

Pilot support



Welcome

Welcome to your Amplify Science California pilot!

We're thrilled to welcome you to the Amplify family, and we look forward to making your experience with Amplify Science California successful from day one.

The Next Generation Science Standards have raised the bar in science education. What that means for you is having to embrace a new way of teaching—one that shifts the focus of science instruction from students *learning about* to *figuring out*.

Bringing three-dimensional learning to life in the classroom can be challenging. But we're confident that—with Amplify Science California by your side—you'll find your transition to the NGSS not only manageable, but also engaging and fun!

We look forward to partnering with you on this journey!

—Amplify California Team

Amplify.



**THE LAWRENCE
HALL OF SCIENCE**
UNIVERSITY OF CALIFORNIA, BERKELEY

Table of contents

About the program	4
Course topics	6
Program structure	8
Key components	10
Meet your new hands-free TG!	12
Navigating a unit	14
Navigating a lesson	16
Instructional supports	18
Teaching tips	20
Implementation support	22

About the program

Amplify Science California is a brand-new science curriculum that blends hands-on investigations, literacy-rich activities, and interactive digital tools to empower students to think, read, write, and argue like real scientists and engineers.

In the classroom, this looks like students:

Collecting evidence from a variety of sources

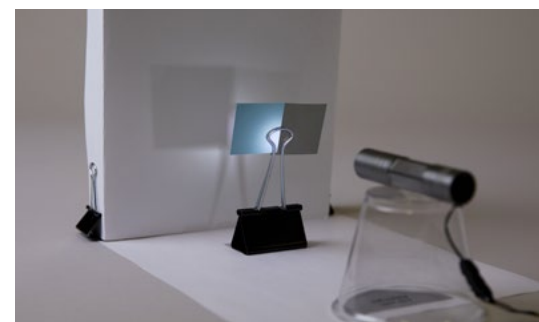
- Hands-on investigations
- Physical models
- Scientific texts read aloud or with a partner
- Media (including video clips, photographs, maps, and data sets)

Making sense of evidence in a variety of ways

- Actively listening to and discussing texts
- Iteratively revising models
- Considering different arguments
- Analyzing patterns
- Manipulating variables and recording observations
- Discussing ideas and questions with classmates

Formulating convincing scientific arguments

- Using evidence to support claims
- Constructing and revising models
- Communicating ideas and claims in a variety of forms (including orally, written words and sentences, and drawings)

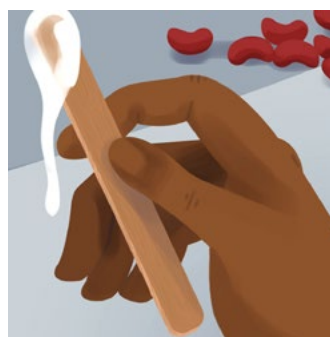


Built for new science standards and three-dimensional learning

We set out to create a science program that educators can leverage to bring three-dimensional learning to life for their students. Educators who adopt Amplify Science California can rest assured knowing they have access to the newest comprehensive curriculum complete with detailed lesson plans, hands-on activities and materials, digital tools, embedded assessments, and robust teacher supports.

Amplify Science California meets higher expectations for science teaching and learning.

- Anchor phenomena, explored through diverse interdisciplinary contexts, serve as the foundation for compelling, coherent storylines.
- Research-based multimodal learning allows students to develop expertise in all **Science and Engineering Practices (SEPs)** and deep understanding of **Disciplinary Core Ideas (DCIs)** and **Crosscutting Concepts (CCCs)** through experiences within a wide variety of contexts.
- Modeling tools enable students to create, and later revise, visualizations of their ideas of key scientific phenomena at critical points in the curriculum.
- Embedded engineering in units focused on engineering and technology emphasize that there's not always one right answer, as students balance competing constraints to design the best justifiable solutions.



Course topics

Kindergarten



Needs of Plants and Animals

- **Domain:** Life science
- **Unit type:** Investigation
- **Student role:** Scientists
- **Phenomenon:** Why did the monarch caterpillars begin to disappear after vegetables were planted in the Mariposa Grove community garden?



Pushes and Pulls

- **Domain:** Physical science
- **Unit type:** Engineering design
- **Student role:** Pinball engineers
- **Phenomenon:** How do pinball machines allow people to control where the ball goes?



Sunlight and Weather

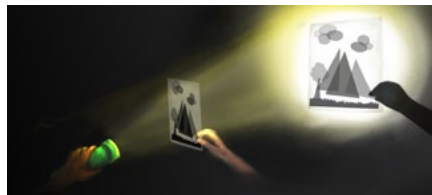
- **Domain:** Earth science
- **Unit type:** Modeling
- **Student role:** Weather scientists
- **Phenomenon:** Why is the playground at Woodland Elementary School warmer at recess than the playground at Carver Elementary School?

Grade 1



Animal and Plant Defenses

- **Domain:** Life science
- **Unit type:** Modeling
- **Student role:** Marine scientists
- **Phenomenon:** How do living things survive in the wild despite the presence of predators?



Light and Sound

- **Domain:** Physical science
- **Unit type:** Engineering design
- **Student role:** Light and sound engineers
- **Phenomenon:** How can we use light and sound to design shadow scenery and sound effects for a puppet theater?



Spinning Earth

- **Domain:** Earth science
- **Unit type:** Investigation
- **Student role:** Sky scientists
- **Phenomenon:** Why does the sky look different to Sai and his grandma when they talk on the phone?

Grade 2



Plant and Animal Relationships

- **Domain:** Life science
- **Unit type:** Investigation
- **Student role:** Plant scientists
- **Phenomenon:** Why are there no new chalta trees growing in the fictional Bengal Tiger Reserve in India?



Properties of Materials

- **Domain:** Physical science
- **Unit type:** Engineering design
- **Student role:** Glue engineers
- **Phenomenon:** How can you design a mixture for a certain purpose?



Changing Landforms

- **Domain:** Earth science
- **Unit type:** Modeling
- **Student role:** Geologists
- **Phenomenon:** What is causing the cliff where Oceanside Recreation Center is situated to recede?

