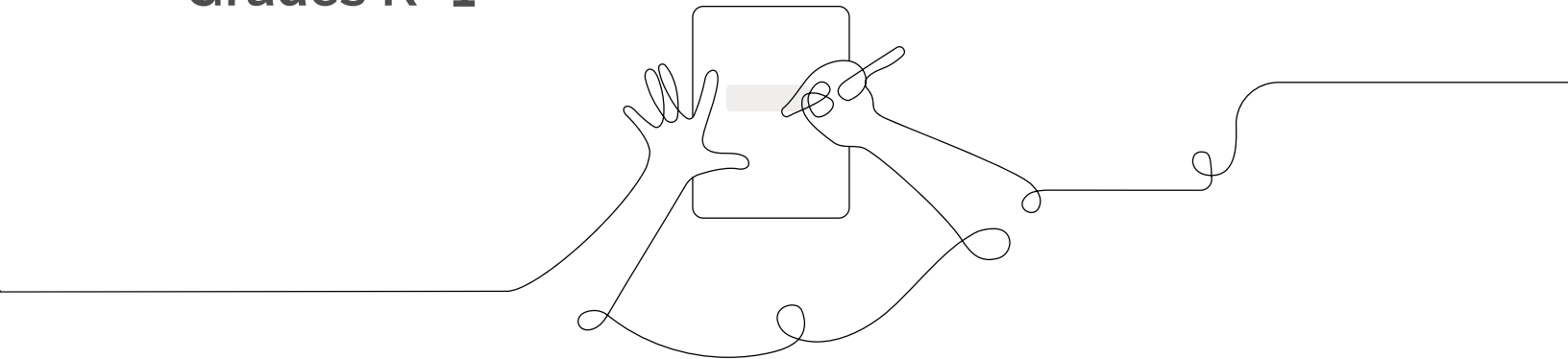




Participant Notebook

Navigating Program Essentials

Grades K-1



Welcome to the workshop

This Participant Notebook will guide and support the work we do together in this initial workshop to get you ready to teach Amplify Science.

Grades K – 1

K-1 Navigating Program Essentials

Agenda

Framing the day

- What is Amplify Science?

Navigation essentials

- What is phenomenon-based instruction in Amplify Science?
- Navigating the curriculum

Program essentials

- Model lesson: Animal and Plant Defenses
- Reflecting on phenomenon-based instruction
- Progress Build and Assessment System

Closing and reflection

Demo account for your workshop:

URL: learning.amplify.com (Log in with Amplify)

Temporary username: _____ @pd.tryamplify.net

Password: _____

Year at a glance

Units per year

K–2

3

3–5

4

Unit types

Although every Amplify Science unit provides a three-dimensional learning experience, each unit emphasizes one of the following specific science and engineering practices.

Investigation

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

These Amplify Science 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

Engineering design solves 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. All Amplify Science engineering design units are structured to make the development of such solutions the central focus.

Argumentation (grades 3–5)

These Amplify Science units provide extra support to students engaging in the practice of argumentation. As students move up the K–5 grades, they focus on important aspects of argumentation in an intentional sequence.

Course structure

Key

- A Argumentation
- E Engineering design
- I Investigation
- M Modeling

Kindergarten (66 lessons)

Needs of Plants and Animals 22 lessons I

Pushes and Pulls 22 lessons E

Sunlight and Weather 22 lessons M

Grade 1 (66 lessons)

Animal and Plant Defenses 22 lessons M

Light and Sound 22 lessons E

Spinning Earth 22 lessons I

Grade 2 (66 lessons)

Plant and Animal Relationships 22 lessons I

Properties of Materials 22 lessons E

Changing Landforms 22 lessons M

Grade 3 (88 lessons)

Balancing Forces 22 lessons M

Inheritance and Traits 22 lessons I

Environments and Survival 22 lessons E

Weather and Climate 22 lessons A

Grade 4 (88 lessons)

Energy Conversions 22 lessons E

Vision and Light 22 lessons I

Earth's Features 22 lessons A

Waves, Energy, and Information 22 lessons M

Grade 5 (92 lessons)

Patterns of Earth and Sky 22 lessons I

Modeling Matter 22 lessons M

The Earth System 26 lessons E

Ecosystem Restoration 22 lessons A

K-5 Program components

The K-5 program contains both physical and digital instructional materials. The table below describes materials and, when applicable, includes links to find additional information.

Teacher materials	
Teacher's Guide bit.ly/amplifyk5navigation	The digital Teacher's Guide contains all of the unit's lesson plans, differentiation strategies, and an assortment of instructional supports and resources at the unit, lesson, and individual activity level. All unit Teacher's Guides are also available as PDFs, which can be generated automatically through the curriculum website by pressing the "Generate Printable Teacher's Guide" button. Print Teacher's Guides are available for purchase.
Classroom Slides bit.ly/amplifyslideshowto	To make planning and delivering Amplify Science K–5 lessons faster and easier, each lesson has a downloadable and editable PowerPoint file or Google Slides file to help guide teachers and their students through the lesson with clearly sequenced, engaging, and easy-to-follow images, videos, questions, and instructions.
Classroom Wall materials	The printed Classroom Wall materials can be found in the unit kit. PDFs are also provided in the digital Teacher's Guide to allow quick replacement if needed. Posting questions and vocabulary on the wall throughout the unit is a valuable way to focus students' attention on the most important content of the lessons.
Embedded assessments bit.ly/amplifyk5assessment	Amplify Science assessments include formal and informal opportunities for students to demonstrate understanding and for teachers to gather information, while allowing teachers the flexibility to decide what to score and what simply to review. The Assessment System for each unit is designed to provide teachers with credible, actionable, and timely diagnostic information about student progress toward the unit's learning goals and their mastery of the grade-level disciplinary core ideas, science and engineering practices, and crosscutting concepts.
Program Guide	Accessible from the Global Navigation menu, the Program Guide details information about the program, including its authorship, development, themes, and more. It serves as a resource for finding out more about the program's structure, components, supports, how it meets standards, and flexibility.
Program Hub bit.ly/amplifyprogramhub	Accessible from the Global Navigation menu, the Program Hub features remote learning resources, training videos, and hands-on investigation videos.

