AmplifyScience

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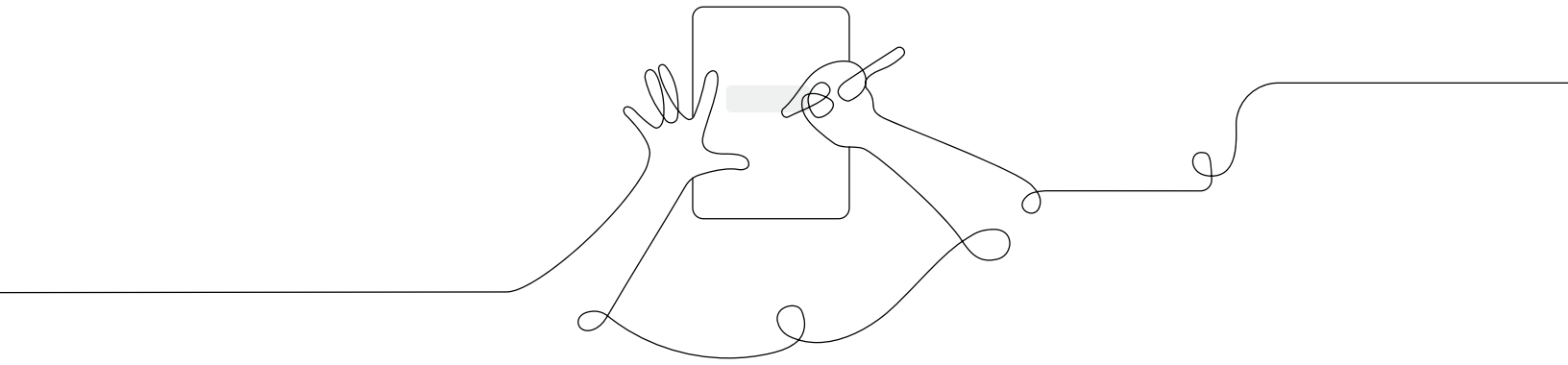
Participant Notebook

Administrators' Orientation

Grades K–5



K-5 Administrators' Orientation

Agenda

Introduction and framing

- What is Amplify Science?

Teaching and learning in Amplify Science

- Introduction to phenomenon-based instruction
- Example lesson: *Energy Conversions* Lesson 1.3
- Refection on phenomenon-based learning

Supporting instruction

- Coherence and multimodal learning
- Progress Build and Assessment System

Supporting implementation

- Remote learning resources
- Getting started with K-5 Amplify Science
- Common implementation reaction scenarios

Reflection and closing

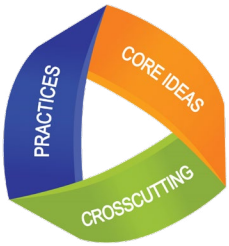
Demo account for your workshop:

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

Temporary username: _____ **@pd.tryamplify.net**

Password: _____

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**

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**

Grade 5 (92lessons)

- *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	
Hands-on materials bit.ly/amplifymaterials	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.
Investigation Notebooks bit.ly/amplifyk5fillable	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.
Student books	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.
Digital applications bit.ly/amplifydigitaltools	**Grades 2-3:** The digital tools used at these grade levels help students with modeling, graphing, and sorting information. **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.
Curriculum add-ons	
Spanish-language materials bit.ly/amplifyspanish	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.
Classroom Library license	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.
Benchmark assessments* bit.ly/amplifyngssbenchmarks	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.

*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.

Unit Map

Why does Ergstown keep having blackouts?

Students take on the role of systems engineers for Ergstown, a -ctional t own that experiences frequent blackouts, and explore the reasons why an electrical system can fail. Students apply what they learn to choosing new energy sources and energy converters for the town, and then they prepare arguments for why their design choices will make the town's electrical system more reliable.

Chapter 1: What happened to the electrical system the night of the Ergstown blackout?

Students &gure out: The devices stopped working in Ergstown because they weren't able to get electrical energy from the electrical system. To convert energy to light, heat, motion, or sound, devices need to be plugged into the wall and receive electrical energy. During the blackout, the devices weren't getting this electrical energy.

How they &gure it out: Students investigate several di, erent systems, including a simple circuit powered by a solar cell. They review evidence from the blackout and make an argument about what they think caused the blackout.

Chapter 2: What makes the devices in Ergstown output energy or fail to output energy?

Students &gure out: Energy isn't created or destroyed. Devices can convert electrical energy to light, heat, motion, or sound when they get electrical energy because these are all forms of energy. When all the devices were running, they caused a blackout. The devices needed more energy from the electrical system than was available. Either the town was using too many devices, or the devices were not energy e.cient . If more energy is needed from the electrical system than is available, a blackout can occur.

How they &gure it out: Using the *Energy Conversions* Simulation, students explore di, erent ways to convert energy from one form to another. They consider the relationship between the amount of energy used and the amount of energy in the electrical system. Finally, students write their -r st argument for how to solve the problem of blackouts in Ergstown.

Chapter 3: Where does the electrical energy for the devices in Ergstown come from?

Students &gure out: Electrical energy that comes through the electrical grid must have a source and a source converter. There are many possible sources, such as fossil fuels, wind, water, and sunlight. Each source has a converter that changes the energy form of the source to electrical energy. Energy use in Ergstown could have caused a blackout if there wasn't enough energy coming from the source, there weren't enough source converters to convert energy from the source, or the source converters were broken.

How they &gure it out: By investigating why the hospital did not lose power, students discover a variety of energy sources that provide power to Ergstown. They read about solar devices and design and build a wind converter that can power an electrical device. They weigh the strengths and weaknesses of two possible solutions to the problem.

