

Amplify Science

Unit Internalization / Guided Planning

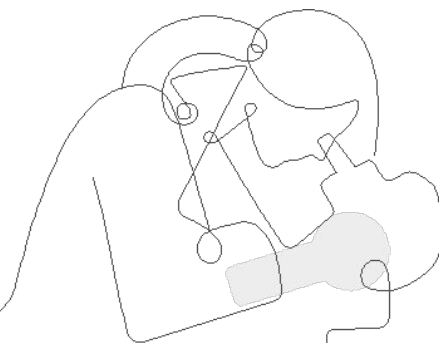
Grade 4, Unit 1: Energy Conversions

Part 1

School/District Name: LAUSD

Date: October, 2022

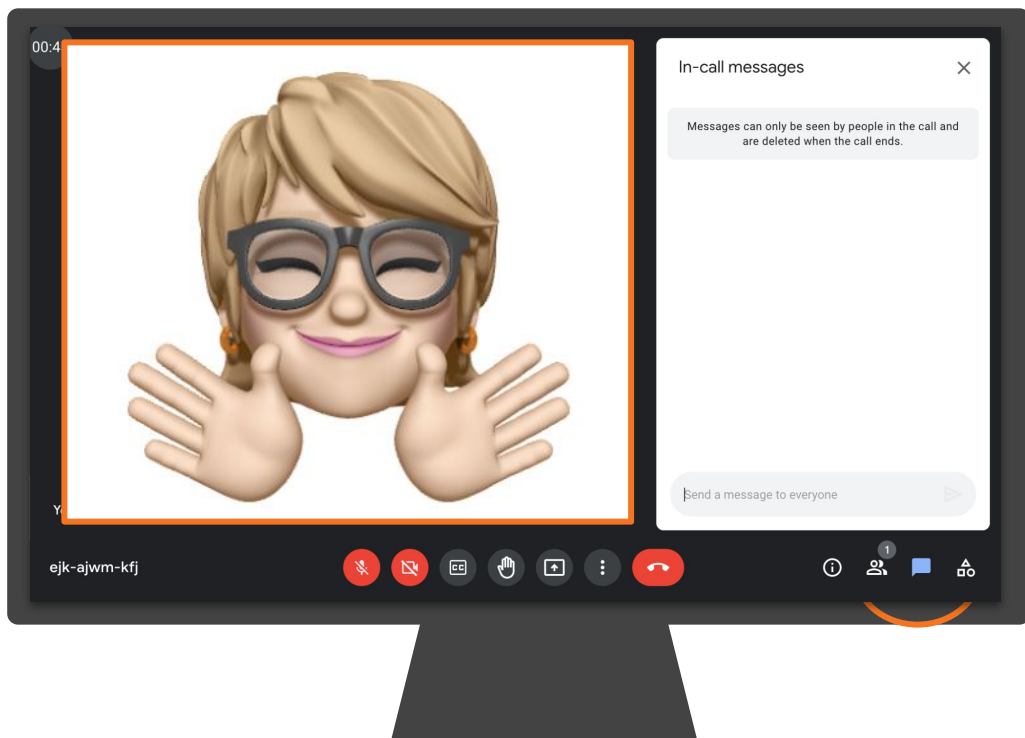
Presented by:



Ice Breaker!

Who do we have in the room today?

- **Question 1:** Which aspects of implementing the Amplify Science standard curriculum has been the most successful?
- **Question 2:** Which aspects have been the most challenging?



Amplify's Purpose Statement

Dear teachers,

You do a job that is nearly impossible and **utterly essential**.

We are in your corner – extending your reach, saving you time, and enhancing your understanding of each student.

Thank you for working with us to craft rigorous and riveting learning experiences for your classroom.

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

Sincerely,
Amplify

Norms: Establishing a culture of learners

- **Take risks:** Ask any questions, provide any answers.
- **Participate:** Share your thinking, participate in discussion and reflection.
- **Be fully present:** Unplug and immerse yourself in the moment.
- **Physical needs:** Stand up, get water, take breaks.

Schoolology



[← Back to Schoolology Home Page](#)

LMS App Center

The LMS App Center provides a catalog of District-approved digital content and learning tools (including digital components of adopted textbooks) that are available for classroom teachers and students to access within the learning management system, Schoolology.

For information on District-approval policies and procedures, please visit: [udipplausd.net](#).

- To search the full list of digital learning tools, click "Submit".
- To search by Publisher Name or Textbook Title, type in a word associated to your adopted publisher, then click "Submit".
- To narrow your search with filters such as Content Area, Grade Level, or Content Type, select from the dropdown menu, then click "Submit".

To learn more about using the LMS App Center, please refer to the following [video overview](#).

Publisher Name Starts With

Content Area All

Grade Level All

Content Type All

Textbook Title Starts With

Submit

All Amplify Products



LMS App Center

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To learn more about using the LMS App Center, please refer to the following [video overview](#).

[← Search Again](#)

Amplify

Content Area: ELA
Grade Level: ES
Content Type: Supplemental
Integration Type: App (Left Navigation)
Purchase Type: District and School
Getting Started Guide
Other Info: School licenses required
mCLASS
CKLA
Amplify Reading
Amplify Science
Creative

Vendor Support Desk:
P: 800.823.9969
E: help@amplify.com
S: amplify.com/support/
Textbook Title(s):
NA



Vendor Support Desk:
P: 800.823.9969
E: help@amplify.com
S: amplify.com/support/
Textbook Title(s):
NA

op is for
only)

Join Amplify Science Schoology Group

To join Amplify Science Schoology
ES Group: W4PK-W466-63F5B

Navigation Temperature Check

Rate yourself on your comfort level accessing Amplify Science materials and navigating a digital curriculum.

1 = Extremely Uncomfortable

2 = Uncomfortable

3 = Mild

4 = Comfortable

5 = Extremely Comfortable

Part 1

Overarching goals

- ❑ Explain how students engage in phenomenon based and 3D learning to construct an understanding of the science concepts introduced in the unit
- ❑ Internalize the unit and apply your new understanding to plan for the diverse needs of your classroom and students





Plan for the day: Part 1

- Introduction and Framing
- Phenomenon-based Instruction
- Unit Internalization
- Additional Resources
- Closing



Plan for the day: Part 1

- **Introduction and Framing**
- Phenomenon-based Instruction
- Unit Internalization
- Additional Resources
- Closing



THE LAWRENCE
HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

+

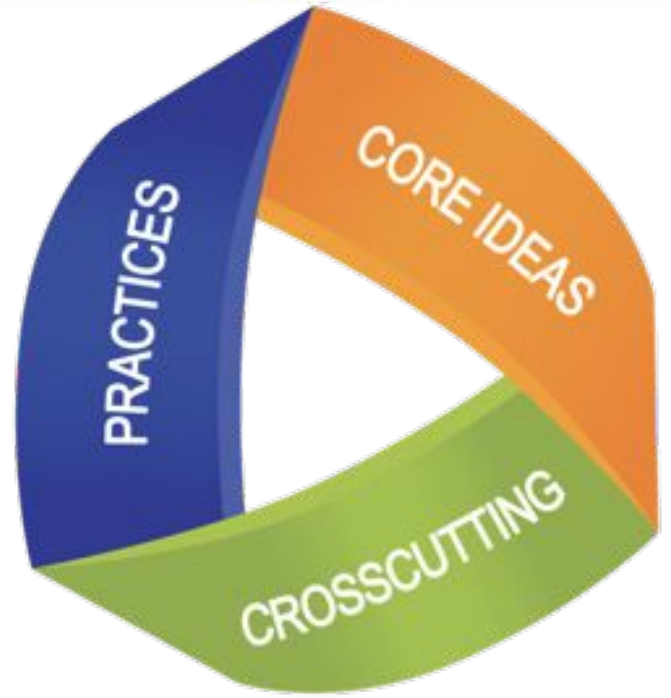
Amplify.

Amplify Science

Three dimensional learning

Evaluate your knowledge

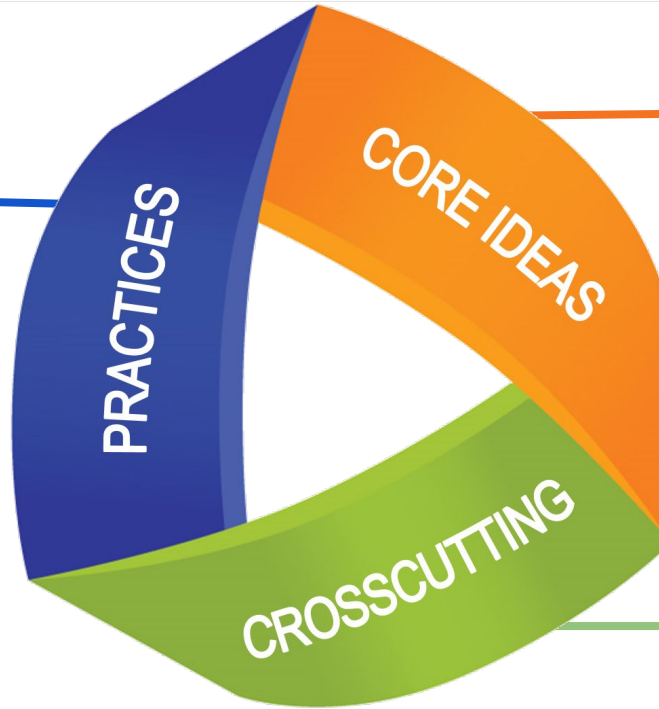
- On a scale of 0-5, how would you rate your familiarity with 3-D learning?



Figuring out Phenomena

Using 3-D teaching and learning

What scientists do
Science and
Engineering Practices



What scientists
want to know
Disciplinary Core
Ideas

How scientists
think
Crosscutting Concepts



Three-dimensional learning

Reflection

In the video, how did students engage in three-dimensional learning to think like scientists?

Lesson 3.2

Students use a model to figure out the relationship between different parts of a habitat system in order to construct their understanding about how animals can help move seeds around a habitat (systems and system models).



Course curriculum structure

Grade K

- Needs of Plants and Animals
- Pushes and Pulls
- Sunlight and Weather

Grade 1

- Animal and Plant Defenses
- Light and Sound
- Spinning Earth

Grade 2

- Plant and Animal Relationships
- Properties of Materials
- Changing Landforms

Grade 3

- Balancing Forces
- Inheritance and Traits
- Environments and Survival
- Weather and Climate

Grade 4

- Energy Conversions
- Vision and Light
- Earth's Features
- Waves, Energy, and Information

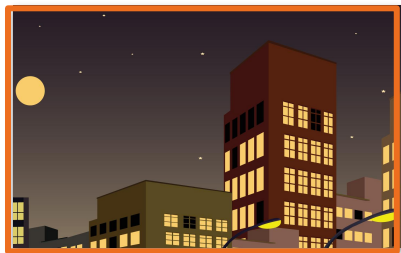
Grade 5

- Patterns of Earth and Sky
- Modeling Matter
- The Earth System
- Ecosystem Restoration

Key takeaways:

- There are 22 lessons per unit
- Lessons at grades K-1 are 45 minutes long

Year at a Glance: Grade 4

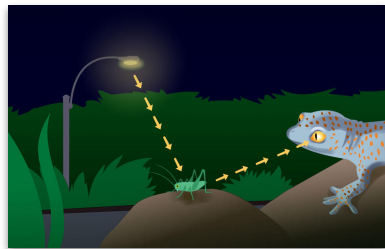


Energy Conversions

Domain: Physical Science

Unit type: Engineering Design

Student role: System engineers

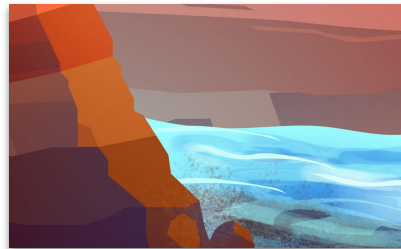


Vision and Light

Domain: Life Science

Unit type: Investigation

Student role: Conservation biologists

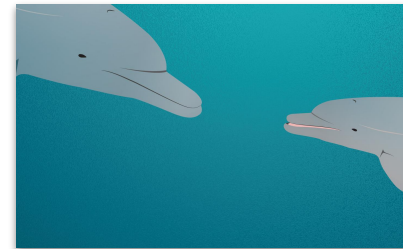


Earth's Systems

Domain: Earth and Space Science

Unit type: Argumentation

Student role: Geologists



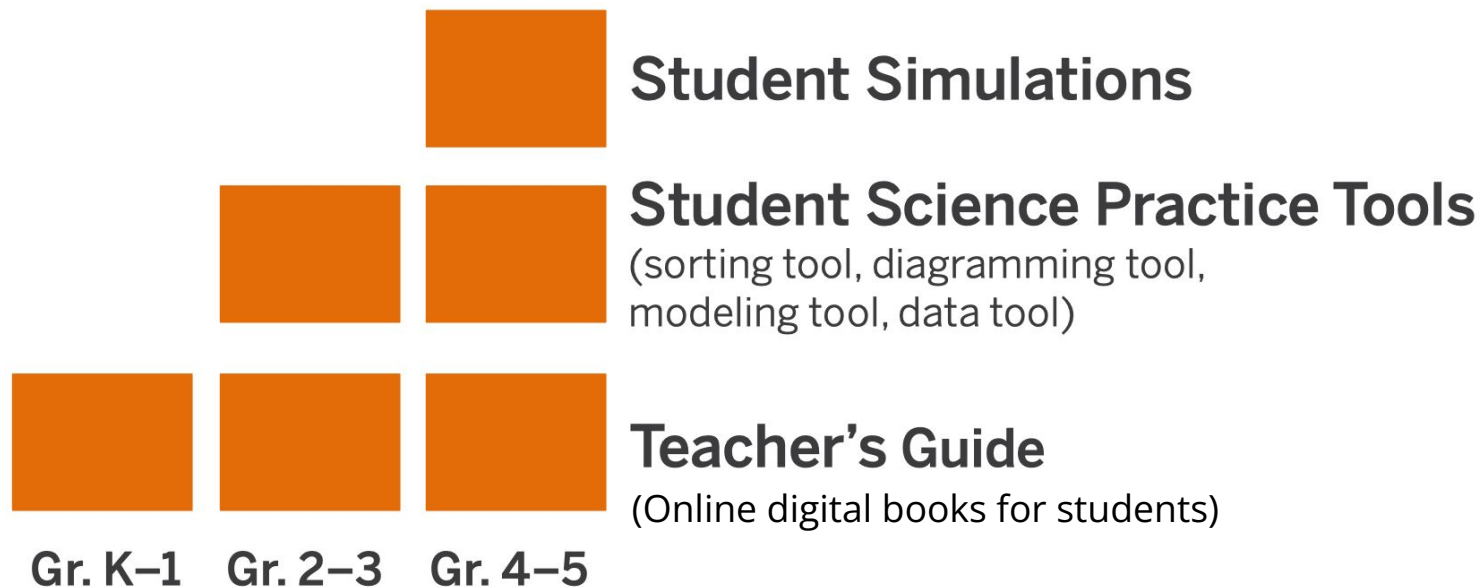
Waves, Energy, and Information

Domain: Physical Science

Unit type: Modeling

Student role: Marine scientists

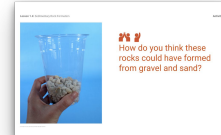
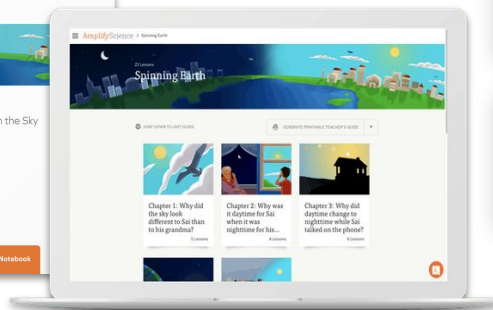
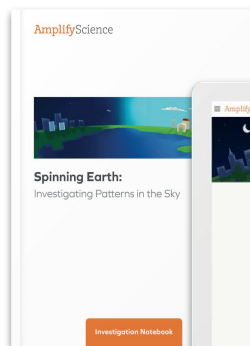
What are the digital components of Amplify Science Elementary?



