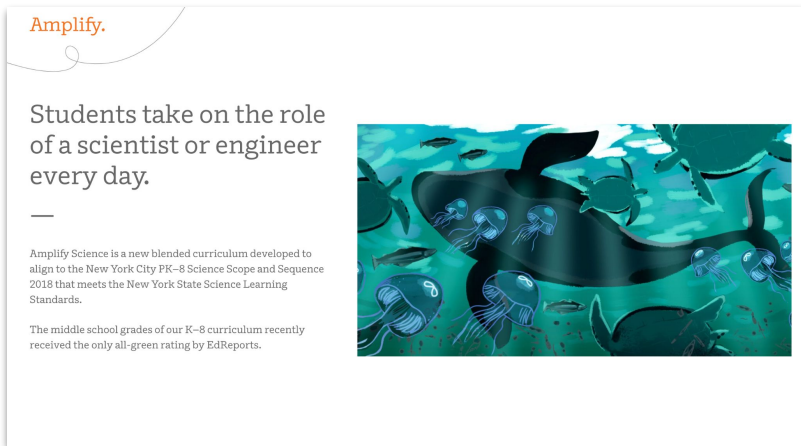


Welcome to Amplify Science!

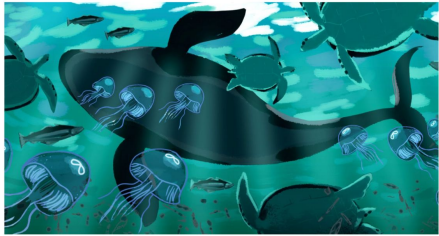
Do Now: Open auto-login site & explore as we wait to begin

Go to <https://amplify.com/amplify-science-nyc-doe-review/>



Amplify.

Students take on the role of a scientist or engineer every day.



Amplify Science is a new blended curriculum developed to align to the New York City PK–8 Science Scope and Sequence 2018 that meets the New York State Science Learning Standards.

The middle school grades of our K–8 curriculum recently received the only all-green rating by EdReports.



Begin your review

Begin your review

What sets Amplify Science apart?

The Amplify Science approach

Components overview

Review grades K–5

Review grades 6–8

Watch an overview

Ready to order?

Grades K–5

Grades 6–8

What sets Amplify Science apart?

- Aligned to the New York City PK–8 Science Scope and Sequence 2018, and meets New York State Science Learning Standards.

Click your grade band & then follow prompts

Amplify Science

New York City

Exploring the Amplify Science Curriculum

Grades 3-5

Part 1

Date xx

Presented by xx



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.

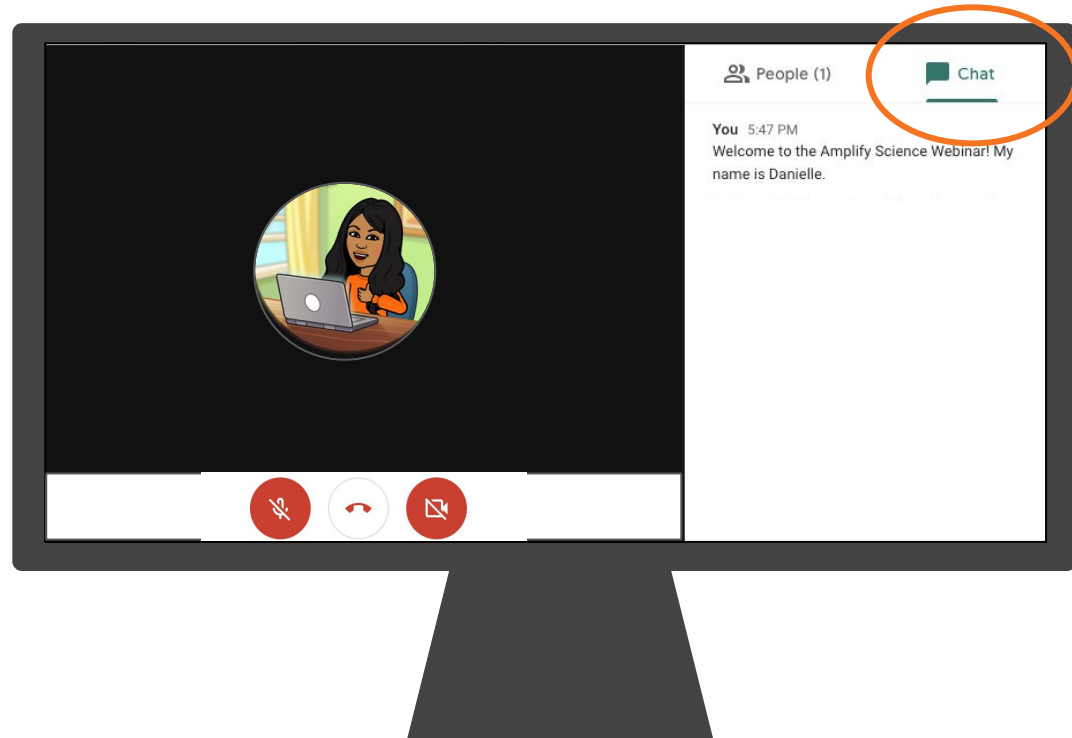
We share your goal of **inspiring all students to think deeply, creatively, and for themselves**.

Sincerely,
Amplify

Ice Breaker!

Who do we have in the room today?

- **Question 1:** Which aspects of adopting a new science curriculum are you most excited or hopeful about?
- **Question 2:** What about adopting a new science curriculum to do you feel most hesitant about?



Norms: Establishing a culture of learners

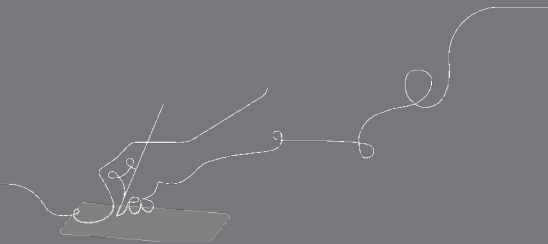
- **Take risks:** Ask any questions, provide any answers.
- **Participate:** Share your thinking, participate in discussion and reflection.
- **Be fully present:** Unplug and immerse yourself in the moment.
- **Physical needs:** Stand up, get water, take breaks.

Goals for Part 1 session

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

- ❑ Navigate the Amplify Science curriculum.
- ❑ Understand the Amplify Science approach.
- ❑ Experience & reflect on a model lesson.

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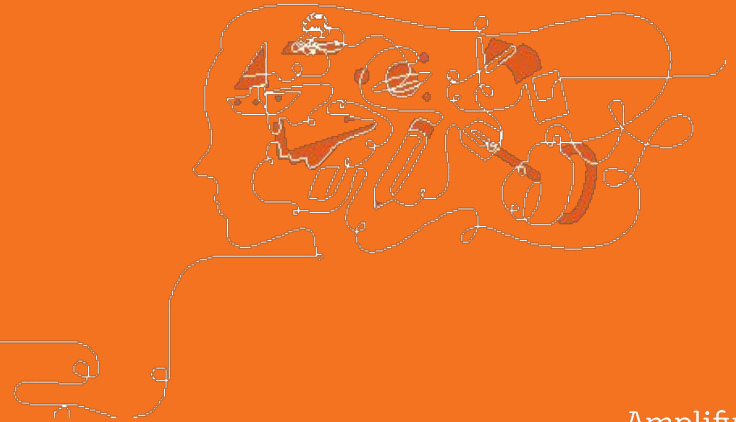




Plan for part 1

- **Framing the day**
 - Welcome
- **The Amplify Approach**
 - Multimodal learning
- **Model Lesson Experience**
 - SEL suggestions
 - Lesson reflection
- **Closing**
 - Final Questions & Feedback

Introducing Amplify Science



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

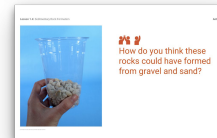
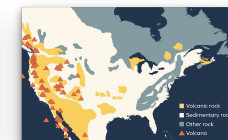
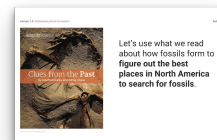
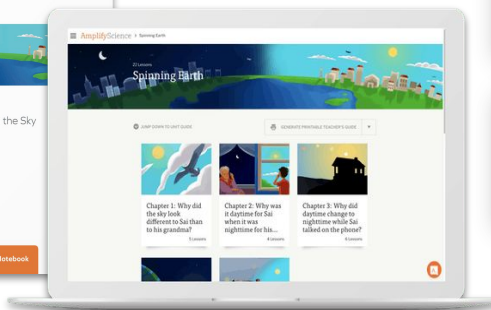
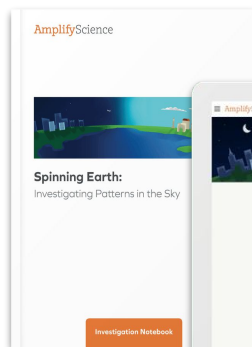
Key takeaways:

- There are 22 lessons per unit
- Lessons at grades 2-5 are 60 minutes long

K-5 Program components

Teacher materials

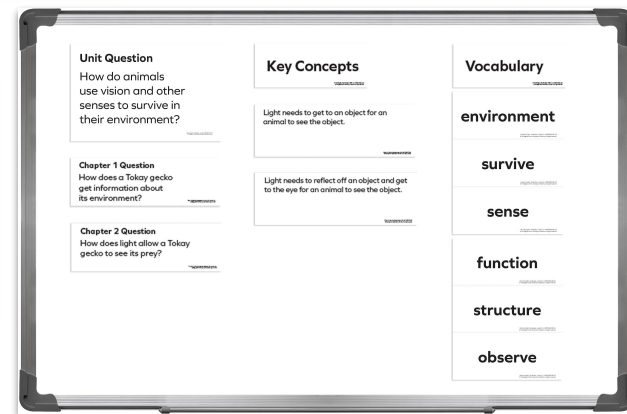
- Teacher's Guide
- Classroom Slides
- Classroom wall materials
- Embedded assessments
- Program Guide
- Program Hub
- Amplify Help Site