Unit types

While all units are designed to provide three-dimensional learning experiences, each individual unit also emphasizes one of the following science and engineering practices.

Investigation units focus on the process of strategically developing investigations and gathering data to answer questions. Students are first asked to consider questions about what happens in the natural world and why, and are then involved in designing and conducting investigations that produce data to help answer those questions.

Modeling units provide extra support to students engaging in the practice of modeling. Students use physical models, investigate with computer models, and create their own diagrams to help them visualize what might be happening on the nanoscale.

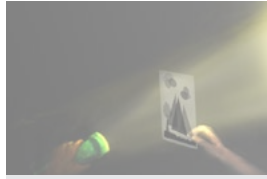
Engineering design units provide opportunities for students to solve complex problems by applying science principles to the design of functional solutions, and iteratively testing those solutions to determine how well they meet pre-set criteria.

Program structure


Units



22 Lessons
Animal and Plant Defenses




22 Lessons
Light and Sound




22 Lessons
Spinning Earth


Chapters



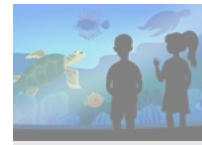
Chapter 1:
How does Spruce the Sea Turtle do what she needs to do to survive?
5 lessons



Chapter 2:
How can Spruce the Sea Turtle survive where there are sharks?
8 lessons



Chapter 3:
How can Spruce the Sea Turtle's offspring survive where there are sharks?
5 lessons



Chapter 4:
How can aquarium scientists explain animal defenses to the visitors?
4 lessons

Lessons

Lesson 1.1:
Pre-Unit Assessment

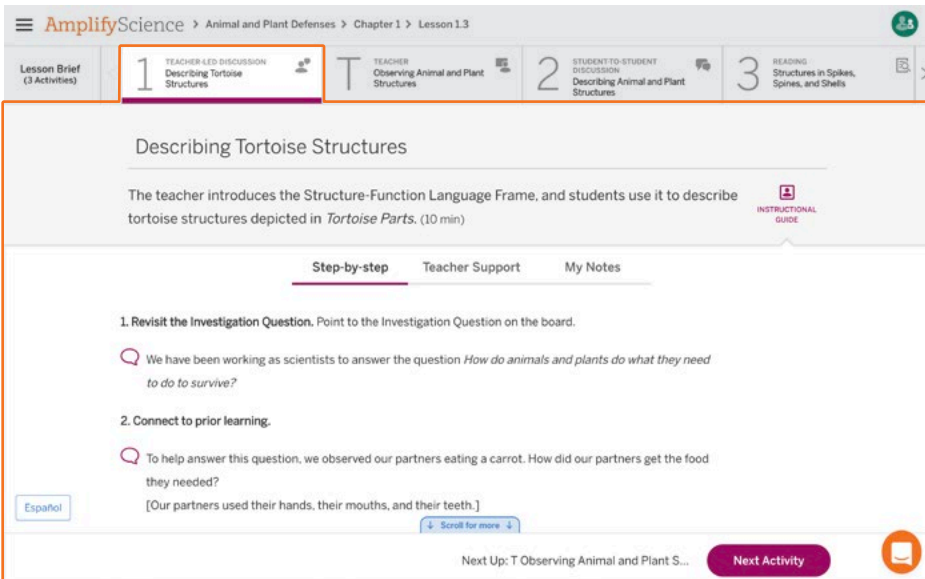
Lesson 1.2:
Tortoise Parts

Lesson 1.3:
Animal and Plant Structures

Lesson 1.4:
Surviving by Not Being Eaten

Lesson 1.5:
Explaining Sea Turtle Survival

Activities



AmplifyScience > Animal and Plant Defenses > Chapter 1 > Lesson 1.3

Lesson Brief (3 Activities) | 1 TEACHER-LED DISCUSSION Describing Tortoise Structures | T TEACHER Observing Animal and Plant Structures | 2 STUDENT-TO-STUDENT DISCUSSION Describing Animal and Plant Structures | 3 READING Structures in Spines, Spines, and Shells

Describing Tortoise Structures

The teacher introduces the Structure-Function Language Frame, and students use it to describe tortoise structures depicted in *Tortoise Parts*. (10 min)

INSTRUCTIONAL GUIDE

Step-by-step | Teacher Support | My Notes

1. Revisit the Investigation Question. Point to the Investigation Question on the board.
We have been working as scientists to answer the question *How do animals and plants do what they need to do to survive?*
2. Connect to prior learning.
To help answer this question, we observed our partners eating a carrot. How did our partners get the food they needed?
[Our partners used their hands, their mouths, and their teeth.]