K-5 Program components

Teacher materials

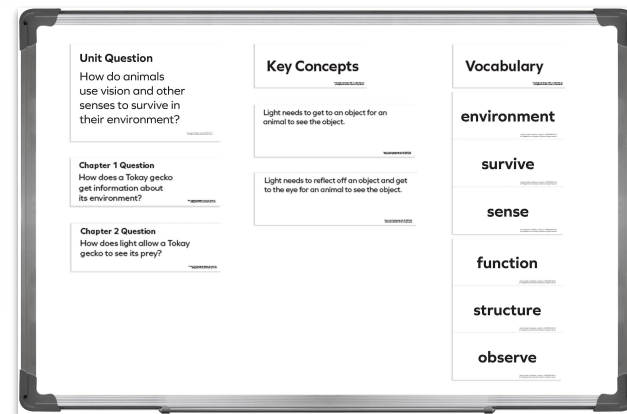
- Teacher's Guide (print and digital)
- Classroom Slides
- Classroom wall materials
- Embedded assessments
- Program Guide
- Program Hub
- Amplify Help Site



Program Hub



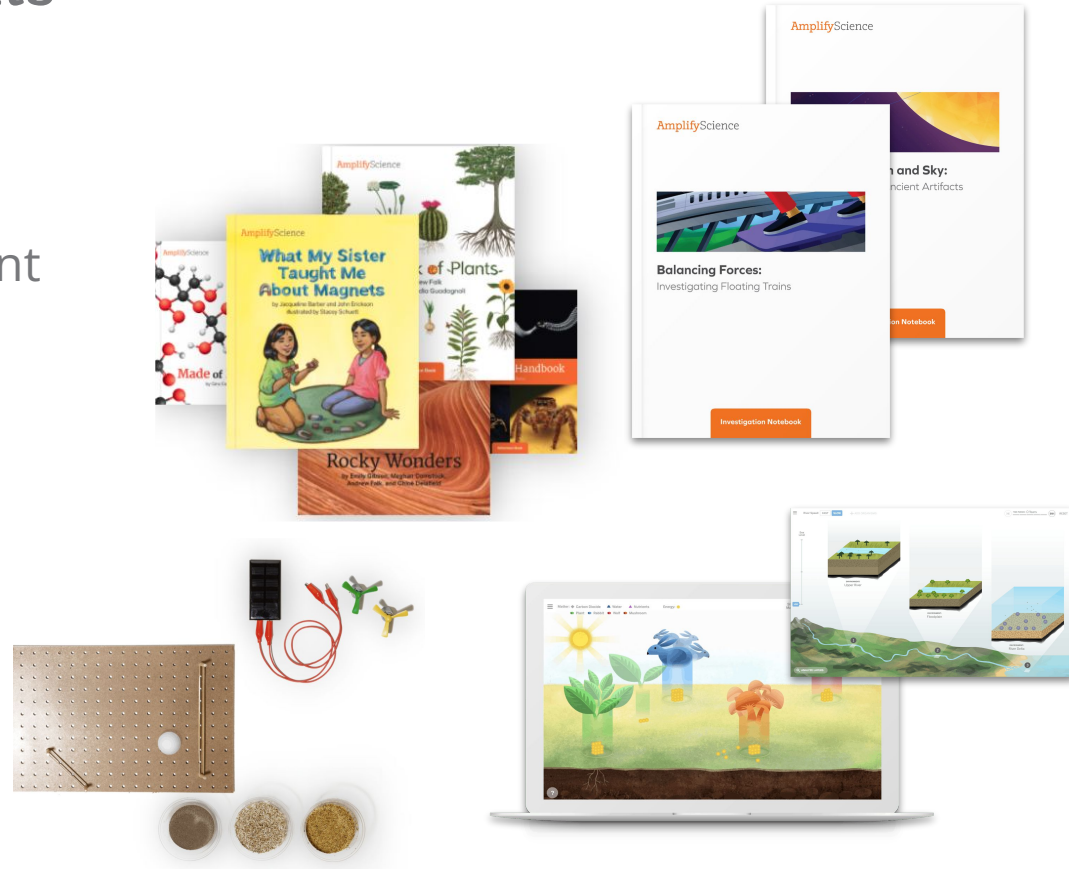
Science Program Guide



K-5 Program components

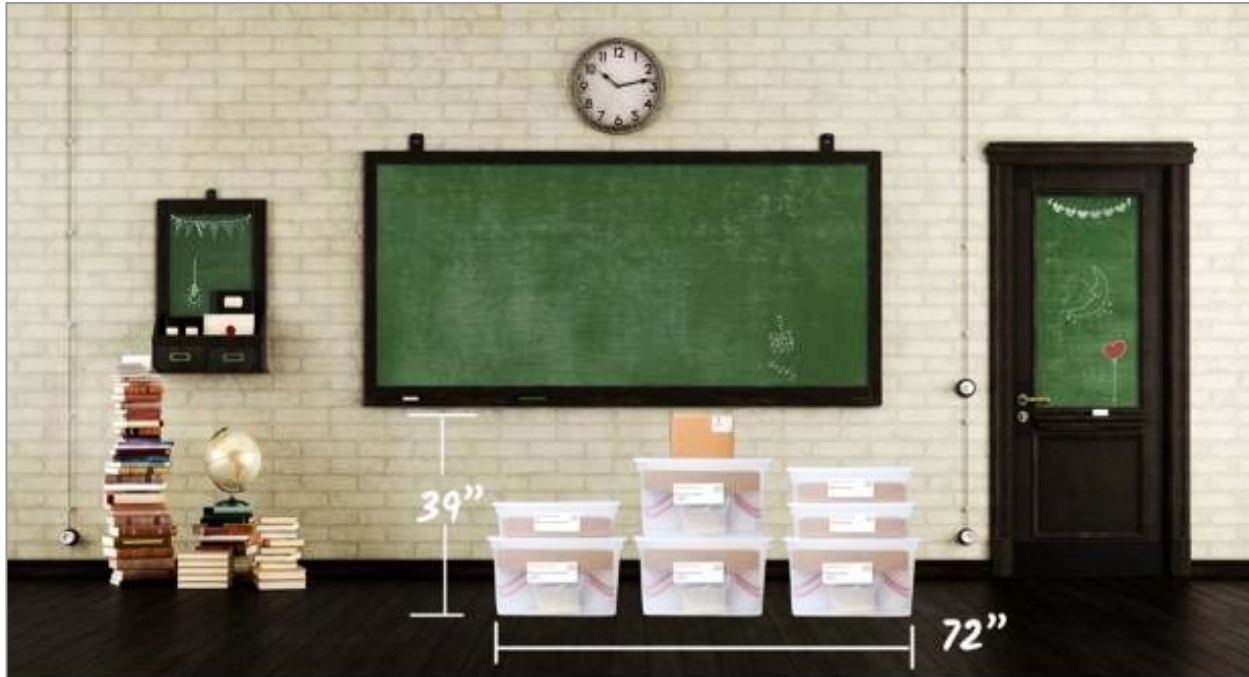
Student materials

- Hands-on materials
- Investigation Notebooks (print and digital)
- Student books
- Digital Applications



Prepping Hands-On Materials for the Unit

Microsite: Unit 1, K-2 Lesson Prep Videos

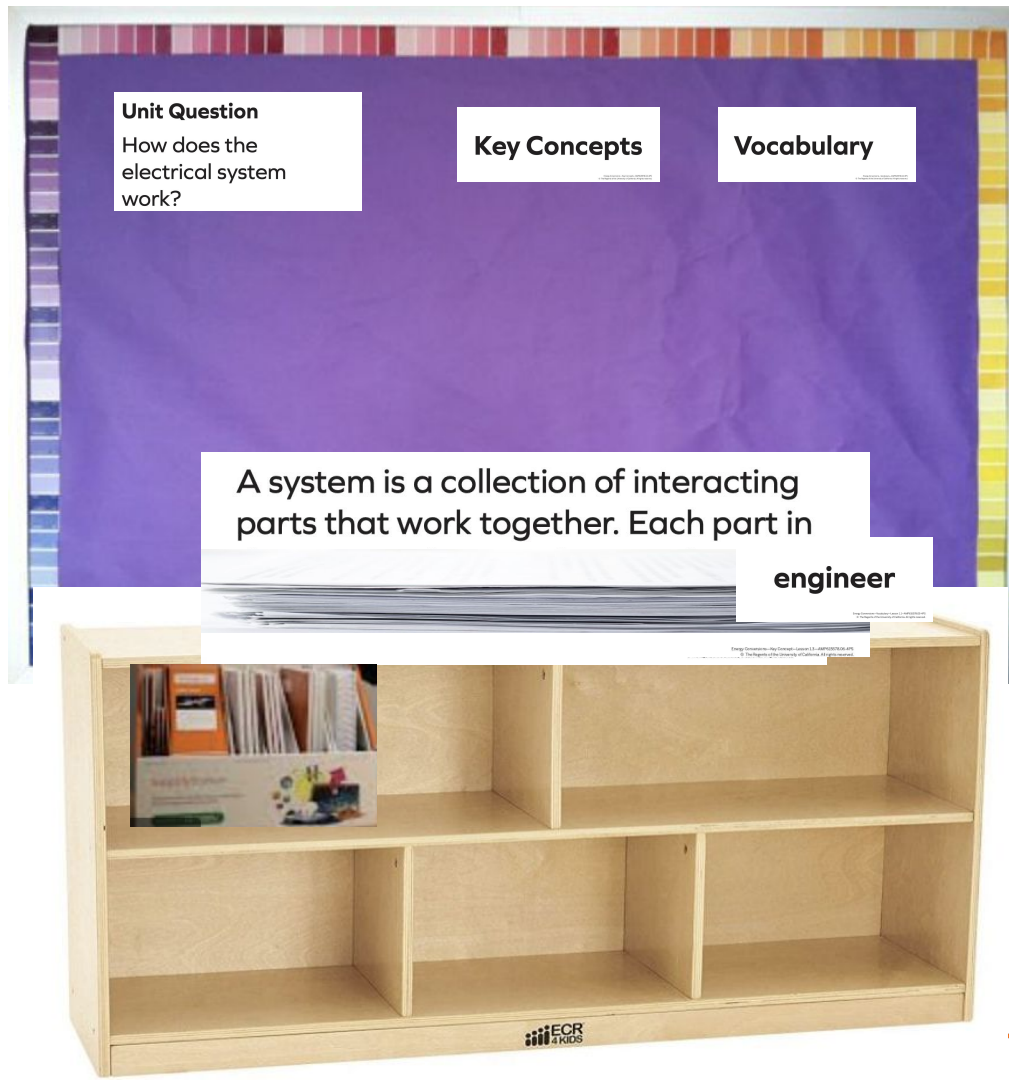


Classroom Kits

Built for a class of 36 students, with consumables for two years

Unpacking the Kit

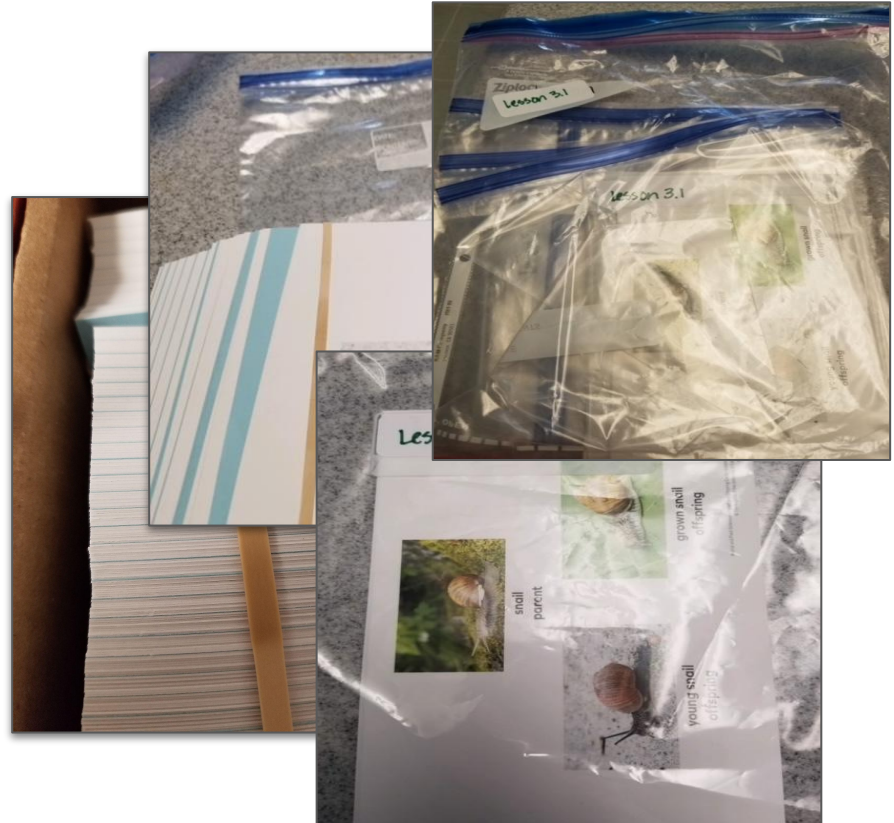
- Pull out the unit question, key concepts and vocabulary materials.
- Place them on the top of the table or bookcase below your science board
- Take books out of kit and place in the bookcase or on the table. (Always collect books after each lesson use. Return to bookcase so they are easily accessible.)



Cards for games, sorting or matching activities

Organization tips:

- Separate and place in envelopes or bags (or clip together)
- Label the envelopes or bags with the name and lesson # and activity # (ex. Lesson 2.4, Act. 1)
- Put each envelope or bag (1 set) into a bigger bag and label



LAUSD Schoology: Unit 1, 3-5 Lesson Prep Videos

The screenshot shows the LAUSD Schoology interface. The top navigation bar is dark blue with the LAUSD logo on the left and icons for search, grid, calendar, and email on the right. The main navigation menu on the left includes 'Home', 'COURSES', 'GROUPS', 'RESOURCES' (circled in orange), and 'TOOLS'. Under 'RESOURCES', there are two sections: 'Group Resources' and 'School Resources'. The 'Group Resources' section is expanded, showing 'Amplify Science- Elementary' (circled in orange) and 'LAUSD Middle School Science - Di...'. The 'School Resources' section shows 'LOS ANGELES USD - 9999' and 'Los Angeles Unified School District'. The 'Group' link in the left sidebar is also circled in orange. The main content area displays the 'Amplify Science- Elementary' resource page. It has a 'Title' section and a list of resources. The first resource is a folder icon labeled 'NGSS Resources' added by MARIA ARTEAGA on Jun 1, 2021. The second resource is a red folder icon labeled 'Google Drive link for K-6 Phenomenal Notebooking Resources' added by INYOUNG LEE on Feb 1, 2021. It includes a Google Drive link and a note about digital phenomenal notebooks. The third resource is a PDF icon labeled 'Amplify_Science_Shared_Logins.pdf' added by Señor Fernando REYES on Aug 9, 2021. The fourth resource is a green folder icon labeled 'Lesson Prep Videos' (circled in orange) added by Terin Ngo on Oct 11, 2021.

LOS ANGELES USD

Home

COURSES GROUPS **RESOURCES** TOOLS

Search

Personal

Public

Group

Group Resources

Amplify Science- Elementary

LAUSD Middle School Science - Di...

School Resources

LOS ANGELES USD - 9999

Los Angeles Unified School District

Amplify Science- Elementary

Title

NGSS Resources

Added by MARIA ARTEAGA · Jun 1, 2021

Google Drive link for K-6 Phenomenal Notebooking Resources

<https://drive.google.com/drive/folders/168S5PDaAsmg6mOg7LUOIhwO8J7GnYn2G?usp=sharing>

Here are digital resources to support the teaching and learning of the anchor phenomena for Amplify Science and FOSS.

Subfolders for Unit 1 and Unit 2.

Note: In the Unit 1 folder for grades 3-6, please find digital phenomenal notebooks which can be assigned to students in Schoology. For K-2, please find a suite of Seesaw activities. Teachers may add the Seesaw activities into their Seesaw accounts and assign them to students.

Added by INYOUNG LEE · Feb 1, 2021

Amplify_Science_Shared_Logins.pdf

Added by Señor Fernando REYES · Aug 9, 2021

Lesson Prep Videos

Added by Terin Ngo · Oct 11, 2021

LAUSD Microsite-
<https://amplify.com/lausd-science>



Welcome to Amplify Science!

This site contains supporting resources designed for the LAUSD Amplify Science adoption for grades TK–8.

- Access the [Amplify Science Program Hub](#) (To help orient you to the new design, watch this [video](#) and view this [reference guide](#).)
- Find out more about [Amplify Science@Home](#)
- Share the [Caregiver Hub](#) (Eng/Span) with your families
- For LAUSD ES Teachers- [Amplify Science & Benchmark Advance Crosswalk](#)
- Instructional guidance for a [Responsive Relaunch of Amplify Science in 21-22](#)

Click the button below to preview the digital Teacher's Guide, and check back for exciting updates to this site!

Microsite: Unit 1, K-2 Lesson Prep Videos

Classroom kits

Program Introduction	New! Lesson Prep Videos
Learn more about Amplify Science	Unit 1
LAUSD Training Sessions- Reference Materials	Grade K- Needs of Plants and Animals >
New! Lesson Prep Videos	Grade 1- Animals and Plant Defenses >
Remote Learning Resources	Grade 2- Plant and Animal Relationships >
Onboarding: What to expect	Grade 3- Balancing Forces >
Onboarding videos	Grade 4- Energy Conversions >
Unpacking your first hands-on materials kit	Grade 5- Patterns of Earth and Sky >
Looking for help?	

Classroom Kits

Built for a class of 36 students, with consumables for two years

Hands On Material Organization

Directions

1. Open the Digital Lesson Guides Only page 7 from the Unit Landing page or go the Print TE to page 31. (Chapter 1 Activities)

2. Look for the lessons with Hands On.

HANDS-ON 

3. Note in the table below.

4. Review the materials and preparation to determine if it can be prepared prior to the lesson or on the day of the lesson.

5. Use this same procedure for each Chapter. (Go to the Chapter Activities Contents)

Chapter/Lesson	Activity	Prep Prior	Prep Day of	What to do	
1.1	1	X		Prep plastic bags with labels A, B, C, D and M. Place 1 tsp of the following cinnamon, salt, flour, cornstarch in A,B,C, D. In bag M mix 1 tsp salt and 1 tsp cinnamon.	<i>This is an example from Properties of Materials Grade 2</i>

Hands On Material Organization

Completed for Balancing Forces

Directions				
1. Open the Digital Lesson Guides Only page 7 from the Unit Landing page or go the Print TE to page 31. (Chapter 1 Activities)				
2. Look for the lessons with Hands On.				
HANDS ON				
3. Note in the table below.				
4. Review the materials and preparation to determine if it can be prepared prior to the lesson or on the day of the lesson.				
5. Use this same procedure for each Chapter. (Go to the Chapter Activities Contents)				
Chapter/Lesson	Activity	Prep Prior	Prep Day of	What to do
1.2	2	X		First, you will need to screw one hook into the short end of each block. You will also need to provide rubber bands. Assemble one gallon-size self-sealing plastic bag of investigation materials for each pair of students, plus one bag for demonstration purposes. Each bag should contain the following items: • 2 blocks, with hooks • 1 balloon • 1 rubber band • 1 paper clip • 1 domino • 1 clothespin • 1 index card
1.4	2	X		Make sure you have a bag of materials from Lesson 1.2 for each pair. Add a rubber ball to each bag.
2.1	1	X		For each group of four students prepare a bag with the following materials: You will pass each group two ring magnets as well. • 1 small paper clip • 1 steel spoon • 1 plastic spoon* • 1 washer • 1 piece of wood (craft stick) • 1 balloon • 1 penny* Create Magnet Anticipatory Chart https://learning.amplify.com/m4c4c0409cedec1c/original/ELSCI_3-PS_CU_126.pdf
2.2	1	X		Add to bag from lesson 2.1 • 1 brass-plated paper fastener (brad) • 1 solid-brass paper fastener (brad) • 1 twist tie with iron core • 1 piece of steel wool • 1 scrap of aluminum foil
2.3	1	X		For each pair of students: • 1 copy of Handbook of Forces • 2 ring magnets • 1 small paper clip • 2 sticky notes*
3.1	2	X		Assemble sets of investigation materials. Each pair of students will need one set of the following investigation materials. • 1 paper clip • 1 domino • 1 heavy book
3.3	1	X		For each pair of students: • 1 domino • 1 rubber ball • 1 ring magnet • 1 ball magnet • 1 ramp (cardboard half-pipe) • 1 folded index card • 1 paper clip • 1 piece of wood (craft stick) • 1 steel spoon • 1 washer • 2 wooden blocks with hooks • 1 cardboard half-pipe • 1 rubber band*
4.1	2	X		Each pair of students will receive one set of investigation materials: • 2 ring magnets • 1 pencil • 1 piece of string (8 inches long) • 4 pieces of masking tape (1 inch each)
4.2	1	X		For Each Pair of Students: • 2 ring magnets • 1 large pieces of cardboard (7" x 3.5") • 1 small pieces of cardboard (3.5" x 2") • 1 plastic cup • 1 paper clip with a piece of string (about 8" long) tied to it • several pieces of masking tape • 4 sticky notes • 1 copy of Handbook of Forces

- Open Your **Lesson Guides Only**
- Start with **Chapter 1** and look for the **hands icon**
- Go into the lesson **materials and prep**



JUMP DOWN TO UNIT GUIDE

GENERATE PRINTABLE TEACHER'S GUIDE

Full Teacher's Guide
(Includes Unit Guide & all 22 Lesson Guides)

Lesson Guides Only
(Includes Unit Guide & all 22 Lesson Guides)

OPEN IN NEW TAB

RESET LESSON

Overview
Materials & Preparation
Differentiation
Standards
Vocabulary
Unplugged?