Program Hub



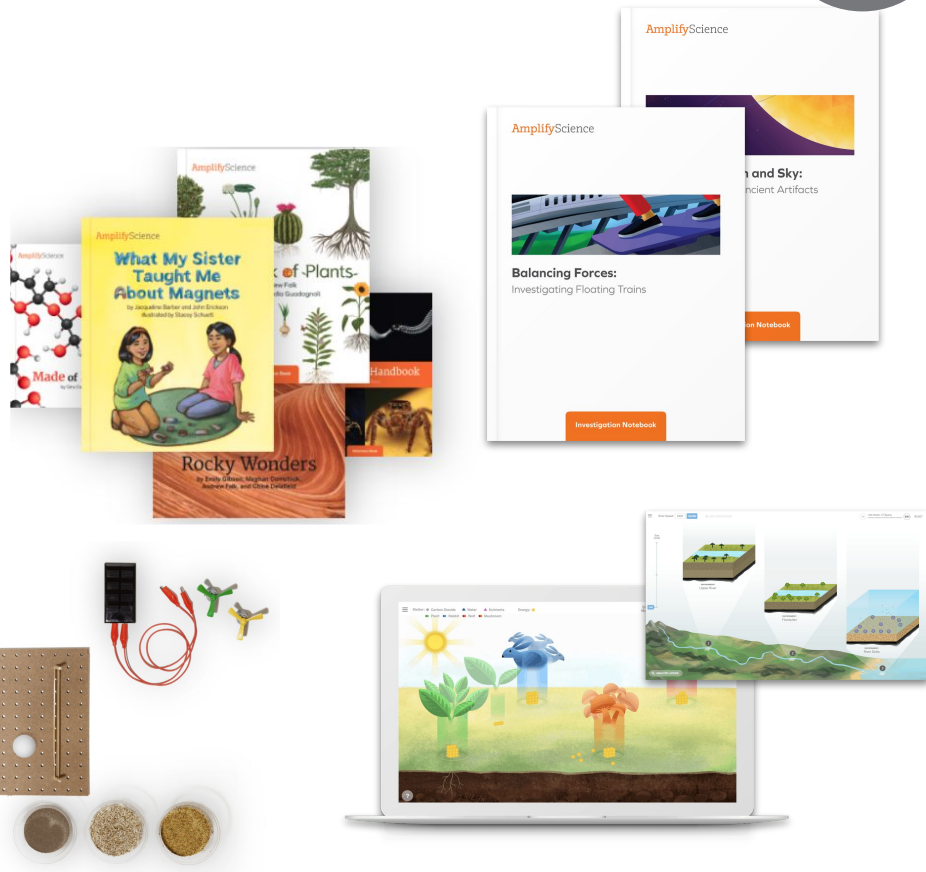
Science Program Guide



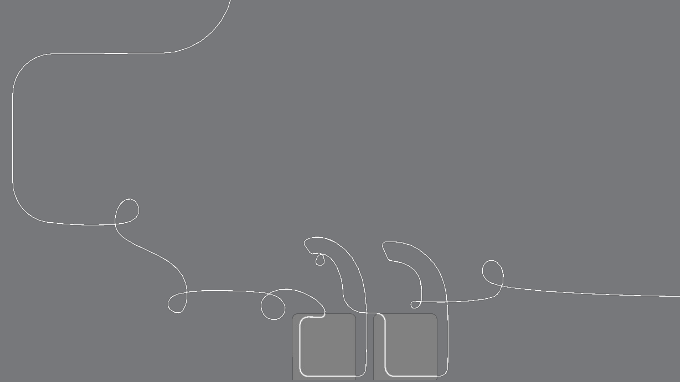
K-5 Program components

Student materials

- Hands-on materials
- Investigation Notebooks
- Student books
- Digital Applications



Questions?




Framing our reflections

Teacher lens and student lens

To synthesize our learning, we'll return to these questions throughout the session:

What is teaching like with Amplify Science?

What is learning like with Amplify Science?

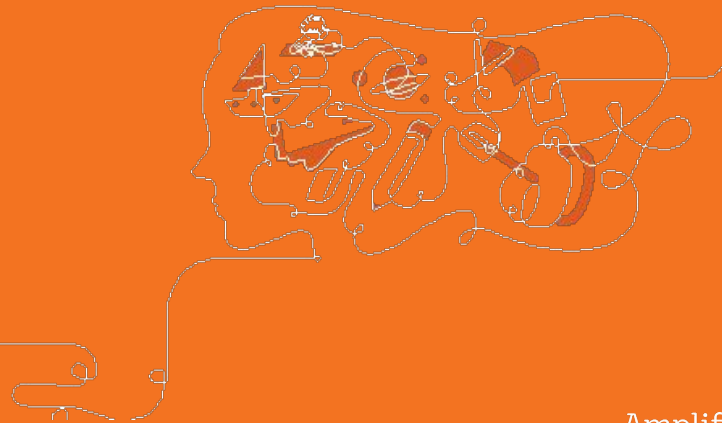
<i>Teaching</i>	<i>Learning</i>
	



Plan for part 1

- Framing the day
 - Welcome
- **The Amplify Approach**
 - Multimodal learning
- **Model Lesson Experience**
 - SEL suggestions
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- **Closing**
 - Final Questions & Feedback

Phenomenon-based instruction



NYS Science Learning 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
Ocean habitats	A sea turtle can survive in an ocean habitat where sharks live

NYS Science Learning Standards

How might learning be different?

Topic-based	Phenomenon-based
Ocean habitats	A sea turtle can survive in an ocean habitat where sharks live.
Electric circuits	A flashlight won't turn on, even though it used to work.
Mixtures and solutions	One substance dissolved in water but another substance didn't.

Comparing topics and phenomena

A shift in science instruction

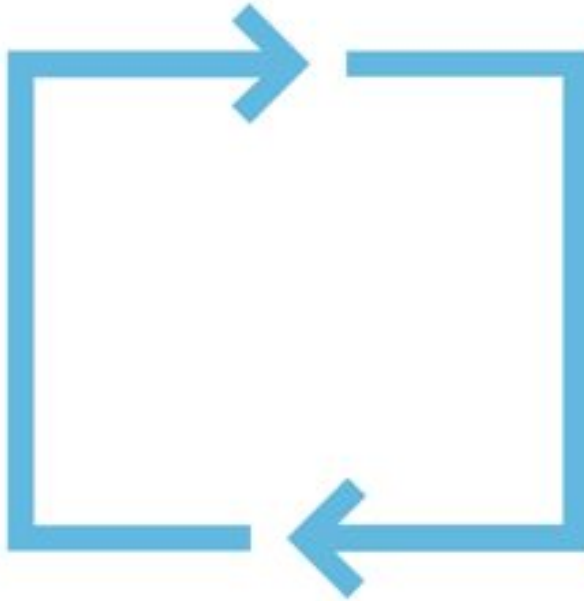
from learning about
(like a student)



to figuring out
(like a scientist)

Multimodal learning

Gathering evidence over multiple lessons



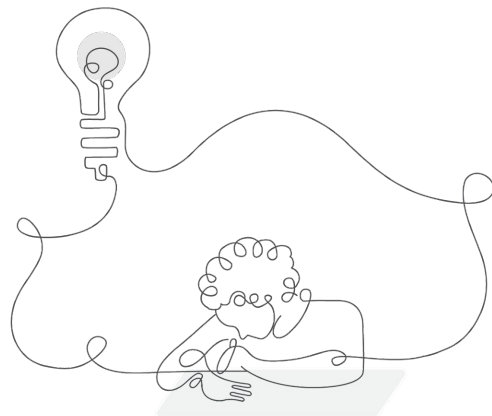
**Do,
Talk,
Read,
Write,
Visualize**

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 this 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!

Previewing the unit

Unit Map


Read the Unit Map to get more information about the student role, unit phenomenon, and what students explain throughout the unit.



Reflection

Teacher lens and student lens

Return to your reflection notes. Add any new insights about teaching or learning with Amplify Science.

<i>Teaching</i>	<i>Learning</i>
	

Navigation and planning

1. **Navigation:** Finding lessons and moving between lessons
2. **Classroom Slides:** Visually previewing a lesson
3. **Lesson Brief:** Preparing to teach

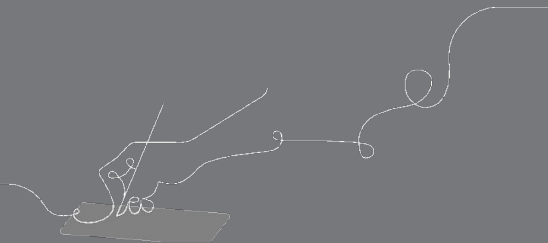


Navigation

In this section you will learn to:

- ❑ Log into the digital Teacher's Guide
- ❑ Navigate to a specific lesson
- ❑ Navigate from one lesson to another

e



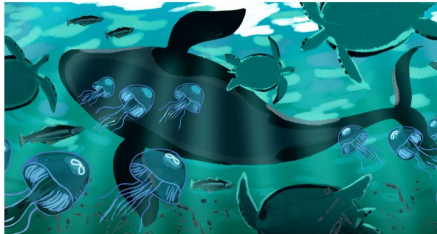
Logging in

Safari or Chrome

Go to <https://amplify.com/amplify-science-nyc-doe-review/>

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Review grades 6–8

Watch an overview

Ready to order?