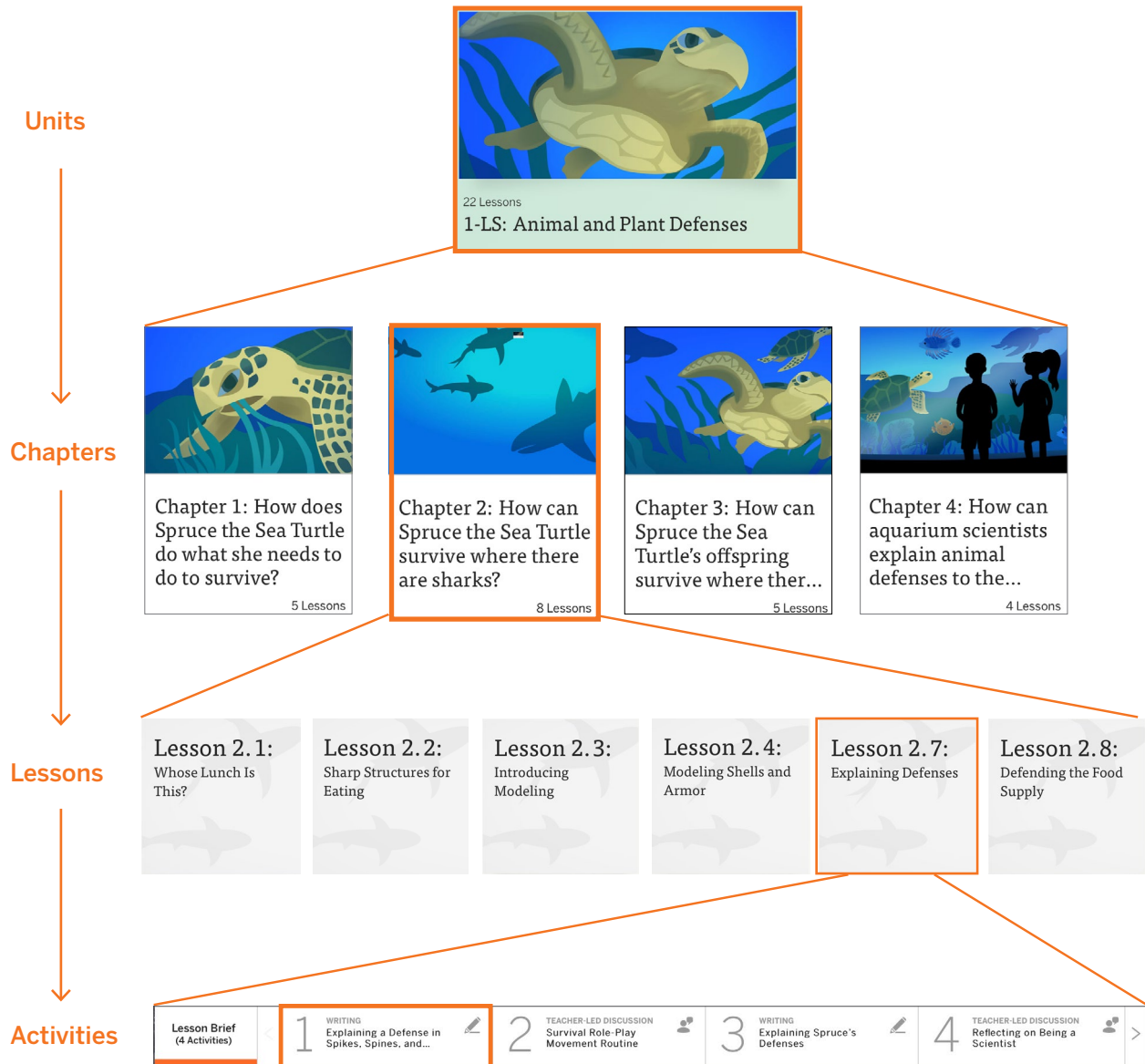
K-5 Program components cont.

Student materials	
<p>Hands-on materials</p> <p>bit.ly/amplifymaterials</p>	<p>The unit kit includes the physical materials used for the hands-on activities that are carried out at strategic points throughout the unit. There are two types of physical manipulatives: non-consumables and consumables. Non-consumables are durable and, if cared for properly, can be used over the course of several years (e.g. magnets, stopwatches). Consumables are used up with each use and must be replenished.</p>
<p>Investigation Notebooks</p> <p>bit.ly/amplifyk5fillable</p>	<p>The Investigation Notebook contains instructions for student activities and space for students to record data, reflect on ideas from texts and investigations, and construct explanations and arguments. Each unit kit includes one print copy of the Investigation Notebook. Teachers can download a PDF of the Investigation Notebook on the Teacher's Guide to print for their students. These PDFs are fillable, so students can also complete their work digitally.</p>
<p>Student books</p>	<p>Every unit includes 5 unique informational texts written for the unit. Kits come with a class set (18 copies) of each title. Kits for K-1 units also include a copy of each book in an oversized "Big Book," enabling teachers to read aloud to their young students. Informational texts encourage students to read purposefully, look for evidence to support their claim, and ask questions as they read.</p>
<p>Digital applications</p> <p>bit.ly/amplifydigitaltools</p>	<p>Grades 2-3: The digital tools used at these grade levels help students with modeling, graphing, and sorting information.</p> <p>Grades 4-5: Digital tools and Simulations (Sims) at these grade levels are slightly more complex and serve as venues of exploration and a means for collecting data and evidence, while also presenting students with opportunities to make observations and manipulate variables of key scientific processes and mechanisms.</p>
Curriculum add-ons	
<p>Spanish-language materials</p> <p>bit.ly/amplifyspanish</p>	<p>Spanish licenses give teachers digital access to the following materials in Spanish: Classroom Slides, lesson projections, downloadable PDFs of print materials (including Classroom Wall materials, Investigation Notebooks, assessments), and recommended in-class "teacher talk" guidance. Available for purchase.</p>
<p>Classroom Library license</p>	<p>The Classroom Library license is an add-on to the teacher license, and it enables students to access the digital copies of the unit's student books via the Student Apps page. Available for purchase.</p>
<p>Benchmark assessments*</p> <p>bit.ly/amplifyngssbenchmarks</p>	<p>The Amplify NGSS Benchmark Assessments are designed to help teachers measure grade 3-5 student progress toward the three dimensions and performance expectations of the Next Generation Science Standards.</p>