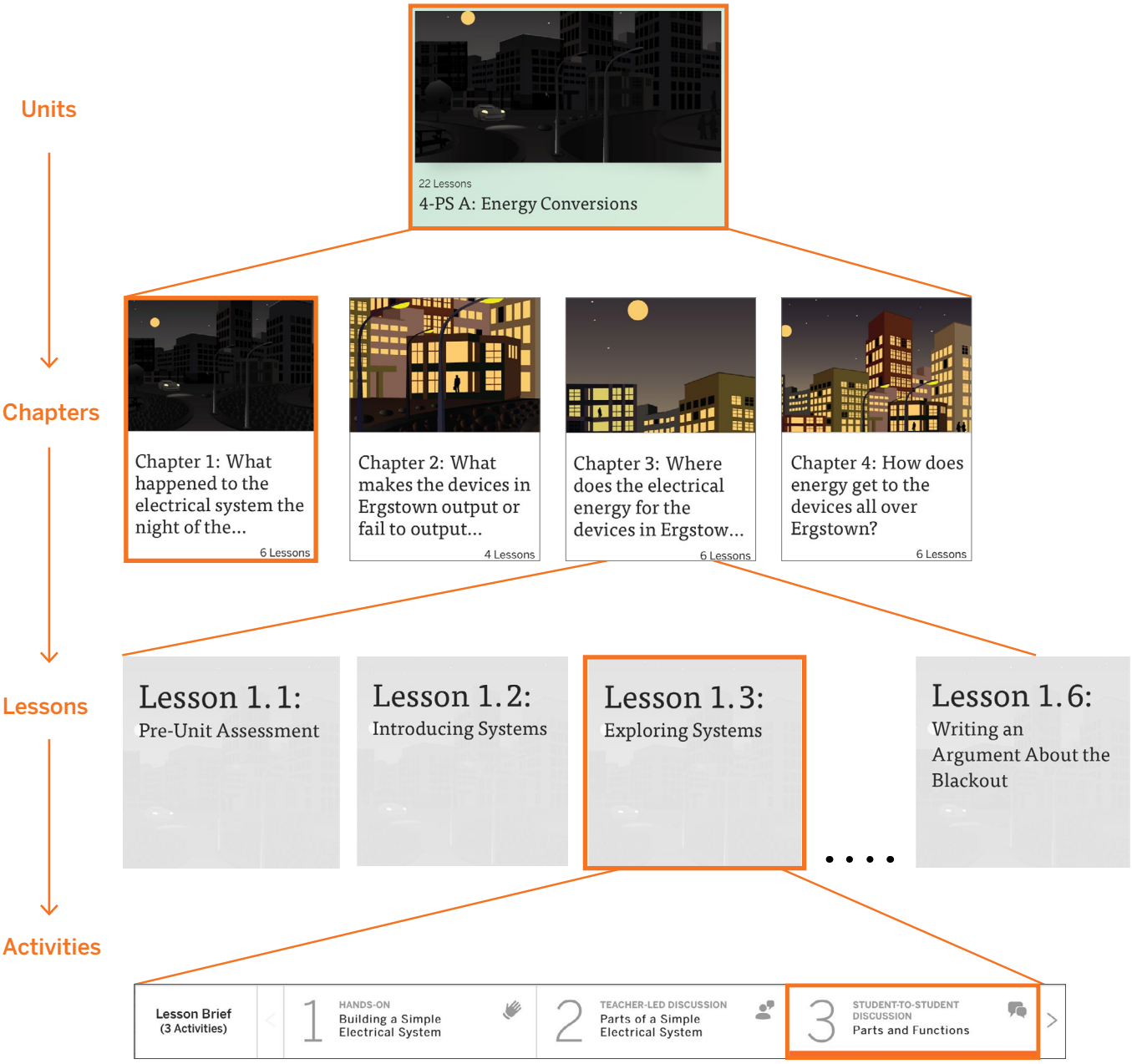
Chapter 4: How does energy get to the devices all over Ergstown?

Students &gure out: The energy that comes from the source is transferred through the electrical grid. The devices won't function if the wires that connect the source converter and the devices are broken. This can happen if the connections between the grid and the converters aren't strong enough, if the wires aren't in a secure location, or if there aren't enough backup wires.

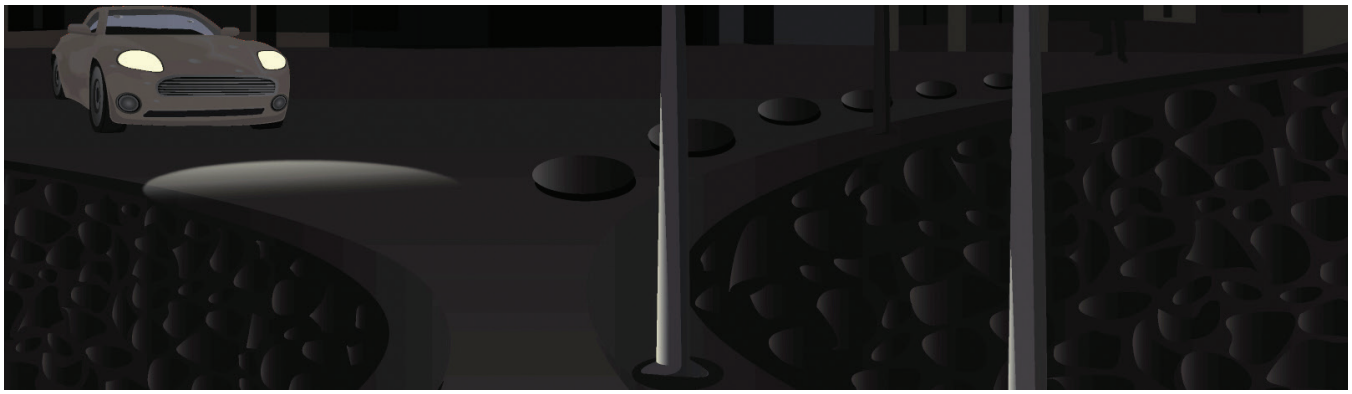
How they &gure it out: Students review evidence from Ergstown and analyze the e.cienc y of various converters. They assess di, erent improvements to the electrical system and design and present two possible "best" solutions.

