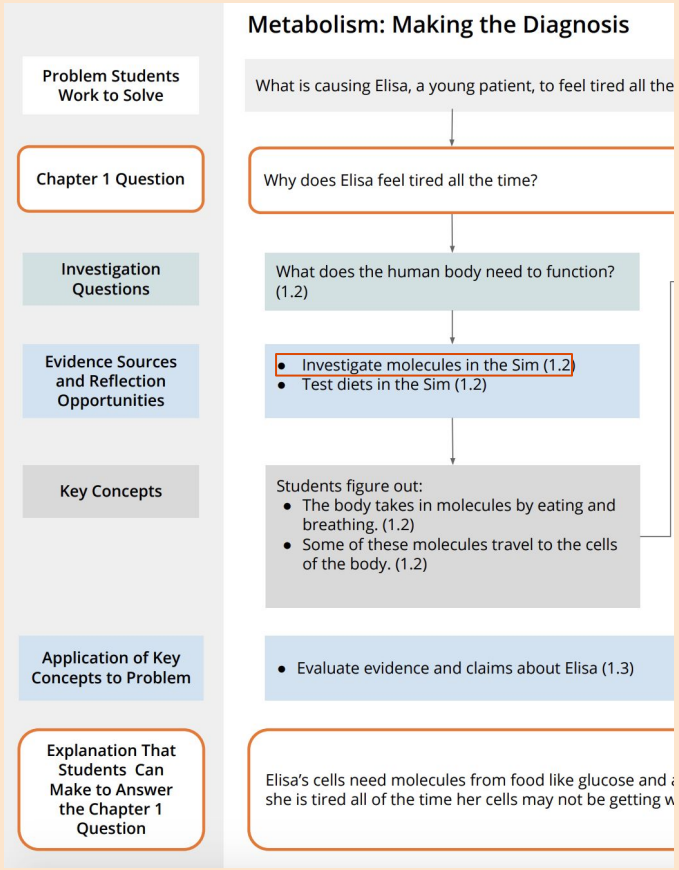
Each group member of each grade will become an expert on a Chapter 1 evidence source then report back to the group:

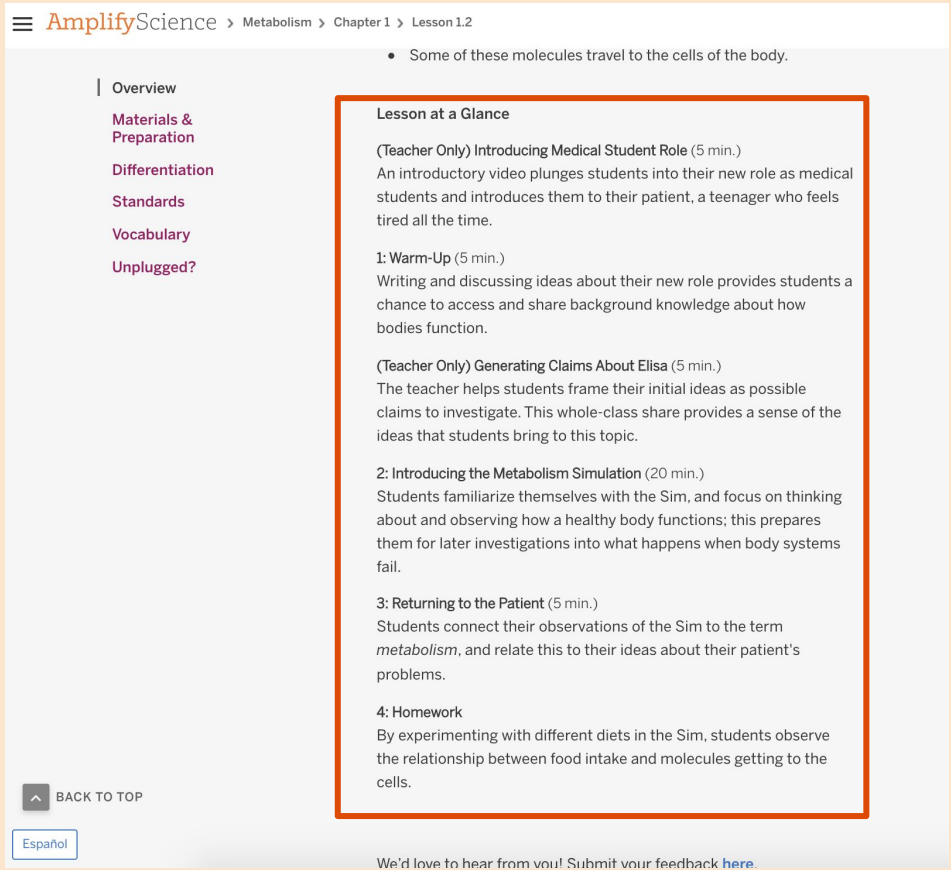
- What science concept(s) are students working to figure out?
- What are students doing?

Hidden slide: Evidence sources in Coherence Flowchart



Hidden slide: Navigating to an evidence source in the teacher's guide





Pgs. 24-25

Jigsaw

Each group member will become an expert on a Chapter 1 evidence source then report back to the group:

- What science concept(s) are students working to figure out?
- What are students doing?