*To ensure the assessments measure progress towards Performance expectations and not the progress within the program itself, the NGSS Benchmark Assessments were developed by Amplify outside of development efforts involving the Lawrence Hall of Science and Amplify Science.

Amplify Science unit structure

Each unit in the Amplify Science elementary curriculum is structured as a series of chapters. Each chapter contains lessons, and each lesson contains activities.



Navigation within a lesson

The screenshot shows the AmplifyScience interface for Lesson 1.7. At the top, the breadcrumb navigation reads: AmplifyScience > Needs of Plants and Animals > Chapter 1 > Lesson 1.7. The main header area features a green background with large leaves and a monarch caterpillar, with the text "Lesson 1.7: Setting Up an Investigation". Below this is a navigation bar with three activity cards: 1. WRITING: Writing About Caterpillars and the Garden; 2. HANDS-ON: Setting Up the Do Plants Need Water Investigation; 3. WRITING: Recording Garlic Observations. The "Lesson Brief (3 Activities)" card is highlighted. Below the navigation bar, there are buttons for "RESET LESSON" and "GENERATE PRINTABLE LESSON GUIDE". The "Lesson Brief" section is expanded, showing an "Overview" with the text: "Students are introduced to the practice of scientific investigation when they begin to investigate what plants need to survive, which will be the focus of Chapter 2. First, the class writes an explanation of why monarch caterpillars cannot live in the Garden. Then, in order to help answer the question *Do*". To the right, under "Digital Resources", there are links for "Classroom Slides 1.7 | PowerPoint", "Classroom Videos 1.7 | Zip", and "Shared Writing: Lesson 1.7". A "Español" button is located in the bottom left corner of the interface.

1. The lesson's landing page is referred to as the **Lesson Brief**. Above, is an example from a lesson in the grade K Needs of Plants and Animals unit. The Lesson Brief provides valuable information to support teachers, including an overview of the content that will be covered in the lesson.

Navigation within a lesson cont.

AmplifyScience > Needs of Plants and Animals > Chapter 1 > Lesson 1.7

Lesson Brief (3 Activities) < 1 WRITING Writing About Caterpillars and the Garden 2 HANDS-ON Setting Up the Do Plants Need Water Investigation 3 WRITING Recording Garlic Observations >

RESET LESSON GENERATE PRINTABLE LESSON GUIDE

Lesson Brief

Overview ^

Students are introduced to the practice of scientific investigation when they begin to investigate what plants need to survive, which will be the focus of Chapter 2. First, the class writes an explanation of why monarch caterpillars cannot live in the Garden. Then, in order to help answer the question *Do plants need water to live?*, partners set up an investigation comparing garlic in cups with water to garlic in cups with no water. The teacher introduces the Investigation Notebook as a resource that scientists use to record observations. Students complete their first observation in the notebook and reflect on their work as scientists. Included in this lesson is the first Critical Juncture Assessment of the unit, which is an opportunity to assess students' understanding of how animals must have the food they need in order to live in a place. The purpose of this lesson is for students to gather and record preliminary data, while continuing to build their understanding of what scientists do.

Digital Resources

- Classroom Slides 1.7 | PowerPoint
- Classroom Videos 1.7 | Zip
- Shared Writing: Lesson 1.7
- Do Plants Need Water Investigation Model Notebook, pages 4–5
- What Scientists Do Chart: Completed
- Planting Guide
- Chapter 1: Clipboard Assessment Tool

✓ 2. Selecting the drop-down arrow expands each selection.

- The **Overview** includes a summary of the lesson, describes what students will learn, and provides activity summaries and timing.
- **Materials and Preparation** provides a list of materials for the lesson, and how to prepare for teaching.
- **Differentiation** describes supports and strategies for differentiation.
- **Standards** details which standards the lesson is aligned to.
- **Vocabulary** lists focal vocabulary emphasized in the lesson.
- **Unplugged** lists recommendations for working offline.

3. Select **GENERATE PRINTABLE LESSON GUIDE** to access a downloadable PDF that includes all of the content in digital format, including teacher supports, possible responses, and assessments.

4. **Digital Resources** provide all of the resources for a lesson, which may include Classroom Slides, projections, copymasters, videos, and reference illustrations for teacher reference. Each resource can be downloaded before each lesson.



Lesson Brief (3 Activities) < 1 WRITING Writing About Caterpillars and the Garden 2 HANDS-ON Setting Up the Do Plants Need Water Investigation 3 WRITING Recording Garlic Observations >

5. The **Lesson Map**, shown above, displays the sequence of the activity titles which, once selected, access each activity's instructional guide. An arrow > at the right end of the lesson map lets you know that there are more activities in a lesson than what's shown.