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.



AmplifyScience



Energy Conversions:

Blackout in Ergstown

Name: _____ Date: _____

Building a Simple Electrical System

1. With your group, use a solar panel, a fan, and two wires to build an electrical system that functions. (The fan will spin when it functions.)
2. Predict what you can do to make the fan spin more quickly or slowly. Test your ideas, and then discuss what caused the fan to spin more quickly or slowly.
3. Predict what you can do to make the fan spin in a different direction. Test your ideas, and then discuss what caused the fan to spin in a different direction.
4. In the space below, draw your functioning system. Be sure to label every part. (Hint: In order to function, the system needs one part that was not included in your bag of materials.)

_____ System

Part				
Function				

_____ System

Part				
Function				

Function of both systems: _____

Name: _____ Date: _____

Parts of a System

1. With your partner, look through *Systems* and choose one of the systems described in the book.
2. Write the name of the system and its function on the two lines below.
3. Record each part of the system in the left column of the table below.
4. Beside each part, record the part's function.
5. Use as many rows as you need.

_____ System

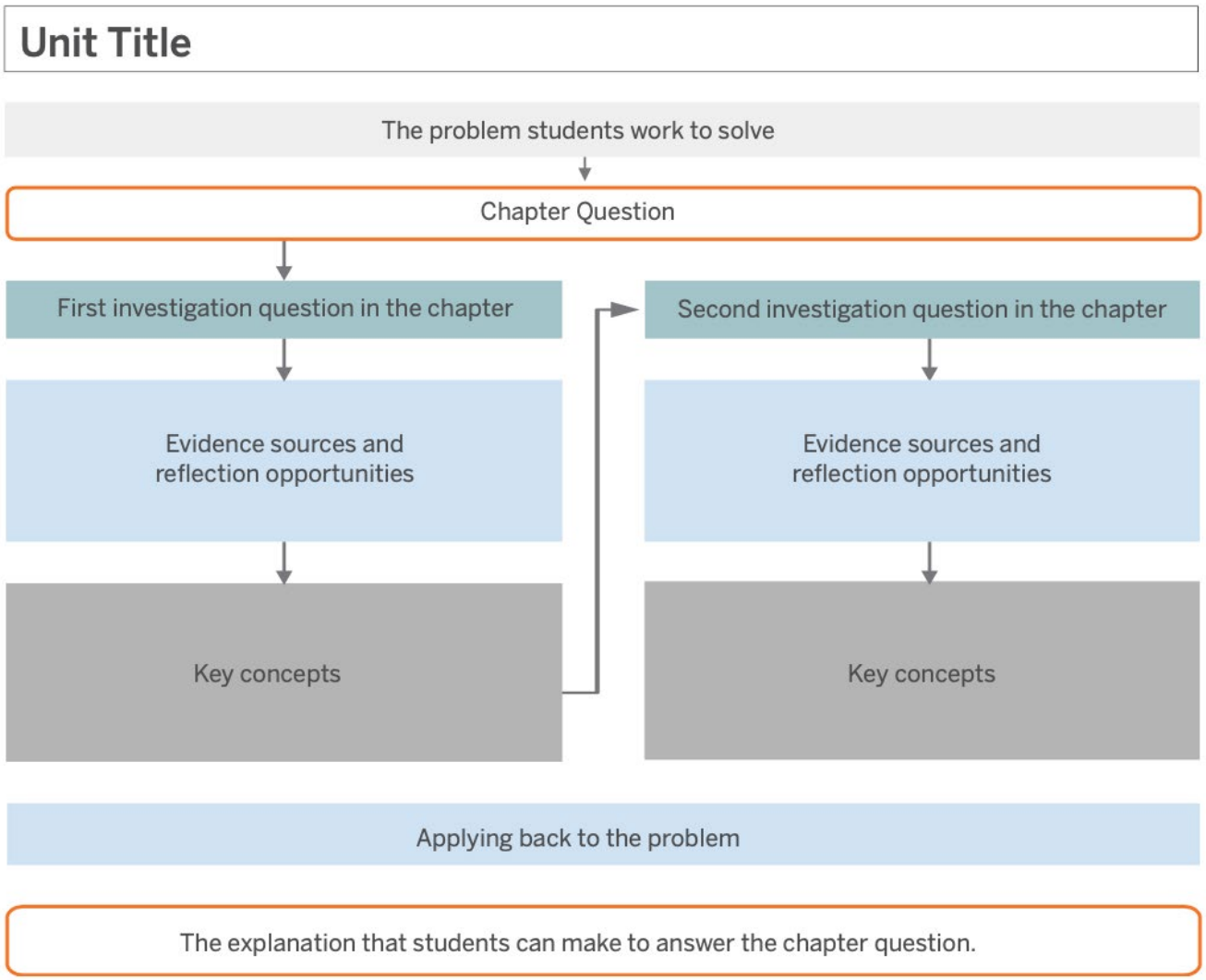
Function: _____

Part	**Function**

Notes

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.

