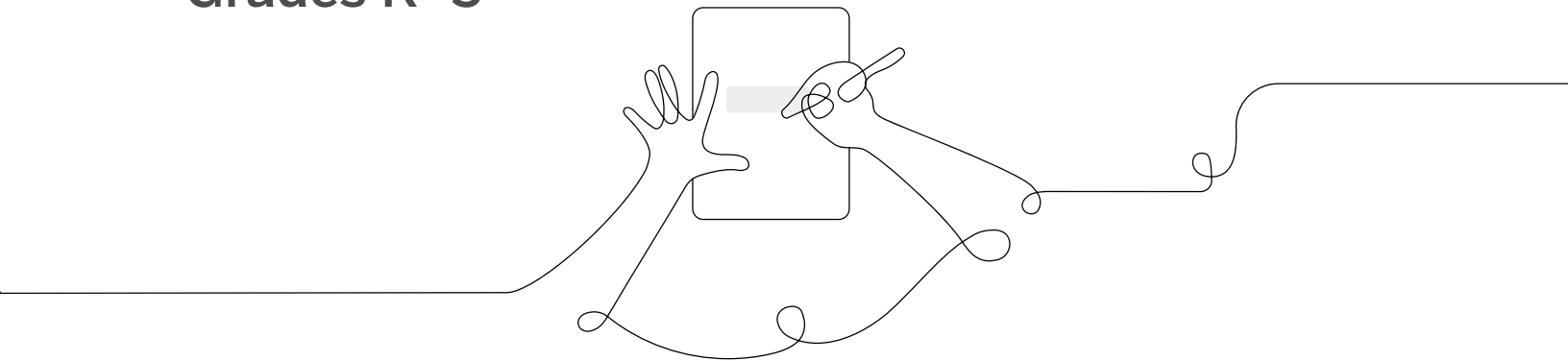




Participant Notebook

Navigating Program Essentials

Grades K–5



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 - 5

K-5 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: Energy Conversions
- 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.

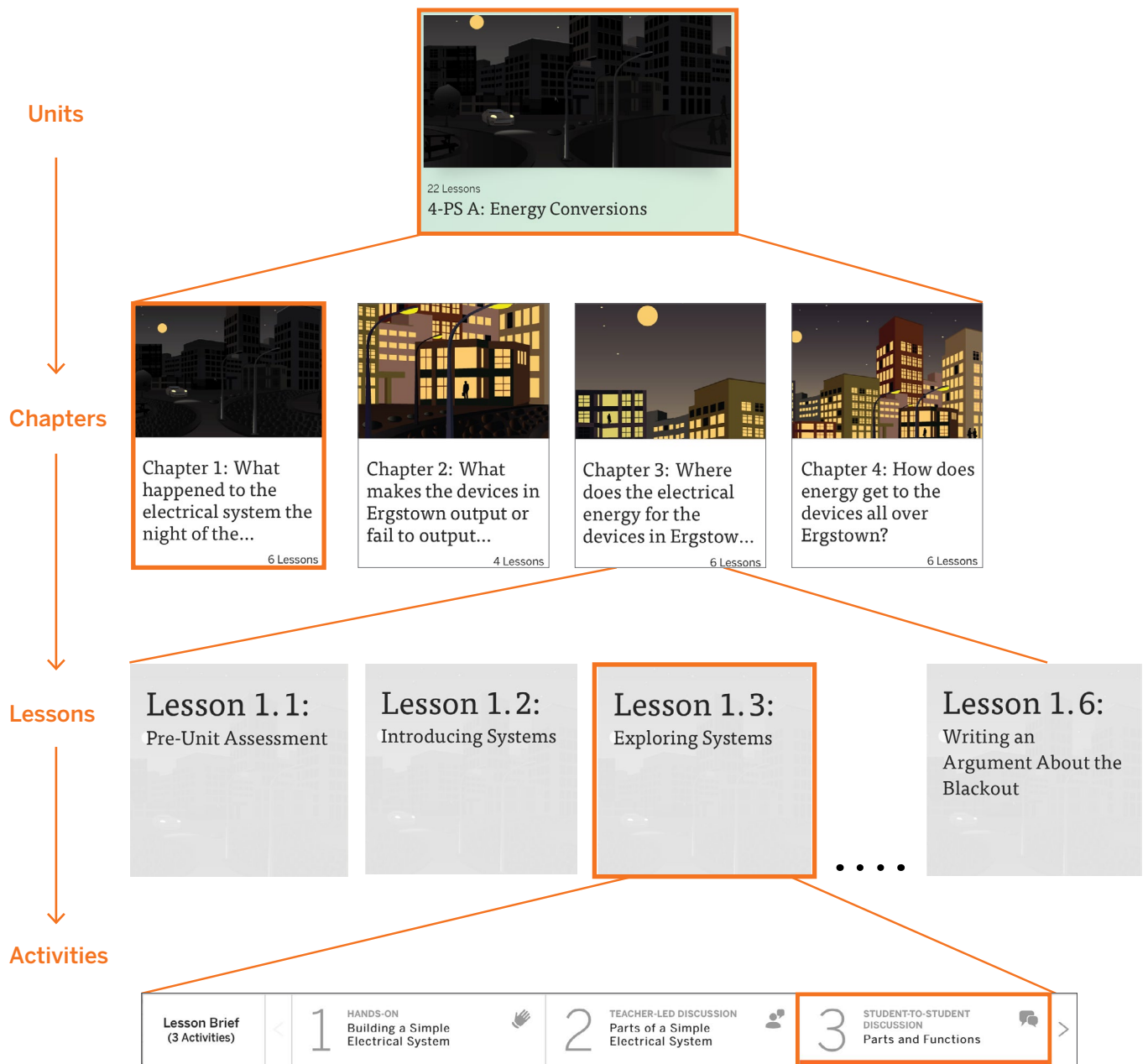
K-5 Program components cont.