Grades K–5

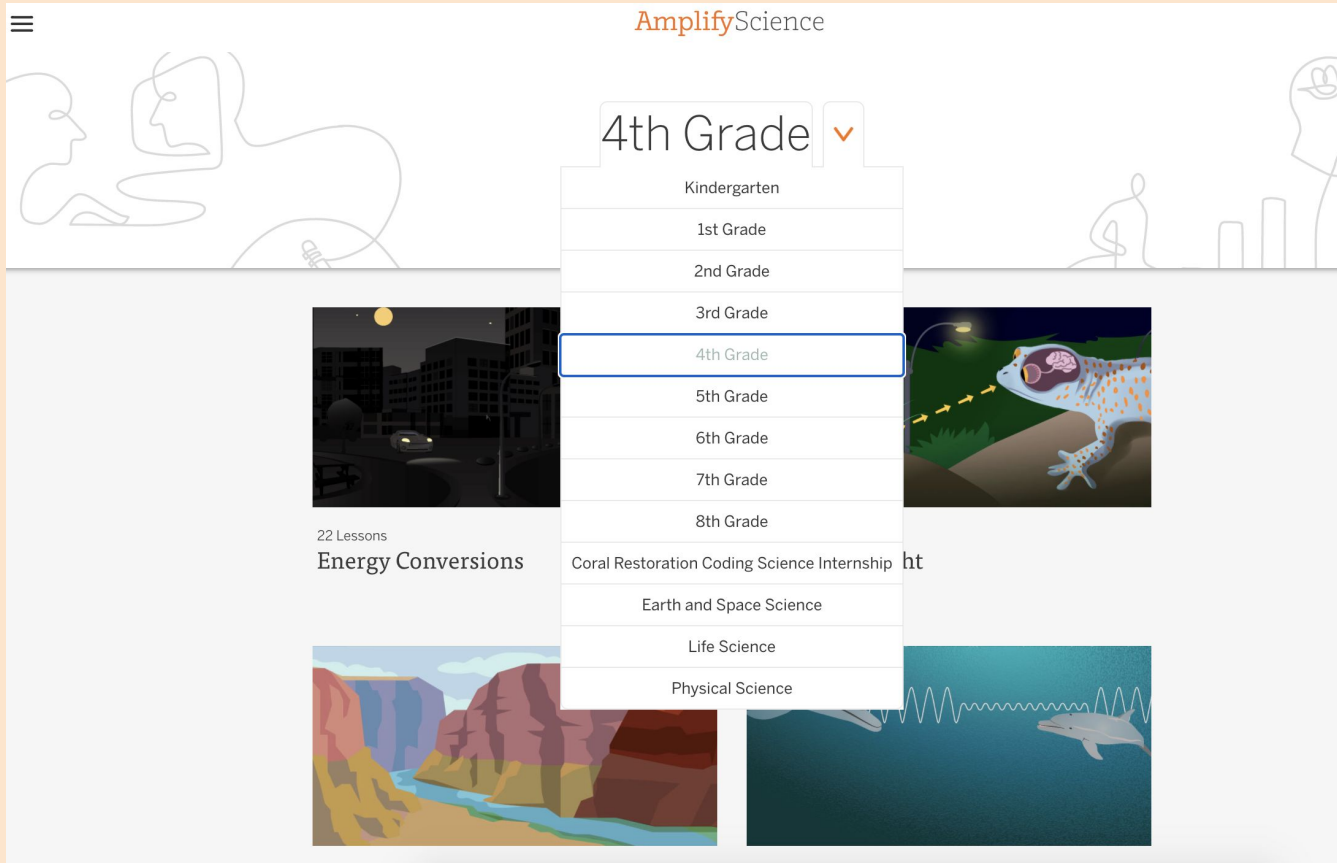
Grades 6–8

What sets Amplify Science apart?

- Aligned to the New York City PK–8 Science Scope and Sequence 2018, and meets New York State Science Learning Standards.

Click your grade band & then follow prompts

Hidden slide: Navigating to your grade level



The screenshot shows the AmplifyScience website interface. At the top, the logo "AmplifyScience" is displayed in orange and black. A hamburger menu icon is on the left. A navigation menu is open, showing a list of grade levels: Kindergarten, 1st Grade, 2nd Grade, 3rd Grade, 4th Grade (highlighted with a blue border), 5th Grade, 6th Grade, 7th Grade, 8th Grade, Coral Restoration Coding Science Internship, Earth and Space Science, Life Science, and Physical Science. The background features line art of people and several science-themed images: a city at night, a spotted salamander with a brain diagram, a canyon, and dolphins.

AmplifyScience

4th Grade ▾

- Kindergarten
- 1st Grade
- 2nd Grade
- 3rd Grade
- 4th Grade
- 5th Grade
- 6th Grade
- 7th Grade
- 8th Grade
- Coral Restoration Coding Science Internship
- Earth and Space Science
- Life Science
- Physical Science

22 Lessons
Energy Conversions

ht

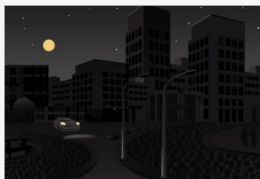
Hidden slide: Unit landing page

22 Lessons

Energy Conversions

☑ JUMP DOWN TO UNIT GUIDE

🖨 GENERATE PRINTABLE TEACHER'S GUIDE



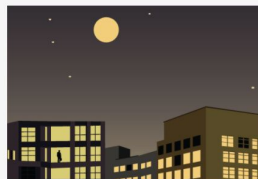
Chapter 1: What happened to the electrical system the night of the...

6 Lessons



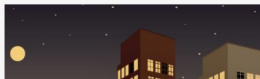
Chapter 2: What makes the devices in Ergstown output or fail to output...

4 Lessons



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

6 Lessons



Hidden slide: Chapter 1 landing page

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

▼ JUMP DOWN TO CHAPTER OVERVIEW

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

Hidden slide: Lesson 1.1 Lesson Brief



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

Español
Differentiation
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



Hidden slide: Using arrows to navigate between lessons in order



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

Español
Differentiation
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



Hidden slide: Using the breadcrumb trail to navigate to a specific lesson

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

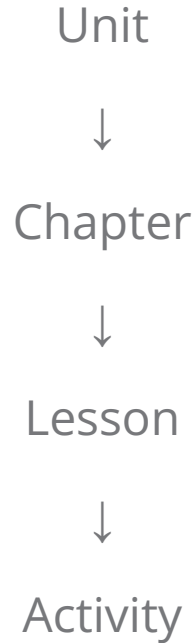
In this unit, students investigate what might cause an electrical system to fail, and they design solutions to improve the electrical

Digital Resources

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

Spanish Standards

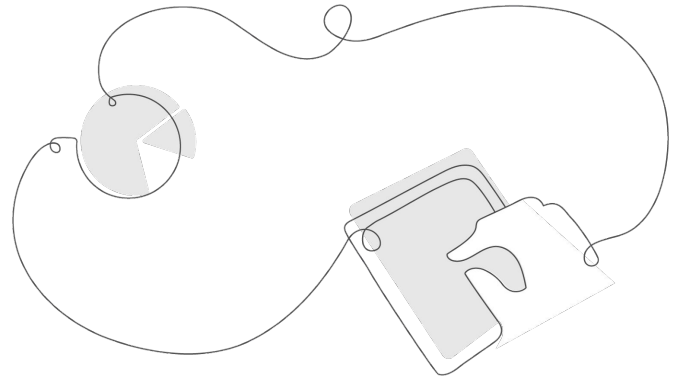
Unit structure



Practice

Spend a few minutes practicing navigating between lessons.

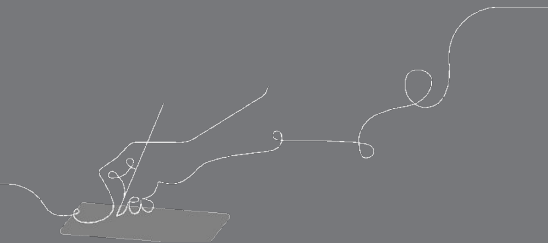
1. Try using the breadcrumb trail at the top of the Teacher's Guide to navigate to a specific lesson.
2. Try using the arrows to flip between lessons in order.



Classroom Slides

In this section you will learn to:

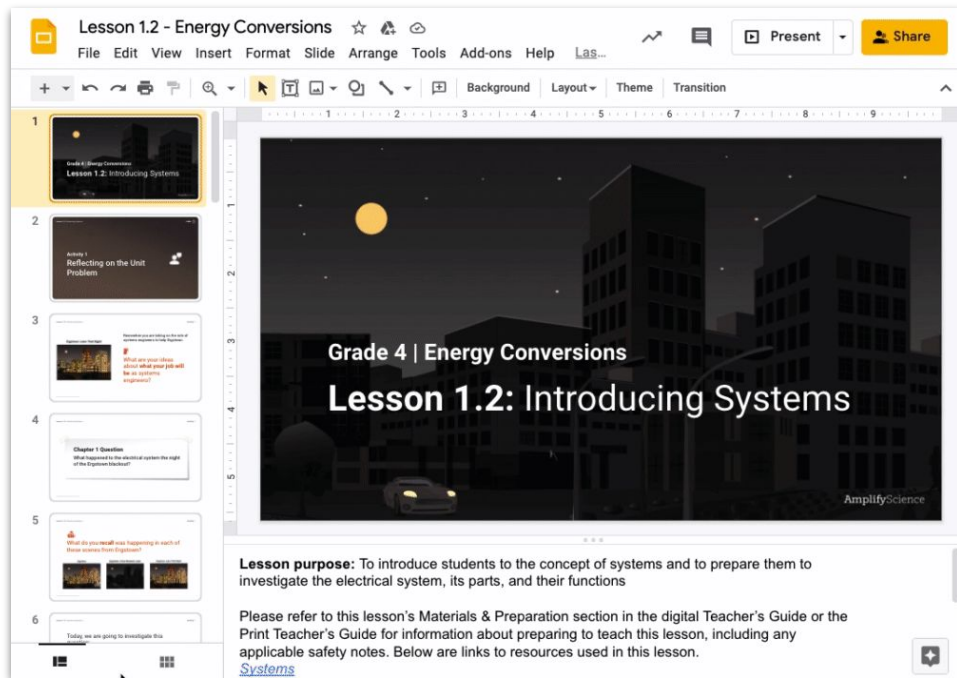
- ❑ Access and edit a lesson's Classroom Slides deck
- ❑ Interpret formatting and icons in Classroom Slides decks
- ❑ Use Classroom Slides as a planning tool



Classroom Slides

Classroom Slides are a tool for easily preparing and presenting lessons.