Español | Scroll for more

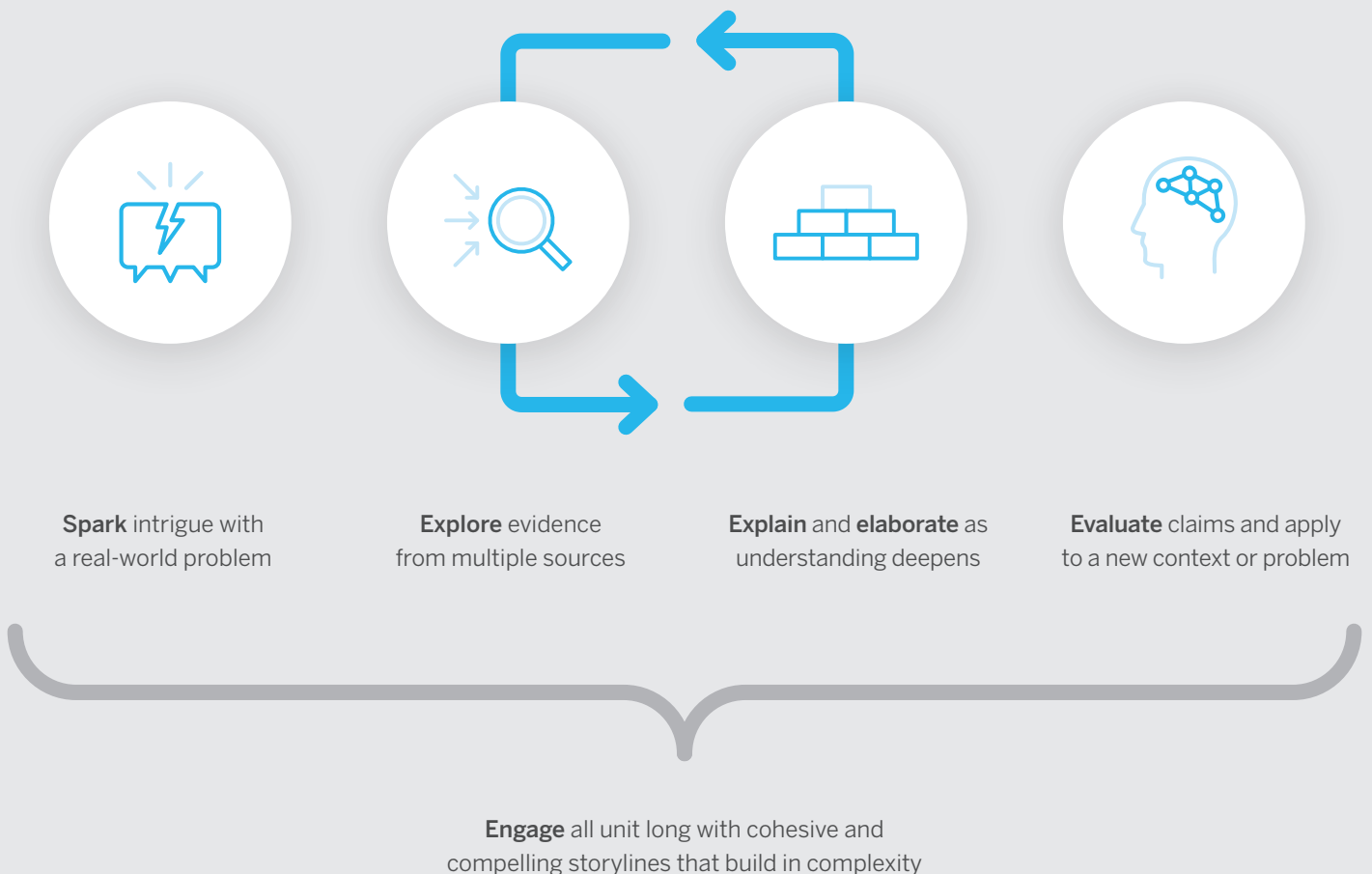
Next Up: T Observing Animal and Plant S... | Next Activity

Built to develop meaningful and lasting knowledge

Rather than introducing a concept on Monday, testing for mastery on Friday, and risking students will forget everything by the next Tuesday, we help students build meaningful and lasting knowledge that they can transfer and apply over the course of the entire unit and year. We accomplish this by giving students multiple opportunities (or “at-bats”) to encounter and experience a concept. Said another way, Amplify Science California is made up of a series of multi-modal “mini-lessons.”

It’s this iterative and cyclical lesson design that allows students to learn concepts more deeply than in any other program. As they progress through the unit, their understanding gradually builds and deepens, ultimately leading to their ability to develop and refine increasingly complex explanations of the unit’s phenomenon.

Lesson design in Amplify Science California



Key components

Print  Digital 

Classroom Slides

Lesson-specific PowerPoints make delivering instruction a snap with embedded links to related resources and suggested teacher talk in the Notes section of each slide.



Teacher's Reference Guide

This unit-specific reference guide includes scientific background knowledge, planning information and resources, color-coded 3D Statements, and tips for delivering instruction and differentiating learning.



Student Books and Big Books (grades K–1)

Student Books and matching Big Book versions (grades K–1) are referenced in the instruction and serve as one of multiple sources of information for students as they gather evidence.



18 copies of each Student Book and 1 copy of each Big Book title included in each unit kit; digital classroom licenses available

Student practice apps and modeling tools (grade 2)

For students in grade 2, the digital student practice apps and modeling tools help with modeling, graphing, and sorting information.

Available to students through purchase of the digital Teacher's Guide



Student Investigation Notebooks

Student Investigation Notebooks are the place where students record their observations and thinking. Each unit-specific notebook contains scaffolding supports for reading and writing activities.

One copy delivered in the unit kit; additional add-on copies available





Hands-on materials

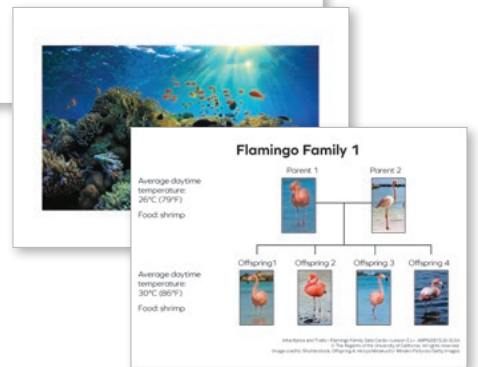
Each unit-specific kit contains consumable and nonconsumable materials for use during hands-on investigations.

In the kit you will find:

- Hands-on materials
- 18 copies of each of the Student Books
- Big books (grades K–1)
- Classroom display materials
- One Student Investigation Notebook

Unit Question

How do animals and plants survive?



Meet your new hands-free TG!