Overview

Through reading an informational text, students continue to explore how organisms can be similar and different. Students read the book *Blue Whales and Buttercups*, which provides many examples of the great diversity of organisms on Earth and the many ways in which they can be similar and different. Students are introduced to the sense-making strategy of asking questions and use this strategy to help them understand and engage with the book. The purpose of this lesson is to introduce students to the concept that even though organisms can be quite different, they are all related.

Chapter 3: Why isn't
lf 44 like the
on Valley Pack in
ting style and...

6 Lessons

Inheritance and Traits Lesson Guides

Chapter 1
Activities



Chapter 1 Activities

Lesson 1.1: Pre-Unit Assessment

- 1 Introducing the Unit
- 2 Writing Initial Explanations
- 3 Introducing the Investigation Notebook
- 4 Previewing the Reference Book

TEACHER-LED DISCUSSION
WRITING
TEACHER-LED DISCUSSION
STUDENT-TO-STUDENT DISCUSSION

Lesson 1.2: Blue Whales and Buttercups

- 1 Introducing Asking Questions
- 2 Partner Reading
- 3 Reflecting on Relatedness

TEACHER-LED DISCUSSION
READING
TEACHER-LED DISCUSSION

Lesson 1.3: Observing Similarities and Differences

- 1 Observing Similarities and Differences in Animals
- 2 Observing Bird Traits
- 3 Thought Swap

STUDENT-TO-STUDENT DISCUSSION
STUDENT-TO-STUDENT DISCUSSION



HANDS-ON

Lesson 1.4: Introducing Species

- 1 Observing Bird Sounds
- 1 Identifying Songbirds
- 2 Sorting Bear Species
- 3 Introducing the Problem Students Will Investigate

TEACHER
TEACHER-LED DISCUSSION
HANDS-ON
TEACHER-LED DISCUSSION

Questions?





Plan for the day: Part 1

- Introduction and Framing
- Phenomenon-based Instruction
- Unit Internalization
- Additional Resources
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Next Generation Science Standards

Phenomenon-based learning and teaching

A scientific phenomenon is an **observable event** that occurs in the universe that we can use science ideas to explain or predict.

Comparing topics and phenomena

Topic-based	Phenomenon-based
Chemical reactions	There's a reddish-brown substance in a town's tap water.

Next Generation Science Standards

How might learning be different?

Topic-based	Phenomenon-based
Chemical reactions	There's a reddish-brown substance in a town's tap water.
Electric circuits	A flashlight won't turn on, even though it used to work.
Natural selection	A population of newts has become more poisonous over time.

Comparing topics and phenomena

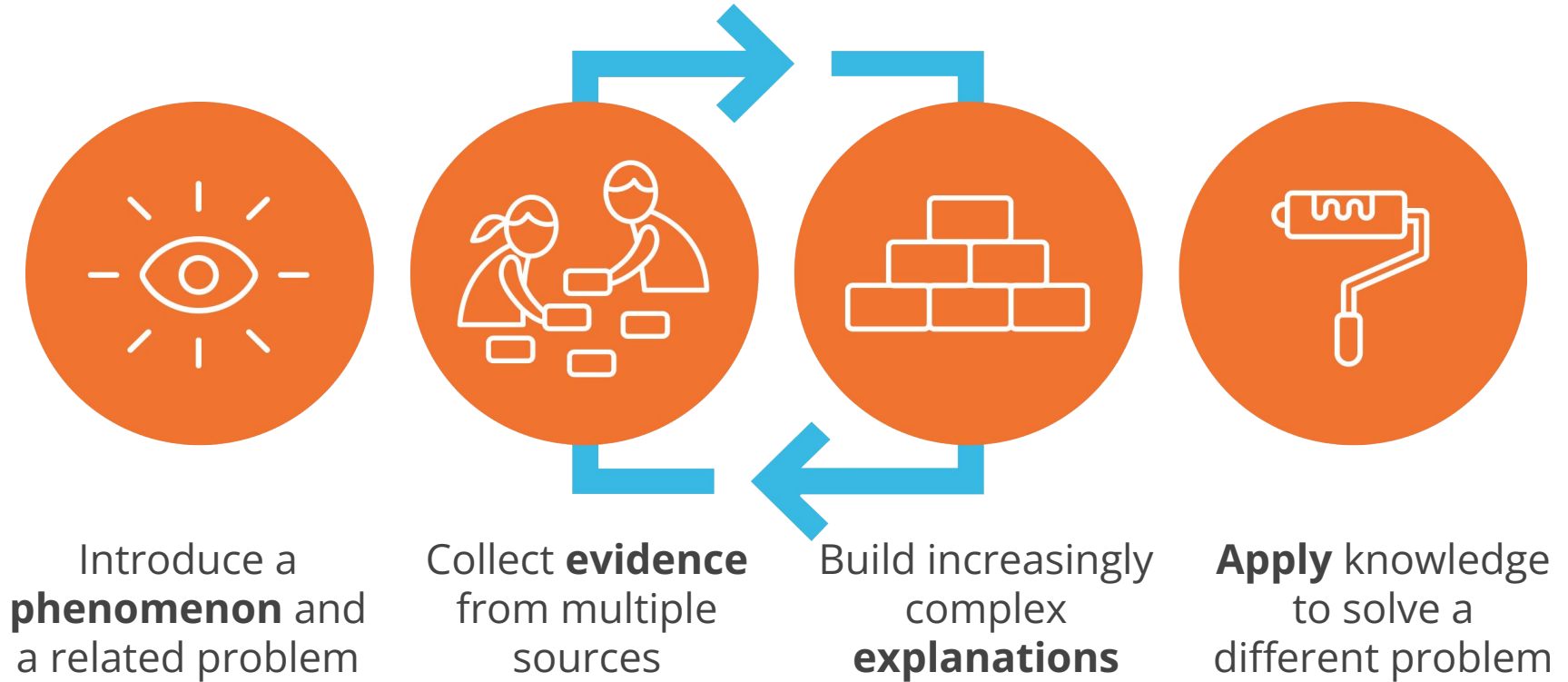
A shift in science instruction

from learning about
(like a student)



to figuring out
(like a scientist)

Amplify Science Approach

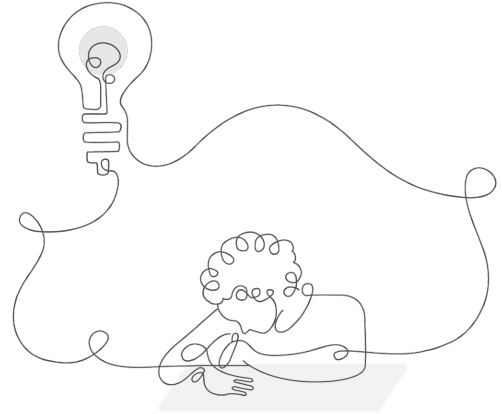


Previewing the unit

Introducing the phenomenon

Amplify Science units are designed around complex phenomena that drive student learning through the unit.

Pay attention to the phenomenon, or observable event, students will figure out in your unit.



The unit we're beginning is called *Energy Conversions: Blackout in Ergstown*.

In this unit, you will **investigate why blackouts occur and come up with solutions to prevent them.**

Ergstown



This picture shows a town we'll call Ergstown.



What do you **see** in the picture?

Ergstown: a Few Moments Later



This is an image of the same town just a few moments later.



How is this picture different?

What do you think is going on in the picture?

Ergstown: Later That Night



What do you notice in this picture?



Have you ever been in a blackout? What was it like?



Why might blackouts be a problem?



To: Systems Engineers

From: Mayor Joules, Ergstown City Hall

Subject: Improvements to the Electrical System

Recently, Ergstown has been experiencing frequent blackouts. Blackouts can be dangerous and inconvenient, so I need a team to figure out how the electrical system can be improved.

Before the team can begin to solve this problem, it will first need to figure out why the blackouts have been happening. I would like to receive updates as the team discovers possible causes of the blackouts and as the team comes up with ideas about how to improve the electrical system.

The town of Ergstown will be very grateful to anyone who can help us solve our blackout problem!

Amplify Science

Anchoring phenomenon

- Complex and rich
- Drives learning through a whole unit
- Specific and observable
- Relatable at students' developmental level





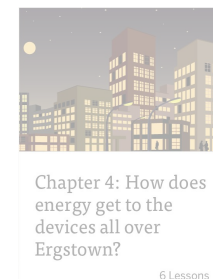
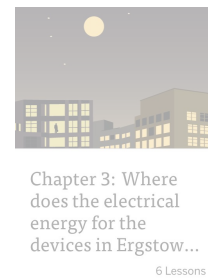
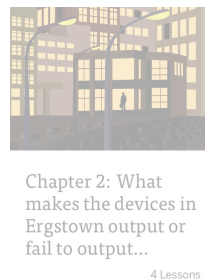
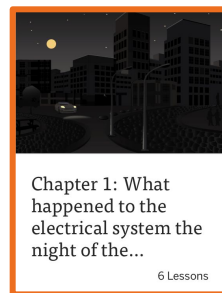
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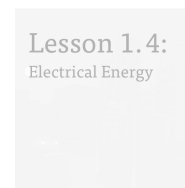
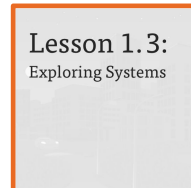
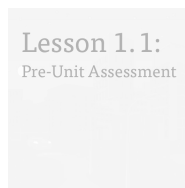
Unit



Chapters



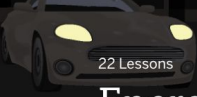
Lessons



Activities



Let's Go Live!



22 Lessons

Energy Conversions

Printable Teacher Guide

- Unit Overview
- Chapters
- Printable Resources
- Planning for the Unit
- Teacher References
- Offline Preparation

Unit Overview

What's in This Unit?

The electrical system, our nation's ne...
our lives and increasingly in the news...
how energy is converted from one fo...
sources that exist.

[Read more](#)

Chapters

Chapter 1: What happens

LESSON 1.1
Pre-Unit Assessment

LESSON 1.2
Introducing Systems

LESSON 1.3
Exploring Systems

AmplifyScience > Energy Conversions > Chapter 1 > Lesson 1.1

Lesson 1.1: Pre-Unit Assessment

Lesson Brief (3 Activities)

- 1 WRITING
Students Write Initial Explanations
- 2 TEACHER-LED DISCUSSION
Introducing the Problem
- 3 TEACHER-LED DISCUSSION
Introducing Investigation Notebooks

RESET LESSON

GENERATE PRINTABLE LESSON GUIDE

Overview

Students' Initial Explanations

In this unit, students investigate what might cause an electrical system to fail, and they design solutions to improve the electrical

Digital Resources

- Classroom Slides 1.1 | PowerPoint
- Classroom Slides 1.1 | Google Slides

Navigation summary

1. CLICK the caret to select your grade-level.
2. Select your first unit.
 - a. You are now on the Unit Landing Page.
3. Expand the **Planning for the unit** menu.
 - a. Or scroll down below the lesson buttons.



Unit Level resources

Collection of resources to support planning and day-to-day instruction in the unit:

- Printable Resources
- “Planning for the Unit” documents
- Teacher References

The screenshot displays the Amplify website interface for the 'Energy Conversions' unit. The top navigation bar includes 'Amplify', 'CURRICULUM', 'CLASSWORK', 'REPORTING', 'PROGRAMS & APPS', and 'NATIONALSCIENCE TEACHER'. The left sidebar lists navigation options: 'Unit Overview' (selected), 'Chapters', 'Printable Resources', 'Planning for the Unit', 'Teacher References', and 'Offline Preparation'. The main content area is titled 'Unit Overview' and includes a section 'What's in This Unit?' with a paragraph about the electrical system and a 'Read more' link. Below this is a 'Chapters' section for 'Chapter 1: What happened to the electrical system the night of the blackout?'. It features six lesson cards: Lesson 1.1 Pre-Unit Assessment, Lesson 1.2 Introducing Systems, Lesson 1.3 Exploring Systems, Lesson 1.4 Electrical Energy, Lesson 1.5 Forms of Energy, and Lesson 1.6 Writing an Argument About the Blackout. The bottom left shows language options for English and Español, and the bottom right has a chat icon.

Key Unit Documents for Unit Planning

The image shows a screenshot of a digital unit planning interface for 'Energy Conversion'. The interface is divided into several sections, with green arrows highlighting key documents for unit planning.

Unit Overview Section:

- Unit Overview
- Chapters
- Printable Resources
- Planning for the Unit ^
- Unit Map
- Progress Build
- Getting Ready to Teach
- Materials and Preparation
- Science Background
- Standards at a Glance
- Teacher References ^
- Lesson Overview
- Compilation
- Standards and Goals
- 3-D Statements
- Assessment System
- Embedded Formative Assessments
- Books in This Unit
- Apps in This Unit
- Opportunities for Unit Extensions
- Flextensions in This Unit
- Offline Preparation

Printable Resources Section:

- 3-D Assessment Objectives
- Copymaster Compilation
- Eliciting and Leveraging Students' Prior Knowledge, Personal Experiences, and Cultural Backgrounds
- Investigation Notebook
- NGSS Information for Parents and Guardians
- Print Materials (11" x 17")
- Coherence Flowcharts
- Crosscutting Concept Tracker
- Flextension Compilation
- Multi-Language Glossary
- Print Materials (8.5" x 11")

Chapters Section:

- Chapter 1: V
- LESSON 1.1
- LESSON 1.4: Electrical Energy
- LESSON 1.5: Forms of Energy
- LESSON 1.6: Writing an Argument

Annotations:

- Four green arrows point to the 'Unit Overview', 'Chapters', 'Printable Resources', and 'Planning for the Unit' links in the left sidebar.
- Four green arrows point to the 'Unit Overview', 'What's', 'The electricity', and 'Read more' links in the main content area.
- A green arrow points from the '3-D Assessment Objectives' link in the 'Printable Resources' section to the 'Coherence Flowcharts' link in the 'Printable Resources' section.

Key Unit Documents for Unit Planning

The image shows a digital interface for unit planning in a science curriculum, specifically for the 'Energy Conversion' unit. The interface is divided into several sections, with green arrows highlighting key documents and resources for unit planning.

Unit Overview Section:

- Unit Overview
- Chapters
- Printable Resources
- Planning for the Unit ^
- Unit Map
- Progress Build
- Getting Ready to Teach
- Materials and Preparation
- Science Background
- Standards at a Glance
- Teacher References ^
- Lesson Overview
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Chapters Section:

- Chapter 1: V
- LESSON 1.1
- LESSON 1.4: Electrical Energy
- LESSON 1.5: Forms of Energy
- LESSON 1.6: Writing an Argument

Annotations:

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Core Unit Planning & Internalization

Unit Title:		1
Overview [Resources: Unit Overview, Teacher's Guide, Coherence Flowchart, Unit Map, 3-D Statements]		
What is the phenomenon/real-world problem students are investigating in your unit?	Student Role:	2 3
Unit Question:	Relationship between the Unit Phenomenon and Unit Question:	4 5
By the end of the unit, students figure out...		6
How do students engage with three-dimensional learning to figure out the phenomenon/real-world problem in your unit?		7

Unit Guide resources:

- Unit Overview
- Unit Map
- Coherence Flowchart

Unit Guide resources:

- Lesson Overview Compilation
- Unit Overview

Unit Guide resources:

- Unit Map

Unit Guide resources:

- 3D Statements at the Unit Level

Core Unit Planning & Internalization

Unit Title:

Energy Conversions

Overview

[Resources: Unit Overview, Teacher's Guide, Coherence Flowchart, Unit Map, 3-D Statements]

<p>What is the phenomenon/real-world problem students are investigating in your unit?</p> <p>Why does Ergstown keep having blackouts?</p>	<p>Student Role:</p> <p>Systems Engineers</p>
<p>Unit Question:</p> <p>How does the electrical system work?</p>	<p>Relationship between the Unit Phenomenon and Unit Question:</p> <p>Understanding Ergstown electrical system provides a unique context for students to learn about how energy is converted from one form to another, how it can be transferred from place to place, and the variety of energy sources that exist.</p>
<p>By the end of the unit, students figure out...</p> <p>The devices won't function if the wires that connect the source converter and the devices are broken. 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.</p>	
<p>How do students engage with three-dimensional learning to figure out the phenomenon/real-world problem in your unit?</p> <p>Students investigate—through firsthand experiences, a digital model, and by obtaining information by reading—how electrical systems convert and transfer energy. They use what they learn to design, test, and evaluate improvements to cause the electrical system to be more reliable, even during natural hazards and to make arguments based on evidence for the best improvements (cause and effect).</p>	



Questions?



Plan for the day: Part 1

- Introduction and Framing
- Phenomenon-based Instruction
- Unit Internalization
- **Additional Resources**
- Closing

Additional resources

Welcome, caregivers!

We hope you enjoy learning more about Amplify Science and what students are learning in science this year.

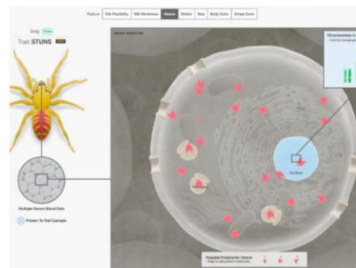
[Para acceder a este sitio en español haga clic aquí.](#)

Amplify welcomes you and your learner to the Science program for the new school year. We are very excited to provide you with exceptional learning opportunities through Science. Below are resources and helpful guides for enabling your student to have the most productive experience with our platform throughout the year.

 [Contact Us](#)



Grades 6-8



LAUSD Microsite-

<https://amplify.com/laUSD-science>

Welcome to Amplify Science!

This site contains supporting resources designed for the LAUSD Amplify Science adoption for grades TK–8.

- Access the [Amplify Science Program Hub](#) (To help orient you to the new design, watch this [video](#) and view this [reference guide](#).)
- Find out more about [Amplify Science@Home](#)
- Share the [Caregiver Hub](#) (Eng/Span) with your families
- For LAUSD ES Teachers- [Amplify Science & Benchmark Advance Crosswalk](#)
- Instructional guidance for a [Responsive Relaunch of Amplify Science in 21-22](#)

Click the button below to preview the digital Teacher's Guide, and check back for exciting updates to this site!