Pgs. 24-25

Jigsaw

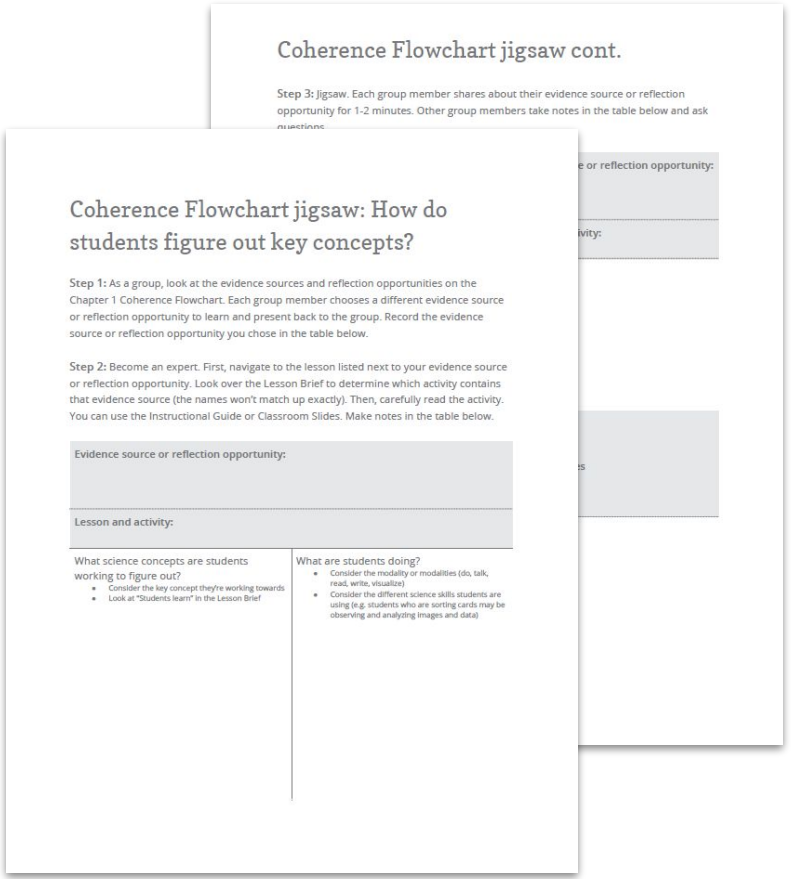
Share your work

First, each group member shares:

- What science concept(s) are students working to figure out?
- What are students doing?

Next, the whole group discusses:

- What new understanding(s) do you have about how students figure out Key Concepts in your unit?



Coherence Flowchart jigsaw cont.

Step 3: Jigsaw. Each group member shares about their evidence source or reflection opportunity for 1-2 minutes. Other group members take notes in the table below and ask questions.

Coherence Flowchart jigsaw: How do students figure out key concepts?

Step 1: As a group, look at the evidence sources and reflection opportunities on the Chapter 1 Coherence Flowchart. Each group member chooses a different evidence source or reflection opportunity to learn and present back to the group. Record the evidence source or reflection opportunity you chose in the table below.

Step 2: Become an expert. First, navigate to the lesson listed next to your evidence source or reflection opportunity. Look over the Lesson Brief to determine which activity contains that evidence source (the names won't match up exactly). Then, carefully read the activity. You can use the Instructional Guide or Classroom Slides. Make notes in the table below.

Evidence source or reflection opportunity:	
Lesson and activity:	
What science concepts are students working to figure out? • Consider the key concept they're working towards • Look at "Students learn" in the Lesson Brief	What are students doing? • Consider the modality or modalities (do, talk, read, write, visualize) • Consider the different science skills students are using (e.g. students who are sorting cards may be observing and analyzing images and data)

Jigsaw

What new ideas do you have about how students figure out Key Concepts?

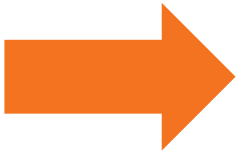
Teaching	Learning
	

Phenomenon-based teaching and learning

A shift in science instruction

from learning about

(like a student)

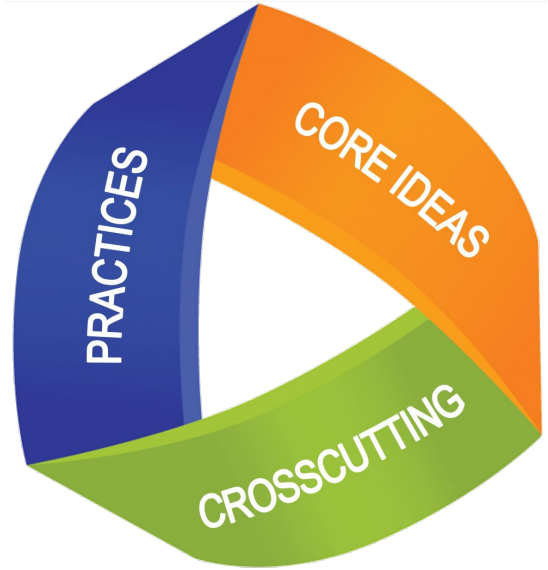


to figuring out

(like a scientist)

3-D Learning

Figuring out like a scientist, using all three dimensions



Science and Engineering Practices

1. **Asking Questions and Defining Problems**
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 and Designing Solutions**
7. **Engaging in Argument from Evidence**
8. **Obtaining, Evaluating, and Communicating Information**