Energy Conversions: Blackout in Ergstown

Unit Anchor Phenomenon
Problem students work to solve

Ergstown has frequent blackouts.
Why does Ergstown keep having blackouts?

Chapter-level Anchor Phenomenon
Chapter 1 Question

There was a blackout in Ergstown.
What happened to the electrical system the night of the Ergstown blackout?

Investigative Phenomena
Investigation Questions

Cities have electrical systems.
What is a system? (1.2, 1.3)

Cities have electrical systems.
What can electrical energy in a system be used for? (1.4, 1.5)

Evidence sources and reflection opportunities

- Observe a simple system (1.2)
- Read *Systems* (1.2)
- Build a simple electrical system (1.3)
- Discuss parts and functions of a system (1.3)

- Find electrical energy in the Sim (1.4)
- Build simple electrical systems and observe various types of energy outputs (1.5)
- Read about forms of energy in *It's All Energy* (1.5)
- Write about ideas from the reading and hands-on investigation (1.5)

Key concepts

- A system is a collection of interacting parts that work together. Each part in the system plays a role to perform an overall system function. (1.3)

- Light, motion, sound, and thermal energy are all forms of energy. You can observe evidence of these different forms as outputs of electrical devices. (1.5)

Application of key concepts to the problem

- Observe and write about forms of energy in the Ergstown subway (1.6)

Explanation that students can make to answer the Chapter 1 Question

The devices stopped working in Ergstown because they weren't able to get electrical energy from the electrical system. When devices work, they output light, heat, motion, or sound. These are forms of energy. During the blackout, the devices weren't getting electrical energy.

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
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

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	• Full-class teacher-led discussion, supported by visual cues	• 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	• Full-class teacher-led discussion, supported by visual cues	• 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	• Activities are embedded into existing instructional activities leveraged for assessment opportunities – often student-to-student discussions, investigations, or modeling activities	• 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	• 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.	• 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	• Reflection prompts through teacher-led discussion and partner talk • Provided at or near the end of each chapter	• 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	• 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	• 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	• 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 → *Assessments → Additional Assessment Resources*)	• Assessment Rubrics (available in Program Guide → *Assessments → Additional Assessment Resources*) • Guidance for communicating to parents about student progress (available in Program Guide → *Assessments → Additional Assessment Resources*)

Assessment System reference (grades 2-5)

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	• Pre-Unit Writing copymaster (available in Digital Resources)	• 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	• End-of-Unit Writing copymaster, Versions A and B (available in Digital Resources) • For select units, End-of-Unit Writing Part 2 (available in Digital Resources or the Investigation Notebook)	• 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	• Written task in the Investigation Notebook • For written explanation and argumentation-based tasks, scaffolded version of assessment provided as a copymaster (available in Digital Resources)	• 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) • Possible Responses accessible in Instructional Guide by clicking the Possible Responses tab • For written explanation and argumentation-based tasks, Rubrics and Possible Responses in Assessment Guide (available in Digital Resources)
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	• Activities are embedded into existing instructional activities, leveraged for assessment opportunities. Artifacts can include discussion, use of a digital tool, notebook pages, etc.	• 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)

Assessment System reference (grades 2-5) 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	• Reflection prompts in the Investigation Notebook • Provided at or near the end of each chapter	• Information about Student Self-Assessments in Reference: Assessment System (available in the Unit Guide) • Teacher Support notes accessible in Instructional Guide by clicking the Teacher Support tab
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	• Prompts for planning investigation and recording results in the Investigation Notebook or a copymaster or copymaster (available in Digital Resources) • Materials (physical or digital) for conducting investigation	• 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	• Compilation of work products (written explanations and/or arguments, models) that show growth over the course of the year • Reflection on chosen work products • Rubrics for evaluating work products (available in Program Guide → *Assessments* → *Additional Assessment Resources*)	• Assessment Rubrics (available in Program Guide → *Assessments* → *Additional Assessment Resources*) • Guidance for communicating to parents about student progress (available in Program Guide → *Assessments* → *Additional Assessment Resources*)

Administrator solution hunt

The purpose of this activity is to practice utilizing resources in Amplify Science to support teachers and their instruction. Practicing now will help you determine which resources to use when questions arise with your teachers. Read each scenario and consider whether a program feature or Unit Guide resource we've worked with in today's workshop would be useful. You can also refer to the Unit Guide reference, which provides a short synopsis of each Unit Guide document. List the program feature or Unit Guide document you would use to provide support in each scenario. For additional practice, draft a response to each scenario.

Scenario 1: You notice in an observation that a teacher is behind in the pacing of the unit. How could you support that teacher with their pacing of each lesson to fit it into a science block?

Program feature or Unit Guide resource:	**Response to scenario:**

Scenario 2: A teacher is struggling to get the big picture for the unit and doesn't see how all the activities build on each other. They are tempted to skip activities. What resource would show that each activity is important for gathering evidence?

Program feature or Unit Guide resource:	**Response to scenario:**

Scenario 3: A teacher feels they are not meeting the needs of their students, and now that they need to employ differentiation strategies. How might they get suggestions to differentiate or divide students into groups based on proficiency so far?

Program feature or Unit Guide resource:	**Response to scenario:**

Scenario 4: Several students in Mr. Smith's class have read-aloud as an accommodation on their IEP. How can Amplify Science help support this?