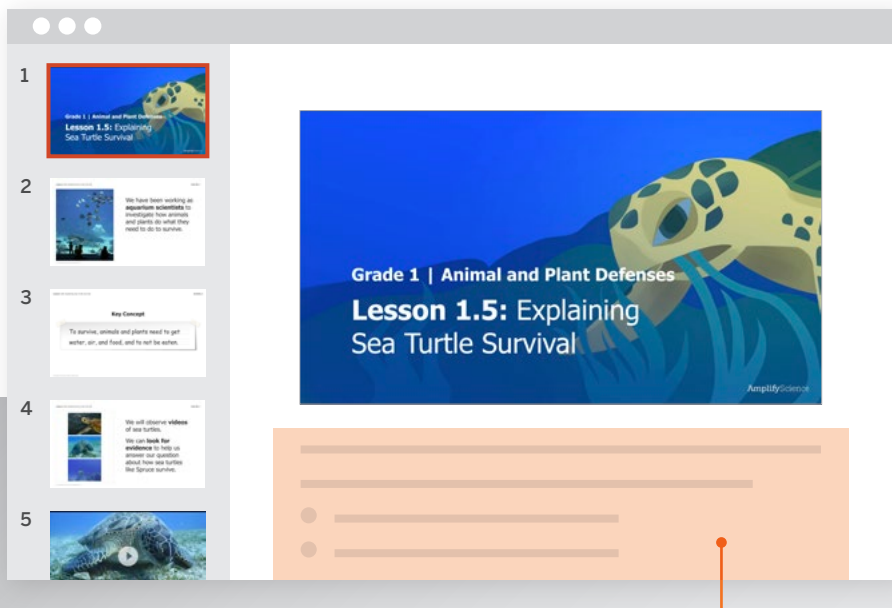
Science time just got a whole lot easier with Classroom Slides! Think of these slides as your hands-free TG. Classroom Slides let you put down the Teacher's Guide and focus on what matters most—your students. Plus, with Classroom Slides, lesson prep is as quick as a click!

Classroom Slides are:

- ✓ **Available offline**, which means no more sweating unreliable internet connections.
- ✓ **Streamlined for easy lesson delivery**, including lesson visuals, activity instructions and transitions, animations, investigation setup videos, technology support, and more.
- ✓ **Fully editable**, allowing you to incorporate your own flavor, flair, and favorite resources.



To find Classrooms Slides, log into learning.amplify.com and look in the Digital Resources section of any lesson.



The Notes section of most slides includes suggested teacher talk, teacher actions, potential student responses, and assessment supports. The first slide of each file includes links to relevant resources in the digital Teacher's Guide.

Let's write our answers to the question.



How does Spruce do what she needs to do to survive?

Self-Assessment: Share a new idea you learned.



1. **Partner A** shares. **Partner B** listens.



2. **Partner B** repeats. *I heard you say . . .*



3. **Partners** switch.

Chapter 1 Question

How does Spruce the Sea needs to do to survive?



We can use what we have learned to help the director of the aquarium explain to kids who visit the aquarium **how Spruce will survive** once she is back in the ocean.



The **comb poking the clay** is like an animal using its sharp structures to catch another living thing and break it into smaller pieces.

Let's visualize sea turtles using their structures.



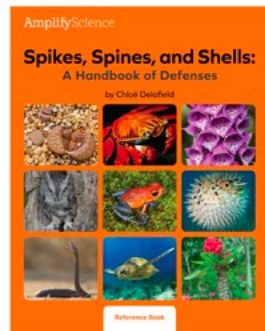
How could sea turtles' **structures** help them do what they need to do to **survive**?



These toothpicks might **defend** the clay animal or plant.



Just like other predators, sharks eat animals by finding them and using sharp structures, such as their teeth, to catch them or break them into smaller pieces.



We read this **reference book** before.

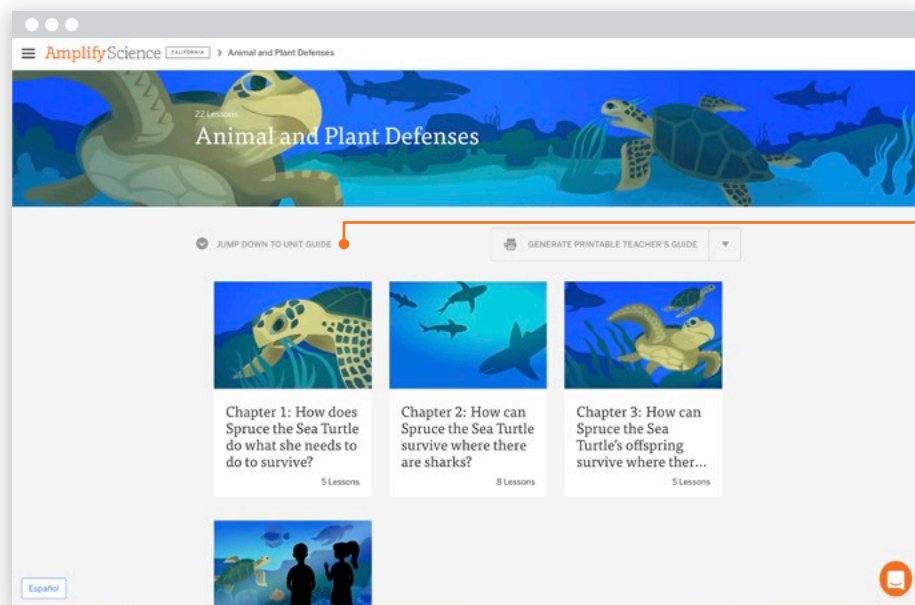
Now, we will use this book to help answer our question about how animals and plants **defend** themselves.