They are editable slide decks that include activity instructions, student prompts, and other text and visuals to guide you and your students through a lesson.



The screenshot displays the Classroom Slides application interface. At the top, the title bar reads "Lesson 1.2 - Energy Conversions" and includes a "Present" button and a "Share" button. Below the title bar is a menu bar with options: File, Edit, View, Insert, Format, Slide, Arrange, Tools, Add-ons, Help, and a search icon. A secondary toolbar contains various editing tools like undo, redo, copy, paste, and zoom. The main area is divided into a slide thumbnail pane on the left and a large preview window on the right. The thumbnail pane shows six slides, with the first slide selected. The preview window displays the first slide, which features a dark background with a cityscape at night and a bright yellow sun or moon. The text on the slide reads "Grade 4 | Energy Conversions" and "Lesson 1.2: Introducing Systems". Below the slide preview, there is a "Lesson purpose" section and a note about referring to the Materials & Preparation section in the digital Teacher's Guide or the Print Teacher's Guide. At the bottom right, there is a "Systems" link and a small icon.

Lesson 1.2 - Energy Conversions ☆ 📄 🌐

File Edit View Insert Format Slide Arrange Tools Add-ons Help **Present** **Share**

Background Layout Theme Transition

1 Lesson 1.2: Introducing Systems

2 Activity 1: Reflecting on the Unit Problem

3 Chapter 1: Questions: What are your ideas about what you will be an systems engineer?

4 Chapter 1: Questions: What happened to the electrical system the night of the system outage?

5 What do you recall was happening in each of these scenes from Engage?

6 Today we are going to investigate this

Grade 4 | Energy Conversions
Lesson 1.2: Introducing Systems

AmplifyScience

Lesson purpose: To introduce students to the concept of systems and to prepare them to investigate the electrical system, its parts, and their functions

Please refer to this lesson's Materials & Preparation section in the digital Teacher's Guide or the Print Teacher's Guide for information about preparing to teach this lesson, including any applicable safety notes. Below are links to resources used in this lesson.

[Systems](#)

Hidden slide: locating Classroom Slides

AmplifyScience > Energy Conversions > Chapter 1 > Lesson 1.2

Lesson 1.2: Introducing Systems

Lesson Brief (4 Activities)

- 1 TEACHER-LED DISCUSSION
Reflecting on the Unit Problem
- 2 TEACHER-LED DISCUSSION
Observing a Simple System
- 3 TEACHER-LED DISCUSSION
Introduction to Synthesizing
- 4 READING
Reading: Systems

RESET LESSON

GENERATE PRINTABLE LESSON GUIDE

Overview

To begin to tackle the problem of designing improvements to the Ergstown electrical system, students first set out to understand what a system is. They observe a simple system—a cherry pitter—and identify its parts and their functions. To broaden students' understanding of systems, the teacher introduces the *Systems* book and the reading strategy of synthesizing. Students work in pairs to synthesize their prior knowledge, what they learned from the cherry pitter system demonstration, and what they are reading in the text in order to strengthen their understanding of what a system is. 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.

Digital Resources

- Classroom Slides 1.2 | PowerPoint
- Classroom Slides 1.2 | Google Slides**
- All Projections
- Partner Reading Guidelines
- Cherry Pitter System table (Completed)
- Optional: Chapter 1 Home

Explore the slide deck

Briefly CLICK through the slide deck to familiarize yourself with the format.

1. Can you find the slide notes?
2. What do you think the different colors and icons mean?

The screenshot shows a Google Slides presentation interface. The title bar reads "Lesson 1.2 - Energy Conversions" with a star icon, a refresh icon, and a share icon. Below the title bar is a menu bar with options: File, Edit, View, Insert, Format, Slide, Arrange, Tools, Add-ons, Help. A status bar on the right indicates "Last edit was 2 d...".

The slide navigation pane on the left shows seven slides. Slide 3 is highlighted in yellow. The main slide area displays slide 3, which is titled "Lesson 1.2: Introducing Systems" and "Activity 1".

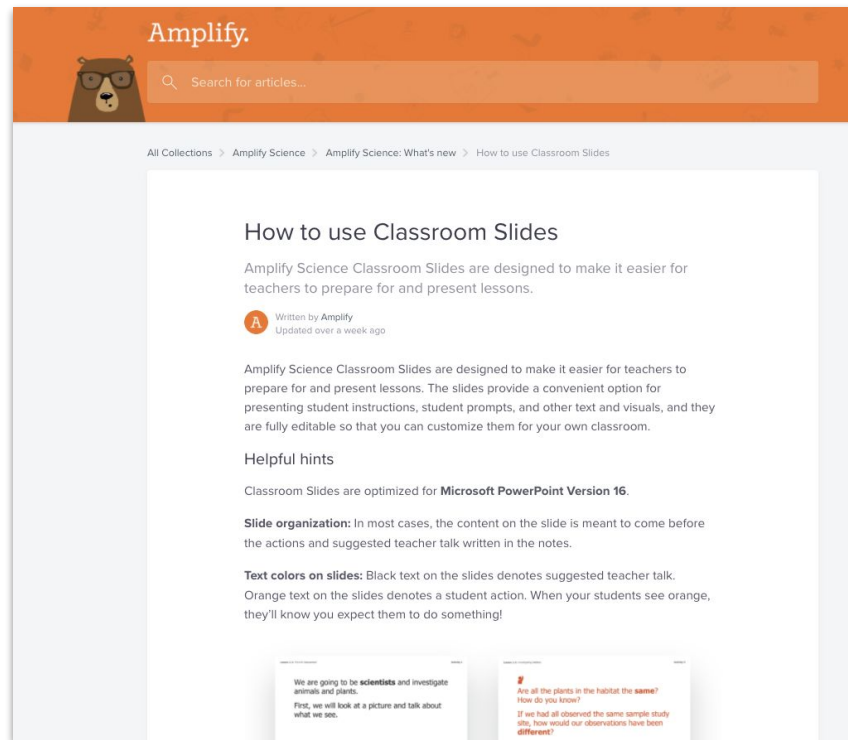
The slide content includes:

- Section: **Ergstown: Later That Night**
- Image: A photograph of a city skyline at night with buildings lit up.
- Text: "Remember you are taking on the role of systems engineers to help Ergstown."
- Text: "What are your ideas about **what your job will be** as systems engineers?"

At the bottom of the slide, there is a section titled "Students may respond:" with the text: "To understand how the electrical system works and to help Ergstown try to prevent so many blackouts from happening."

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.

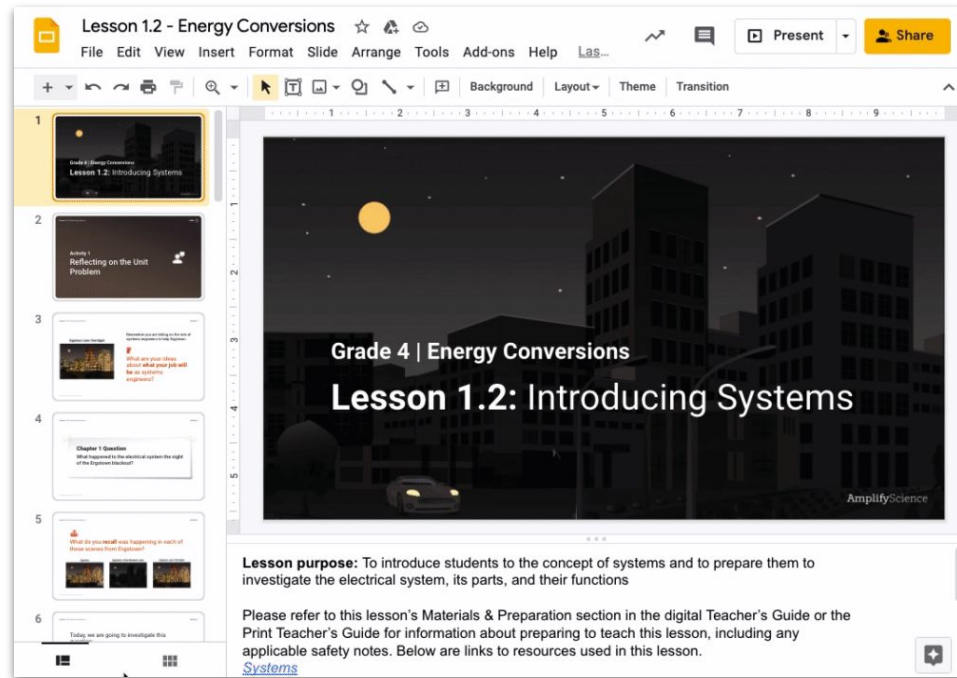


The screenshot shows the Amplify Science Help Site interface. At the top, there is an orange header with the Amplify logo (a bear wearing glasses) and a search bar. Below the header, a breadcrumb trail reads: "All Collections > Amplify Science > Amplify Science: What's new > How to use Classroom Slides". The main content area features the article title "How to use Classroom Slides" in a large, bold font. Below the title, a paragraph states: "Amplify Science Classroom Slides are designed to make it easier for teachers to prepare for and present lessons." This is followed by a byline: "Written by Amplify Updated over a week ago". The article continues with a paragraph explaining that the slides are designed to make it easier for teachers to prepare for and present lessons, providing a convenient option for presenting student instructions, student prompts, and other text and visuals, and they are fully editable so that you can customize them for your own classroom. Below this, there is a section titled "Helpful hints" which includes two sub-sections: "Classroom Slides are optimized for Microsoft PowerPoint Version 16." and "Slide organization: In most cases, the content on the slide is meant to come before the actions and suggested teacher talk written in the notes." The final section is "Text colors on slides: Black text on the slides denotes suggested teacher talk. Orange text on the slides denotes a student action. When your students see orange, they'll know you expect them to do something!". At the bottom of the article, there are two small thumbnail images of classroom slides. The first slide shows black text: "We are going to be **scientists** and investigate animals and plants. First, we will look at a picture and talk about what we see." The second slide shows orange text: "Are all the plants in the habitat the **same**? How do you know? If we had all observed the same sample study site, how would our observations have been **different**?"