Program feature or Unit Guide resource:	**Response to scenario:**

Scenario 5: [GRADES 6-8] Students are complaining they never know when or what assignments are due in their Student Platform. How can the teacher signal to the students when various activities are due?

Program feature or Unit Guide resource:	**Response to scenario:**

Amplify Science: Getting started look-for tool

Look for #1: Students are accessing the resources: *This category is intended to highlight visible signs of using the Amplify Science curriculum. These observations can be made over 5-10 minutes or longer.*	
Sample evidence through observations and questions	**Notes and observations**
Classroom environment look-fors: ● Classroom wall ● Co-constructed charts ● Established routines for ease of access to resources ● Projections and posters are clear **Student look-fors:** ● Referencing classroom wall resources as appropriate ● Accessing digital tools, print, and physical resources with ease	

Look for #2: Students are engaged in gathering evidence from multiple sources to Investigate Phenomena. This category is intended to highlight how students are accessing the curriculum in a way that promotes three-dimensional learning. These look-fors need at least 15 minutes to a full lesson, or multiple lessons, to observe.

Tip: Reference the 3-D statement and the "Standards and Goals" section in the specific lesson you are observing for the specific core ideas, crosscutting concepts and science and engineering practices in the lesson.

Indicators of engaging with multiple sources of evidence may include students figuring out phenomena like a scientist, engaged in 3-D learning. You will notice students participating in multiple modalities (do, read, talk, write and/or visualize), during which they use academic language and unit words to access and convey ideas. Over time, you will notice students having multiple opportunities to construct understanding.

Sample evidence through observations and questions	Notes and observations
Classroom environment look-fors: ● Students engaged in their work in pairs, in small groups, as a full class, or individually. ● Students engaged in one or more of the Science and Engineering Practices to figure out core ideas, and/or applying crosscutting concepts to connect what they are learning to other ideas in science. **Student look-fors** ● Students writing or drawing ● Students engaged in hands-on investigations, modeling or design ● Students engaged in digital investigations or modeling ● Students reading ● Students discussing **Student Questions to ask:** ● What are you figuring out today? ● What can you tell me about the chapter question? ● How did you figure that out? What is your evidence?	

Look for #3: Students engage in deep learning over time, along the Progress Build. This category is intended to highlight how students are deepening their understanding over time and may require observations over time, across multiple class periods within a unit. Indicators of deepening understanding along the progress build may include how students constructing increasingly complex explanations over time. You may notice students engaged in flexible, differentiated small group instruction in response to assessment. Over time, students working towards meeting grade-level expectations for practices, CCC, or DCIs in the NGSS.	
Sample evidence through observations and questions	**Notes and observations**
Classroom environment look-fors: ● Lesson connecting to prior or future learning; **Teacher questions:** ● In this lesson, what are students figuring out? ● Are there some students who are having some difficulty engaging in practices, understanding core ideas or applying CCCs? What are next steps for them? ● What are you learning from your students that is impacting your instructional plans? **Student questions:** ● What have you figured out so far in this unit? ● Has your thinking changed over time?	

Amplify Science: Getting started with remote and hybrid learning look-for tool

Goal: *Students gather evidence from multiple sources, make explanations and arguments through multiple modalities (do, talk, read, write, visualize), and engage with the science and engineering practices to figure out phenomenon.*

Look for #1: Logistical aspects of distance learning are well-planned to ensure student access.	
Sample evidence through observations	**Notes and observations**
❏ Students have access to the @Home student materials: @Home Slides, Student Sheets, @Home Packets, and/or @Home Videos. ❏ Students have access to the student books, articles, Sims, and/or Digital Apps via the Elementary Apps Page or Amplify Library. ❏ Family resources have been provided to caregivers to support students as they guide students through at-home learning.	

Look for #2: Multimodal instruction is happening.	
Sample evidence through observations	**Notes and observations**
❏ Students are writing or drawing. ❏ Students are engaged in hands-on investigations with simple materials found at home or watching a video of the hands-on activity. ❏ Students are engaged in digital investigations or modeling. ❏ Students are reading with physical or digital books, or watching a video of the book read-alouds. ❏ Students are discussing their ideas.	

Look for #3: Instructional routines are established and supported to ensure student sense-making.	
Sample evidence through observations	**Notes and observations**
❏ **Established expectations for discourse. Examples include:** ❏ Talking to an assigned partner. ❏ Talking to someone in their household, a friend, or a stuffed animal about their ideas. ❏ Talking in breakout groups in a video class meeting. ❏ Using asynchronous discussion options on technology platforms. ❏ **Established expectations for writing. Examples include:** ❏ Writing in a designated science notebook. ❏ Submit audio or video responses digitally, rather than a written response. ❏ 6-8: For students with technology access, complete written work in the students' Amplify accounts. ❏ **Established routines to enhance students' experience of the @Home Science Wall (a complete list of Chapter Questions, key concepts, and vocabulary that have been introduced so far are provided in the last lesson of each chapter). Examples include:** ❏ Drawing or writing ideas on @Home Science Wall pages. ❏ Highlight or color in each question, key concept, or wall that is introduced. ❏ Cut out each question, key concept, or word. These can be then posted on a wall, large sheet of paper, or refrigerator at home. ❏ **Established routines for students to submit work and receive feedback. Examples include:** ❏ Photograph writing and submit digitally. ❏ Record and a video of the student's oral response and submit digitally. ❏ Leverage other teacher-created methods for submitting work, ie digital investigation notebook, collaborative document or slide deck, or other technology platforms.	