Disciplinary Core Ideas

Earth and Space Sciences:
ESS1: Earth's Place in the Universe
ESS2: Earth's Systems
ESS3: Earth and Human Activity

Life Sciences:
LS1: From Molecules to Organisms
LS2: Ecosystems
LS3: Heredity
LS4: Biological Evolution

Physical Sciences:
PS1: Matter and its Interactions
PS2: Motion and Stability
PS3: Energy
PS4: Waves and their Applications

Engineering, Technology and the Applications of Science:
ETS1: Engineering Design
ETS2: Links among Engineering Technology, Science and Society

Crosscutting Concepts

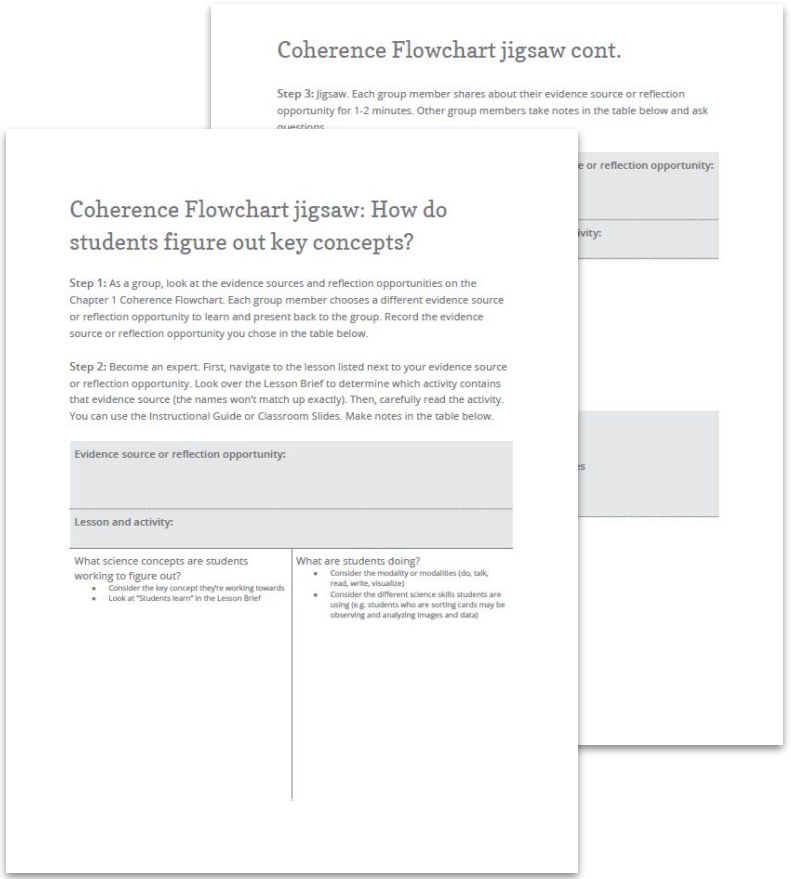
1. **Patterns**
2. **Cause and Effect**
3. **Scale, Proportion, and Quantity**
4. **Systems and System Models**
5. **Energy and Matter**
6. **Structure and Function**
7. **Stability and Change**

3-D Learning in Chapter 1

Pgs. 24-25

Return to your Jigsaw notes about the different evidence sources in Chapter 1.

How do students figure out like scientists, using all three dimensions?



Coherence Flowchart jigsaw cont.

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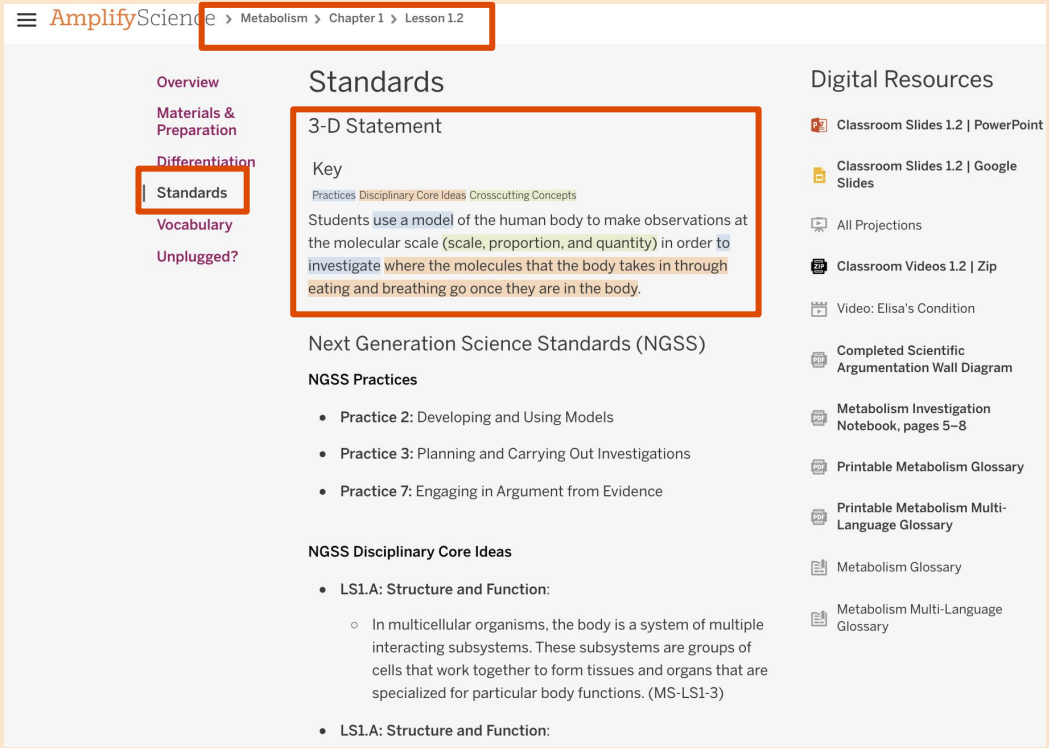
Coherence Flowchart jigsaw: How do students figure out key concepts?