6. **Activity titles** in the Lesson Map are numbered to help teachers navigate through the lesson.

Navigation within a lesson cont.

The screenshot shows the AmplifyScience interface for Lesson 1.7, 'Recording Garlic Observations'. At the top, there is a breadcrumb trail: 'AmplifyScience > Needs of Plants and Animals > Chapter 1 > Lesson 1.7'. Below this, there are three activity cards: '1 WRITING Writing About Caterpillars and the Garden', '2 HANDS-ON Setting Up the Do Plants Need Water Investigation', and '3 WRITING Recording Garlic Observations'. The third card is highlighted with a purple bar. Below the activity cards, the title 'Recording Garlic Observations' is displayed. Underneath the title, there is a description: 'Students are introduced to the Investigation Notebook and record their first observation of garlic cloves with water and with no water. (15 min)'. To the right of this description is a purple box labeled 'INSTRUCTIONAL GUIDE'. Below the description, there is a navigation bar with four tabs: 'Step-by-step', 'Teacher Support', 'Possible Responses', and 'My Notes'. The 'Step-by-step' tab is highlighted with a purple bar. Below the navigation bar, there is a section titled '1. Revisit the science practices of comparing and observing.' followed by four purple speech bubbles containing text: 'We will compare the garlic with water and the garlic with no water in a few days to see what is the same and what is different. We can also compare the cups now.', 'When we compare, we observe to figure out what is alike and what is different. Use your senses to observe your two cups of garlic.', 'What is alike?', and 'What is different?'.

-  7. Once in an activity, you will see the **INSTRUCTIONAL GUIDE**, within which are the following tabs:
- STEP-BY-STEP** lists all of the steps for teaching the activity. This will be open by default when you first navigate to the activity.
 - Bold lead-ins** summarize what happens in each instructional step.
 - Purple speech bubbles  indicate **teacher talk**, suggestions for what you should say as you teach.
 - Text in brackets [] indicates an expected student response.


TEACHER SUPPORT provides suggestions, rationale, and background information.

POSSIBLE RESPONSES indicate possible student responses for independent or small group activities.

MY NOTES provides a space to record thoughts and observations about each activity.

Note: If there are no Teacher Support notes for the activity, the Teacher Support tab will not appear.

Likewise, if there are no possible responses for the activity, the Possible Responses tab will not appear.

-  8. The **grey hummingbird** indicates there is an **embedded formative assessment** in this activity. Click on the hummingbird to view the assessment (the icon turns orange to indicate selection).
9. The **breadcrumb trail** (Unit-Chapter-Lesson) (top left) can be used to navigate to different parts of the unit.

Preparing to teach the first day

Directions:

1. Navigate to Chapter 1 landing page in the Teacher's Guide and read the Chapter Overview.
2. Navigate to Lesson 1.1 and use the table below to guide your planning.

Consider	Read
<p>Lesson purpose</p> <ul style="list-style-type: none"> • What is the purpose of the lesson? • How do the activities in this lesson fit together to support students in achieving this purpose? • How do students engage in the three dimensions throughout this lesson to figure out phenomena like scientists do? 	<p>Lesson Brief:</p> <ul style="list-style-type: none"> • Overview • Standard
<p>Preparing</p> <ul style="list-style-type: none"> • Download and review the Classroom Slides. Is there anything you would want to add to the slides or adjust for your students? • What materials do you need to prepare? • Are there digital resources that will need to be copied for students? • Will you need to plan for partner or group work? 	<p>Lesson Brief:</p> <ul style="list-style-type: none"> • Materials and Preparation • Unplugged • Digital Resources <p>Instructional Guide:</p> <ul style="list-style-type: none"> • Step-by-Step tab <p>Classroom Slides</p> <ul style="list-style-type: none"> • Resource: https://tinyurl.com/amplifyslideshowto
<p>Pacing</p> <ul style="list-style-type: none"> • How will teaching this lesson fit into your class schedule? • If you need to break the lesson into activities over several days, which transitions will you add to support students in connecting the evidence collected to the Investigation Question? • Will you need to add time for any new procedures or routines that students will need to practice (distributing or collecting books/hands-on materials, discussion routines, partner work)? 	<p>Lesson Brief:</p> <ul style="list-style-type: none"> • Lesson at a Glance <p>Instructional Guide:</p> <ul style="list-style-type: none"> • Step-by-Step tab • Teacher Support tab <p>Classroom Slides</p> <ul style="list-style-type: none"> • Resource: https://tinyurl.com/amplifyslideshowto
<p>Teaching the lesson</p> <ul style="list-style-type: none"> • Are there specific steps you have questions about? • What challenges might you encounter in teaching this lesson, and how might you address these challenges? • Are there activities you need to practice before showing students? • What might be challenging for your students? • What additional supports can you plan for individual students? 	<p>Lesson Brief:</p> <ul style="list-style-type: none"> • Differentiation <p>Classroom Slides</p> <ul style="list-style-type: none"> • Resource: https://tinyurl.com/amplifyslideshowto <p>Instructional Guide:</p> <ul style="list-style-type: none"> • Step-by-Step tab • Teacher Support tab

Classroom Slides reference

Classroom Slides are a resource designed to make planning and teaching with Amplify Science faster and easier. Each lesson has editable slides optimized for **Microsoft PowerPoint Version 16 and Google** to help guide teachers and their students through the lesson with easy-to-follow images, videos, questions, and instructions.

This reference sheet has basic information to get you started. For a more in-depth how-to? Go to:

<https://tinyurl.com/amplifyslideshowto>

Helpful tips:

The text on the slides is color coded! Black text on the slides denotes suggested teacher talk. Orange text on the slides denotes a student action.