Navigating a unit

In each Unit Guide section (both in the Teacher's Reference Guide and digital Teacher's Guide) there is a **Planning for the Unit** section that outlines critical information, such as:

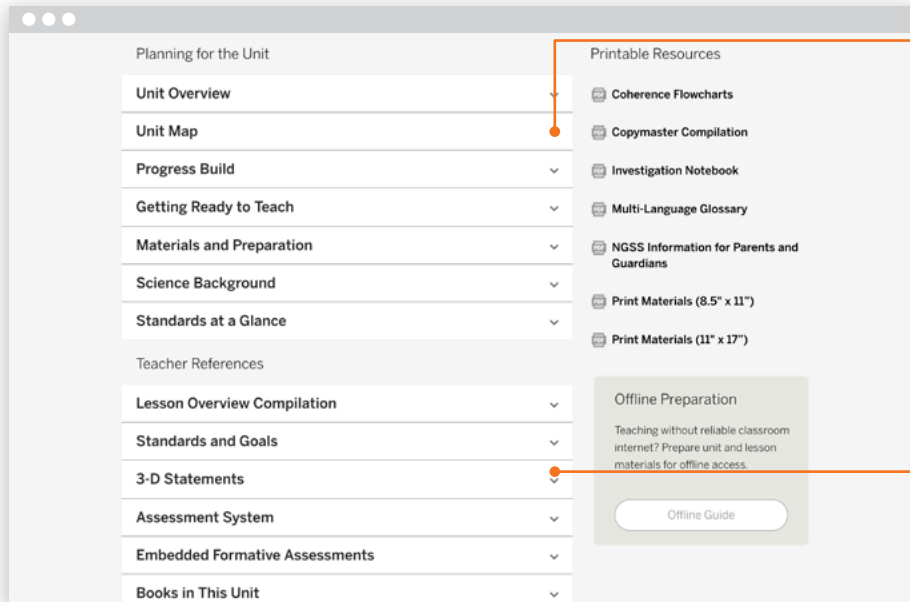
- **Unit Overview** – A detailed explanation of the why behind the unit's content and specific activities
- **Unit Map** – A summary of each chapter including what students figure out and how they do it
- **Progress Build** – The unit's core concept broken down into different levels of understanding to ensure that every child is appropriately challenged
- **Coherence Flowcharts** – A visual tool that represents the storyline of the unit and the coherent flow of questions, evidence, and ideas that support students as they build complex explanations of the unit's anchor phenomenon
- **Materials and Preparation** – A snapshot of the materials you need and how to prep them for instruction
- **Science Background** – Critical information about the science being addressed in the unit

1



Click on
JUMP DOWN TO UNIT GUIDE.

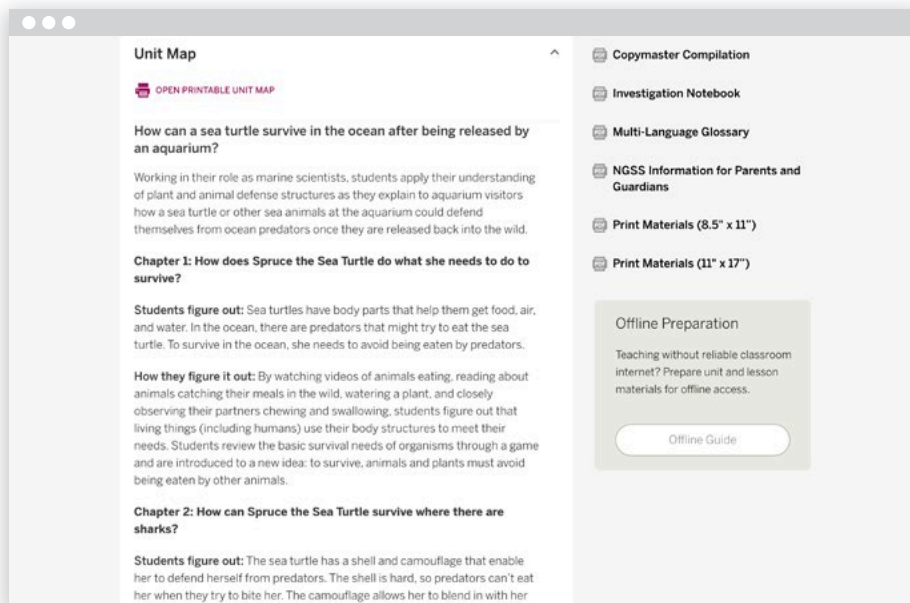
2



To access the **Unit Map**, click on the drop-down arrow.

Review the **3-D Statements** for the unit.