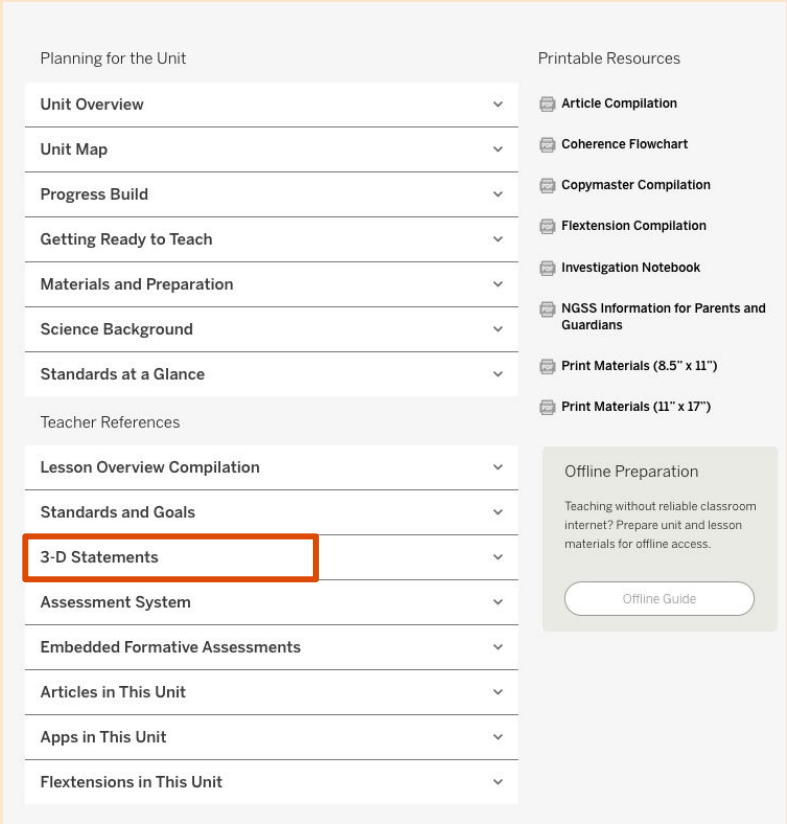
Step 1: As a group, look at the evidence sources and reflection opportunities on the Chapter 1 Coherence Flowchart. Each group member chooses a different evidence source or reflection opportunity to learn and present back to the group. Record the evidence source or reflection opportunity you chose in the table below.

Step 2: Become an expert. First, navigate to the lesson listed next to your evidence source or reflection opportunity. Look over the Lesson Brief to determine which activity contains that evidence source (the names won't match up exactly). Then, carefully read the activity. You can use the Instructional Guide or Classroom Slides. Make notes in the table below.

Evidence source or reflection opportunity:	
Lesson and activity:	
What science concepts are students working to figure out? • Consider the key concept they're working towards • Look at "Students learn" in the Lesson Brief	What are students doing? • Consider the modality or modalities (do, talk, read, write, visualize) • Consider the different science skills students are using (e.g. students who are sorting cards may be observing and analyzing images and data)

Hidden slide: Navigate to a lesson's 3-D statement



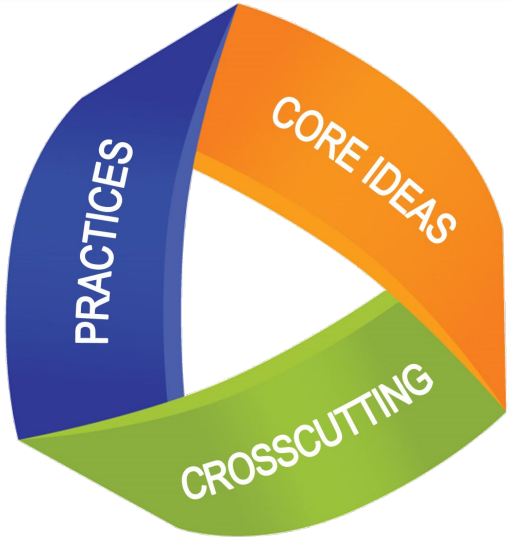


Connecting 3-D learning to deeper learning

How can 3-dimensional science lead students to deeper learning?

Deeper learning:

- Conceptual knowledge that moves **past the what to the why or how**
- Analysis, reasoning, communication, and other skills
- Beyond retention, an ability to **transfer** and apply knowledge and skills to new contexts



Synthesizing our reflections

When students work as scientists and learn using the 3 dimensions, they focus on explaining why or how rather than memorizing facts.

This makes them more able to remember ideas and transfer them to new context.