Program Hub

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

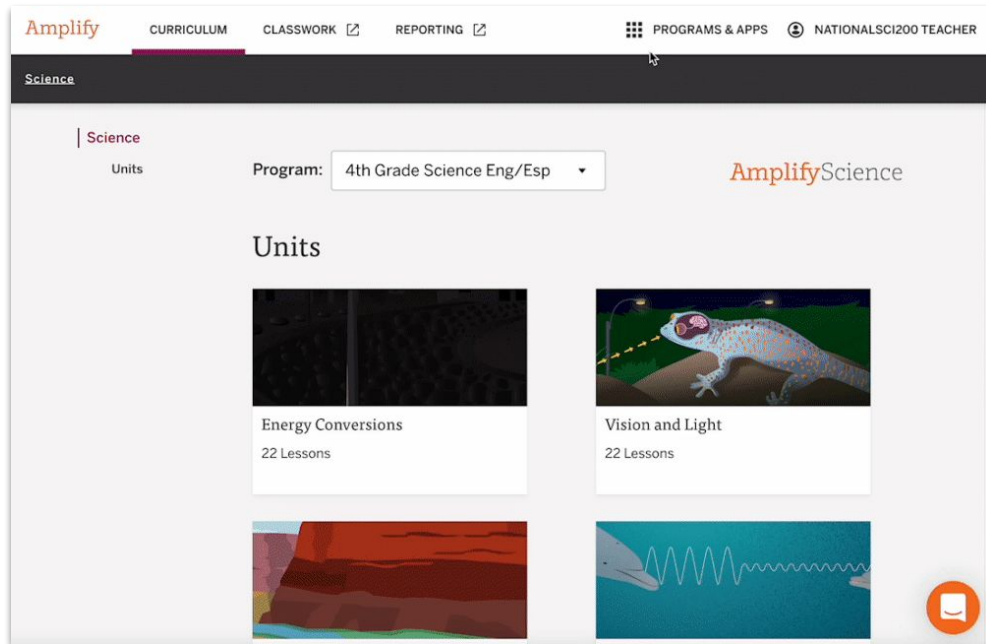
The screenshot shows the Amplify Science Program Hub interface. The top navigation bar includes links for CURRICULUM, CLASSWORK, and REPORTING. The main content area displays the title "Lesson 1.1: Pre-Unit Assessment" over a dark background image of a city skyline. Below the title is a button labeled "Printable Lesson Guide". At the bottom, there is a progress bar with three steps: 1. WRITING: Students Write Initial Explanations, 2. TEACHER-LED DISCUSSION: Introducing the Problem, and 3. TEACHER-LED DISCUSSION: Introducing Investigation Notebooks. A "RESET LESSON" button is located at the bottom left.

The screenshot shows the Amplify Science Program Hub interface. The top navigation bar includes links for CURRICULUM, CLASSWORK, and REPORTING. The main content area displays the title "Units" and a dropdown menu for "Program: 4th Grade Science Eng/Esp". Below the title, there is a section titled "Units" with a grid of unit cards. One card is visible, titled "Vision and Light" with "22 Lessons". A red circle highlights the "PROGRAMS & APPS" link in the top navigation bar. Below the main content area, there is a section titled "Welcome Science Educators!" with a message: "The Amplify Science Program Hub was created to provide you with resources, tools, and advice for all stages of your implementation. Want a tour? Click [here](#)!". Below this message are three cards: "Remote and hybrid learning resources", "Professional Learning Resources", and "Additional Unit Materials". A red circle highlights the "Remote and hybrid learning resources" card.

Explore the Program Hub

Familiarize yourself with the Program Hub.

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





Plan for the day: Part 1

- Introduction and Framing
- Phenomenon-based Instruction
- Unit Internalization
- Additional Resources
- Closing

Overarching goals

- ✓ Explain how students engage in phenomenon based and 3D learning to construct an understanding of the science concepts introduced in the unit
- ✓ Internalize the unit and apply your new understanding to plan for the diverse needs of your classroom and students



Closing reflection

Based on our work in Part 1, share:

Head: something you'll keep in mind

Heart: something you're feeling

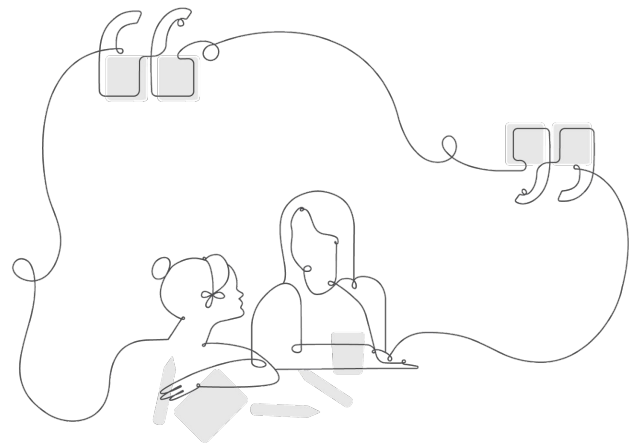
Feet: something you're planning to do

Onsite Upcoming Professional Development!

Part 3: Unit 1 - Supporting English Learners

- October 15th (Alta California ES, NW)
- October 29th (Ochoa Learning Center, East)

In this session, participants explore strategies to support English learners' ability to do, talk, read, write, visualize, and construct arguments like scientists. Participants will identify the supports and strategies embedded in Unit 1 by engaging in model activities followed by independent planning.



Additional resources and ongoing support

Customer Care

Seek information specific to enrollment and rosters, technical support, materials and kits, and teaching support, weekdays 7AM-10PM EST and weekends 10AM-6PM EST.



help@amplify.com



800-823-1969



Amplify Chat



Please provide feedback!

Type:

Strengthen

Session title:

Unit Internalization / Guided Planning

(Part 1)

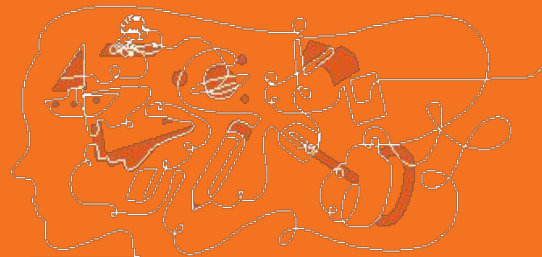
Professional Learning Specialist name:

Insert name

(insert email, if you would like)

Part 2:

Guided Lesson Planning



Welcome to Amplify Science!

or use Demo Account

1. Go to **learning.amplify.com**
2. Select **Log in with Amplify**
3. If you're already logged in with other Google accounts, click **Use another account**
4. Enter teacher demo account credentials
 - UN: californiasci60@pd.tryamplify.net
 - PW: AmplifyNumber1
5. Explore as we wait to begin

Do Now: Log in through your Schoology account

Welcome to **Amplify**

G

Log In with Google

C

Log In with Clever

A.

Log In with Amplify



SSO login

Amplify Science

Unit Internalization / Guided Planning

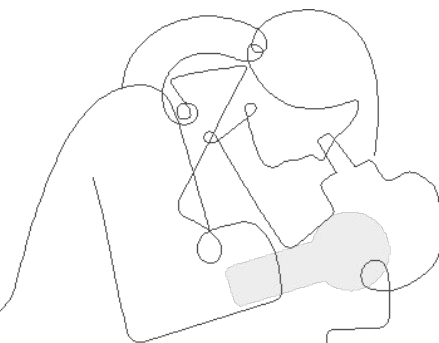
Grade 4, Unit 1: Energy Conversions

Part 2

School/District Name: LAUSD

Date: October, 2022

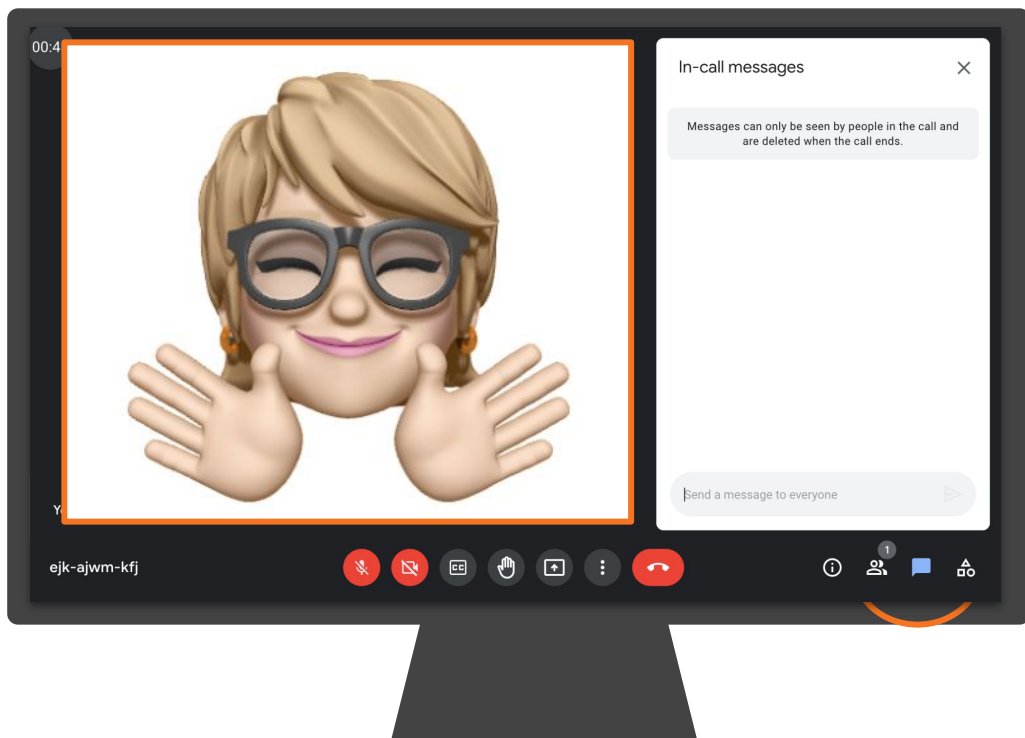
Presented by:



Ice Breaker!

Who do we have in the room today?

- **Question 1:** Which aspects of implementing the Amplify Science standard curriculum has been the most successful?
- **Question 2:** Which aspects have been the most challenging?



Amplify's Purpose Statement

Dear teachers,

You do a job that is nearly impossible and **utterly essential**.

We are in your corner – extending your reach, saving you time, and enhancing your understanding of each student.

Thank you for working with us to craft rigorous and riveting learning experiences for your classroom.

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

Sincerely,
Amplify

Norms: Establishing a culture of learners

- **Take risks:** Ask any questions, provide any answers.
- **Participate:** Share your thinking, participate in discussion and reflection.
- **Be fully present:** Unplug and immerse yourself in the moment.
- **Physical needs:** Stand up, get water, take breaks.

Schoolology



[← Back to Schoolology Home Page](#)

LMS App Center

The LMS App Center provides a catalog of District-approved digital content and learning tools (including digital components of adopted textbooks) that are available for classroom teachers and students to access within the learning management system, Schoolology.

For information on District-approval policies and procedures, please visit: [udipplausd.net](#).

- To search the full list of digital learning tools, click "Submit".
- To search by Publisher Name or Textbook Title, type in a word associated to your adopted publisher, then click "Submit".
- To narrow your search with filters such as Content Area, Grade Level, or Content Type, select from the dropdown menu, then click "Submit".

To learn more about using the LMS App Center, please refer to the following video overview.

Publisher Name Starts With

Content Area All

Grade Level All

Content Type All

Textbook Title Starts With

Submit

All Amplify Products



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[← Search Again](#)

Amplify

Content Area: ELA
Grade Level: ES
Content Type: Supplemental
Integration Type: App (Left Navigation)
Purchase Type: District and School
Getting Started Guide
Other Info: School licenses required
mCLASS
CKLA
Amplify Reading
Amplify Science
Creative

Vendor Support Desk:
P: 800.823.9969
E: help@amplify.com
S: amplify.com/support/
Textbook Title(s):
NA



Vendor Support Desk:
P: 800.823.9969
E: help@amplify.com
S: amplify.com/support/
Textbook Title(s):
NA

op is for only)

Join Amplify Science Schoology Group

To join Amplify Science Schoology
ES Group: W4PK-W466-63F5B

Navigation Temperature Check

Rate yourself on your comfort level accessing Amplify Science materials and navigating a digital curriculum.

1 = Extremely Uncomfortable

2 = Uncomfortable

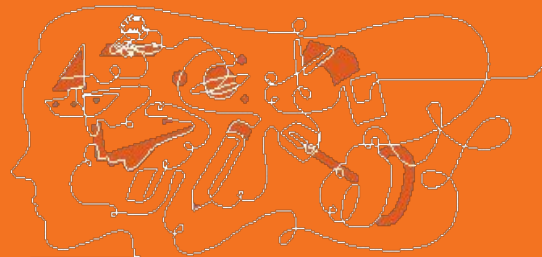
3 = Mild

4 = Comfortable

5 = Extremely Comfortable

Part 2:

Guided Lesson Planning

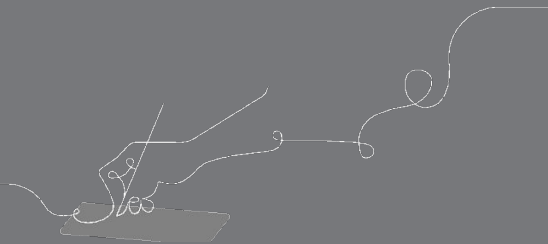


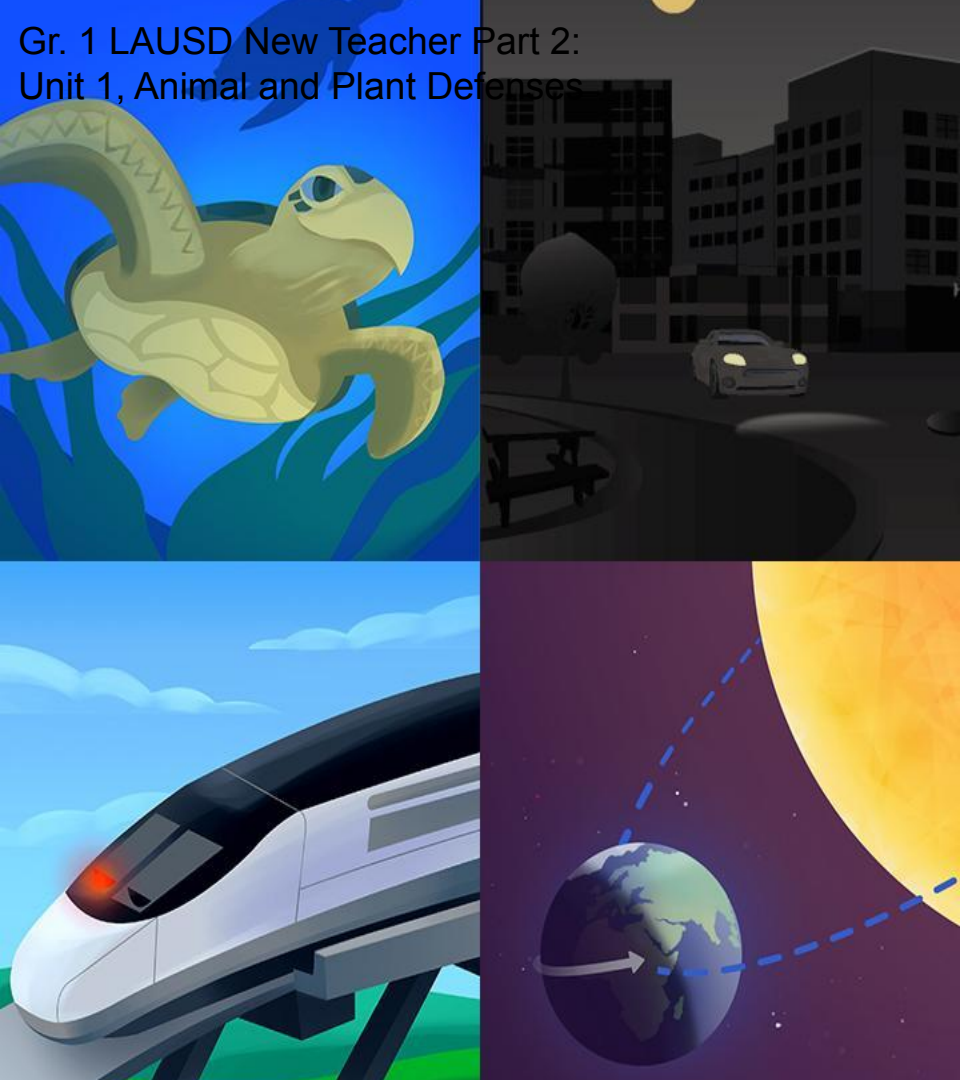
Overarching goals

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

- ❑ Describe what teaching and learning look like in Amplify Science.
- ❑ Prepare to teach using Amplify Science resources.

e





Plan for the day: Part 2

- Teaching and Learning in an Amplify Science Lesson
- Instructional Approach Reflection
- Planning a Lesson
- Closing

Amplify Science Approach



Energy Conversions



How does the electrical system work?

A power failure is a real-life lesson in how much our society relies on electrical energy. Through this unit, students will better understand the parts of the electrical system and how vital it is to modern life.

Energy Conversions



Problem: Why does Ergstown keep having blackouts?

Role: Systems Engineers

Through firsthand experiences, discourse, reading, writing, and engaging with a digital simulation, students make discoveries about the way electrical systems work. Then, students apply what they have learned as they choose new energy sources and energy converters for the town,

Coherent Storylines



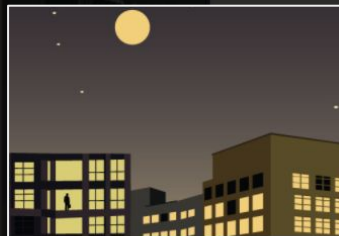
Chapter 1: What happened to the electrical system the night of the...

6 Lessons



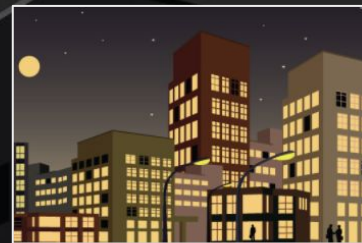
Chapter 2: What makes the devices in Ergstown output or fail to output...

4 Lessons



Chapter 3: Where does the electrical energy for the devices in Ergstown...

6 Lessons



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

6 Lessons

Explaining the phenomenon: Science Concepts



What **science concepts** do you think students need to understand in order to **explain the phenomenon**?

Progress Build

Energy Conversions

Assumed prior knowledge (preconceptions): Students are likely to recognize that many familiar devices need electricity to function.

Level 1

Devices work by converting electrical energy to another form.

Level 2

Energy must be supplied from a source and converted or there is no electrical energy available for devices to convert.

Level 3

Electrical energy can be transferred by wires connecting the source converter to the device.

Beginning the Unit

The first lesson of every Unit is a pre-unit assessment.