3



Unit Overview from the *Animal and Plant Defenses* digital Teacher's Guide

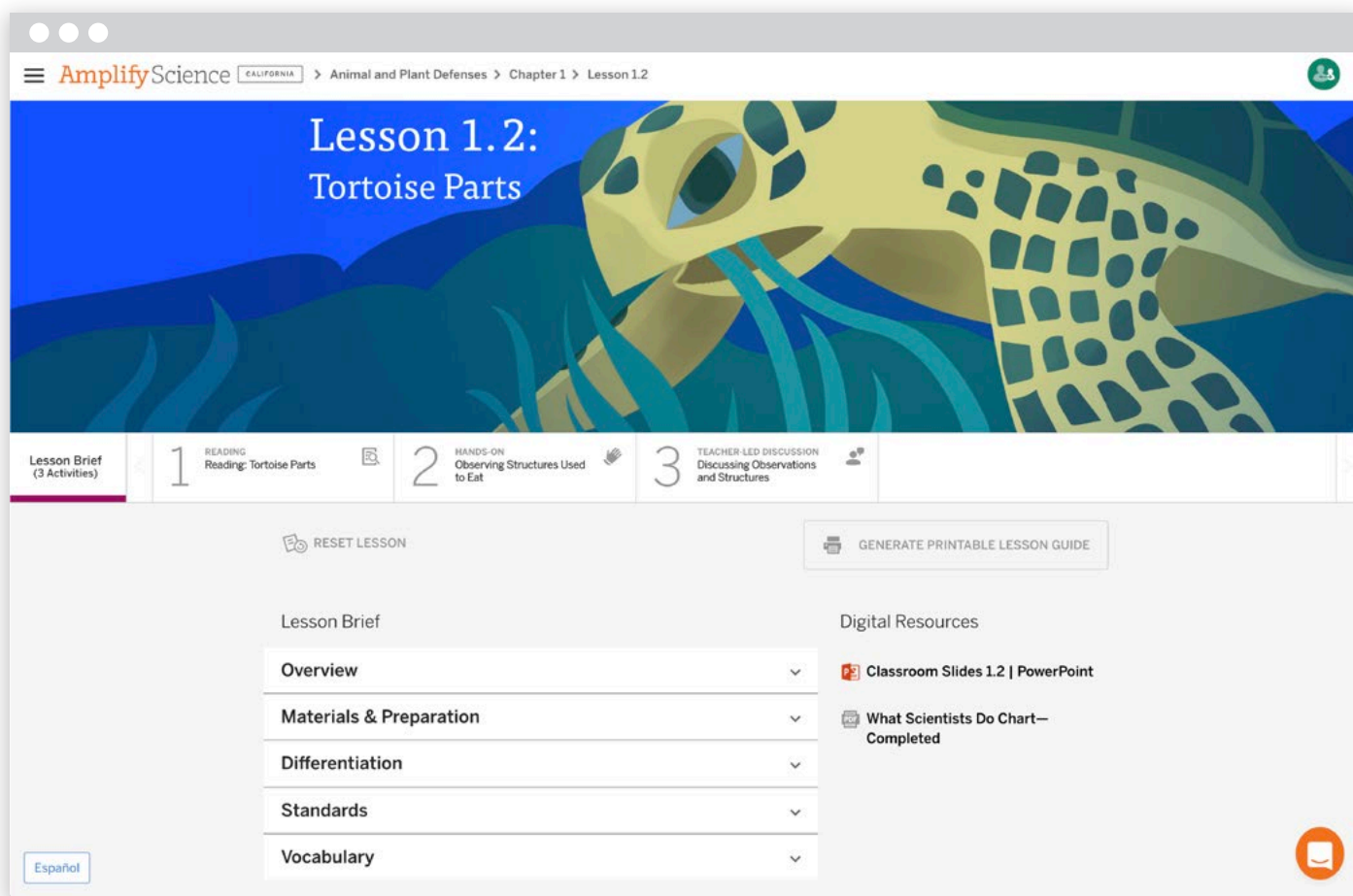
Navigating a lesson

Within each lesson (both in the Teacher’s Reference Guide and digital Teacher’s Guide) there is a Lesson Brief section that outlines critical information, such as:

- ✓ Lesson Overview
- ✓ Materials and Preparation
- ✓ Differentiation
- ✓ Standards
- ✓ Vocabulary

In the digital Teacher’s Guide, you’ll also find a Digital Resources section that contains key resources, such as:

- ✓ Classroom Slides
- ✓ Projections
- ✓ Video links
- ✓ Other lesson-specific resources



Every lesson in Amplify Science California is made up of a series of activities. When you navigate to a lesson in the digital Teacher’s Guide, you’ll see those activities arranged from left to right near the top of your screen. Once you click into an activity, you’ll see the Instructional Guide, which includes:

- ✓ Step-by-step instructions for teaching the lesson
- ✓ Recommended teacher talk
- ✓ Additional tabs for Teacher Support, Notes, and Possible Student Responses

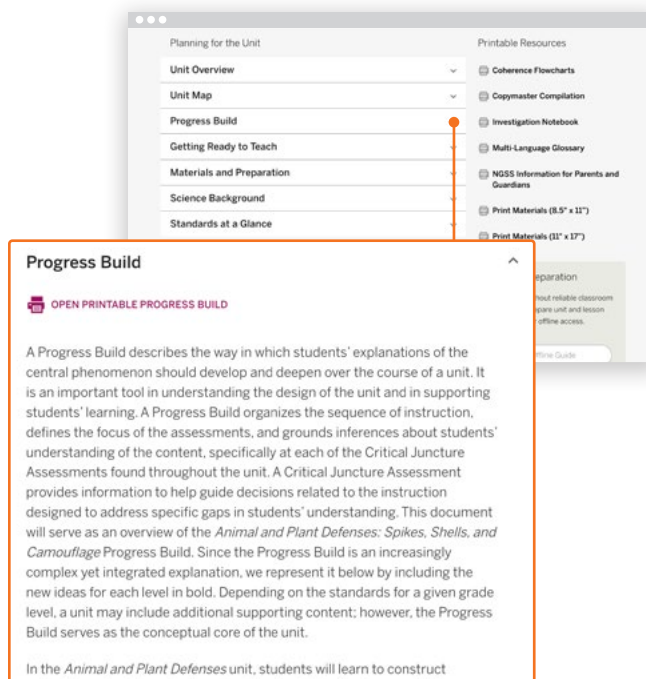
The screenshot shows the Amplify Science digital Teacher's Guide interface. At the top, the navigation bar includes the Amplify Science logo, 'CALIFORNIA', and the path: 'Animal and Plant Defenses > Chapter 1 > Lesson 1.2'. Below the navigation bar, there are three activity tabs: '1 READING Reading: Tortoise Parts', '2 HANDS-ON Observing Structures Used to Eat', and '3 TEACHER-LED DISCUSSION Discussing Observations and Structures'. The 'Reading: Tortoise Parts' tab is selected and highlighted in purple. Below the tabs, the main content area displays the title 'Reading: Tortoise Parts' and a description: 'The teacher leads a Shared Reading of *Tortoise Parts* and introduces the strategy of visualizing while reading. (20 min)'. To the right of the description are two icons: 'EMBEDDED FORMATIVE ASSESSMENT' and 'INSTRUCTIONAL GUIDE'. Below the description, there are three tabs: 'Step-by-step', 'Teacher Support', and 'My Notes'. The 'Step-by-step' tab is selected and highlighted in purple. The content under this tab is organized into three numbered sections: 1. Revisit the aquarium. 2. Connect to prior learning. 3. Introduce the Investigation Question. Each section includes a speech bubble icon and a paragraph of text. At the bottom of the page, there is a 'Next Up: 2 Observing Structures Used to Eat' button and a 'Next Activity' button. A 'Español' button is located in the bottom left corner.

Instructional supports

Progress Builds

Each Progress Build defines several levels of understanding of the unit's anchoring phenomenon, with each level integrating and building upon the knowledge and skills from lower levels. In this way, each Progress Build provides a clear roadmap for how a students' understanding of the phenomenon is expected to deepen and develop with each successive chapter and lesson.