Tools for Deeper Learning

- Progress Build
- 3-D learning

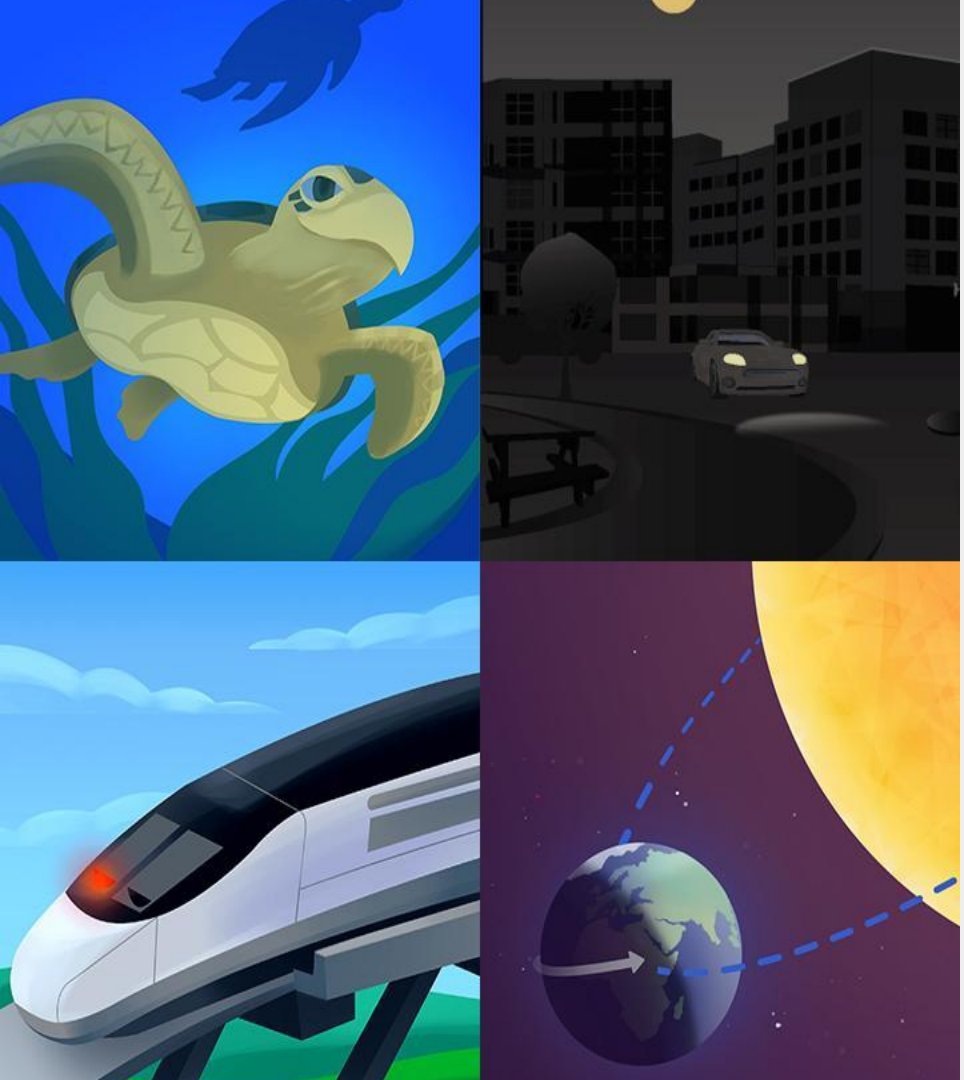
Synthesizing our reflections

The Coherence Flowchart gives teachers an at-a-glance diagram of the connections among evidence sources, questions, and Key Concepts.

It's a great planning tool for deeper learning.

Tools for Deeper Learning

- *Progress Build*
- *3-D learning*
- *Coherence Flowchart*



Plan for part 2

- **Framing the day**
  - Welcome
- **Unit Exploration**
  - Unpacking the Progress Build
- **Unit Coherence**
  - Unpacking unit coherence in your first unit
- **Planning for CR-SE**
  - Unpacking - Eliciting and Leveraging Students' Prior Knowledge
- **Closing**
  - Final Questions & Feedback

Culturally Responsive-Sustaining Education

Principles of the framework

Welcoming and affirming environment

High expectations and rigorous instruction

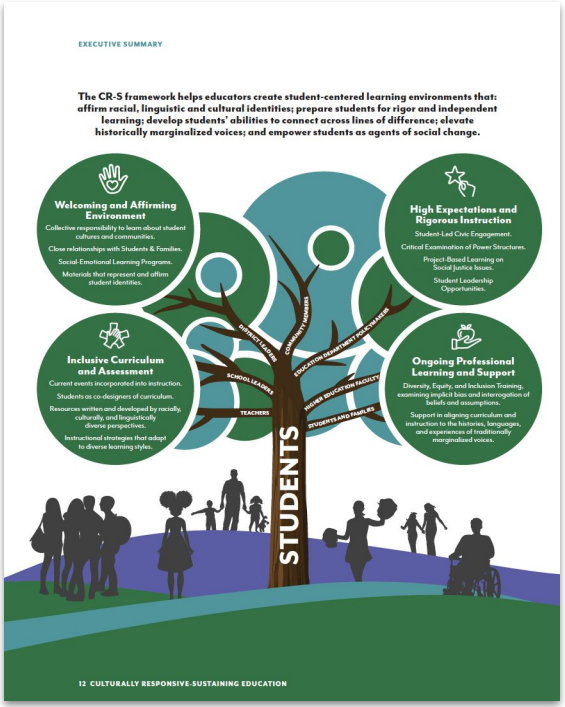
Inclusive curriculum and assessment

Ongoing professional learning

Read, reflect, & discuss

4 principles of CR-SE

- Take a few moments to review these principles.
- Reflect on how you already incorporate these principles into your regular practice.
- Share in the chat!