Look for #4: Synchronous time is being used in a principled way.	
Sample evidence through observations	**Notes and observations**
❏ **Providing continuity between synchronous and asynchronous instruction. Examples include:** ❏ Previewing aspects of upcoming lessons that students will engage with asynchronously to support understanding. ❏ Reviewing aspects of past lessons students engaged with asynchronously to deepen their understanding and address misconceptions. ❏ Showcasing student work from previous lessons. ❏ Connecting back to the unit phenomena to frame student thinking. ❏ **Instruction selected for synchronous time (both in-person and during virtual class) provides learning opportunities that deepen students' understanding of the phenomenon as compared to students engaging with this content in an asynchronous format. Examples include:** ❏ Hands-on demonstrations using materials that are unavailable to students. ❏ Student discussions provide opportunities for collaborative sensemaking around initial and evolving ideas about unit phenomena and/or science concepts. ❏ If students do not have access to technology at home, when in-person, students are provided time to make observations and discuss ideas related to the simulations and digital tools.	

Getting started with K-5 Amplify Science: Administrator's Guide

Organizational area	Points to remember
INITIAL TRAINING & PROFESSIONAL LEARNING OPPORTUNITIES ☐ Schedule time for teachers to receive training ☐ Provide an opportunity for teachers to understand your school's vision for implementing Amplify Science prior to their training ☐ Devise and deliver messaging to parents	• Teacher buy-in • PD Catalog: bit.ly/AmplifySciPD • NGSS for Parents: bit.ly/AmplifySciNGSS
PACING UNITS THROUGHOUT THE SCHOOL YEAR ☐ In collaboration with the science lead or grade-level leads, determine: ■ Time allocated for daily science instruction for each grade level ■ Pacing/scope and sequence of units ■ Any schedule modifications that are needed to support full implementation	• **Grades K-1** ○ 45 min. lessons • **Grades 2-5** ○ 60 min. lessons • Year at a glance in Participant Notebook
TECHNOLOGY READINESS & ACCESS ☐ Identify a technology support person (school & district level) who will support teacher needs and coordinate accounts with Amplify ☐ Test internet connection speeds to ensure successful internet access ☐ Ensure all teachers have account log-ins and accessed the digital Teacher's Guide and no content filters block access (learning.amplify.com) ☐ Ensure all teachers establish routines and logistics for device management in their classroom (if applicable) ☐ Ensure that all teachers are using either Chrome or Safari web browsers ☐ Devices in-use by teachers (and students) are: iPad 3 or more recent models, MacBooks, Chromebooks, or Windows laptops or desktops ☐ Verify onsite technology policies support learning with a digital curriculum	• Contact help@amplify.com if you have any teacher login issues • Technology readiness will support teachers' ability to teach all units and address all standards
MANAGING SCIENCE RESOURCES ☐ Appoint a point-of-contact to organize and distribute kit resources for immediate teacher access based on unit order and pacing ☐ Ensure kit resources are provided to the teacher at least 1 week prior to the expected start of instruction ☐ Review the materials list inside of each kit, at each grade level, and identify the items on the list that are "teacher provided items"; secure these items at least 1 week prior to the expected start of instruction ☐ Ensure all teachers establish routines for managing kit resources in their classrooms (manipulatives, Investigations Notebooks, etc.) ☐ Establish a plan for materials: teacher provided materials and management from year to year to refill kit materials and inventory	• The Amplify Science curriculum integrates hands-on materials and classroom wall resources. Some items are provided in the kit and others are "teacher provided."
MONITORING INITIAL IMPLEMENTATION ☐ Schedule time to observe initial implementation, at least two weeks after the units' start date (pacing, routines for technology and materials management) ☐ Visit classes to identify successes/challenges and provide feedback ☐ Identify successes and coordinate opportunities for peer-to-peer supports to build capacity and consistency of routines ☐ Devise an ongoing Professional Learning Plan	• Amplify Science: Getting started look-for tool in Participant Notebook • Amplify Science: Getting started with remote and hybrid learning look-for tool in Participant Notebook
SUPPORTING REMOTE LEARNING ☐ **Amplify Science@Home Units** are a solution if you have significantly less time to teach science than usual. You can choose between print-based and tech-based student materials. ☐ **Amplify Science@Home Videos** are a solution if you have about the same amount of time for teaching science as you normally would. Students need consistent access to internet-connected digital devices to use @Home Videos.	• **Program Hub** ○ Access@Home Videos and @Home Units • **Amplify Anywhere** amplify.com/anywhere/amplify-science ○ Resources for using Amplify programs remotely

Scenario thought catcher

Scenario 1 A teacher asks how Amplify Science aligns to our school/district goals.	
Scenario 2 Since I don't have time in the school day to teach 45-minute lessons I will probably skip some parts. Some of the lessons seem to repeat ideas anyway.	
Scenario 3 I have never taught this science content before. I am concerned that students will ask me questions I don't know the answers to.	
Scenario 4 I need a grade every week. There aren't enough gradable assignments.	
Scenario 5 My students can't do this work, this is too hard for them. How am I supposed to get them to do the work?	
Scenario 6 Our students need to focus on reading, how will this support our reading goals and proficiency?	