What's more, the program's system of assessments is tied to these Progress Builds. This carefully crafted integration provides teachers with credible, actionable, and timely diagnostic information about student progress. Armed with this powerful data, teachers have the ultimate flexibility to decide when to move on and when to slow down and dive deeper.



Animal and Plant Defenses Progress Build

The Progress Build in this unit consists of three levels of understanding. At each level, students add new ideas and integrate them into a progressively deeper understanding of why animals' and plants' offspring are able to survive in areas where there are animals that might eat them.

Progress Build Level 1

To survive, animals and plants must not be eaten by animals that try to eat them for food.

Progress Build Level 2

Many animals and plants have body structures with qualities that make them good for stopping animals from finding and/or eating them.

Progress Build Level 3

Animals' and plants' offspring have structures similar, though not identical, to those of their parents that work in the same ways.

Differentiation


In addition to unit-specific Progress Builds that break learning goals into smaller, more achievable levels of understanding, Amplify Science California makes learning accessible for all students through a variety of scaffolds, supports, and differentiation strategies for every lesson. For a complete list of strategies, see the **Differentiation** section of every Lesson Brief.

Lesson Brief	
Overview	▼
Materials & Preparation	▼
Differentiation	▼
Standards	▼
Vocabulary	▼

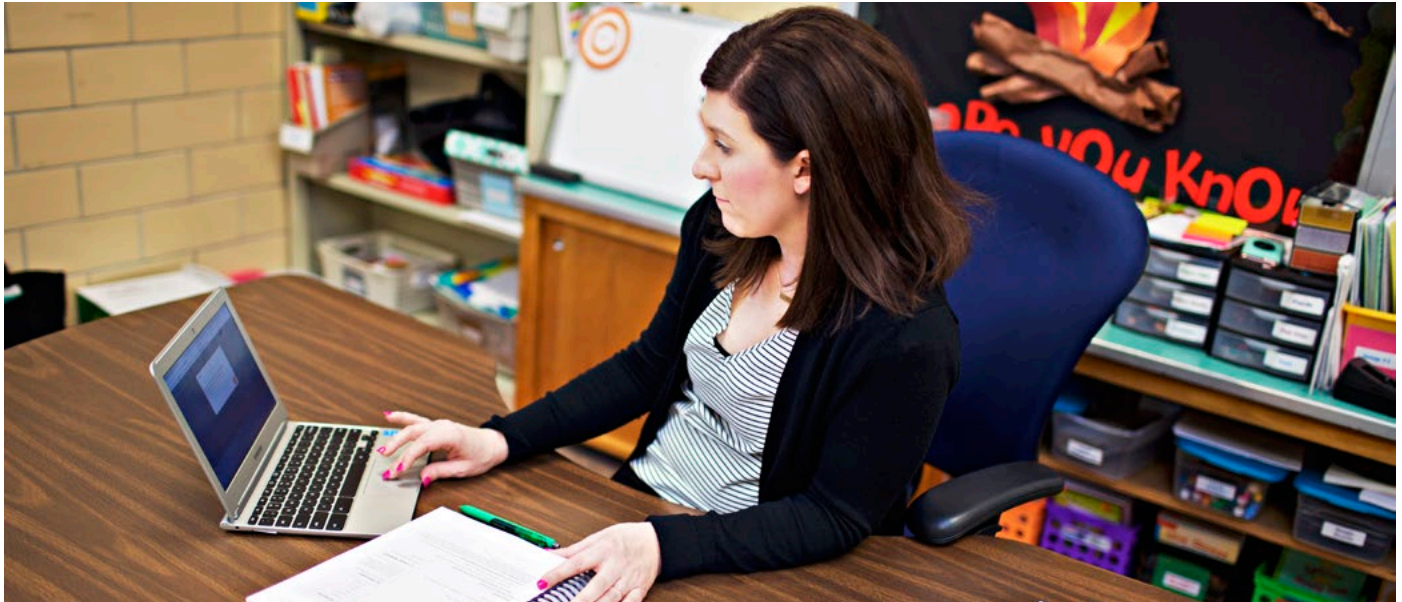
Assessments

In Amplify Science California, assessments are directly tied to instruction and support students in advancing through the various levels of the Progress Build.

The assessments included with Amplify Science California are:

- **Pre-Unit Assessments:** Conducted during the first lesson of each unit, these assessments include discussion, modeling, and written explanations to gauge students' prior knowledge and inform the instructional pace for the unit.
- **On-the-Fly Assessments (OtFAs):** These multidimensional assessments are integrated regularly throughout the lessons wherever you see this icon . OtFA opportunities provide evidence of how a student is coming to understand core concepts and developing an understanding of SEPs and CCCs.
- **Self-assessments:** Once per chapter, students have an opportunity to reflect on their own learning, ask questions, and reveal ongoing wonderings about unit content.
- **Critical Juncture Assessments:** Each chapter includes an integrated multidimensional performance task that can be used to assess student progress. Examples include writing scientific explanations, engaging in argumentation, developing and using models, and designing engineering solutions.
- **Clipboard Assessments (K–1):** The Clipboard Assessment Tool offers support for conducting brief, talk-based checks at key points in the unit that reveal students' thinking and correspond to the level of the Progress Build.
- **End-of-Unit Assessment:** Assessments toward the end of each unit feature a combination of targeted discussions, student-generated models, and written explanations to gauge students' knowledge and growth.

Teaching tips



Tips for preventing tech headaches:

- Download all unit and lesson resources using the Offline Guide in the event that unexpected connectivity issues strike.
- Use Chrome or Safari if possible as these are our preferred browsers.
- Disable pop-up blockers on all devices being used to support lessons.
- Be prepared for some webpages to open in a new tab and for PDF files to download automatically.
- Check and test your connections to any projection devices that you might be using throughout the lesson.
- Display the student URL (apps.learning.amplify.com/elementary) near the classroom display materials.
- Bookmark frequently used URLs for easy access.