Chapters

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



LESSON 1.1
Pre-Unit Assessment



LESSON 1.2
Introducing Systems



LESSON 1.3
Exploring Systems



LESSON 1.4
Electrical Energy



LESSON 1.5
Forms of Energy



LESSON 1.6
Writing an Argument
About the Blackout

Energy Conversions - Family Connection

3

TEACHER-LED DISCUSSION
Introducing Investigation
Notebooks

RESET LESSON

GENERATE PRINTABLE LESSON GUIDE

Overview
Materials & Preparation
Differentiation
Standards
Vocabulary
Unplugged?

Overview

Students' Initial Explanations

In this unit, students investigate what might cause an electrical system to fail, and they design solutions to improve the electrical system in order to reduce blackouts. In this Pre-Unit Assessment, students are presented with a simple illustration of a town and asked to explain why they think a lamp in one of the houses will not turn on. The explanations they provide in this lesson serve as a Pre-Unit Assessment for formative purposes, designed to reveal students' initial understanding of the unit's core content, both unit-specific science concepts and the crosscutting concept of Systems and System Models, prior to instruction. As such, students' explanations offer a baseline from which to measure growth of understanding over the course of the unit. These explanations can also provide the teacher with insight into students' thinking as they begin this unit of instruction. This three-dimensional assessment will allow the teacher to draw connections to students' experiences and to watch for preconceptions that might get in the way of students' understanding. In the second half of the lesson, students are introduced to their role as engineers and to the problem they will tackle in this unit: how to design improvements to an electrical system in order to prevent blackouts. Students will then receive their Investigation Notebooks and learn some of the ways that scientists use notebooks.

Digital Resources

- Classroom Slides 1.1 | PowerPoint
- Classroom Slides 1.1 | Google Slides
- All Projections
- Pre-Unit Writing: Explaining Why The Lamp Won't Turn On copymaster
- Assessment Guide: Interpreting Students' Unit Explanations About Why the Lamp Won't Turn On
- Energy Conversions Investigation Notebook
- Questioning Strategies for Grades 2–5
- Energy Conversions Family Connections Homework
- Eliciting and Leveraging Students' Prior Knowledge, Personal Experiences, and Cultural Backgrounds
- Crosscutting Concept Tracker

Name: _____ Date: _____

Energy Conversions Family Connections Homework

1. Choose a member of your household and tell them about what we are investigating in science class.
2. Ask them about their experiences, ideas, and questions related to our investigations.
3. Write notes about what you learn.

Summary of our investigation you can share:

In science class, we are working as systems engineers to figure out how to solve Ergstown's problem with frequent blackouts. We will be answering the question, *How does the electrical system work?*

Ask questions such as:

- What does our investigation make you think of?
- Do you have any memories, stories, expertise, or experiences about something like what we're investigating?
- What have you heard or learned about these topics?
- What do you wonder about what we are investigating?

Write notes here about what you learn:

Beginning the Unit

Model lesson 1.2

Chapters

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



LESSON 1.1
Pre-Unit Assessment



LESSON 1.2
Introducing Systems



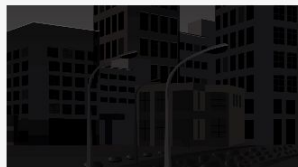
LESSON 1.3
Exploring Systems



LESSON 1.4
Electrical Energy



LESSON 1.5
Forms of Energy



LESSON 1.6
Writing an Argument
About the Blackout

A stylized, dark illustration of a city at night. Several tall buildings with many windows are visible. A large, bright yellow sun or moon is in the upper left sky. Small stars are scattered across the dark sky. In the foreground, a car with its headlights on is parked on the left, and a street lamp is in the center. The overall tone is dark and atmospheric.

Grade 4 | Energy Conversions

Lesson 1.2: Introducing Systems

Activity 1

Reflecting on the Unit Problem



Ergstown: Later That Night



Remember you are taking on the role of systems engineers to help Ergstown.



What are your ideas about **what your job will be** as systems engineers?



Chapter 1 Question

What happened to the electrical system the night of the Ergstown blackout?





What do you **recall** was happening in each of these scenes from Ergstown?

Ergstown



Ergstown: a Few Moments Later



Ergstown: Later That Night



Today, we are going to investigate this question:

What is a system?

Activity 2

Observing a Simple System





What are some **systems** you have heard of before?

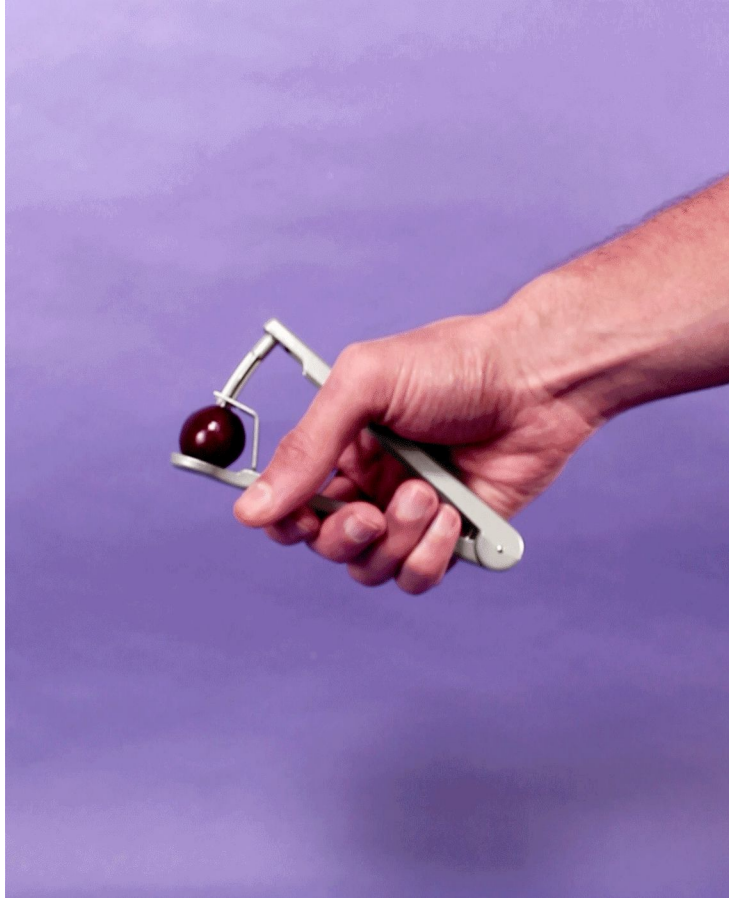


We will use this **mystery system** as an example for you to begin understanding what a system is.



What do you observe about how the mystery system works?

What do you think the mystery system might be used for?



Observe the system carefully to see how it works.

_____ System

Part				
Function				

System function: _____

Cherry Pitter System

Part	handle	cherry cup	poker	spring
Function	to hold and squeeze	to hold the cherry in place	to push the pit out of the cherry	to open the handle after you squeeze it closed

System function: To take the pits out of the cherries.

Vocabulary



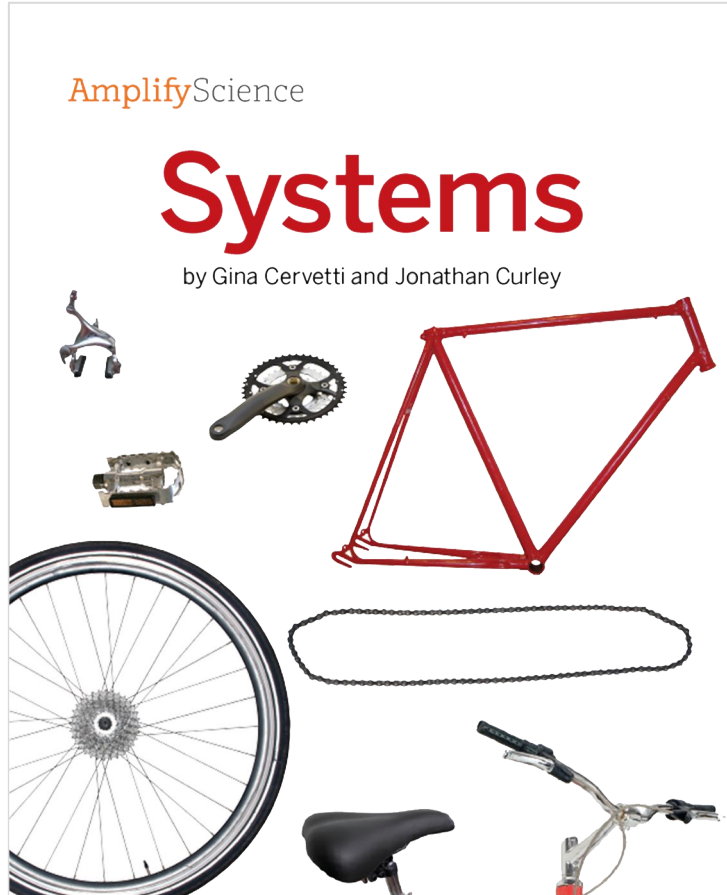
function

what something can do

Activity 3

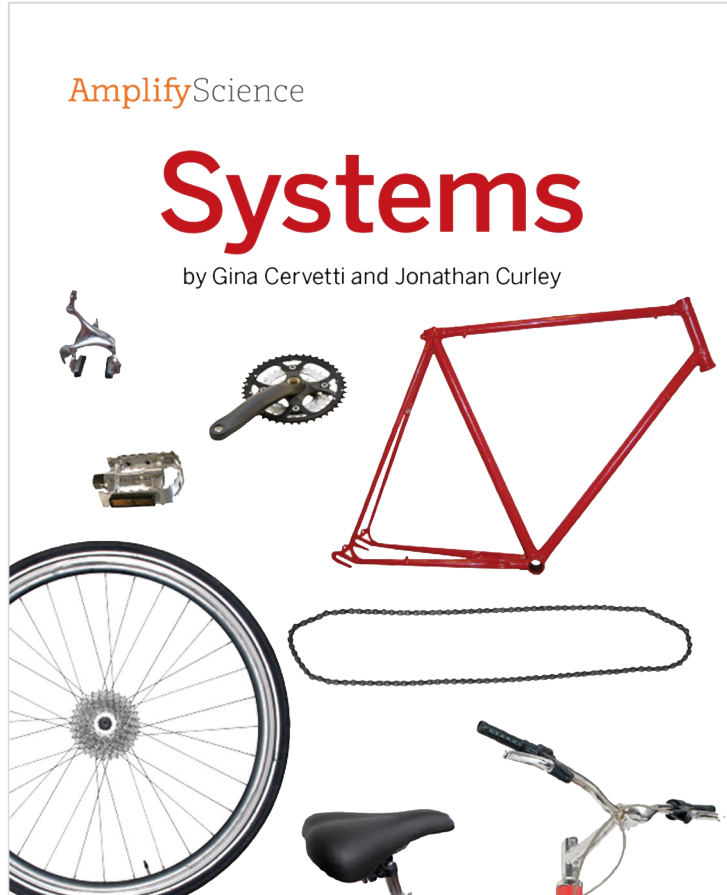
Introduction to Synthesizing





Reading this book will help us answer the Investigation Question:

What is a system?



As we read, we will practice **making connections** between what we read and what we already know.

What Makes a Wheel a Wheel?

This is a wheel from a bicycle. You have probably seen a bicycle wheel before, but have you ever really thought about why a wheel is the way it is?

It's the **structure** of a wheel—the way the wheel is shaped and built—that makes it a wheel. This wheel is round and has long, thin spokes crossing in the middle. The spokes keep the wheel from bending out of shape.

Why is the structure of the wheel important? Its structure has to do with its **function**—what it does or what it is used for. The function of this wheel is to roll so that the bicycle can move forward.

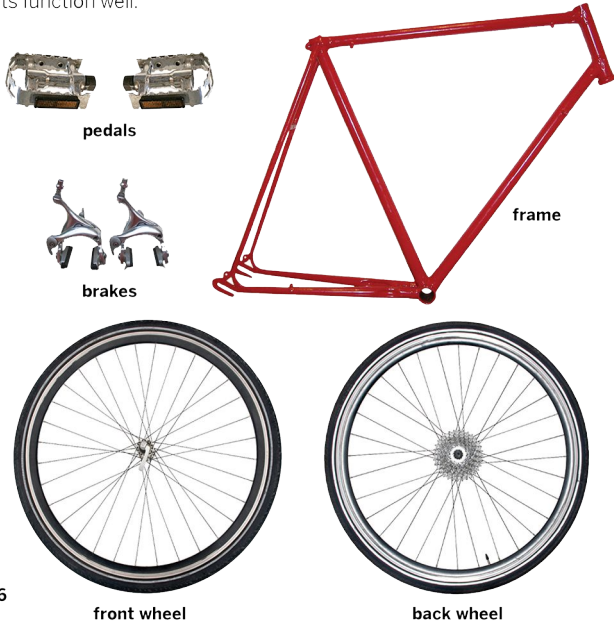
Turn to page 5.



Who would like to read this page aloud?

Bicycle Parts

A wheel is just one part of a bicycle. A bicycle is made of lots of parts. One bike can have more than 100 different parts. Each part of a bicycle has a function and a structure that helps the part perform its function well.



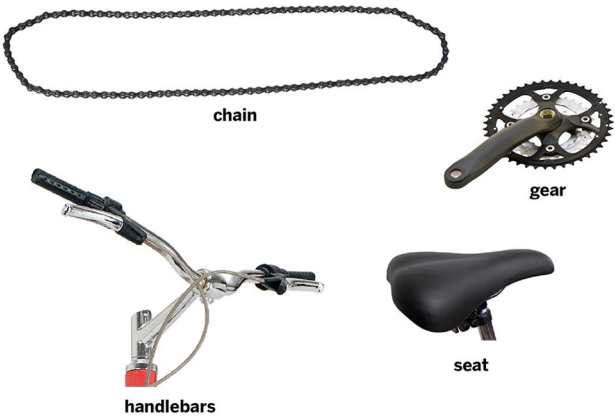
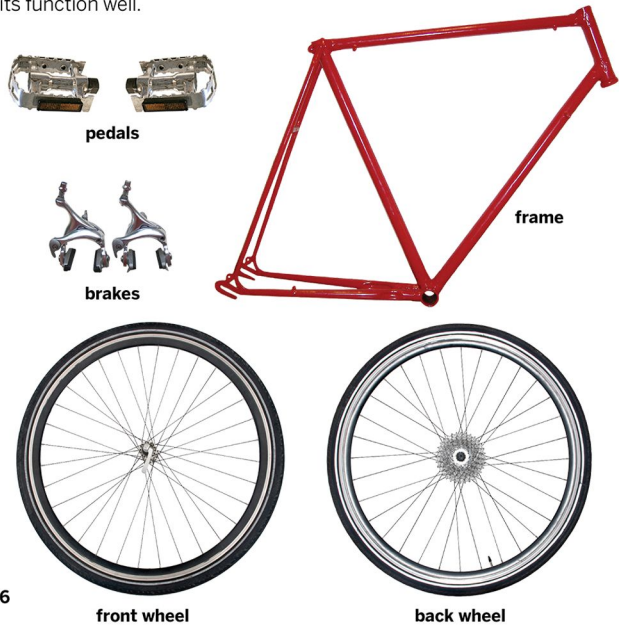
Turn to page 6.



Who would like to read this page aloud?

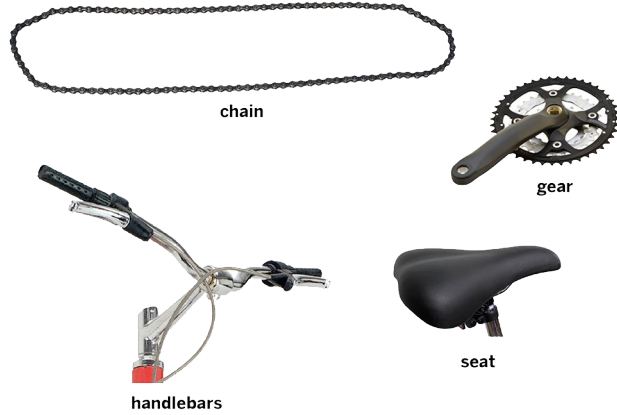
Bicycle Parts

A wheel is just one part of a bicycle. A bicycle is made of lots of parts. One bike can have more than 100 different parts. Each part of a bicycle has a function and a structure that helps the part perform its function well.



This **table** lists some bicycle parts and the function of each part.

Part	Function
seat	holding up the person who is riding the bike
handlebars	steering the bike
frame	holding the other parts of the bike together
pedal	<i>What is the function of the pedal?</i>



This **table** lists some bicycle parts and the function of each part.

Part	Function
seat	holding up the person who is riding the bike
handlebars	steering the bike
frame	holding the other parts of the bike together
pedal	<i>What is the function of the pedal?</i>

This **table** provides more information about the bicycle.

It lists bicycle **parts** and the **function** of each part.

A Bicycle Is a System

Of course, bike parts don't do much good unless they are all put together to make a bicycle. You can't ride just a wheel! A bicycle with all its parts connected is a **system**.

A system is a group of parts that work together. When the pedals on a bicycle move, they turn the gear. When the gear turns, it moves the chain. The moving chain makes the back wheel turn—and that pushes the bicycle forward. The handlebars are connected to the frame. The handlebars, frame, and front wheel work together for steering. All the parts of a bicycle have to work together for the bicycle to work.



Turn to page 8.



Who would like to **read** the first paragraph?

A Bicycle Is a System

Of course, bike parts don't do much good unless they are all put together to make a bicycle. You can't ride just a wheel! A bicycle with all its parts connected is a **system**.

A system is a group of parts that work together. When the pedals on a bicycle move, they turn the gear. When the gear turns, it moves the chain. The moving chain makes the back wheel turn—and that pushes the bicycle forward. The handlebars are connected to the frame. The handlebars, frame, and front wheel work together for steering. All the parts of a bicycle have to work together for the bicycle to work.



A bicycle is a **system** and a cherry pitter is a **system**.