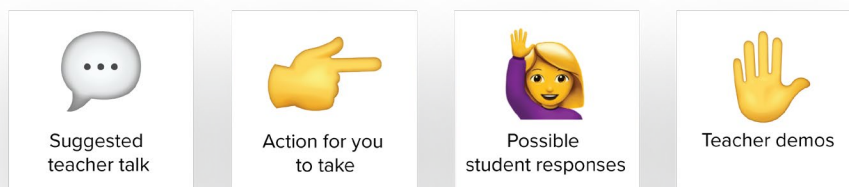
Icons on the slide cue the teacher about what is happening in the lesson. Here's what the icons on the slides mean:

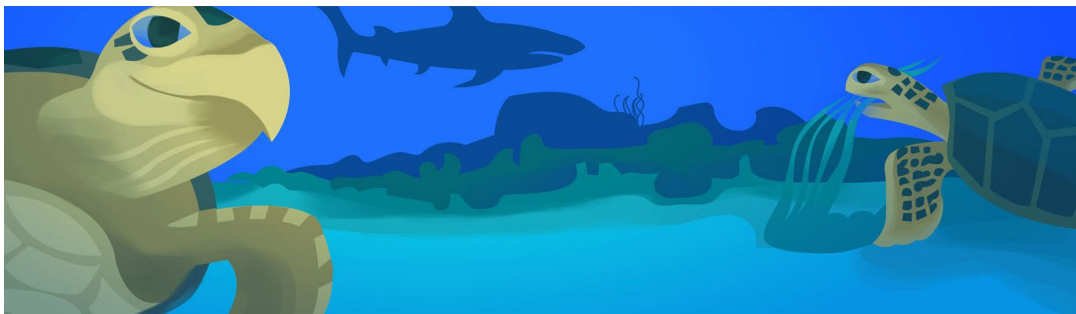


You may occasionally also come across the following student action icons:



In addition to the text and visuals on the slide, each slide's notes field contains additional information, including possible student responses, follow-up prompts, and instructional steps. In most cases, the content on the slide is meant to come before the actions and suggested teacher talk written in the notes. Here's what the icons in the notes field mean:





Animal and Plant Defenses:

Spikes, Shells, and Camouflage


Investigation Notebook

Name: _____ Date: _____

Exploring Structures Used to Defend

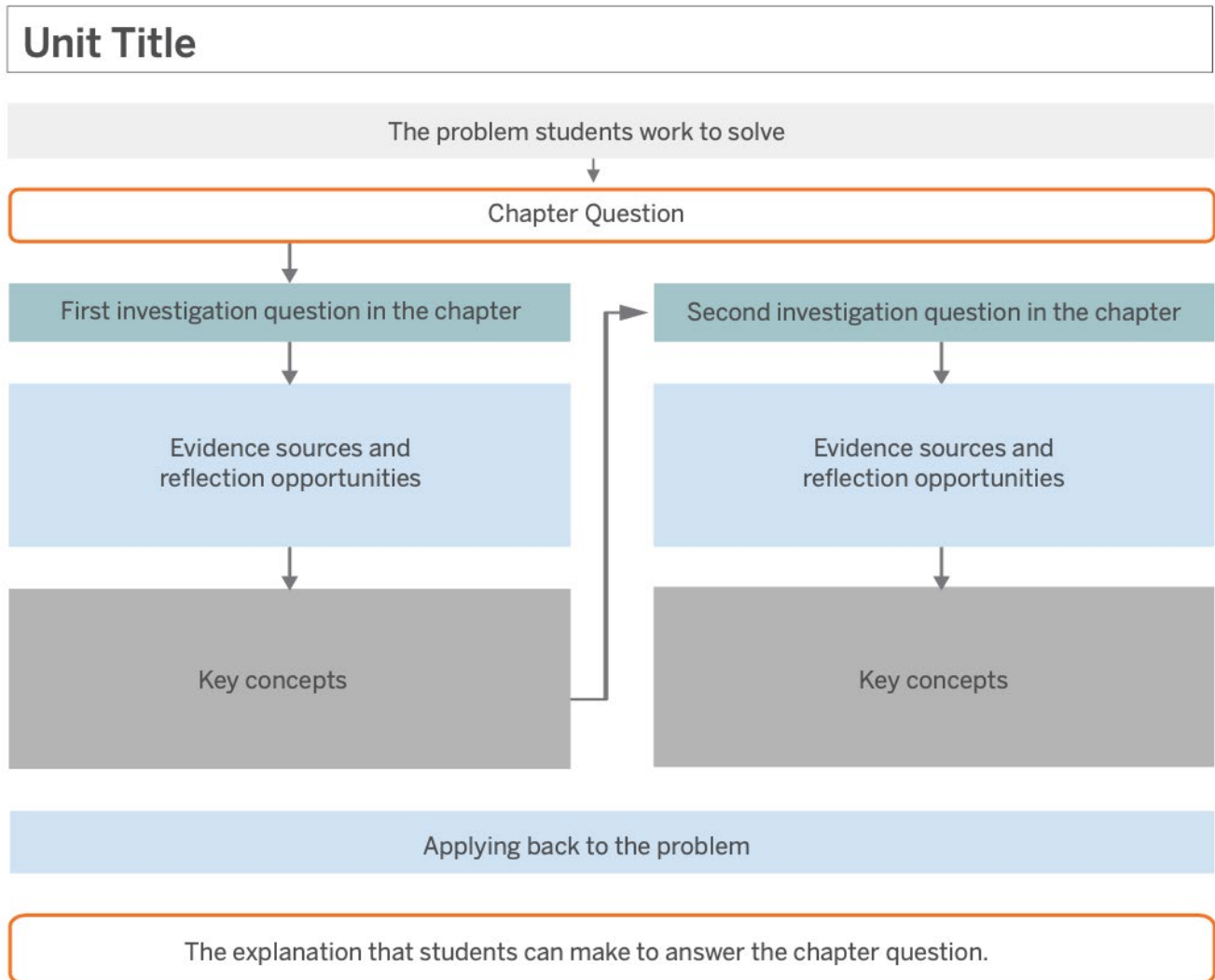
Directions:

1. Draw a structure that worked to defend the clay.
2. Label your drawing.



Coherence Flowchart structure

Typical structure of one chapter in a Coherence Flowchart



Instruction is framed by questions about the unit's anchor phenomenon and the related problem students are solving. Chapter Questions then guide students in figuring out the phenomenon, piece by piece. Within each chapter, Investigation Questions focus students on a manageable piece of content that will help them figure out the Chapter Question. Each question motivates activities, and each activity provides specific evidence related to the Investigation Question. Students synthesize the understanding constructed over multiple activities, and this understanding is formalized through key concepts. Often a key concept leads students to an additional Investigation Question students need to pursue to answer the Chapter Question. At the end of the chapter, students' new understanding is applied back to the unit's anchor phenomenon and leads students to a new Chapter Question or a final explanation.

Animal and Plant Defenses: Spikes, Shells, and Camouflage

Unit Anchor Phenomenon

Problem students work to solve

Chapter-level Anchor Phenomenon
Chapter 2 Question

Investigative Phenomena Investigation Questions

Evidence sources and reflection opportunities

Key concepts

Application of key concepts to problem

Explanation that students can make to answer the
Chapter 2 Question

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?

Spruce the Sea Turtle survives in the ocean where there are predators.
How can Spruce the Sea Turtle survive where there are sharks?

Animals eat other living things.
How do animals eat other living things? (2.1, 2.2)

- Read Whose Lunch Is This? (2.1)
- Observe videos of animals eating (2.1)
- Investigate food breaking apart (2.1)
- Act out food being broken apart (2.2)
- Revisit Whose Lunch Is This? (2.2)
- Describe animals' sharp structures for eating (2.2)
- Discuss which structures are and are not used for getting food (2.2)

- Many animals use their sharp structures to make animals and plants easier to eat. (2.2)

Sometimes animals avoid being eaten even when there are predators.
How do animals and plants defend themselves? (2.3, 2.4, 2.5, 2.6, 2.7)

- Revisit Spikes, Spines, and Shells (2.3)
- Create physical models of animal defenses (2.3)
- Observe video of shell defenses (2.4)
- Revisit Tortoise Parts and Spikes, Spines, and Shells (2.4)
- Create and discuss physical shell and armor defense models (2.4)
- Revisit Spikes, Spines, and Shells (2.5, 2.6)
- Observe video of spike defenses (2.5)
- Create and discuss spike defense models (2.5)
- Observe video of camouflage defenses (2.6)
- Create and discuss camouflage models (2.6)
- Write about one defense (2.7)
- Engage in the Survival Role-Play movement routine (2.7)

- Animals and plants have defenses, structures that keep other animals from eating them. (2.7)

Design Problem: We want to protect the aquarium's food supply from animals.
How can we use ideas about animal and plant defenses to solve a problem? (2.8)

- Write a plan to protect food supply (2.8)
- Build defenses for the aquarium food supply (2.8)

- Scientists can make things that copy animal or plant structures to solve human problems. (2.8)

- Write to explain how Spruce can use her defenses to survive once she is back in the ocean (2.7)

Spruce has body structures that function as defenses against being eaten by sharks. Spruce's shell can block a shark's sharp teeth from biting Spruce. Spruce's camouflage colors make it harder for sharks to see her.

Assessment System reference (grades K-1)