Pgs. 28-32

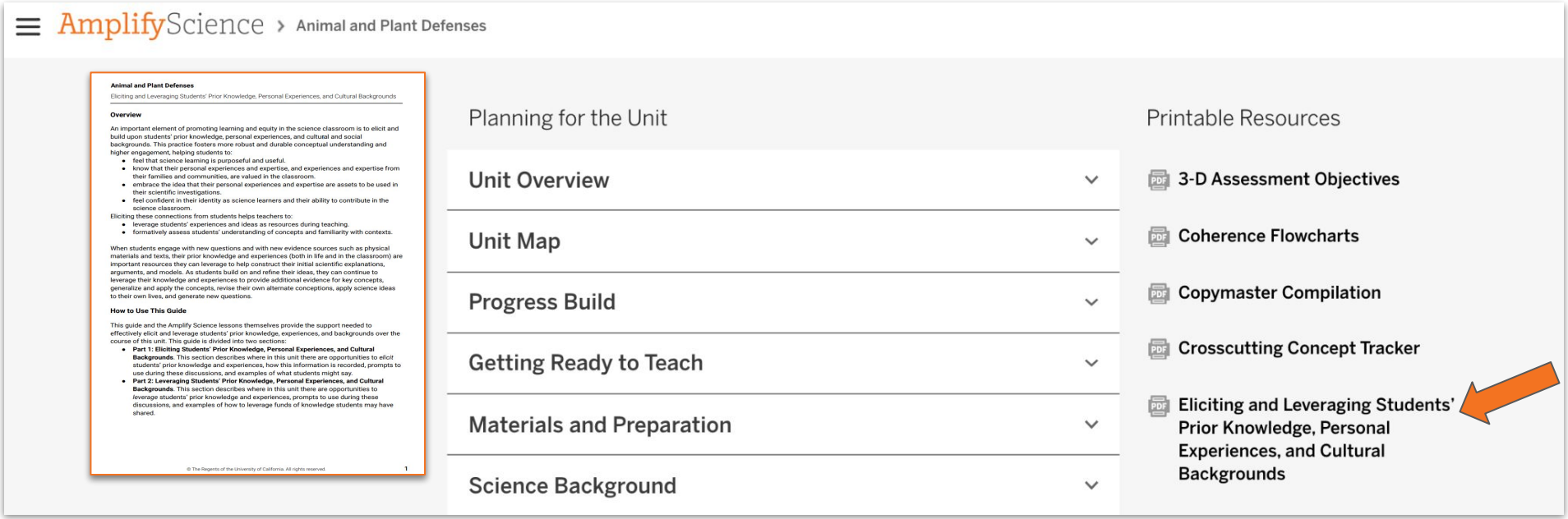
Culturally Responsive-Sustaining Education in Amplify Science