Vocabulary



synthesize

to put together multiple pieces of information in order to understand something

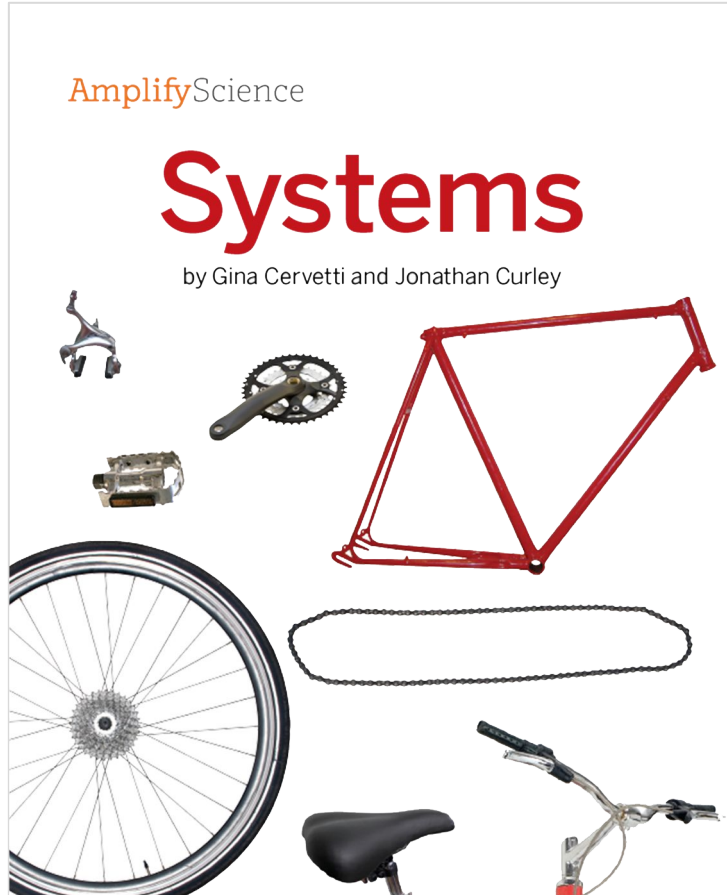
Activity 4

Reading: Systems

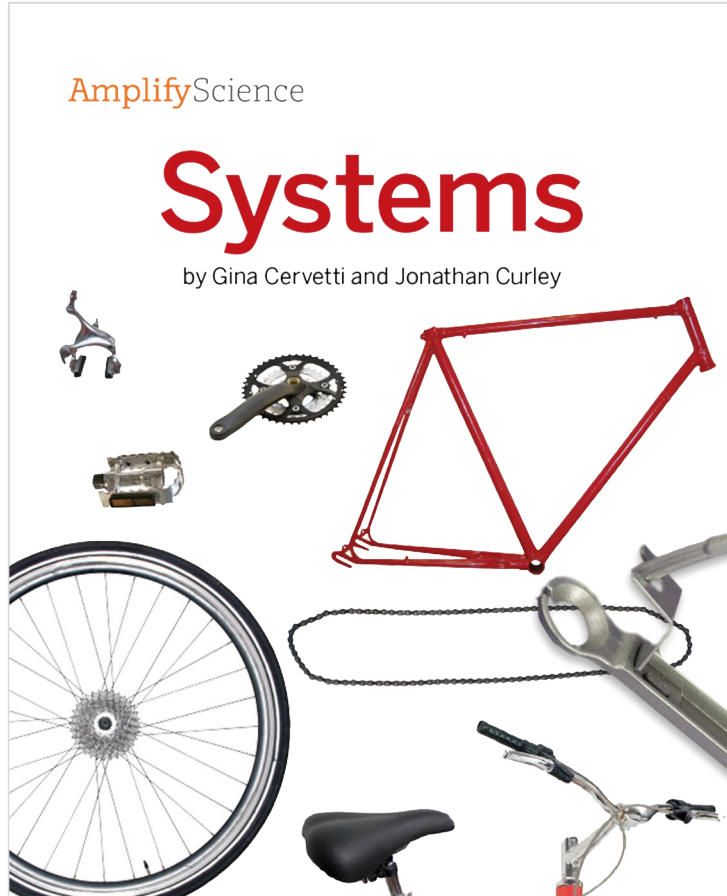


Partner Reading Guidelines

1. Sit next to your partner and place the book between you.
2. Take turns reading.
3. Read in a quiet voice.
4. Be respectful and polite to your partner.
5. Ask your partner for help if you need it. Work together to make sure you both understand what you read.



As you read, **make connections** and discuss your new ideas about systems with your partners.



You have just observed a cherry pitter system and read about systems.



What new understandings do you have about systems?

End of Lesson



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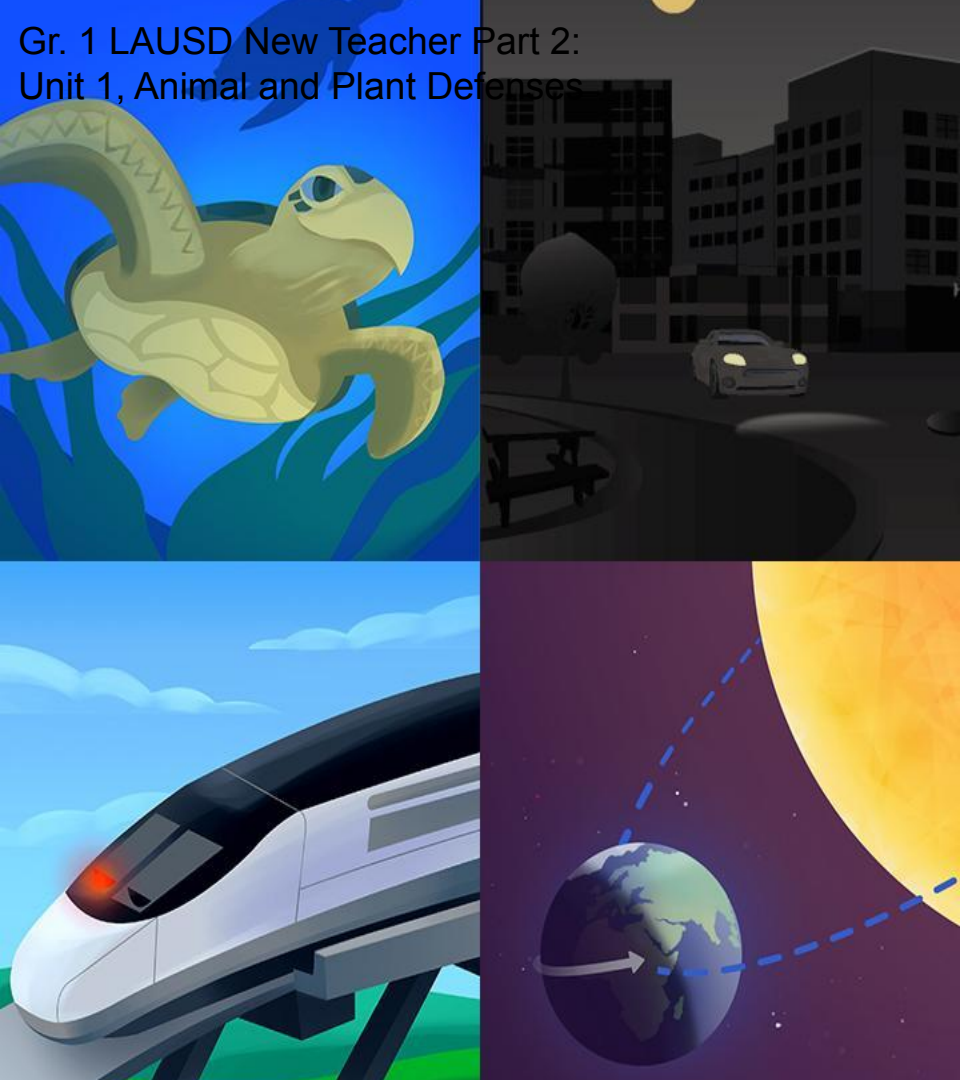
End of Lesson



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Plan for the day: Part 2

- Teaching and Learning in an Amplify Science Lesson
- Instructional Approach Reflection
- Planning a Lesson
- Closing

Gathering evidence

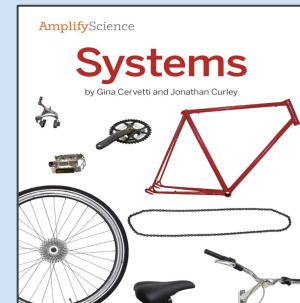
Energy Conversions Lesson 1.2

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

Investigation Question: What is a system?



Cherry Pitter System				
Part	handle	cherry cup	poker	spring
Function	to hold and squeeze	to hold the cherry in place	to push the pit out of the cherry	to open the handle after you squeeze it closed
System function: <u>To take the pits out of cherries.</u>				

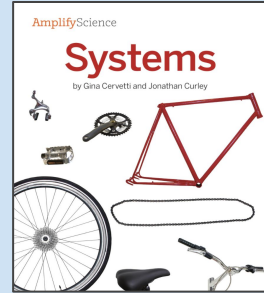


Evidence sources work together

Observing the cherry pitter and reading *Systems*

How do these activities
work together to
support understanding of
what a system is?

Investigation Question: What is a system?



Gathering evidence

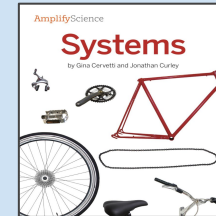
Energy Conversions Lesson 1.2

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

Investigation Question: What is a system?



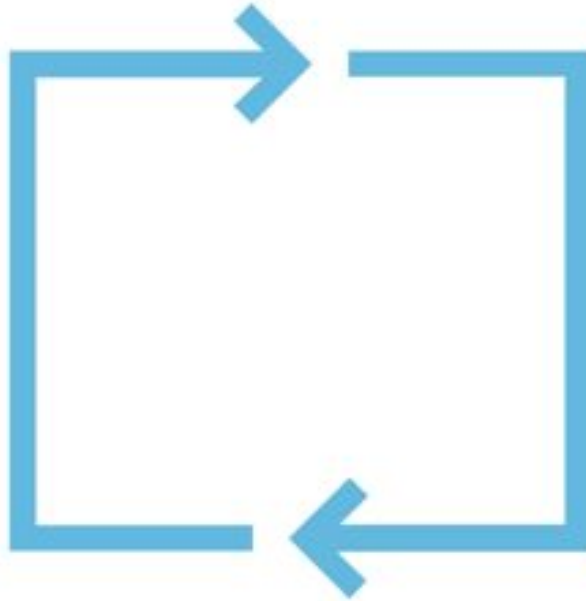
Cherry Pitter System				
Part	handle	cherry cup	poker	spring
Function	to hold and squeeze	to hold the cherry in place	to push the pit out of the cherry	to open the handle after you squeeze it closed
System function: To take the pits out of cherries.				



What have students figured out so far?

Multimodal learning

Gathering evidence over multiple lessons



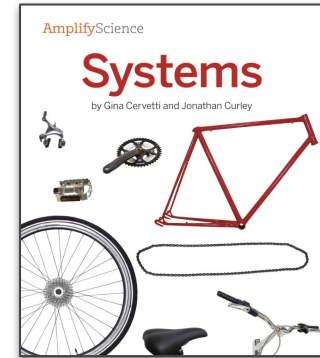
**Do,
Talk,
Read,
Write,
Visualize**

Evidence sources work together

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

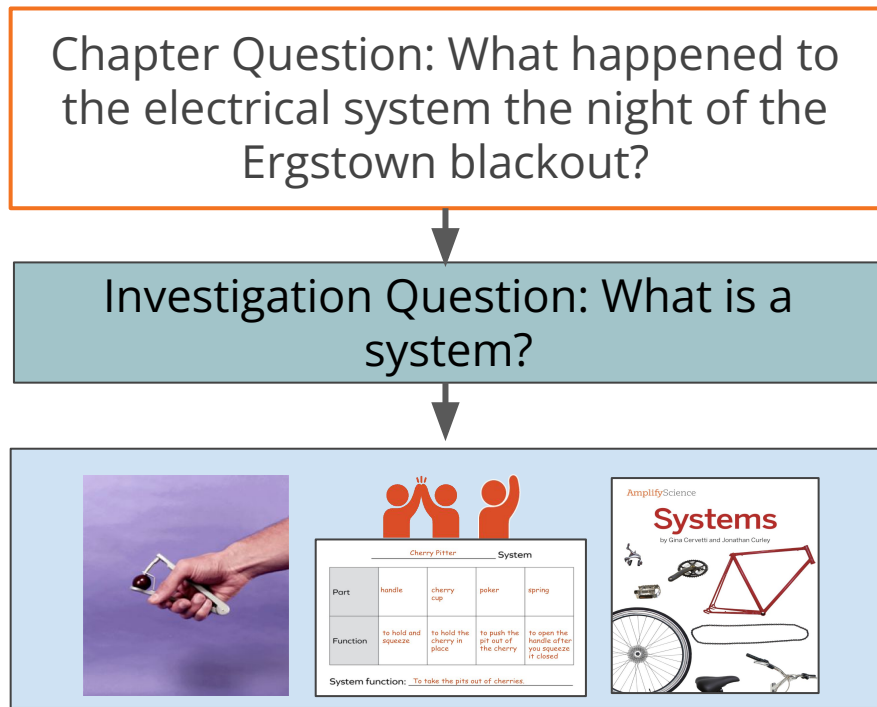
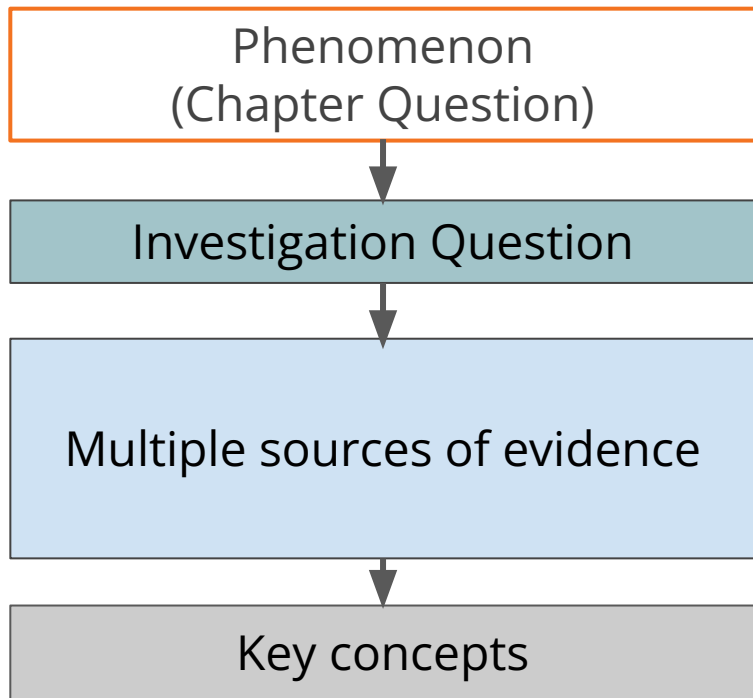


Cherry Pitter System				
Part	handle	cherry cup	poker	spring
Function	to hold and squeeze	to hold the cherry in place	to push the pit out of the cherry	to open the handle after you squeeze it closed
System function: To take the pits out of cherries.				



Coherence Flowchart

A diagram of student learning



Coherence Flowchart

Energy Conversions Lesson 1.2-1.3

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

Investigation Question: What is a system?

Evidence: Observe a simple system (cherry pitter) (1.2)

Evidence: Read *Systems* (1.2)

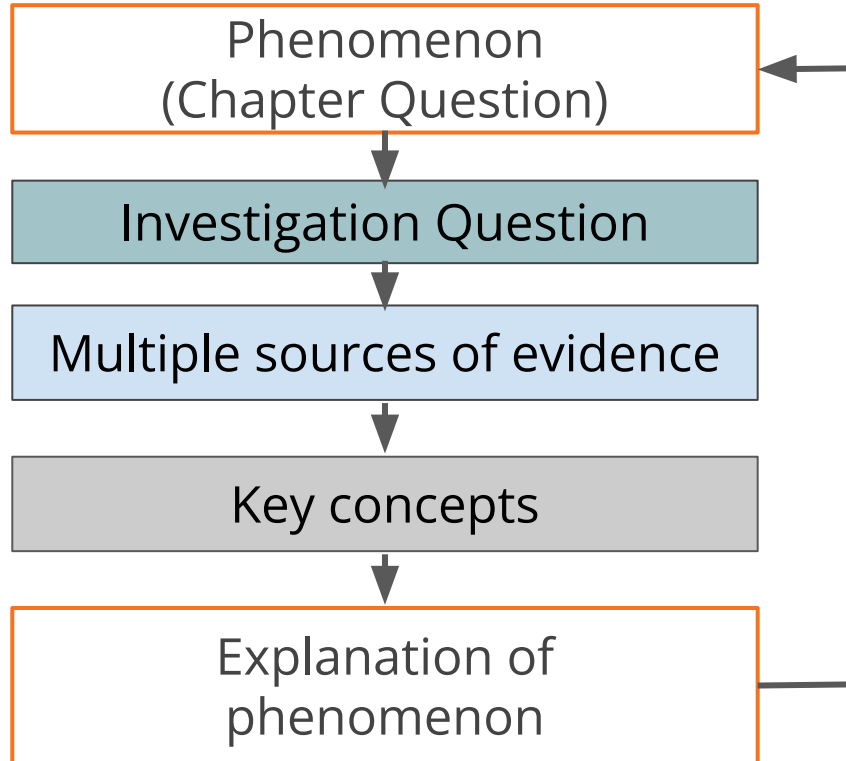
Evidence: Build a simple electrical system (1.3)

Evidence: Discuss parts and functions of a system (1.3)

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

Coherence Flowchart

A diagram of student learning



Coherence Flowchart

Energy Conversions Lesson 1.2-1.3

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

Investigation Question: What is a system?