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

AmplifyScience > Environments and Survival > Chapter 2 > Lesson 2.5

Lesson 2.5: Making Sense of Traits and Survival

Lesson Brief (3 Activities)

- 1 MODELING TOOL
Modeling Ideas About Traits and Survival
- 2 STUDENT-TO-STUDENT DISCUSSION
Concept Mapping
- 3 TEACHER-LED DISCUSSION
Reflecting on Traits and Survival

RESET LESSON

GENERATE PRINTABLE LESSON GUIDE

Overview

Students use the *Environments and Survival* Modeling Tool to apply their knowledge of how different traits can make it easier or harder for organisms to meet their needs in a given environment. Students create two digital models and consider the traits of different organisms, as well as key aspects of the environment, to decide

Digital Resources

- Classroom Slides 2.5 | PowerPoint
- Classroom Videos 2.5 | Zip

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.)

AmplifyScience > Environments and Survival > Chapter 2 > Lesson 2.5

RESET LESSON

GENERATE PRINTABLE LESSON GUIDE

Overview

Students use the *Environments and Survival* Modeling Tool to apply their knowledge of how different traits can make it easier or harder for organisms to meet their needs in a given environment. Students create two digital models and consider the traits of different organisms, as well as key aspects of the environment, to decide which organisms are more likely or less likely to survive. Students return to the Concept Mapping routine to discuss what they have been learning, and this time they record their concept maps. Students then reflect on the Investigation Question. The purpose of this lesson is for students to engage in sense-making activities in which they consolidate their understanding about how organisms' traits affect their likelihood of survival in a given environment.

Anchor Phenomenon: Over the past 10 years, the snails with yellow shells have not survived as well as the snails with banded shells.

Digital Resources

- Classroom Slides 2.5 | PowerPoint
- Classroom Videos 2.5 | Zip
- Examples of Concept Mapping
- Concept Mapping Cards, Small: Set 2 copymaster
- Concept Mapping Cards, Large: Set 2 copymaster
- Optional: Chapter 2 Home Investigation: Adaptive and Non-Adaptive Traits copymaster

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.

Lesson Brief (3 Activities)