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.



The screenshot shows a Classroom Slides presentation titled "Lesson 1.2 - Energy Conversions". The interface includes a menu bar with options like File, Edit, View, Insert, Format, Slide, Arrange, Tools, Add-ons, Help, and a search bar. A toolbar below the menu offers various editing tools and options like Background, Layout, Theme, and Transition. On the left, a vertical list of slide thumbnails is visible, with slide 1 selected. The main area displays slide 1, which features a dark background with a cityscape at night and a yellow sun/moon. The text on the slide reads "Grade 4 | Energy Conversions" and "Lesson 1.2: Introducing Systems". Below the slide, there is a "Lesson purpose" section and a note about referring to the Teacher's Guide for materials and safety notes. A link to "Systems" is provided at the bottom.

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[Systems](#)

Questions?

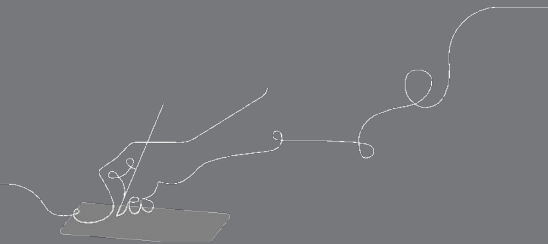


Lesson Brief and Instructional Guide

In this section you will learn to:

- ❑ Locate lesson-specific materials, preparation, and differentiation guidance
- ❑ Navigate to a lesson's Instructional Guide

e



Preparing to teach a lesson

Lesson Brief

Use the Lesson Brief for information about lesson timing, materials and preparation, and differentiation suggestions.

The screenshot shows the AmplifyScience interface for Lesson 1.2: Introducing Systems. The top navigation bar includes the AmplifyScience logo and a breadcrumb trail: Energy Conversions > Chapter 1 > Lesson 1.2. The main header features a dark image of a city street at night with the text "Lesson 1.2: Introducing Systems". Below the header is a progress bar with four sections: 1. Lesson Brief (4 Activities), 2. TEACHER-LED DISCUSSION: Reflecting on the Unit Problem, 3. TEACHER-LED DISCUSSION: Observing a Simple System, and 4. TEACHER-LED DISCUSSION: Introduction to Synthesizing. A "READING: Systems" section is also visible. The main content area includes a "RESET LESSON" button, a "GENERATE PRINTABLE LESSON GUIDE" button, and a sidebar with navigation links: Overview, Materials & Preparation, Differentiation, Standards, Vocabulary, and Unplugged?. The main text area contains an "Overview" section with the following text: "To begin to tackle the problem of designing improvements to the Ergstown electrical system, students first set out to understand what a system is. They observe a simple system—a cherry pitter—and identify its parts and their functions. To broaden students' understanding of systems, the teacher introduces the Systems book and the reading strategy of synthesizing. Students work in pairs to synthesize their prior knowledge, what they learned from the cherry pitter system demonstration, and what they are reading in the text in order to strengthen their understanding of what a system is. 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." Below this is the "Unit Anchor Phenomenon: Ergstown has frequent blackouts." and "Chapter-level Anchor Phenomenon: There was a blackout in". The sidebar also lists "Digital Resources" including Classroom Slides 1.2 (PowerPoint and Google Slides), All Projections, Partner Reading Guidelines, Cherry Pitter System table (Completed), Optional: Chapter 1 Home Investigation: Blackout Interview copymaster, and Energy Conversions Investigation Notebook, pages 3-5. A language selector for "Español" is located in the bottom left corner.

Preparing to teach a lesson

Instructional Guide

The Instructional Guide includes the steps for teaching each activity, as well as Teacher Support notes and, when applicable, Possible Responses.

AmplifyScience > Animal and Plant Defenses > Chapter 1 > Lesson 1.2

Lesson Brief (3 Activities) | 1 READING Reading: Tortoise Parts | 2 HANDS-ON Observing Structures Used to Eat | 3 TEACHER-LED DISCUSSION Discussing Observations and Structures

Reading: Tortoise Parts

The teacher leads a Shared Reading of *Tortoise Parts* and introduces the strategy of visualizing while reading. (20 min)

EMBEDDED FORMATIVE ASSESSMENT | INSTRUCTIONAL GUIDE

Step-by-step | Teacher Support | My Notes

- 1. Revisit the aquarium.**
 - We have been working as aquarium scientists to help the aquarium director. We are trying to help the director explain to kids who visit the aquarium how sea turtles, like Spruce, survive in the ocean.
- 2. Connect to prior learning.**
 - In our last lesson, we thought about what animals and plants need to do to survive. During the Survival Game, we figured out that animals and plants need certain things to survive. What did we learn that animals and plants need to survive?
[They need to get air. They need to get water. They need to get food.]
 - Spruce the Sea Turtle is an animal. Just like other living things, she needs to get air, water, and food to survive. Now we can work to figure out how Spruce gets these things that she needs to survive.

Hidden slide: Review breadcrumb trail and digital resources

AmplifyScience > Energy Conversions > Chapter 1 > Lesson 1.2

Lesson 1.2: Introducing Systems

Lesson Brief (4 Activities)

- 1 TEACHER-LED DISCUSSION
Reflecting on the Unit Problem
- 2 TEACHER-LED DISCUSSION
Observing a Simple System
- 3 TEACHER-LED DISCUSSION
Introduction to Synthesizing
- 4 READING
Reading: Systems

RESET LESSON

GENERATE PRINTABLE LESSON GUIDE

Overview

Materials & Preparation

Differentiation

Standards

Vocabulary

Unplugged?

Overview

To begin to tackle the problem of designing improvements to the Ergstown electrical system, students first set out to understand what a system is. They observe a simple system—a cherry pitter—and identify its parts and their functions. To broaden students' understanding of systems, the teacher introduces the *Systems* book and the reading strategy of synthesizing. Students work in pairs to synthesize their prior knowledge, what they learned from the cherry pitter system demonstration, and what they are reading in the text in order to strengthen their understanding of what a system is. 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.

Unit Anchor Phenomenon: Ergstown has frequent blackouts.
Chapter-level Anchor Phenomenon: There was a blackout in

Digital Resources

- Classroom Slides 1.2 | PowerPoint
- Classroom Slides 1.2 | Google Slides
- All Projections
- Partner Reading Guidelines
- Cherry Pitter System table (Completed)
- Optional: Chapter 1 Home Investigation: Blackout Interview copymaster
- Energy Conversions Investigation Notebook, pages 3–5

Español

Hidden slide: Overview

AmplifyScience > Energy Conversions > Chapter 1 > Lesson 1.2

Lesson 1.2: Introducing Systems

Lesson Brief (4 Activities)

- 1 TEACHER-LED DISCUSSION
Reflecting on the Unit Problem
- 2 TEACHER-LED DISCUSSION
Observing a Simple System
- 3 TEACHER-LED DISCUSSION
Introduction to Synthesizing
- 4 READING
Reading: Systems

RESET LESSON

GENERATE PRINTABLE LESSON GUIDE

Overview

To begin to tackle the problem of designing improvements to the Ergstown electrical system, students first set out to understand what a system is. They observe a simple system—a cherry pitter—and identify its parts and their functions. To broaden students' understanding of systems, the teacher introduces the *Systems* book and the reading strategy of synthesizing. Students work in pairs to synthesize their prior knowledge, what they learned from the cherry pitter system demonstration, and what they are reading in the text in order to strengthen their understanding of what a system is. 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.

Unit Anchor Phenomenon: Ergstown has frequent blackouts.
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Digital Resources

- Classroom Slides 1.2 | PowerPoint
- Classroom Slides 1.2 | Google Slides
- All Projections
- Partner Reading Guidelines
- Cherry Pitter System table (Completed)
- Optional: Chapter 1 Home Investigation: Blackout Interview copymaster
- Energy Conversions Investigation Notebook, pages 3–5

Español

Hidden slide: Lesson at a Glance and floating menu

Overview

Materials & Preparation

Differentiation

Standards

Vocabulary

Unplugged?

Lesson at a Glance

1: Reflecting on the Unit Problem (5 min.)

To prepare to begin their investigations, students reflect on the unit problem and their role as systems engineers.

2: Observing a Simple System (15 min.)

As a first step toward building an understanding of how electrical systems work, students are introduced to an example of a simple system—a cherry pitter. Students observe the cherry pitter system to identify the parts of the system and their functions.

3: Introduction to Synthesizing (15 min.)

The teacher introduces *Systems*, then introduces and models the reading strategy of synthesizing in order to prepare students to synthesize as they read the book with a partner.

4: Reading: Systems (25 min.)

Partners read *Systems* and apply the synthesizing strategy to generate new ideas to help them answer the first Investigation Question: *What is a system?* Post-reading discussion provides students with an opportunity to hear the new ideas about systems that their classmates have generated. This activity also provides an On-the-Fly Assessment of students' developing ability to synthesize information as a reading strategy.


Digital Resources


 Classroom Slides 1.2 | PowerPoint


 Classroom Slides 1.2 | Google Slides

 All Projections

 Partner Reading Guidelines

 Cherry Pitter System table (Completed)

 Optional: Chapter 1 Home Investigation: Blackout Interview copymaster

 Energy Conversions Investigation Notebook, pages 3–5

We'd love to hear from you! Submit your feedback [here](#).

Hidden slide: Materials and preparation

AmplifyScience > Energy Conversions > Chapter 1 > Lesson 1.2

Overview
Materials & Preparation
Differentiation
Standards
Vocabulary
Unplugged?