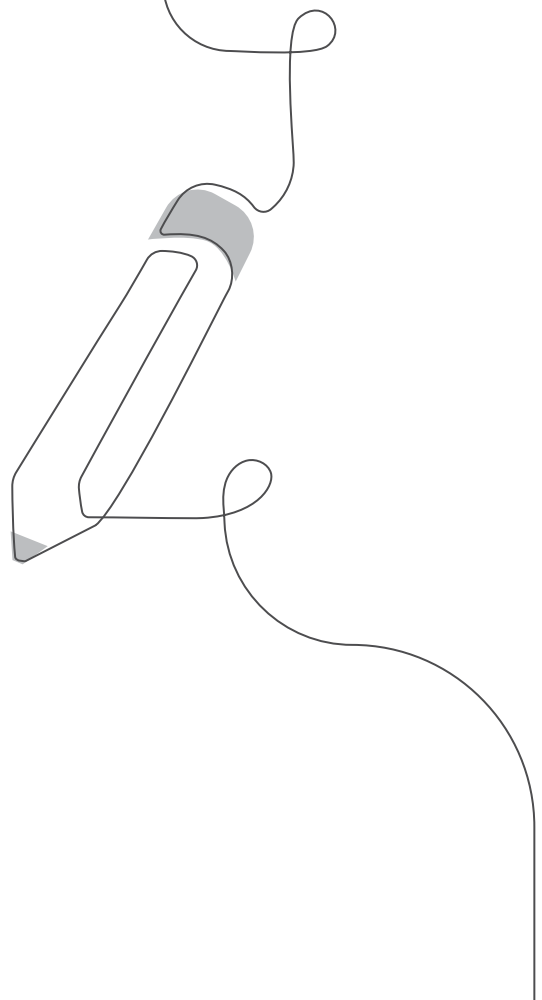
Assessment type	Description	Student experience	Teacher resources
Pre-Unit Assessment	Formative, 3-D performance assessment meant to gauge students' initial understanding and pre-conceptions about core ideas in the unit	<ul style="list-style-type: none"> • Full-class teacher-led discussion, supported by visual cues 	<ul style="list-style-type: none"> • Assessment Guide (available in Digital Resources)
End-of-Unit Assessment	Summative, 3-D performance assessment to evaluate students' understanding of core ideas in the Progress Build	<ul style="list-style-type: none"> • Full-class teacher-led discussion, supported by visual cues 	<ul style="list-style-type: none"> • Rubric and Possible Responses in Assessment Guide (available in Digital Resources)
Critical Juncture Assessments	Embedded formative assessments for assessing students' progress along the Progress Build	<ul style="list-style-type: none"> • Activities are embedded into existing instructional activities leveraged for assessment opportunities – often student-to-student discussions, investigations, or modeling activities 	<ul style="list-style-type: none"> • Full text of assessment includes “Assess Understanding” section and “Tailor Instruction” suggestions accessible in Instructional Guide by clicking the hummingbird icon • All Critical Juncture Assessments are included in Reference: Embedded Formative Assessments (available in the Unit Guide) • Clipboard Assessment Tool includes tailored sets of questions and the specific activities that present an opportunity to ask those questions. Also included is space to write notes about students' ideas. • Augmenting Instruction notes (accessible in Teacher Support tab) provide additional suggestions for supplemental instruction at the class, group, and student level
On-the-Fly Assessments	Embedded formative assessments for noting students' progress with one or more of the following: science disciplinary core ideas, science and engineering practices, crosscutting concepts, sense-making strategies, and collaborative science work	<ul style="list-style-type: none"> • Activities are embedded into existing instructional activities, leveraged for assessment opportunities. Artifacts can include full-class or student-to-student discussion, kinesthetic activities, notebook pages, etc. 	<ul style="list-style-type: none"> • Full text of assessment includes what to “Look for” and “Now What?” instructional suggestions accessible in Instructional Guide by clicking the hummingbird icon • All On-the-Fly Assessments are included in Reference: Embedded Formative Assessments (available in the Unit Guide) • Clipboard Assessment Tool includes tailored sets of questions and the specific activities that present an opportunity to ask those questions. Also included is space to write notes about students' ideas.

Assessment System reference (grades K-1) cont.

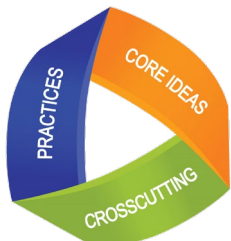
Assessment type	Description	Student experience	Teacher resources
Student Self-Assessments	Opportunity for students to reflect on whether they understand or don't yet understand the core concepts from the unit	<ul style="list-style-type: none"> • Reflection prompts through teacher-led discussion and partner talk • Provided at or near the end of each chapter 	<ul style="list-style-type: none"> • Information about Student Self-Assessments in Reference: Assessment System (in Unit Overview) • Teacher Support Notes accessible in Instructional Guide by clicking the Teacher Support tab • Discussion prompts in the Instructional Guide
Investigation Assessments	Summative, 3-D performance assessment to evaluate students' performance of the science and engineering practices of Planning and Carrying Out Investigations and Analyzing and Interpreting Data, as well as their application of disciplinary core ideas and crosscutting concepts	<ul style="list-style-type: none"> • Prompts for planning investigation and recording results in the Investigation Notebook or a copymaster (available in Digital Resources). Additional support and spoken teacher prompts in K-1. • Physical materials for conducting investigation 	<ul style="list-style-type: none"> • Rubrics and Possible Responses in Assessment Guide (available in Digital Resources) • Possible Responses also accessible in Instructional Guide by clicking the Possible Responses tab
Portfolio Assessments	Opportunity for students to compile and reflect on key work products collected at the end of each unit. Final portfolio compilation occurs at the end of the school year and allows students to select and reflect on work products which they feel best demonstrate their growth in understanding throughout the year	<ul style="list-style-type: none"> • Compilation of work products that show growth over the course of the year • Reflection on chosen work products • Rubrics for evaluating work products (available in Program Guide → <i>Assessments</i> → <i>Additional Assessment Resources</i>) 	<ul style="list-style-type: none"> • Assessment Rubrics (available in Program Guide → <i>Assessments</i> → <i>Additional Assessment Resources</i>) • Guidance for communicating to parents about student progress (available in Program Guide → <i>Assessments</i> → <i>Additional Assessment Resources</i>)

Appendix

1. Three dimensions of NGSS reference
2. Unit Guide resources
3. Unit Guide scavenger hunt
4. Lesson-level scavenger hunt
5. Amplify Science @Home resources reference
6. Additional resources and support



Three dimensions of NGSS reference



3-D learning engages students in using scientific and engineering practices and applying crosscutting concepts as tools to develop understanding of and solve challenging problems related to disciplinary core ideas.

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

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
Flexextensions in This Unit	Summarizes information about the Hands-On Flexextension 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
Article Compilation	6-8: Compilation of all the articles in the unit for the teacher to print and copy throughout the unit
Coherence Flowcharts	Visual representation of the storyline of the unit
Copymaster Compilation	Compilation of all copymasters for the teacher to print and copy throughout the unit
Flextension Compilation	Compilation of all copymasters for Hands-on Flextension lessons throughout the unit
Investigation Notebook	Digital version of the Investigation Notebook, for copying and projecting. The PDFs are fillable, so students can also complete their work digitally.
Multi-Language Glossary	Glossary of unit vocabulary in multiple languages
NGSS Information for Parents and Guardians	Information for parents about the NGSS and the shifts for teaching and learning
Print Materials (8.5" x 11")	Digital compilation of printed cards (i.e. vocabulary cards, student card sets) provided in the kit
Print Materials (11" x 17")	Digital compilation of printed Chapter Questions and Key Concepts provided in the kit

Unit Guide scavenger hunt

The purpose of this activity is to practice utilizing the Unit Guide resources to answer questions. Practicing now will help you determine which Unit Guide resources to use when questions arise as you're teaching.