Additional Amplify resources

Program Guide

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

my.amplify.com/programguide

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

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

Family Resources 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:

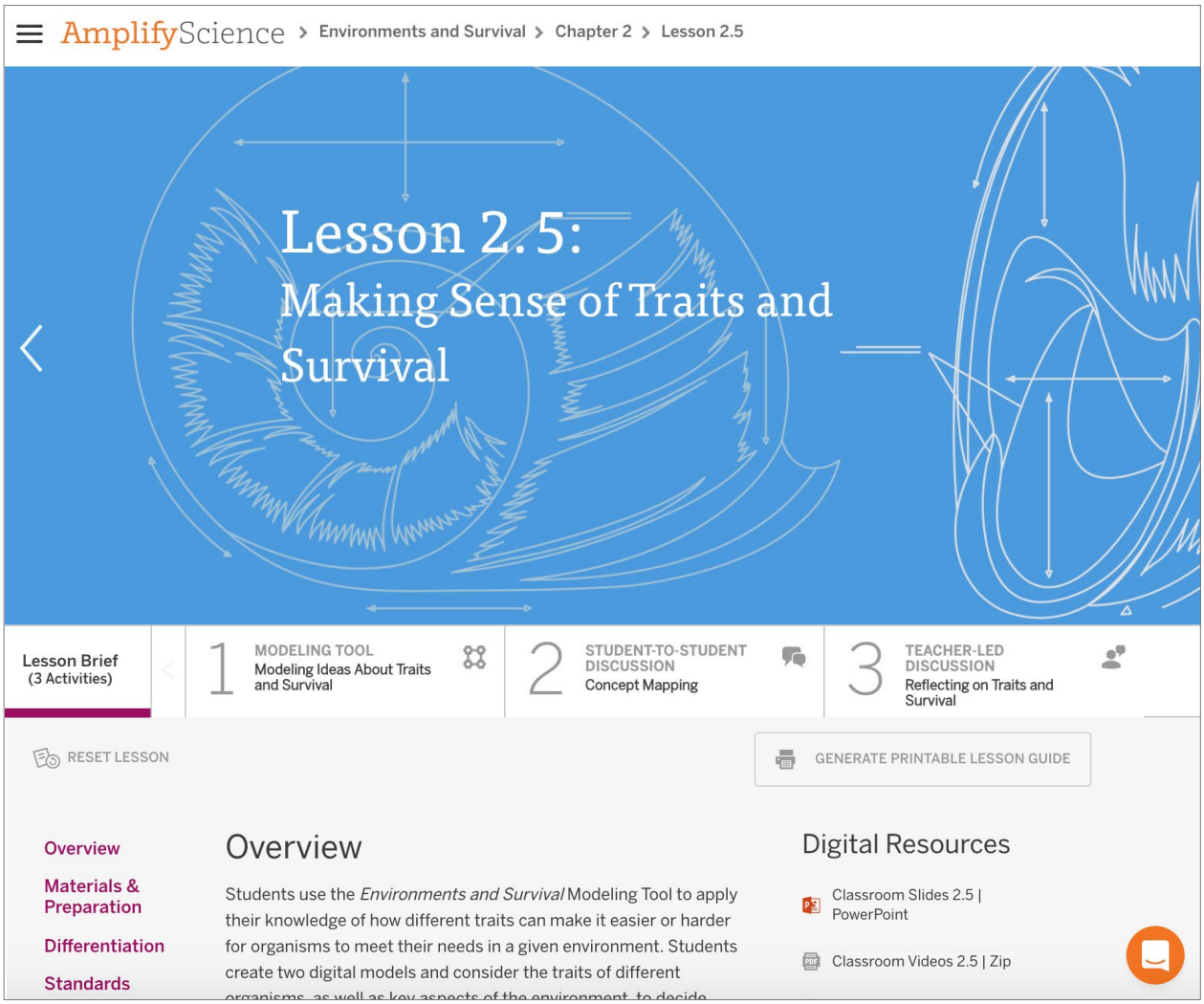
- Identify yourself as an Amplify Science user.
- Note the unit you are teaching.
- Note the type of device you are using (Chromebook, iPad, Windows, laptop).
- Note the web browser you are using (Chrome or Safari).
- Include a screenshot of the problem, if possible. Copy your district or site IT contact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

Amplify Science@Home resources reference

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

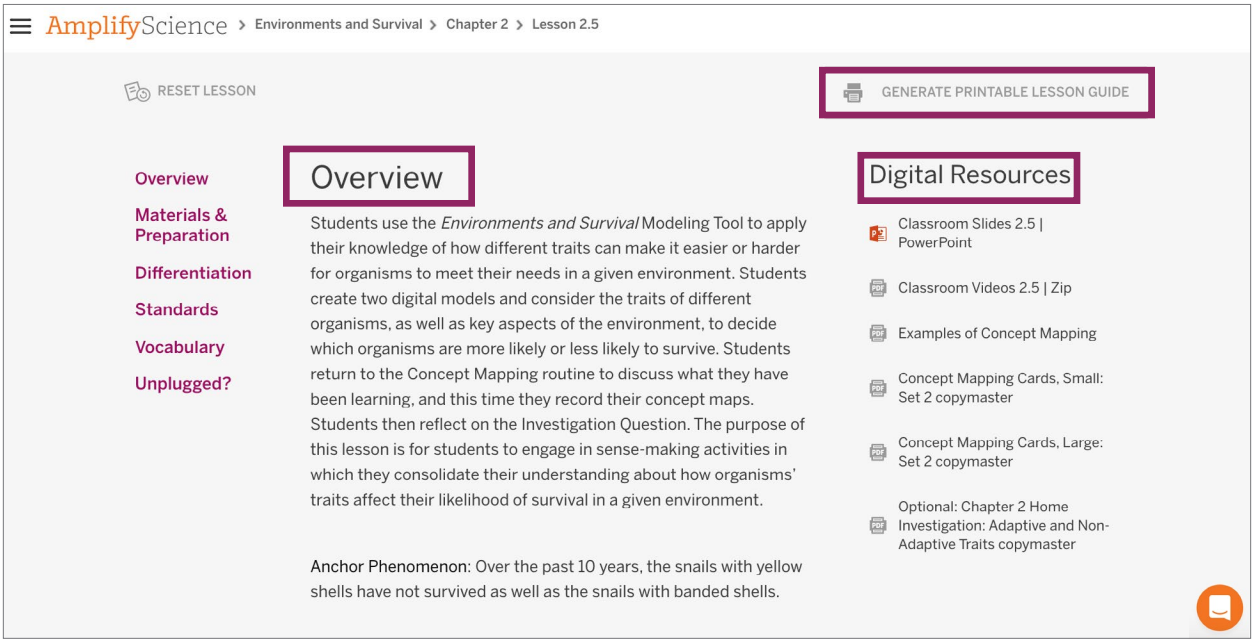
Instructional materials: Click Remote and hybrid learning resources, then select your grade level from the dropdown menu. Select your unit.	
@Home Unit resources: These will appear when you select your unit.	
Teacher Overview	General information for teaching with @Home Units, planning information, chapter 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.	
@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.
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.	