Materials & Preparation

Materials

For the Classroom Wall

- Chapter 1 Question: *What happened to the electrical system the night of the Ergstown blackout?*
- vocabulary: *function, synthesize*

For the Class

- 1 cherry pitter
- 3 cherries*
- paper towels*
- 1 sheet of chart paper*
- masking tape*
- marker*
- optional: Chapter 1 Home Investigation: Blackout Interview copymaster

For Each Pair of Students

- 1 copy of *Systems*

For Each Student

- Energy Conversions* Investigation Notebook (pages 3–5)
- optional: 1 copy of the Chapter 1 Home Investigation: Blackout Interview student sheet

*teacher provided

BACK TO TOP

Español

AmplifyScience > Energy Conversions > Chapter 1 > Lesson 1.2

Overview
Materials & Preparation
Differentiation
Standards
Vocabulary
Unplugged?

Preparation

Before the Day of the Lesson

- Gather the following materials for the classroom wall:
 - Chapter 1 Question: *What happened to the electrical system the night of the Ergstown blackout?*
 - vocabulary: *function, synthesize*
- Read Systems.** Familiarize yourself with the book that students will read in this lesson.
- Create the Partner Reading Guidelines.** On chart paper, create these guidelines. (See Digital Resources for what the poster should look like.) You will keep this posted throughout the unit. If you don't have enough wall space, you'll need to take it down and repost it during the reading lessons.
- Assign reading partners.** Throughout the unit, we recommend that students read with partners. You may choose to assign the same reading partners throughout the unit or switch reading partners with each book. (See the Differentiation section for more recommendations about reading partners.)
- Prepare for the Observing a Simple System activity.** Locate the cherry pitter (in your *Energy Conversions* kit). In addition, you will need to provide cherries and paper towels. Familiarize yourself with the function of the cherry pitter. You may wish to practice using it to remove a cherry pit before doing so in front of your class. You will need one tray with the following materials:
 - 1 cherry pitter
 - several cherries
 - paper towels
- Prepare for On-the-Fly Assessment.** There is an On-the-Fly Assessment included in this lesson. In Activity 4, the assessment provides an opportunity to informally assess students' first attempts at synthesizing as a reading strategy. Select the

BACK TO TOP

Español

Hidden slide: Differentiation



Overview

Materials & Preparation

Differentiation

Standards

Vocabulary

Unplugged?

Differentiation

Embedded Supports for Diverse Learners

Partner Reading. Reading with a partner provides opportunities for students to assist each other with reading—with using the reading strategy modeled by the teacher, with decoding, and with comprehension. Partner reading encourages discussion of the text during reading, which aids comprehension and engagement.

Supportive visuals in the book. The diagrams and tables in *Systems* are designed to clarify the meaning of the text and should support students' comprehension of concepts and ideas.

Potential Challenges in This Lesson

Reading-centered. Reading science texts is challenging, and the strategy of synthesizing may be unfamiliar to many students. Students who struggle with reading in general may struggle with the reading in this lesson.

Synthesizing across activities. Synthesizing information from a variety of sources is a complex cognitive task and can be challenging for students. The synthesizing reading comprehension strategy may be new to students. Some students may find it difficult to incorporate new information from the reading into their growing understanding of systems. Keep in mind that students will have many opportunities over the course of the unit to learn to use this complex strategy.

Specific Differentiation Strategies for English Learners

Digital Resources

Classroom Slides 1.2 | PowerPoint

Classroom Slides 1.2 | Google Slides

All Projections

Partner Reading Guidelines

Cherry Pitter System table (Completed)

Optional: Chapter 1 Home Investigation: Blackout Interview copymaster

Energy Conversions Investigation Notebook, pages 3–5



Preparing to teach a lesson

Instructional Guide

The Instructional Guide includes the steps for teaching each activity, as well as Teacher Support notes and, when applicable, Possible Responses.

The screenshot shows the AmplifyScience interface for a lesson. At the top, the breadcrumb trail reads: AmplifyScience > Energy Conversions > Chapter 1 > Lesson 1.2. Below this is a navigation bar with four tabs: 'Lesson Brief (4 Activities)', '1 TEACHER-LED DISCUSSION Reflecting on the Unit Problem', '2 TEACHER-LED DISCUSSION Observing a Simple System', and '3 TEACHER-LED DISCUSSION Introduction to Synthesizing'. A fourth tab, '4 READING Reading Systems', is partially visible. The main content area is titled 'Reflecting on the Unit Problem' and includes the instruction: 'Students reflect on the previous lesson's activities. (5 min)'. On the right side of this section is an 'INSTRUCTIONAL GUIDE' icon. Below the main text are three tabs: 'Step-by-step' (which is selected), 'Teacher Support', and 'My Notes'. The 'Step-by-step' content includes the following text and questions:

1. Revisit the unit problem. Refer to your discussion from the previous lesson. Ask students to recall the problem Ergstown has been having and review their role as systems engineers.

Q What will your job be as systems engineers?

[To understand how the electrical system works and to help Ergstown try to prevent so many blackouts from happening.]

2. Post the Chapter 1 Question to the classroom wall and lead a discussion to leverage prior knowledge and experiences. Explain that over the next few lessons, students will focus on answering this question.

Q Before we can answer our big question—*How does the electrical system work?*—there is a lot we need to discover and understand.

Q To begin, we need to make sense of what happened in Ergstown. Why did all the lights go out?

Read the question aloud.

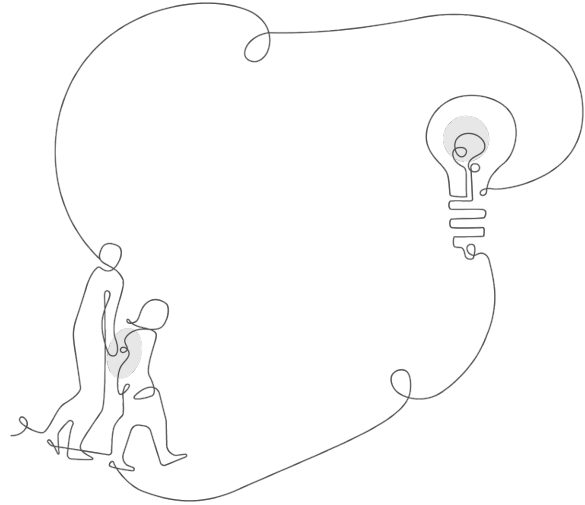
Q What happened to the electrical system the night of the Ergstown blackout?

Q As we think about this question we can refer to the Our Experiences and What We Think We Know charts to see if any of our ideas might help us understand what happened to the electrical system of Ergstown.

Preparing to teach a lesson

Lesson Brief and Instructional Guide

How might you use information from the Lesson Brief and Instructional Guide to prepare to teach a lesson?



Preparing to teach a lesson

Teacher tip: Follow these steps to get to know a lesson and get ready to plan and teach:

1. Navigate to the lesson and open the Classroom Slides deck.
2. Skim through the slides for a quick visual summary of the lesson.
3. Use the Lesson Brief for information about lesson timing, materials and preparation, and differentiation suggestions.
4. Return to the Classroom Slides deck and make any edits or customizations.

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

Break

During the break, you may want to add notes to your Teaching and Learning chart!





Plan for part 1

- Framing the day
 - Welcome
- The Amplify Approach
 - Multimodal learning
- **Model Lesson Experience**
 - SEL suggestions
 - Lesson reflection
- Closing
 - Final Questions & Feedback

Student apps page

To prepare for our model lesson, you'll need to open a digital student book through the Student Apps page.