URLs TO BOOKMARK

- learning.amplify.com gives you access to the digital Teacher's Guide.
- apps.learning.amplify.com/elementary gives your students (grade 2) access to any practice apps referenced in the instruction. The teacher will either need to log in using their credentials, or have student accounts set up.
- amplify.com/ca-science-pilot gives you access to other pilot support resources including videos, teacher tips, and downloadable unit guides.

Tips for delivering lessons with ease

Know the unit's big idea

Before you begin a unit, become familiar with its big idea, instructional goals, and phenomenon by reading the following sections in the **Unit Guide**:

- Unit Map
- 3-D Statements
- Books in this Unit
- Science Background (if needed)

Reading the Student Books associated with each unit is also a great way to get comfortable with the key concepts that students will encounter over the course of the unit.



Understand how the lesson will flow

Before each lesson, become familiar with the goal of the lesson, its key activities, and your options for addressing various student needs. Start by downloading your **Classroom Slides**, and then read the following sections in the **Lesson Brief**:

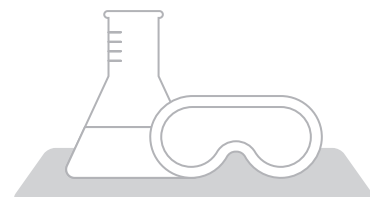
- Lesson Overview
- Differentiation
- Vocabulary



Gather your materials

We make finding and managing your materials easy by explaining everything you'll need for each lesson in the **Materials and Preparation** section of the Lesson Brief. This section even organizes your preparation steps as follows:

- Before the Day of the Lesson
- Immediately Before the Lesson
- At the End of the Day



Prepare your digital device plan in advance

In grade 2, students begin to use practice apps in the form of digital modeling tools. What's important to know is that Amplify Science California lessons never require that every student has a separate device. When the use of practice apps is called for in a lesson, you have several options:

- **If limited student devices are available**—Have students do the activities in pairs or small groups.
- **If no student devices are available**—Project the digital tool to the class and either “drive” the digital tool yourself or invite students to “drive” by using your device.
- **If internet access is unavailable**—Preload the digital tool on your device or devices for use offline.



Implementation support

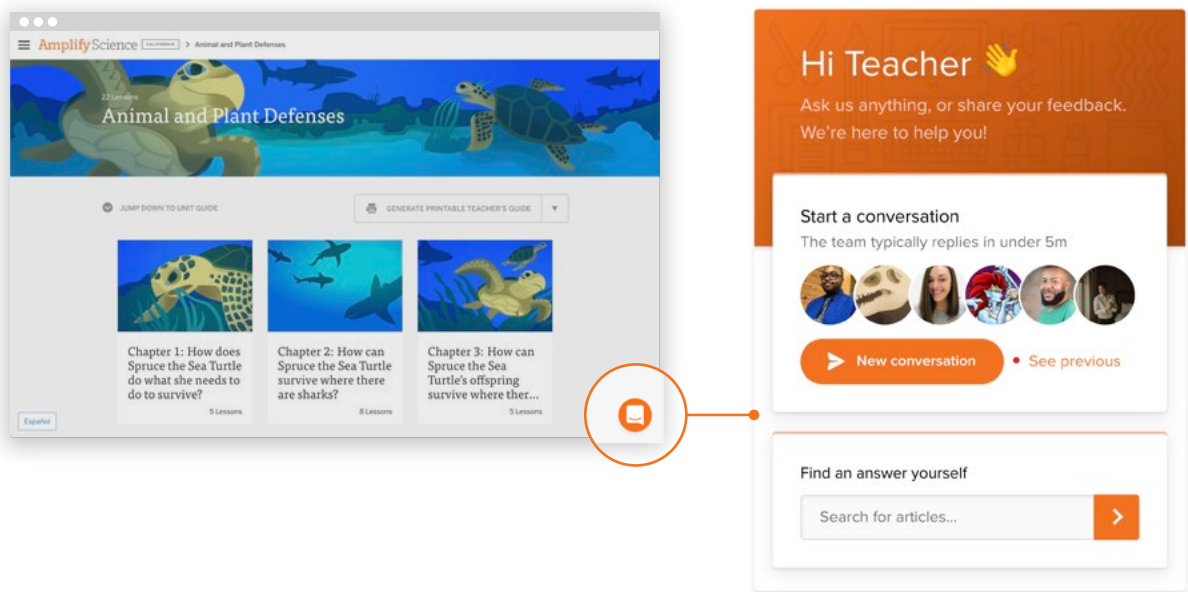
Your role as a pilot teacher is important. Your district is counting on you not only to evaluate how a curriculum works, but also to pick a reliable and supportive long-term partner.

We feel confident that we're that partner, and we look forward to proving that to you during your pilot experience.

Support is available through any of the following channels:

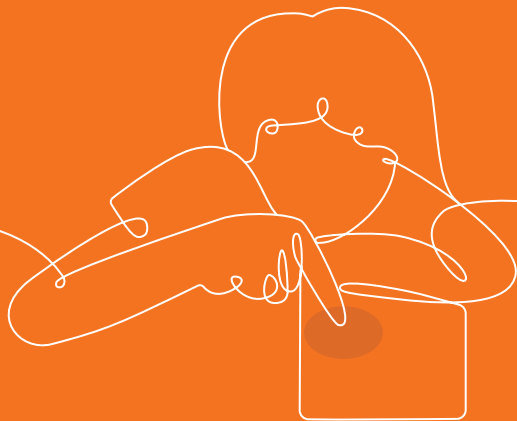
- Chat in real time using the intercom feature in the digital platform.
- Visit my.amplify.com/help anytime to browse our library of support posts and on-demand videos.
- Call (800) 823-1969.
- Email help@amplify.com.
- Reach out to your pilot coordinator: _____
- Reach out to your Amplify representative: _____

With our intercom, support is just one click away.





For more information on
Amplify Science, visit
amplify.com/ca-science-pilot.



Amplify.



THE LAWRENCE
HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

All curriculum materials © 2020 The Regents of the University of California.
© 2020 Amplify Education, Inc. All trademarks and copyrights are the property of Amplify or its licensors.