1 MODELING TOOL Modeling Ideas About Traits and Survival

2 STUDENT-TO-STUDENT DISCUSSION Concept Mapping

3 TEACHER-LED DISCUSSION Reflecting on Traits and Survival

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 displays the AmplifyScience interface for a lesson titled "Modeling Ideas About Traits and Survival". At the top, a breadcrumb trail shows the navigation path: AmplifyScience > Environments and Survival > Chapter 2 > Lesson 2.5. Below this, three activity cards are visible: 1. MODELING TOOL (Modeling Ideas About Traits and Survival), 2. STUDENT-TO-STUDENT DISCUSSION (Concept Mapping), and 3. TEACHER-LED DISCUSSION (Reflecting on Traits and Survival). The first activity card is highlighted with a purple border. The main content area shows the title "Modeling Ideas About Traits and Survival" and a description: "Partners create digital models to show their ideas about how an organism's traits affect its likelihood of survival in an environment. (30 min)". To the right of the description are two icons: "EMBEDDED FORMATIVE ASSESSMENT" (a hummingbird) and "INSTRUCTIONAL GUIDE" (a person). Below the description is a navigation bar with four tabs: "Step-by-step" (highlighted with a purple border), "Teacher Support", "Possible Responses", and "My Notes". The main content area contains two numbered steps, each with a purple speech bubble icon indicating teacher talk. Step 1: "Set purpose for the lesson by connecting to students' role and the Chapter 2 Question." Step 2: "Refer to the Investigation Question. Draw students' attention to the Investigation Question on the board."

 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 slide 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? • [Grades 2-5 only] Will students need digital devices? 	<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, logging-in, 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.

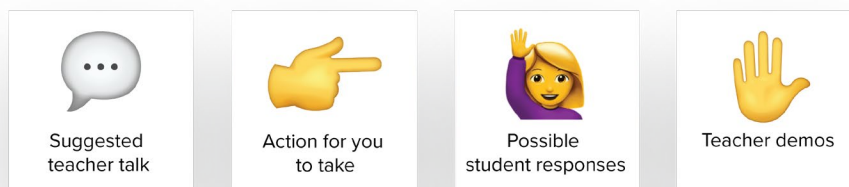
Icons on the slide cue the teacher about what is happening in the lesson. Here's what the icons on the slides mean:

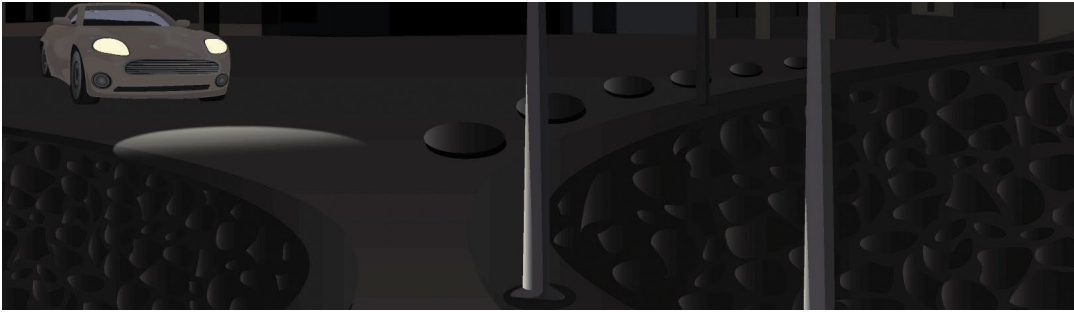


You may occasionally also come across the following student action icons:



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:





Energy Conversions:

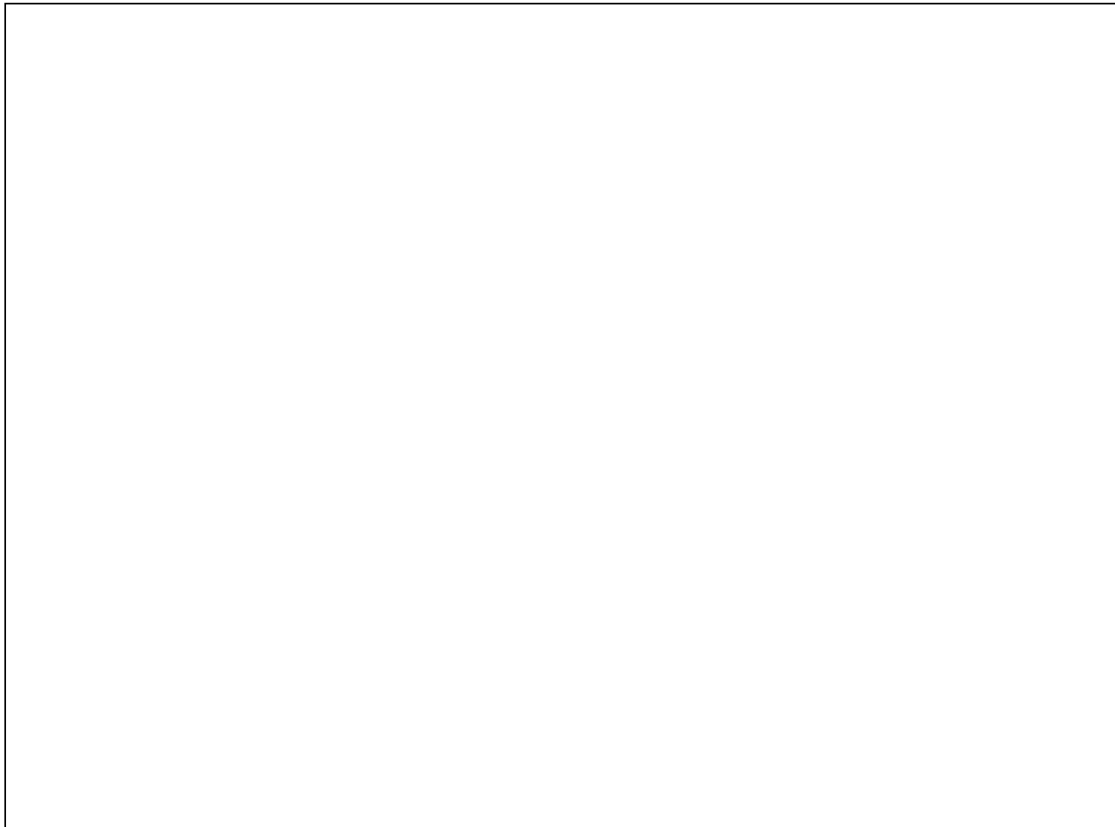
Blackout in Ergstown

Investigation Notebook

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.)



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.