Navigation within a lesson

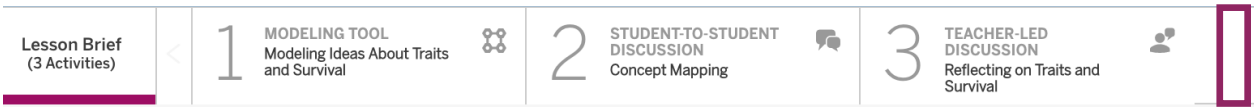


1. The lesson's landing page is referred to as the **Lesson Brief**. Above is an example from a lesson in the grade 3 Environments and Survival unit. The Lesson Brief provides valuable information to support teachers, including an overview of the content that will be covered in the lesson.

Navigation within a lesson cont.

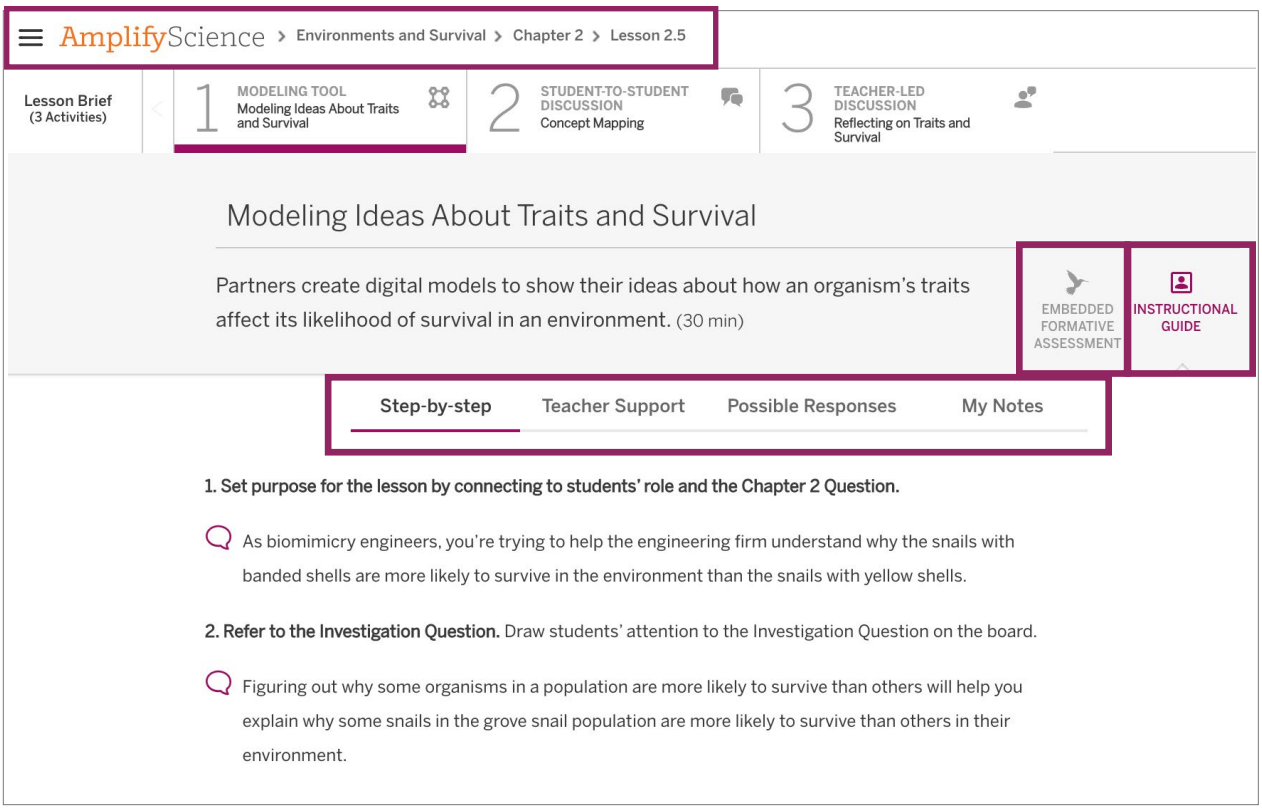


2. Navigate between each section on the page by either scrolling or clicking the index in the left column. You can always return to the top by clicking on the "Back to Top" button in the bottom left corner.
   - The **Overview** includes a summary of the lesson, describes what students will learn, and 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.



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.



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.

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:

Notes

Amplify Science