Energy Conversions

BACK

Simulation

1
Energy Conversions

Science Practice Tools

1
2.2 Energy Form Conversions

2
3.2 Energy Converters

Student Books

1
Blackout!

2
Energy Past and Present

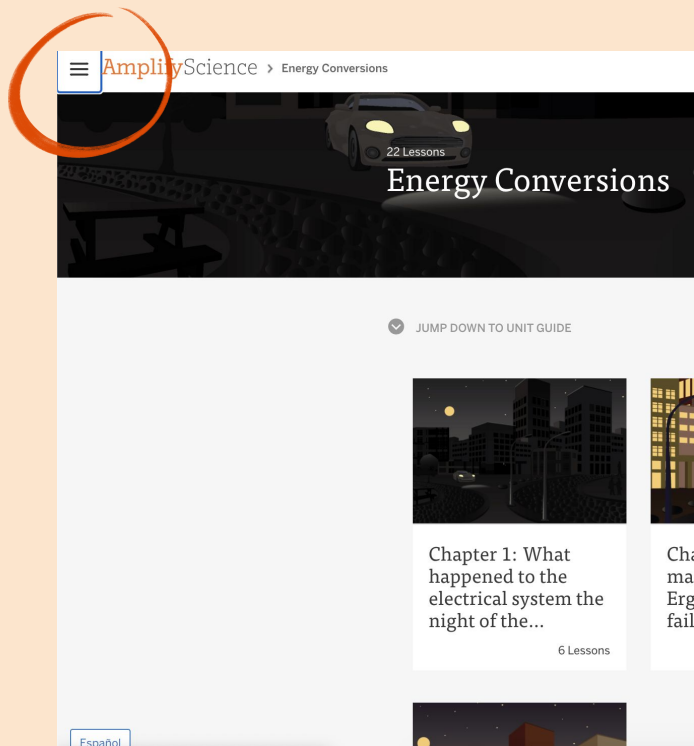
3
It's All Energy

4
Sunlight and Showers

5
Systems

6
Who Thinks About Systems

Hidden slide: Navigating to the Student Apps page



AmplifyScience > Energy Conversions

22 Lessons

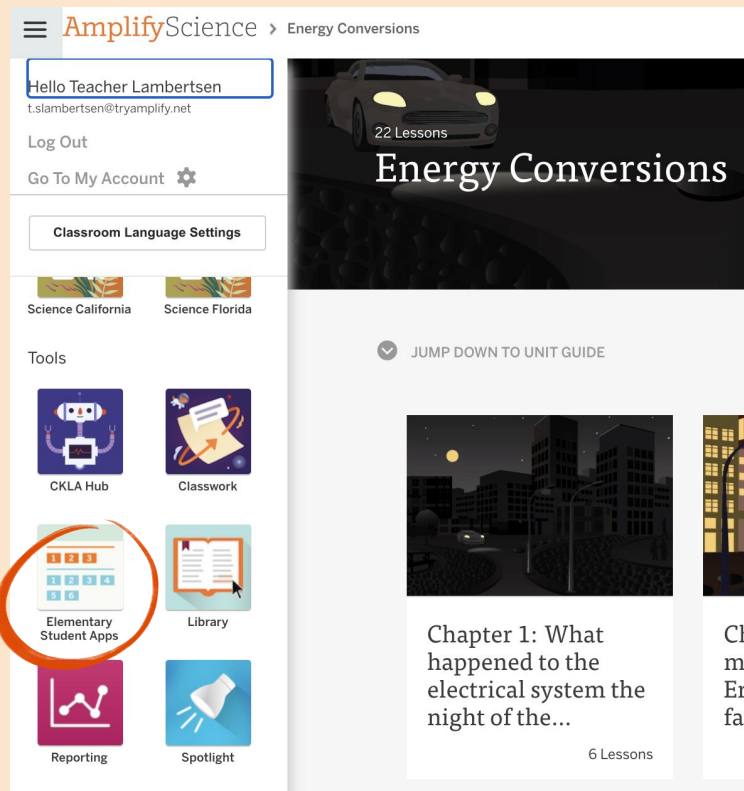
Energy Conversions

JUMP DOWN TO UNIT GUIDE

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

EspaPol

This screenshot shows the AmplifyScience interface for the 'Energy Conversions' unit. The navigation menu (three horizontal lines) is circled in orange. Below the unit title, there is a 'JUMP DOWN TO UNIT GUIDE' button. The main content area displays a preview for 'Chapter 1: What happened to the electrical system the night of the...' with '6 Lessons'.



AmplifyScience > Energy Conversions

Hello Teacher Lambertsen
t.slambertsen@tryamplify.net

Log Out

Go To My Account ⚙️

Classroom Language Settings

Science California Science Florida

Tools

- CKLA Hub
- Classwork
- Elementary Student Apps
- Library
- Reporting
- Spotlight

22 Lessons

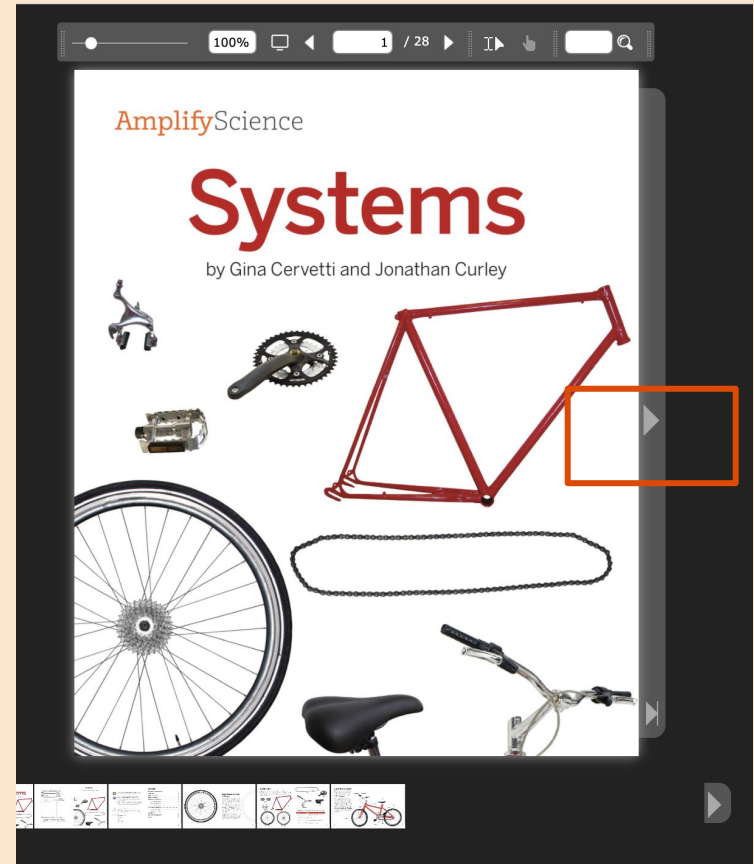
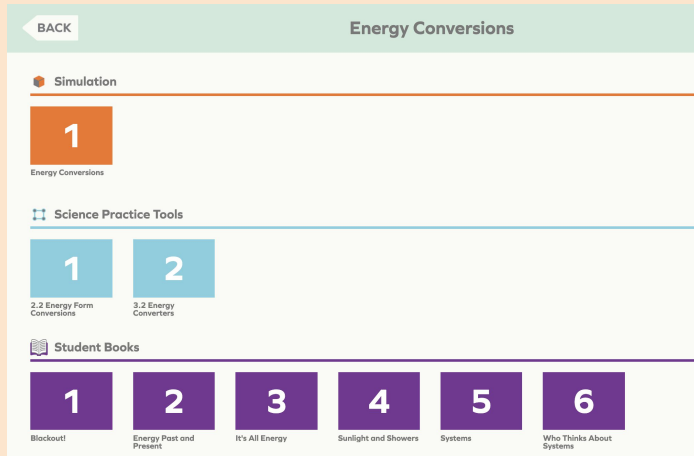
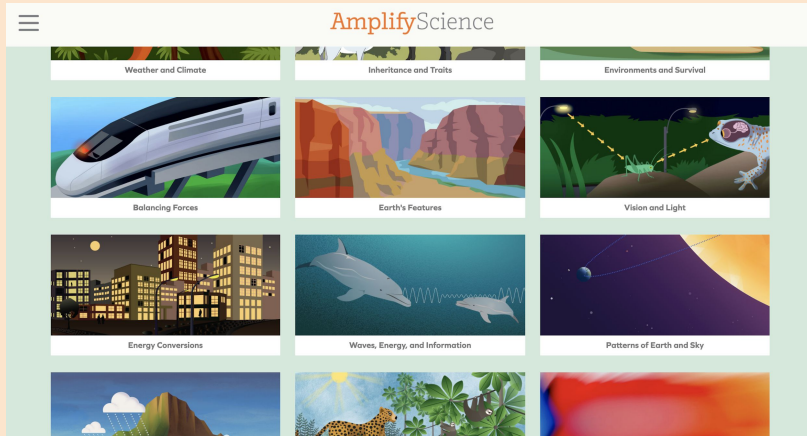
Energy Conversions

JUMP DOWN TO UNIT GUIDE

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

This screenshot shows the AmplifyScience interface for the 'Energy Conversions' unit, viewed from a teacher's perspective. The navigation menu is circled in orange. Below the unit title, there is a 'JUMP DOWN TO UNIT GUIDE' button. The main content area displays a preview for 'Chapter 1: What happened to the electrical system the night of the...' with '6 Lessons'. The 'Tools' section is visible, and the 'Elementary Student Apps' icon is circled in orange.

Hidden slide: Student Apps page and accessing the book

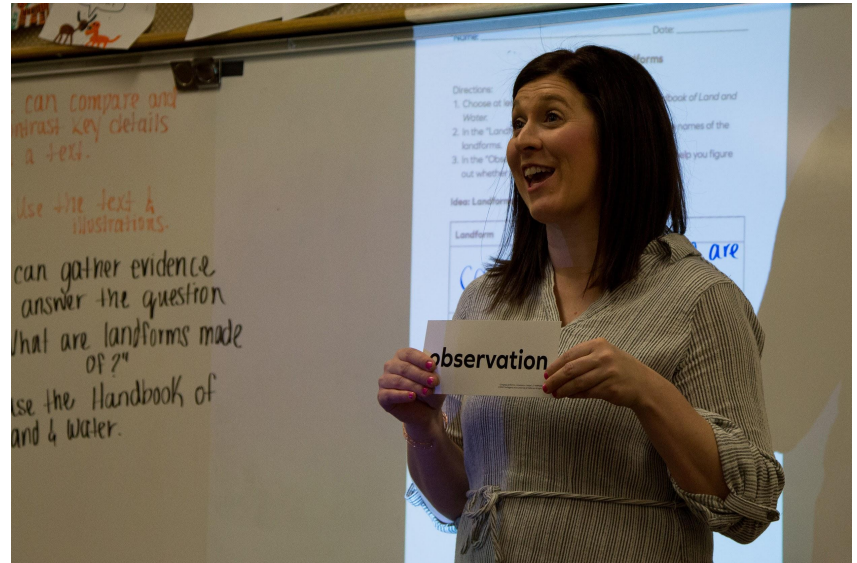


Model lesson

Experiencing instruction as a student

During the model lesson, you'll take on the role of a student.

However, we'll pause a few times to share insights about teaching the lesson.



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?

Energy Conversions Classroom Wall

Unit Question

How does the electrical system work?

Key Concepts

Vocabulary

Chapter 1 Question

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

Today, we are going to investigate this question:

What is a system?

Energy Conversions Classroom Wall

Unit Question

How does the electrical system work?

Key Concepts

Vocabulary

Chapter 1 Question

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

Investigation Question

What is a system?