Evidence: Observe a simple system (cherry pitter) (1.2)

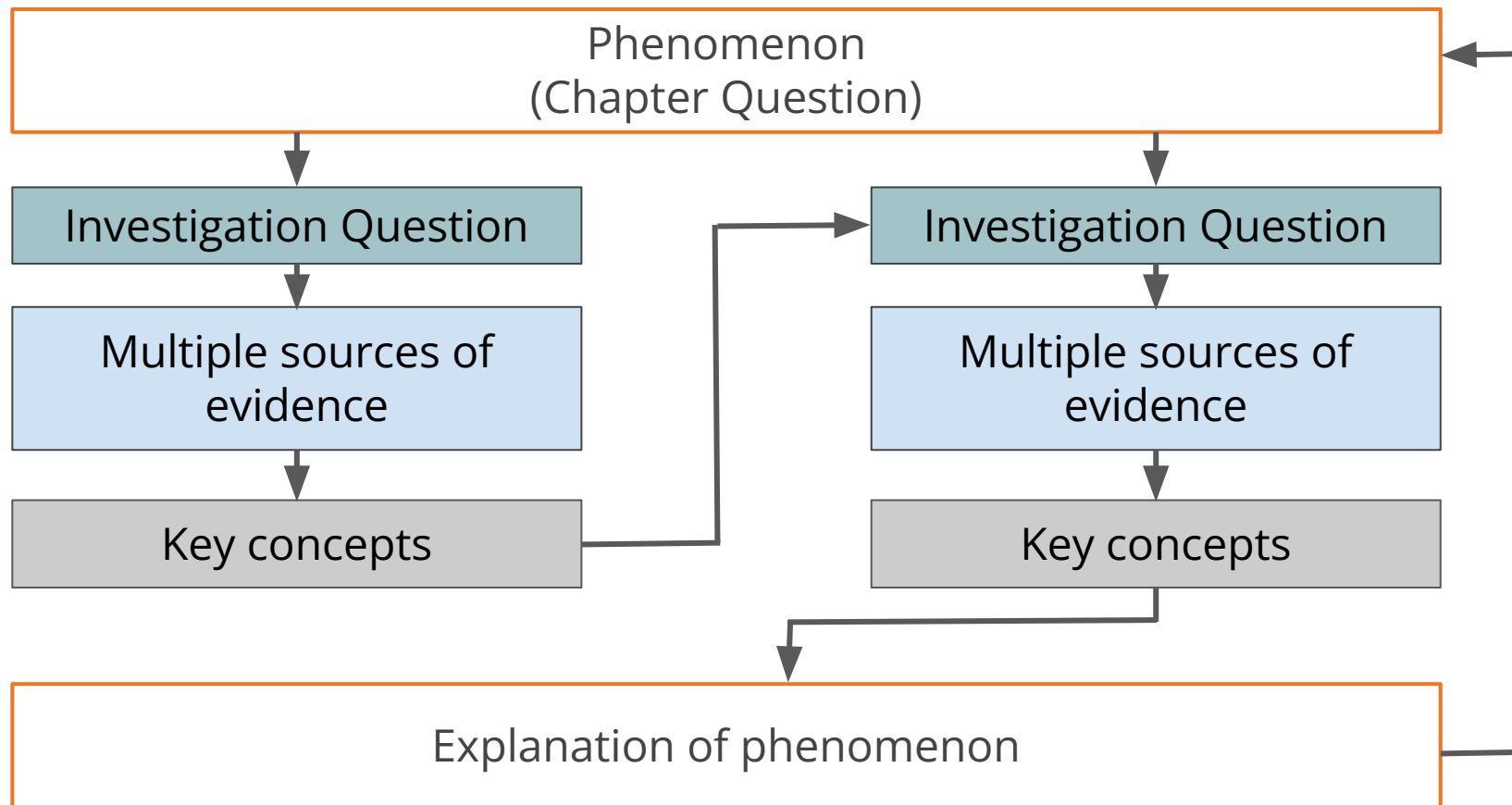
Evidence: Read *Systems* (1.2)

Evidence: Build a simple electrical system (1.3)

Evidence: Discuss parts and functions of a system (1.3)

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

Coherence Flowchart



Unit Anchor Phenomenon

Problem students work to solve

Chapter-level Anchor Phenomenon

Chapter 1 Question

Investigative Phenomena

Investigation Questions

Evidence sources and reflection opportunities

Key concepts

Application of key concepts to the problem

Explanation that students can make to answer the Chapter 1 Question

Energy Conversions: Blackout in Ergstown

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

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

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

- 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)

• 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)

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)

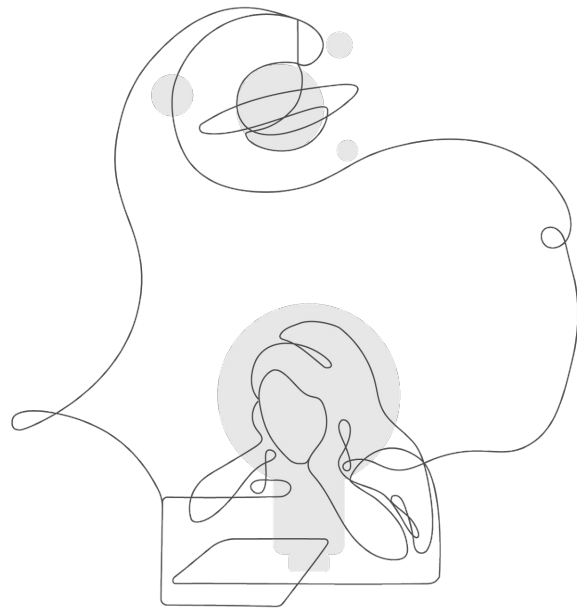
- Observe and write about forms of energy in the Ergstown subway (1.6)

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.

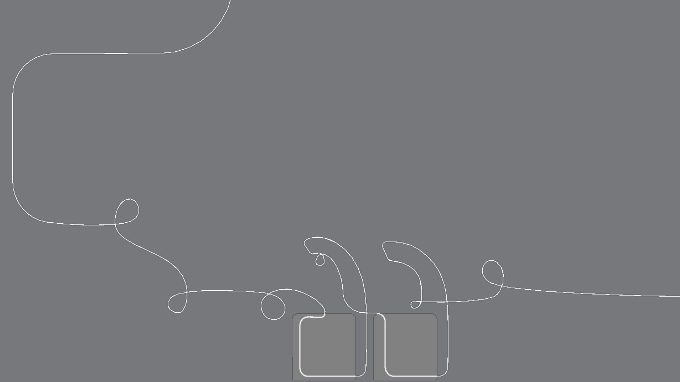
Explore the Coherence Flowchart

Skim the Chapter 1 Coherence Flowchart.

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



Questions?





Plan for the day: Part 2

- Teaching and Learning in an Amplify Science Lesson
- Instructional Approach Reflection
- Planning a Lesson
- Closing

The Lesson Brief

≡ AmplifyScience > Energy Conversions > Chapter 1 > Lesson 1.1



Lesson 1.1: Pre-Unit Assessment



Lesson Brief
(3 Activities)

1

WRITING
Students Write Initial
Explanations



2

TEACHER-LED DISCUSSION
Introducing the Problem



3

TEACHER-LED DISCUSSION
Introducing Investigation
Notebooks



RESET LESSON

GENERATE PRINTABLE LESSON GUIDE

Overview

Materials &
Preparation

Differentiation

Español

Standards

Overview

Students' Initial Explanations

In this unit, students investigate what might cause an electrical system to fail, and they design solutions to improve the electrical

Digital Resources

Classroom Slides 1.1 | PowerPoint

Classroom Slides 1.1 | Google Slides



4 Easy Steps to Teaching a lesson

DIRECTIONS:

1. Download the **Classroom Slides** for **Lesson 1.1** and review them.
2. Read the **Overview**.
3. Explore the **Materials & Preparation** document.
4. Read the **Differentiation** document.

The screenshot shows the interface for Lesson 1.1: Pre-Unit Assessment. At the top, the title "Lesson 1.1: Pre-Unit Assessment" is displayed. Below the title, there is a navigation bar with a "3" icon and the text "TEACHER-LED DISCUSSION Introducing Investigation Notebooks".

On the left side, there is a sidebar menu with the following items: "Overview", "Materials & Preparation", "Differentiation", "Standards", "Vocabulary", and "Unplugged?". Three orange arrows point to these items: arrow 2 points to "Overview", arrow 3 points to "Materials & Preparation", and arrow 4 points to "Differentiation".

In the center, the "Overview" section is visible, titled "Students' Initial Explanations". The text below the title describes the unit's focus on electrical systems and the purpose of the Pre-Unit Assessment.

On the right side, there is a "Digital Resources" section with the following items: "Classroom Slides 1.1 | PowerPoint", "Classroom Slides 1.1 | Google Slides", "All Projections", "Pre-Unit Writing: Explaining Why The Lamp Won't Turn On copymaster", and "Assessment Guide: Interpreting Students' Pre-Unit Explanations About Why the Lamp Won't Turn On". An orange arrow labeled "1" points to the "Classroom Slides 1.1 | Google Slides" item.

At the top right of the interface, there is a button labeled "GENERATE PRINTABLE LESSON GUIDE".

4 Easy Steps to Teaching a lesson

DIRECTIONS:

1. Download the **Classroom Slides** for **Lesson 1.1** and review them.
2. Read the **Overview**.
3. Explore the **Materials & Preparation** document.
4. Read the **Differentiation** document.

Lesson 1.1:
Pre-Unit Assessment

3 TEACHER-LED DISCUSSION
Introducing Investigation
Notebooks

RESET LESSON

GENERATE PRINTABLE LESSON GUIDE

Overview
Materials & Preparation
Differentiation
Standards
Vocabulary
Unplugged?

Overview

Students' Initial Explanations

In this unit, students investigate what might cause an electrical system to fail, and they design solutions to improve the electrical system in order to reduce blackouts. In this Pre-Unit Assessment, students are presented with a simple illustration of a town and asked to explain why they think a lamp in one of the houses will not turn on. The explanations they provide in this lesson serve as a Pre-Unit Assessment for formative purposes, designed to reveal students' initial understanding of the unit's core content, both unit-specific science concepts and the crosscutting concept of Systems and Custom Models, which is introduced. As such, students' explanations

Digital Resources

- Classroom Slides 1.1 | PowerPoint
- Classroom Slides 1.1 | Google Slides
- All Projections
- Pre-Unit Writing: Explaining Why The Lamp Won't Turn On copymaster
- Assessment Guide: Interpreting Students' Pre-Unit Explanations About Why the Lamp Won't Turn On

Preparing to teach

Classroom Slides

1. Open the Classroom Slides under the Digital Resources (a lesson of your choice)
2. Read through the Classroom Slides including the **presenter notes** to gain a better understanding of the lesson.
3. Consider:
 - What features of the Classroom Slides will support you in teaching this lesson?

Lesson 1.1:
Pre-Unit Assessment

Overview

Students' Initial Explanations

In this unit, students investigate what might cause an electrical system to fail, and they design solutions to improve the electrical system in order to reduce blackouts. In this Pre-Unit Assessment, students are presented with a simple illustration of a town and asked to explain why they think a lamp in one of the houses will not turn on. The explanations they provide in this lesson serve as a Pre-Unit Assessment for formative purposes, designed to reveal students' initial understanding of the unit's core content, both unit-specific science concepts and the crosscutting concept of Systems and System Models, prior to instruction. As such, students' explanations offer a baseline from which to measure growth of understanding over the course of the unit. These explanations can also provide the teacher with insight into students' thinking as they begin this unit of instruction. This three-dimensional assessment will allow the teacher to draw connections to students' experiences and to watch for preconceptions that might get in the way of students' understanding. In the second half of the lesson, students are introduced to their role as engineers and to the problem they will tackle in this unit: how to design improvements to an electrical system in order to prevent blackouts. Students will then receive their Investigation Notebooks and learn some of the ways that scientists use notebooks.

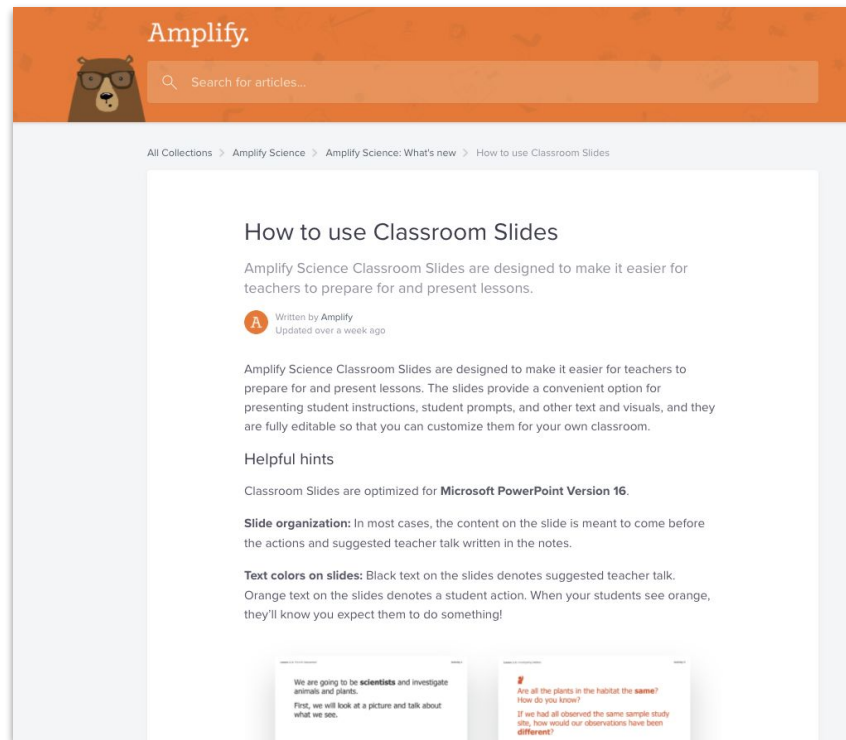
Unit Anchor Phenomenon: Ergstown has frequent blackouts.

Digital Resources

- Classroom Slides 1.1 | PowerPoint
- Classroom Slides 1.1 | Google Slides
- All Resources
- Pre-Unit Writing: Explaining Why The Lamp Won't Turn On copymaster
- Assessment Guide: Interpreting Students' Pre-Unit Explanations About Why The Lamp Won't Turn On
- Energy Conversions Investigation Notebook
- Questioning Strategies for Grades 2-5
- Energy Conversions Family Connections Homework
- Eliciting and Leveraging Students' Prior Knowledge, Personal Experiences, and Cultural Backgrounds
- Crosscutting Concept Tracker

Teaching with Classroom Slides

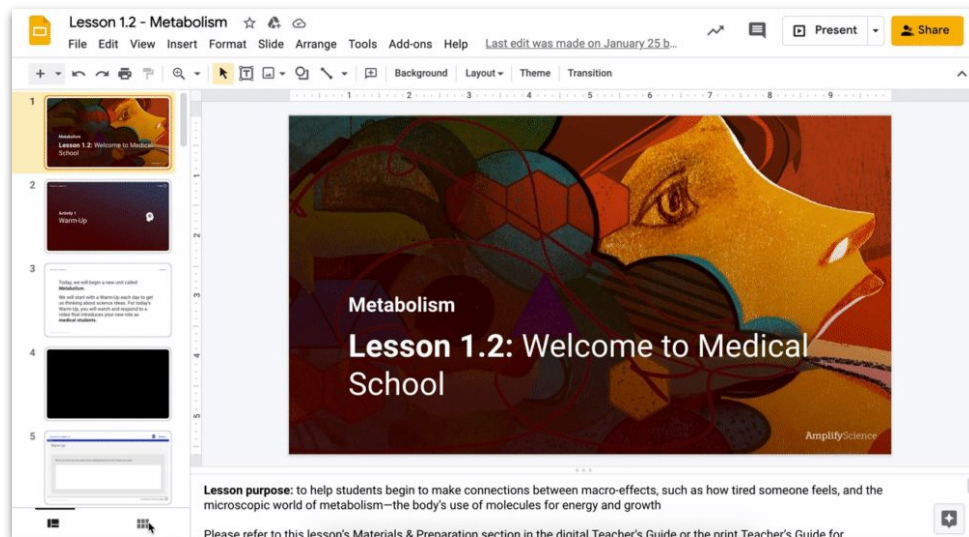
This detailed guide on the Amplify Science Help Site includes tips for teaching with Classroom Slides and information about the different symbols and activity types you'll find in the slide deck.



Using Classroom Slides as a planning tool

Teacher tip: Classroom Slides are a great visual summary of a lesson. Many teachers download and flip through a lesson's Classroom Slides deck to preview what happens in the lesson.

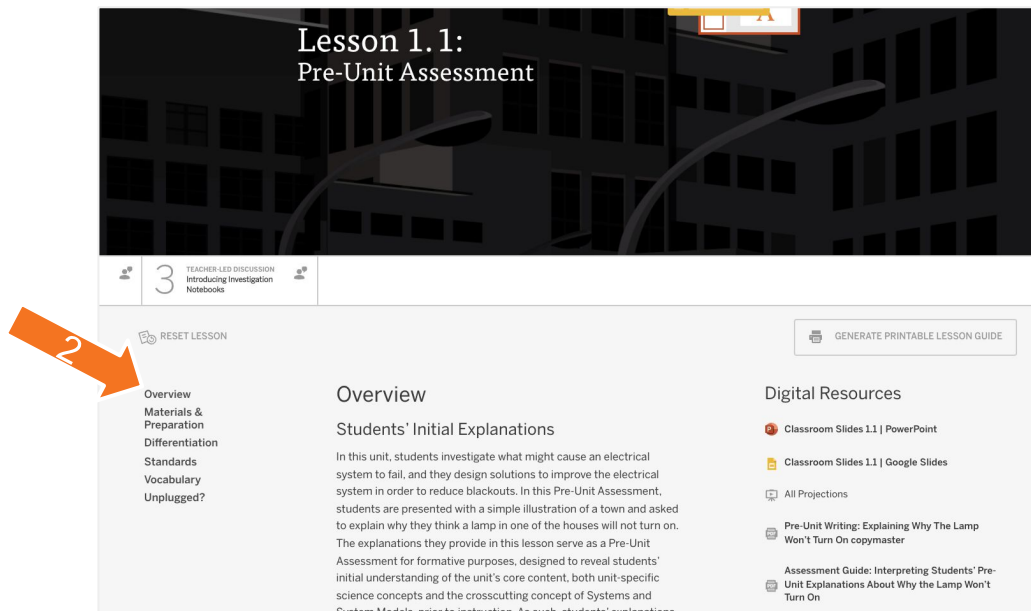
This is a useful first step for preparing to teach the lesson.



4 Easy Steps to Teaching a lesson

DIRECTIONS:

1. Download the **Classroom Slides** for **Lesson 1.2** and review them.
2. Read the **Overview**.
3. Explore the **Materials & Preparation** document.
4. Read the **Differentiation** document.

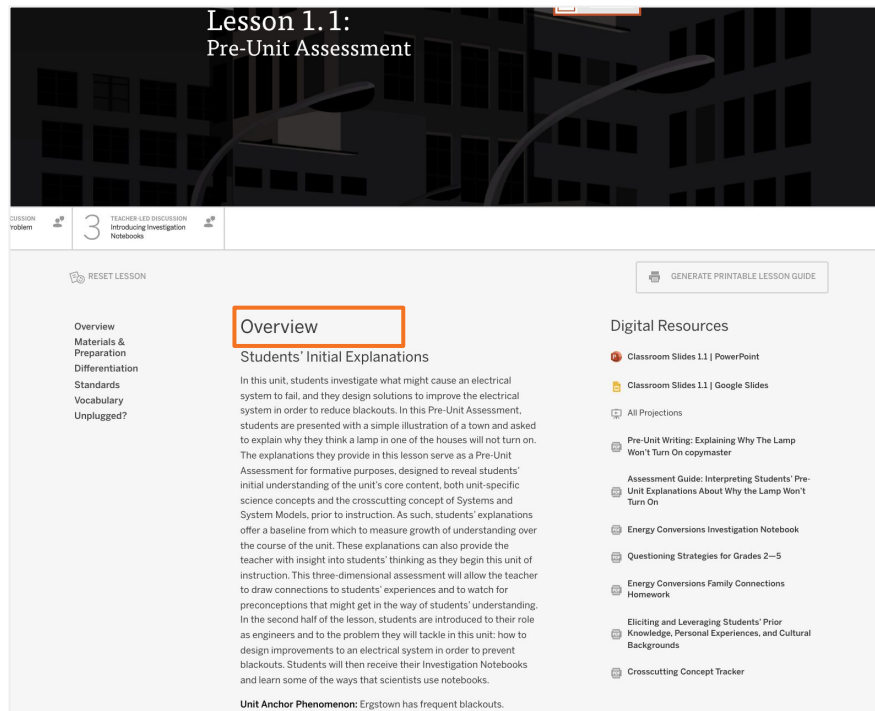


The screenshot shows a digital interface for 'Lesson 1.1: Pre-Unit Assessment'. At the top, the title 'Lesson 1.1: Pre-Unit Assessment' is displayed against a dark background with a cityscape illustration. Below the title, there is a navigation bar with a '3' icon and the text 'TEACHER-LED DISCUSSION Introducing Investigation Notebooks'. The main content area is divided into three sections: 'Overview', 'Students' Initial Explanations', and 'Digital Resources'. The 'Overview' section contains a paragraph about the unit's focus on electrical systems and blackouts. The 'Students' Initial Explanations' section contains a paragraph about the Pre-Unit Assessment. The 'Digital Resources' section lists several resources: 'Classroom Slides 1.1 | PowerPoint', 'Classroom Slides 1.1 | Google Slides', 'All Projections', 'Pre-Unit Writing: Explaining Why The Lamp Won't Turn On copymaster', and 'Assessment Guide: Interpreting Students' Pre-Unit Explanations About Why the Lamp Won't Turn On'. A left sidebar contains a list of links: 'Overview', 'Materials & Preparation', 'Differentiation', 'Standards', 'Vocabulary', and 'Unplugged?'. An orange arrow with the number '2' points to the 'Overview' link in this sidebar. A 'RESET LESSON' button is located above the sidebar, and a 'GENERATE PRINTABLE LESSON GUIDE' button is located in the top right corner of the main content area.