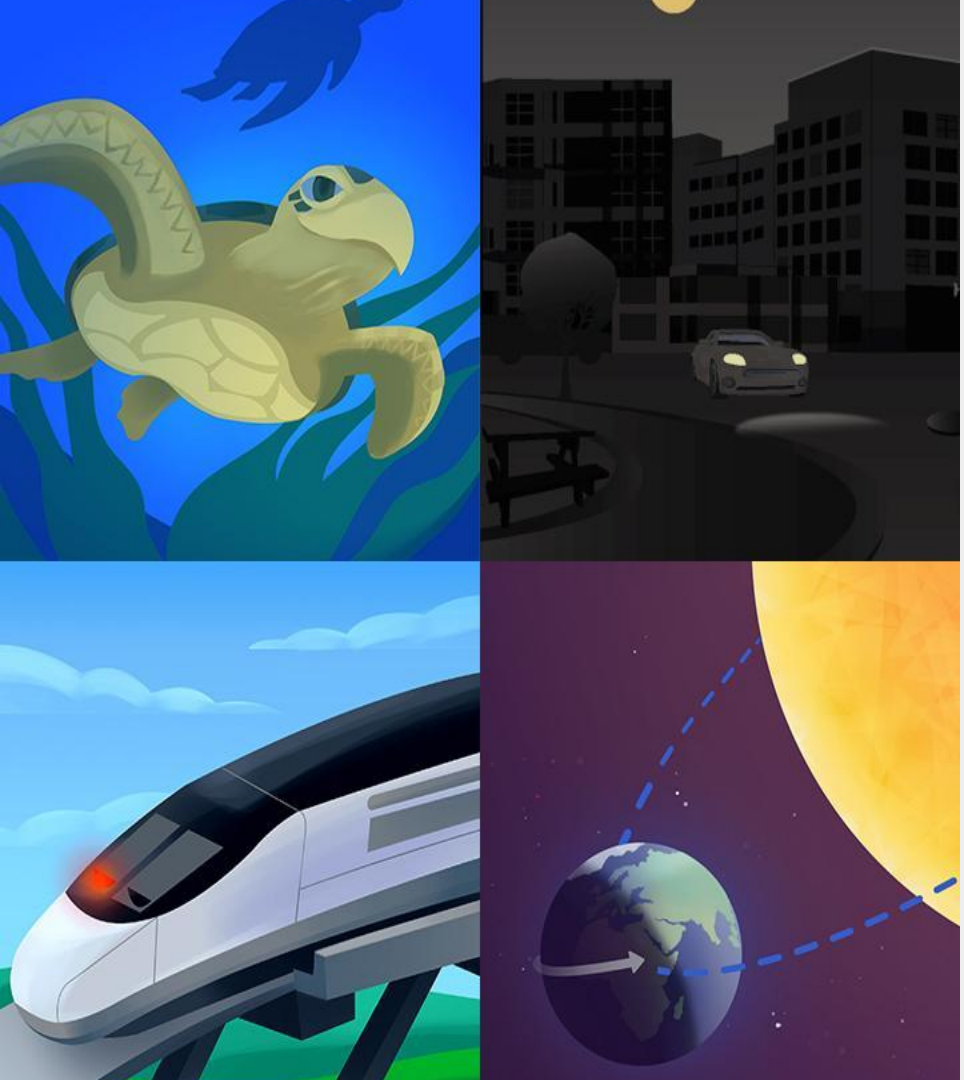
Collaborate in break-out rooms

- Each group will be randomly assigned 1 common element of equitable teaching & learning.
- Read respective blurb.
- Prepare a slides with words & images that best summarizes how Amplify Science supports each element. Be creative!

Eliciting and Leveraging Students' Prior Knowledge, Personal Experiences, and Cultural Backgrounds

Unit-specific document





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- **Closing**
  - Final Questions & Feedback

Closing reflection

Based on our work today, share:

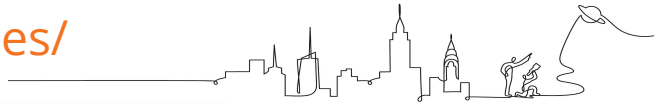
Head: something you'll keep in mind

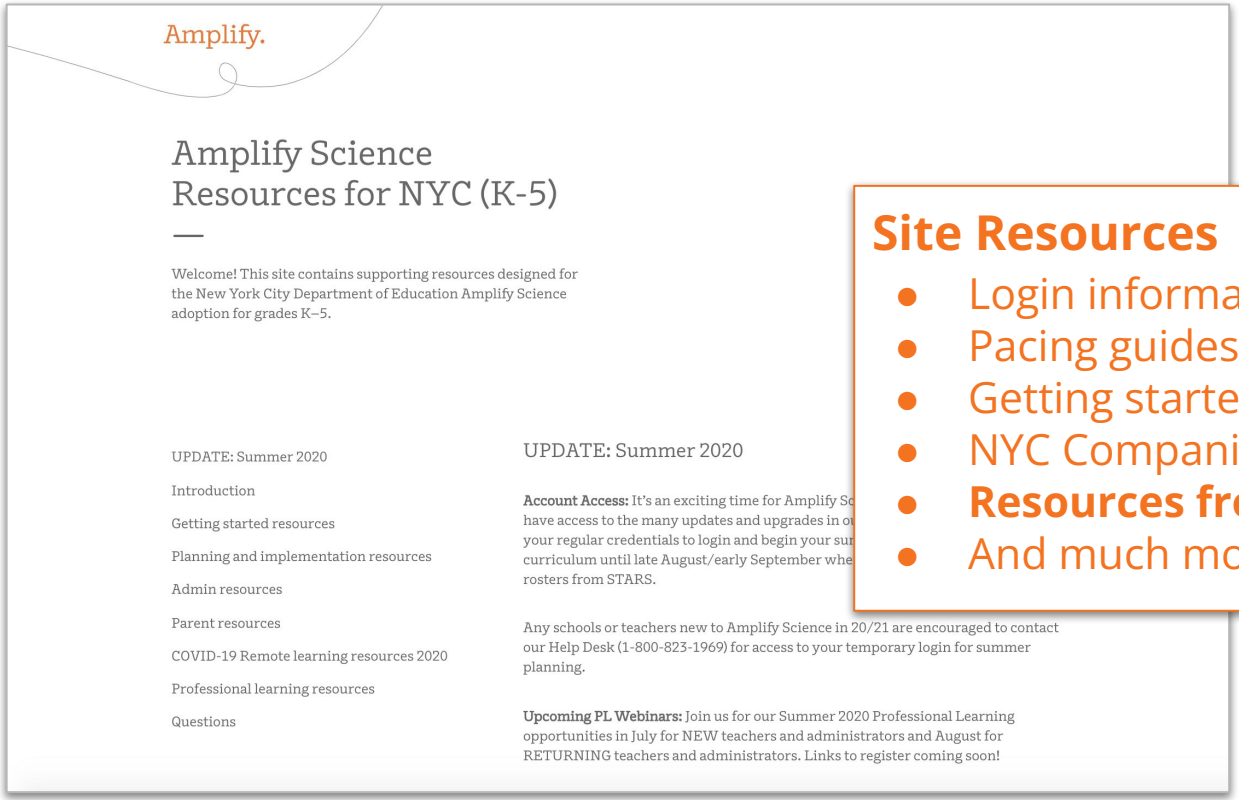
Heart: something you're feeling

Feet: something you're planning to do

New York City Resources Site

https://amplify.com/amplify-science-nyc-doe-resources/





Site Resources

- Login information
- Pacing guides
- Getting started guide
- NYC Companion Lessons
- **Resources from PD sessions**
- And much more!