Use the Unit Guide resources document to help decide and record which resource you would use to answer each question. For additional practice, open the resource you've identified, and record your answer in the space provided.

What is the Chapter 1 3-D Statement?

Unit Guide document to reference:	Answer:

List a fact or idea that helps you better understand this unit's science content.

Unit Guide document to reference:	Answer:

What's one teacher-provided material you'll need in Chapter 1?

Unit Guide document to reference:	Answer:

Which Chapter 1 lesson requires the most preparation time?

Unit Guide document to reference:	Answer:

What do students do in the first activity of Lesson 3.1?

Unit Guide document to reference:	Answer:

Unit Guide scavenger hunt cont.

Which lessons in Chapter 2 include On-the-Fly Assessments?

Unit Guide document to reference:	Answer:

List some of the NGSS crosscutting concepts emphasized in the unit.

Unit Guide document to reference:	Answer:

What is one book that students read in this unit?

Unit Guide document to reference:	Answer:

Describe one notebook page students complete in the unit.

Unit Guide document to reference:	Answer:

Lesson-level scavenger hunt

Use this scavenger hunt to practice navigating at the lesson level, and to prepare for the lesson in which you'll introduce your unit's phenomenon.

Navigate to the lesson in your unit in which the phenomenon is introduced.

Scroll down to the Lesson Brief and click/scroll to the Overview, then skim the section.

Task	Notes
Scroll down to the Lesson Brief and click/scroll to the Overview, then skim the section.	
What is the purpose of in this lesson?	
How many activities are in the lesson?	
In which activity are students introduced to the anchor phenomenon they'll work to figure out? How many minutes is that activity?	

Task	Notes
Click/scroll to Materials & Preparation.	
List the materials you'll need for this lesson.	
Describe one step of preparation you will need to do before and after this lesson.	

Lesson-level scavenger hunt cont.

Task	Notes
Open this lesson's Classroom Slides. Read through the Classroom Slides and Presenter Notes to gain a better understanding of the lesson.	
Why do some slides have scripting in black while others have scripting in orange?	
What new understanding of the lesson have you gained from reviewing the Classroom Slides?	
What features of the Classroom Slides will support you in teaching this lesson?	

Task	Notes
Scroll up to the Lesson Map and select the activity in which the unit problem/phenomenon is introduced. Read the steps for teaching the activity listed in the Step-by-Step. <ul style="list-style-type: none"> • K: Needs of Plants and Animals, Lesson 1.1, Activity 1 • 1st: Animal and Plant Defenses, Lesson 1.1, Activity 1 	
Compare the Classroom Slides you read to the Step-by-Step. How are they aligned?	
After reading the Step-by-Step, are there any additional presenter notes you would add to the Classroom Slides for that activity? If so, add them to the slide deck now.	

Task	Notes
Wrap up the scavenger hunt with these synthesis questions:	
What role will your students take on in this unit?	
In 10 words or less, what is the phenomenon or problem of your unit?	

Amplify Science @Home resources reference

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

Instructional materials

Click Remote and hybrid learning resources, then select your grade level from the dropdown menu. Select your unit.

@Home Unit resources: These will appear when you select your unit. For more information: bit.ly/amplifyathomeunits

Teacher Overview	General information for teaching with @Home Units, planning information, chapter and lesson outlines
Lesson Index	Lists the original Amplify Science lessons associated with each @Home lesson, and the Investigation Notebook pages, copymasters, and print materials associated with the @Home Unit Student Sheets
Family Overview	Information to send home to families to help them support students with remote learning
Student lesson materials for @Home Units	Printable or digital lessons condensed to be about 30 minutes long. You can access compilations of all student materials for your unit, or select from individual lessons

@Home Video resources: After selecting your grade level and unit, select the @Home Videos tab below your unit title. For more information: bit.ly/amplifyathomevideos

@Home Video links	Links to video lessons that include all activities from the original units. Lesson playlists are on YouTube, and they autoplay in a playlist form.
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Additional remote and hybrid instructional materials: These can be accessed from the tabs below your unit title.

Hands-on investigations support	Videos of every unit's hands-on activities (note, these videos also appear in the student lesson materials)
Read-aloud videos	Link to a YouTube playlist of read-aloud videos of all books in your unit

Orientation and Tutorials

Click Remote and hybrid learning resources, then select your grade from the dropdown menu. Click Orientation and Tutorials. You'll not only find videos to help you use the resources, but also videos you can share with students and caregivers.

Additional Amplify resources

Program Guide

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

<https://my.amplify.com/programguide>

California Edition:

<http://amplify.com/science/california/review>

Louisiana Edition:

<https://my.amplify.com/programguide/content/louisiana/welcome/elementary-school/>

Amplify Help

Frequently updated compilation of articles with advice and answers from the Amplify team.

my.amplify.com/help

Caregivers Site

<https://amplify.com/amplify-science-family-resource-intro/>

Amplify Support

Contact the Amplify support team for information specific to enrollment and rosters, technical support, materials and kits, and teaching support, weekdays 7AM-10PM EST and weekends 10AM-6PM EST.

Email: help@amplify.com

Email: edsupport@amplify.com (pedagogical questions)

Phone: 800-823-1969

Or, reach Amplify Chat by clicking the  icon at the bottom right of the digital Teacher's Guide.

When contacting the support team:

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

Amplify Science