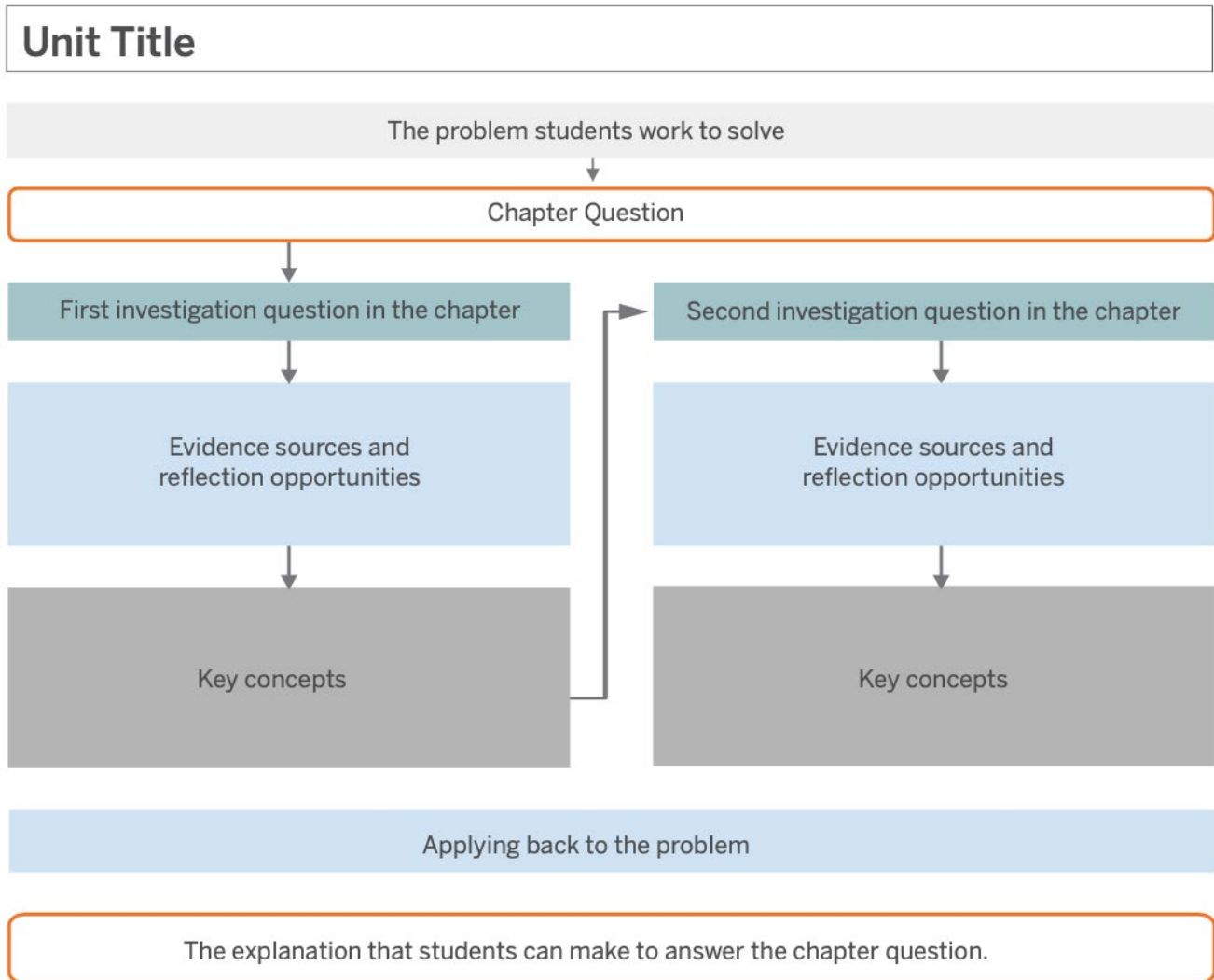
_____ System

Function: _____

Part	Function

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

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)

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)

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)

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.

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

- 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)

- 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)

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>)

Assessment System reference (grades 2-5)

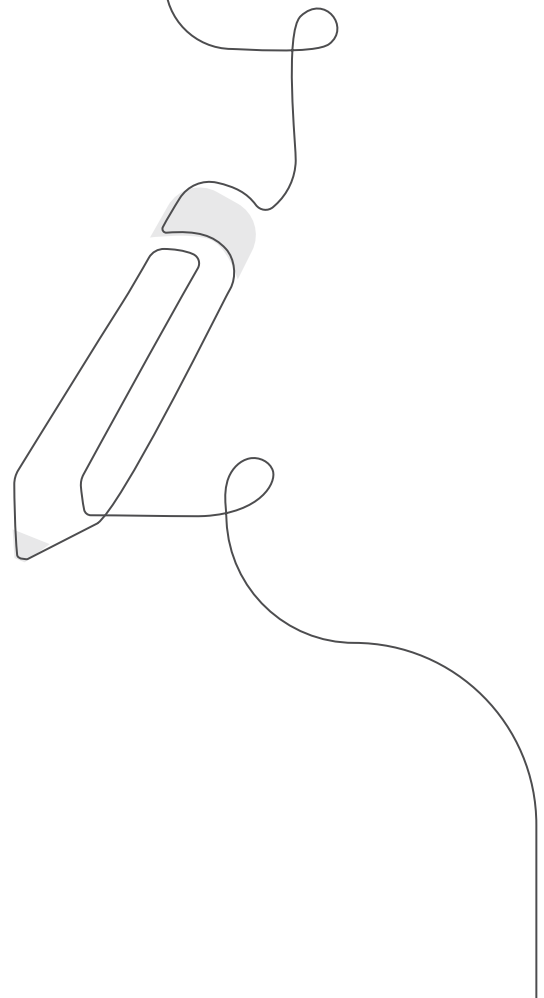
Assessment type	Description	Student experience	Teacher resources
Pre-Unit Assessment	Formative, 3-D performance assessment meant to gauge students' initial understanding and pre-conceptions about core ideas in the unit	<ul style="list-style-type: none"> Pre-Unit Writing copymaster (available in Digital Resources) 	<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"> 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) 	<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"> 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) 	<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) 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	<ul style="list-style-type: none"> Activities are embedded into existing instructional activities, leveraged for assessment opportunities. Artifacts can include discussion, use of a digital tool, 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)

Assessment System reference (grades 2-5) cont.

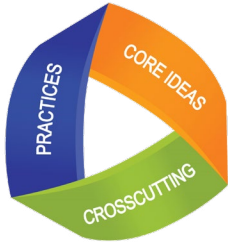
Assessment type	Description	Student experience	Teacher resources
Student Self-Assessments	Opportunity for students to reflect on whether they understand or don't yet understand the core concepts from the unit	<ul style="list-style-type: none"> Reflection prompts in the Investigation Notebook Provided at or near the end of each chapter 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 	<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 (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 → <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:

[GRADES 2-5] Describe an activity that students do with a digital app in the unit.

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 • 2nd: Plant and Animal Relationships, Lesson 1.1, Activity 1 • 3rd: Balancing Forces, Lesson 1.2, Activity 1 • 4th: Energy Conversions, Lesson 1.1, Activity 2 • 5th: Patterns of Earth and Sky, Lesson 1.1, Activities 1-2 	
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.
-------------------	--

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