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

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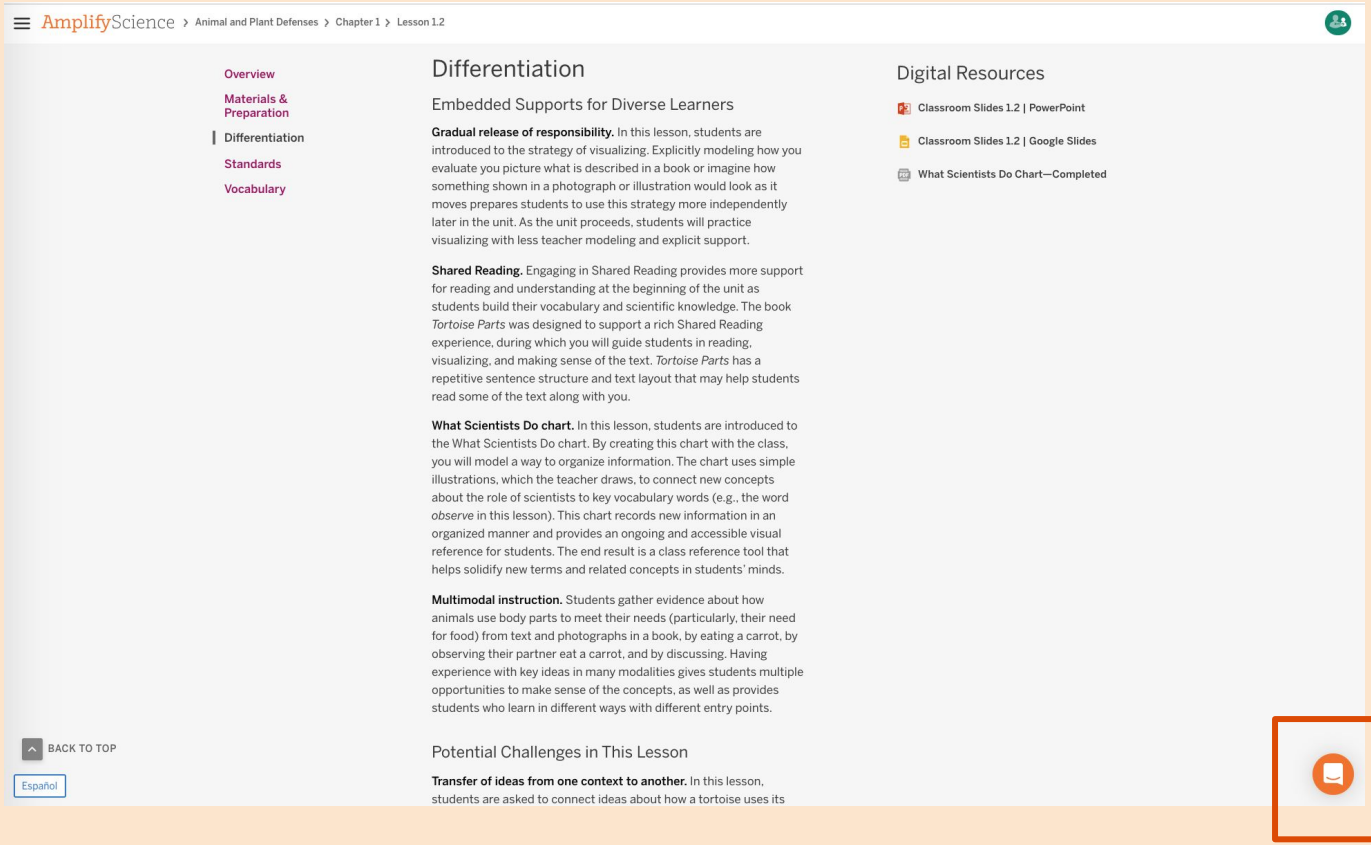
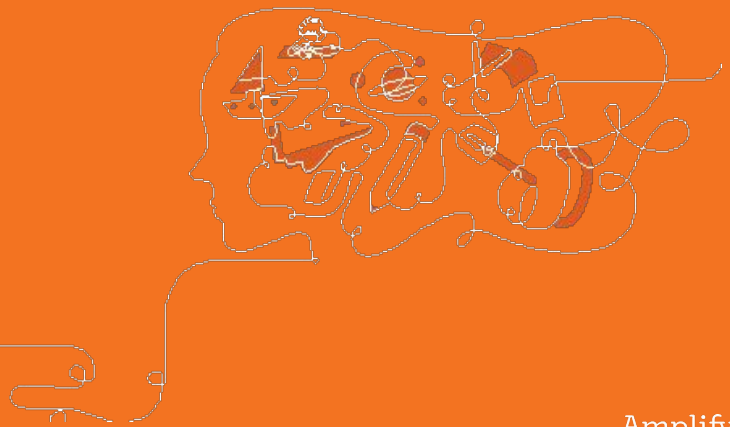



Final Questions?

Please provide us feedback!

URL: https://www.surveymonkey.com/r/5DQW2T6

Presenter name:



Amplify.

Thank you & be well!