Preparing to teach

The Overview

- Read through the lesson overview.
- Find the purpose of the lesson.



Lesson 1.1:
Pre-Unit Assessment

TEACHER-LED DISCUSSION
Introducing Investigation Notebooks

RESET LESSON

GENERATE PRINTABLE LESSON GUIDE

Overview

Students' Initial Explanations

In this unit, students investigate what might cause an electrical system to fail, and they design solutions to improve the electrical system in order to reduce blackouts. In this Pre-Unit Assessment, students are presented with a simple illustration of a town and asked to explain why they think a lamp in one of the houses will not turn on. The explanations they provide in this lesson serve as a Pre-Unit Assessment for formative purposes, designed to reveal students' initial understanding of the unit's core content, both unit-specific science concepts and the crosscutting concept of Systems and System Models, prior to instruction. As such, students' explanations offer a baseline from which to measure growth of understanding over the course of the unit. These explanations can also provide the teacher with insight into students' thinking as they begin this unit of instruction. This three-dimensional assessment will allow the teacher to draw connections to students' experiences and to watch for preconceptions that might get in the way of students' understanding. In the second half of the lesson, students are introduced to their role as engineers and to the problem they will tackle in this unit: how to design improvements to an electrical system in order to prevent blackouts. Students will then receive their Investigation Notebooks and learn some of the ways that scientists use notebooks.

Unit Anchor Phenomenon: Ergstown has frequent blackouts.

Digital Resources

- Classroom Slides 1.1 | PowerPoint
- Classroom Slides 1.1 | Google Slides
- All Projections
- Pre-Unit Writing: Explaining Why The Lamp Won't Turn On copymaster
- Assessment Guide: Interpreting Students' Pre-Unit Explanations About Why The Lamp Won't Turn On
- Energy Conversions Investigation Notebook
- Questioning Strategies for Grades 2–5
- Energy Conversions Family Connections Homework
- Eliciting and Leveraging Students' Prior Knowledge, Personal Experiences, and Cultural Backgrounds
- Crosscutting Concept Tracker

4 Easy Steps to Teaching a lesson

DIRECTIONS:

1. Download the **Classroom Slides** for **Lesson 1.1** and review them.
2. Read the **Overview**.
3. Explore the **Materials & Preparation** document.
4. Read the **Differentiation** document.



Lesson 1.1:
Pre-Unit Assessment

3 TEACHER-LED DISCUSSION
Introducing Investigation
Notebooks

RESET LESSON

GENERATE PRINTABLE LESSON GUIDE

Overview

Students' Initial Explanations

In this unit, students investigate what might cause an electrical system to fail, and they design solutions to improve the electrical system in order to reduce blackouts. In this Pre-Unit Assessment, students are presented with a simple illustration of a town and asked to explain why they think a lamp in one of the houses will not turn on. The explanations they provide in this lesson serve as a Pre-Unit Assessment for formative purposes, designed to reveal students' initial understanding of the unit's core content, both unit-specific science concepts and the crosscutting concept of Systems and Custom Models, *science instruction. As such, students' explanations*

Digital Resources

- Classroom Slides 1.1 | PowerPoint
- Classroom Slides 1.1 | Google Slides
- All Projections
- Pre-Unit Writing: Explaining Why The Lamp Won't Turn On copymaster
- Assessment Guide: Interpreting Students' Pre-Unit Explanations About Why the Lamp Won't Turn On

Preparing to teach

Materials and Prep

Review the materials needed for:

- The Classroom Wall
- For the Class
- For each pair of students (if applicable)
- Preparation

Materials & Preparation

Materials

For the Classroom Wall

- Unit Question: *What can make an object move or not move?*
- Chapter 1 Question: *Why does the train rise?*
- section headers: Key Concepts, Vocabulary
- vocabulary: *force*

For the Class

- 1 bag, plastic, gallon, self-sealing
- 2 wooden blocks with hooks
- 1 balloon
- 1 paper clip
- 1 domino
- 1 clothespin
- 1 index card
- 1 rubber band*
- 1 sheet of chart paper*
- masking tape*
- marker*
- scissors*

For Each Pair of Students

- 1 bag, plastic, gallon, self-sealing
- 2 wooden blocks, with hooks
- 1 balloon

4 Easy Steps to Teaching a lesson



DIRECTIONS:

1. Download the **Classroom Slides** for **Lesson 1.1** and review them.
2. Read the **Overview**.
3. Explore the **Materials & Preparation** document.
4. Read the **Differentiation** document.



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Preparing to Teach

Lesson-specific differentiation

- Embedded supports
- Potential challenges
- Strategies for:
 - English Learners
 - Students who need more support
 - Students who need more challenge

Differentiation

Embedded Supports for Diverse Learners

Accessing prior knowledge. This lesson provides an opportunity for students to discuss their own experiences with blackouts. The time reserved for students to share ideas, questions, and experiences related to a blackout allows them to learn from one another. Sharing these initial ideas about blackouts can help students mentally prepare to learn more about the topic. This priming can help reduce the cognitive load of encountering a new topic for all students. This can be particularly beneficial for English learners.

Specific Differentiation Strategies for English Learners

Alternate means of expressing ideas. Some English learners may experience more success expressing their ideas when provided a few different options. It may be appropriate for these students to express their ideas for the pre-unit assessment using labeled drawings or diagrams rather than providing purely written responses. After students have recorded their responses, you may wish to invite them to elaborate on their responses orally as you record their ideas. It is very appropriate for students to express their ideas in their primary language. Providing students with this opportunity allows them to show what they know about the science concepts, rather than whether or not they can express their understanding of concepts in English. Offering alternate ways of expressing understanding can ensure that you will have a baseline from which to measure students' growth of understanding over the course of the unit.

Academic language support. Developing science language and literacy is a complex process that includes, yet is broader than, vocabulary knowledge and usage. Science texts include general academic and discipline-specific vocabulary, and they also include disciplinary ways of using language, such as grammatically complex sentences and texts that are structured in more academic ways than everyday language. These broader aspects of academic language in science can be highlighted to students. See the Science Framework (Chapter 10), the ELA-ELD Framework (Chapter 2), and the ELD Standards (Chapter 5) for guidance on how to support students to develop science disciplinary language and literacy.

4 Easy Steps to Teaching a lesson

DIRECTIONS:

1. Download the **Classroom Slides** for **Lesson 1.1** and review them.
2. Read the **Overview**.
3. Explore the **Materials & Preparation** document.
4. Read the **Differentiation** document.

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Numbered arrows indicate the steps:

- Arrow 1 points to the "Classroom Slides 1.1 | PowerPoint" link in the Digital Resources section.
- Arrow 2 points to the "Overview" link in the left sidebar.
- Arrow 3 points to the "Materials & Preparation" link in the left sidebar.
- Arrow 4 points to the "Differentiation" link in the left sidebar.

Lesson ____		Activity Overview		From the Lesson at a glance in the overview
What is the purpose of this lesson?		Activity 1 (##min)		
	From the lesson overview			
What will students learn?		Activity 2 (##min)		
3-D Statement (identify SEP, CCC, and DCI):	From the lesson standards	Activity 3 (##min)		
Student Resources:	From the lesson materials and preparation	Activity 4 (##min)		
Assessment Opportunities:	From the lesson at a glance in the overview or classroom slides	Activity 5 (##min)		

Directions for Planning Time

(Make your own copy first before planning)

1. Make a copy of this planning slide.
2. Download the classroom slides for the lesson you would like to plan
3. Insert the planning slide at the front of the classroom slide deck
4. Navigate at the lesson level to answer the questions on this slide
5. Make edits directly on your side deck to meet the needs of your students

Digital Resources



Classroom Slides 1.1 | PowerPoint

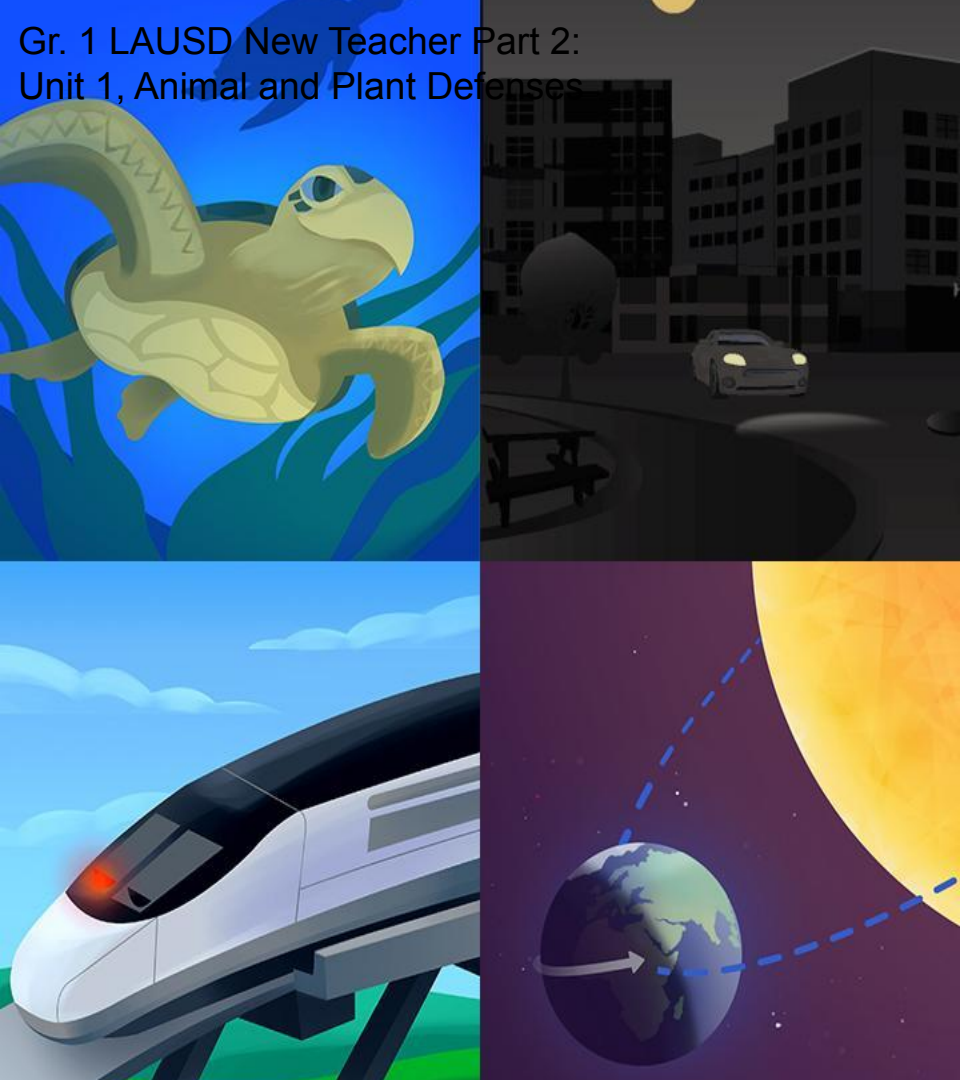


Classroom Slides 1.1 | Google Slides

Lesson _1.2_	Activity Overview	
<p>What is the purpose of this lesson?</p> <p>The purpose of this lesson is to introduce students to the concept of systems and to prepare them to investigate the electrical system, its parts, and their functions.</p>	<p>Activity 1 (5 min)</p>	<p>Reflecting on the Unit Problem</p>
<p>What will students learn?</p> <p>Synthesizing can help readers understand informational text. There are many kinds of systems in the world around us. Scientists and engineers gather information from books</p>	<p>Activity 2 (15 min)</p>	<p>Observing a Simple System</p>
<p>3-D Statement (identify SEP, CCC, and DCI):</p> <p>Students read the book <i>Systems</i> to obtain information about what a system is and how parts within a system interact (systems and system models).</p>	<p>Activity 3 (15 min)</p>	<p>Introduction to Synthesizing</p>
<p>Student Resources:</p> <p>1 copy of <i>Systems</i> oer pairs <i>Energy Conversions</i> Investigation Notebook (pages 3-5) optional: 1 copy of the Chapter 1 Home Investigation: Blackout Interview student sheet</p>	<p>Activity 4 (25 min)</p>	<p>Reading: Systems</p>
<p>Assessment Opportunities:</p> <p>Activity 4</p>	<p>Activity 5 (##min)</p>	

Questions?





Plan for the day: Part 2

- Part 1 Review
- Teaching and Learning in an Amplify Science Lesson
- Instructional Approach Reflection
- Planning a Lesson
- Closing

Additional resources

Welcome, caregivers!

We hope you enjoy learning more about Amplify Science and what students are learning in science this year.

[Para acceder a este sitio en español haga clic aquí.](#)

Amplify welcomes you and your learner to the Science program for the new school year. We are very excited to



Grades 6-8



[Caregivers](#)

LAUSD Microsite-
<https://amplify.com/lausd-science>



Welcome to Amplify Science!

This site contains supporting resources designed for the LAUSD Amplify Science adoption for grades TK–8.

- Access the [Amplify Science Program Hub](#) (To help orient you to the new design, watch this [video](#) and view this [reference guide](#).)
- Find out more about [Amplify Science@Home](#)
- Share the [Caregiver Hub](#) (Eng/Span) with your families
- For LAUSD ES Teachers- [Amplify Science & Benchmark Advance Crosswalk](#)
- Instructional guidance for a [Responsive Relaunch of Amplify Science in 21-22](#)

Click the button below to preview the digital Teacher's Guide, and check back for exciting updates to this site!

Program Hub

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

This screenshot shows the 'Lesson 1.1: Pre-Unit Assessment' page. The header includes the Amplify logo and navigation links for CURRICULUM, CLASSWORK, and REPORTING. The breadcrumb trail reads 'Science California > Energy Conversions > Lesson 1.1'. The main content area features a dark background with a cityscape illustration and the title 'Lesson 1.1: Pre-Unit Assessment'. A 'Printable Lesson Guide' button is visible. At the bottom, a progress bar shows three steps: 'Lesson Brief (3 Activities)', '1 WRITING Students Write Initial Explanations', and '2 TEACHER-LED DISCUSSION Introducing the Problem'. A 'RESET LESSON' button is located at the bottom left.

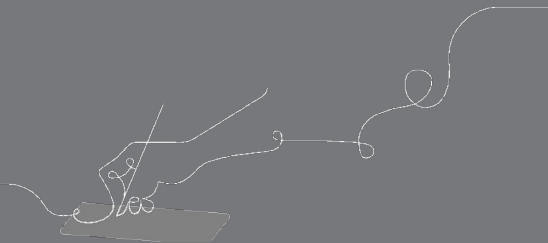
This screenshot displays the 'Amplify Science Program Hub' interface. The top navigation bar includes links for CURRICULUM, CLASSWORK, REPORTING, PROGRAMS & APPS, and a user profile for 'NATIONALSCI200 TEACHER'. The main content area is titled 'Science' and 'Units', with a dropdown menu set to '4th Grade Science Eng/Esp'. A red circle highlights the 'PROGRAMS & APPS' link in the top navigation bar. Below the navigation bar, there are several unit cards, including 'Inversions' and 'Vision and Light' (22 Lessons). A smaller inset window shows a 'Welcome Science Educators!' message with a red circle highlighting the 'Remote and hybrid learning resources' section.

Overarching goals

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

- ✓ Describe what teaching and learning look like in Amplify Science.
- ✓ Prepare to teach using Amplify Science resources.

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Closing reflection

Based on our work today in Part 2, share:

Head: something you'll keep in mind

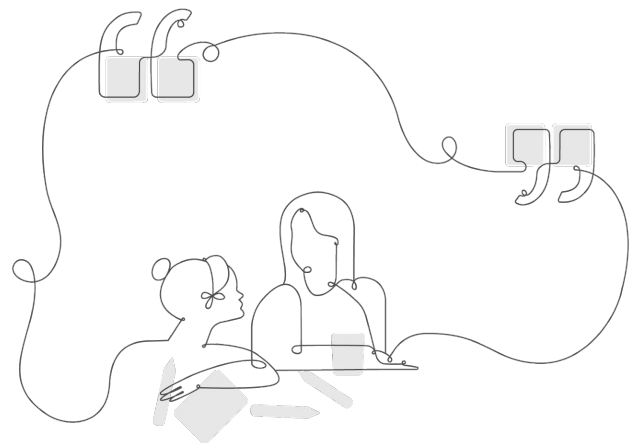
Heart: something you're feeling

Feet: something you're planning to do

Onsite Upcoming Professional Development!

Part 3: Unit 1 - Supporting English Learners

- October 15th (Alta California ES, NW)
- October 29th (Ochoa Learning Center, East)



In this session, participants explore strategies to support English learners' ability to do, talk, read, write, visualize, and construct arguments like scientists. Participants will identify the supports and strategies embedded in Unit 1 by engaging in model activities followed by independent planning.

Additional resources and ongoing support

Customer Care

Seek information specific to enrollment and rosters, technical support, materials and kits, and teaching support, weekdays 7AM-10PM EST and weekends 10AM-6PM EST.



help@amplify.com



800-823-1969



Amplify Chat



Please provide feedback!

Type:

Strengthen

Session title:

Unit Internalization / Guided Planning

(Part 2)

Professional Learning Specialist name:

Insert name

(insert email, if you would like)