Activity 2

Observing a Simple System





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

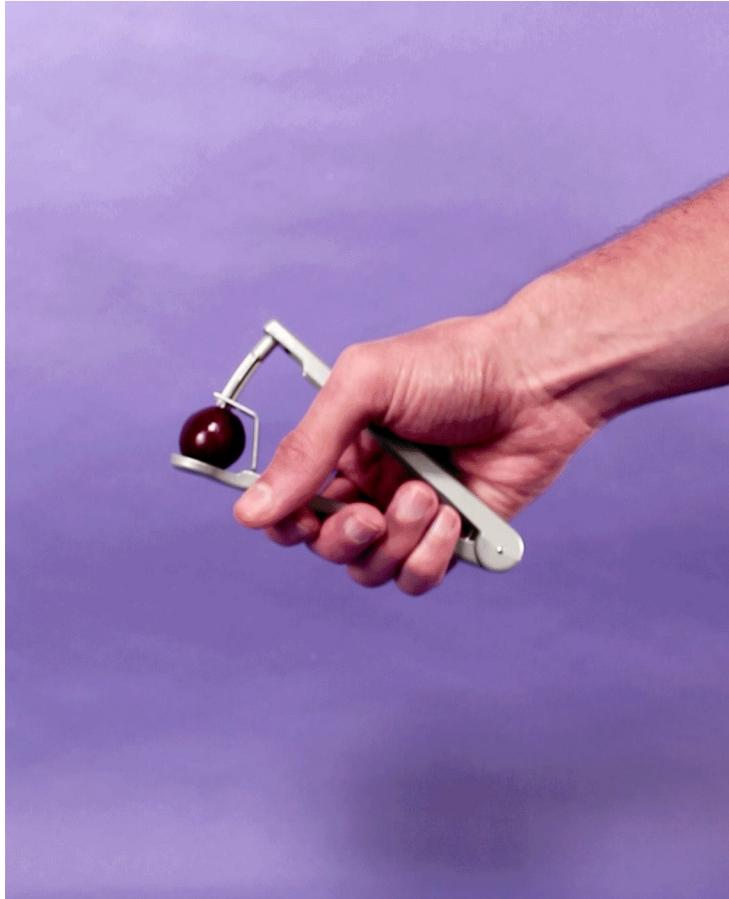


We will use this **mystery system** as an example for you to begin understanding what a system is.



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:

Vocabulary



function

what something can do

Energy Conversions Classroom Wall

Unit Question

How does the electrical system work?

Chapter 1 Question

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

Investigation Question

What is a system?

Key Concepts

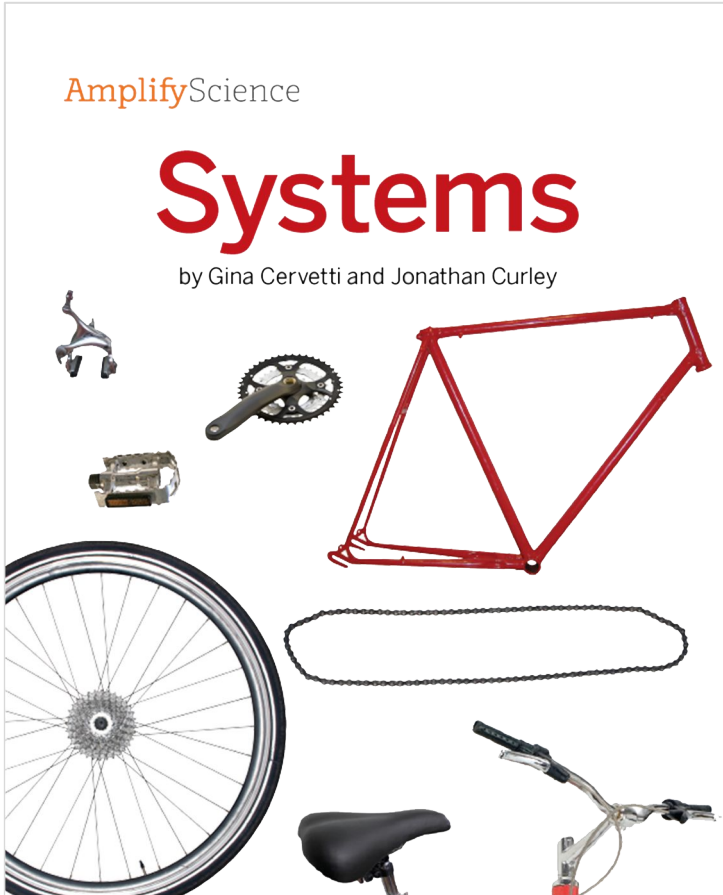
Vocabulary

function

Activity 3

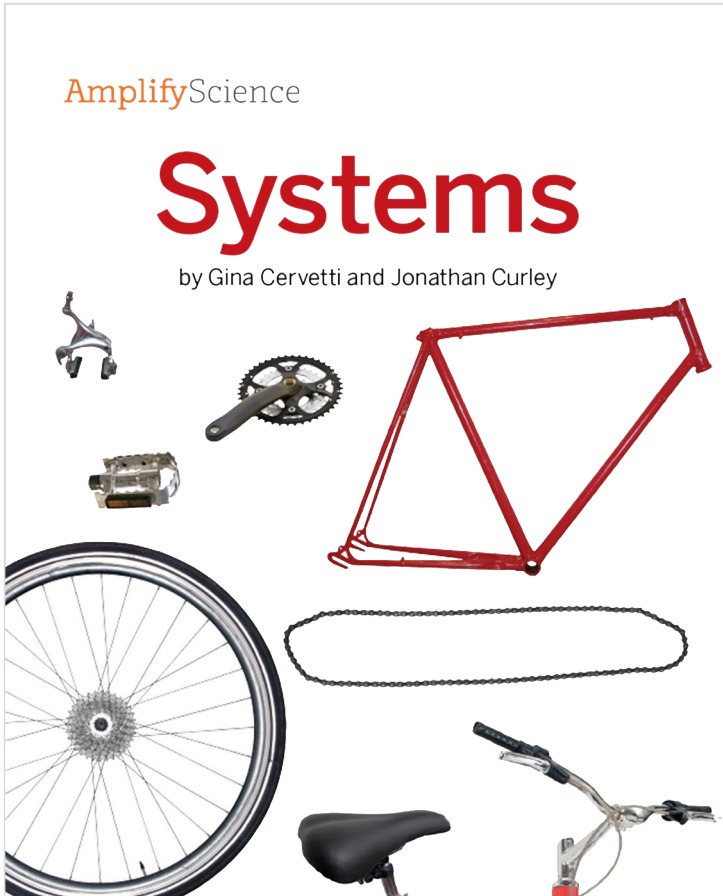
Introduction to Synthesizing





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.



pedals



brakes



frame



front wheel



back wheel

6

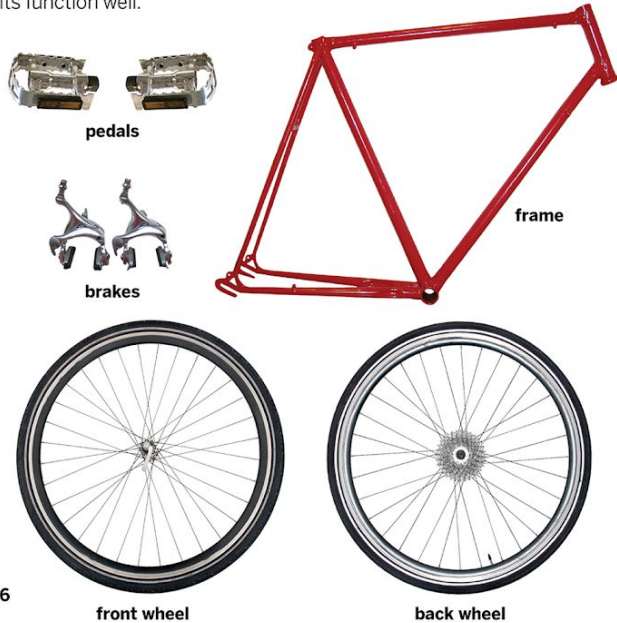
Turn to page 6.



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>

7

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

Energy Conversions Classroom Wall

Unit Question

How does the electrical system work?

Chapter 1 Question

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

Investigation Question

What is a system?

Key Concepts

Vocabulary

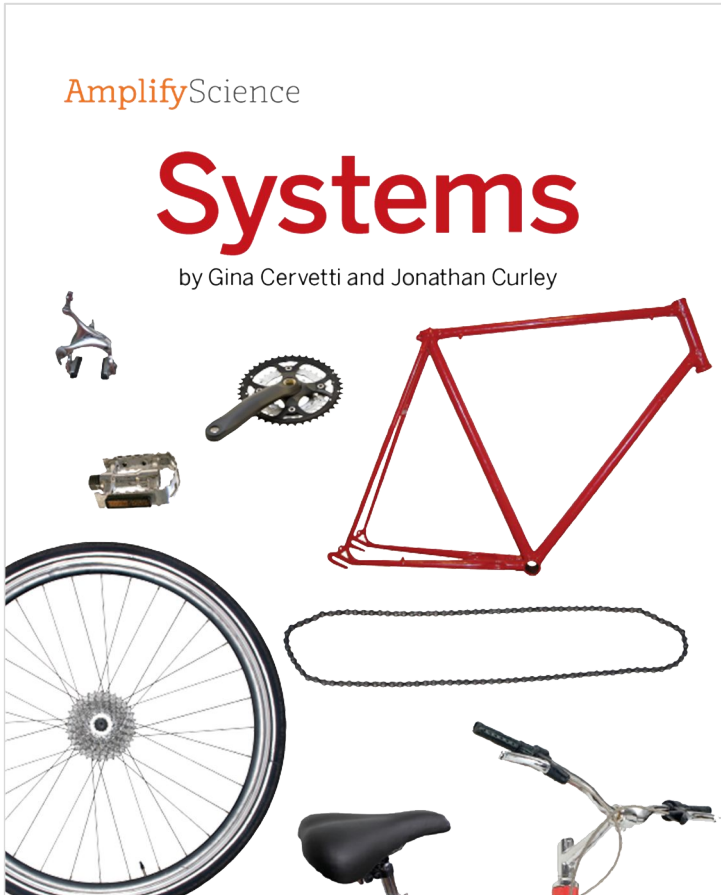
function

synthesize

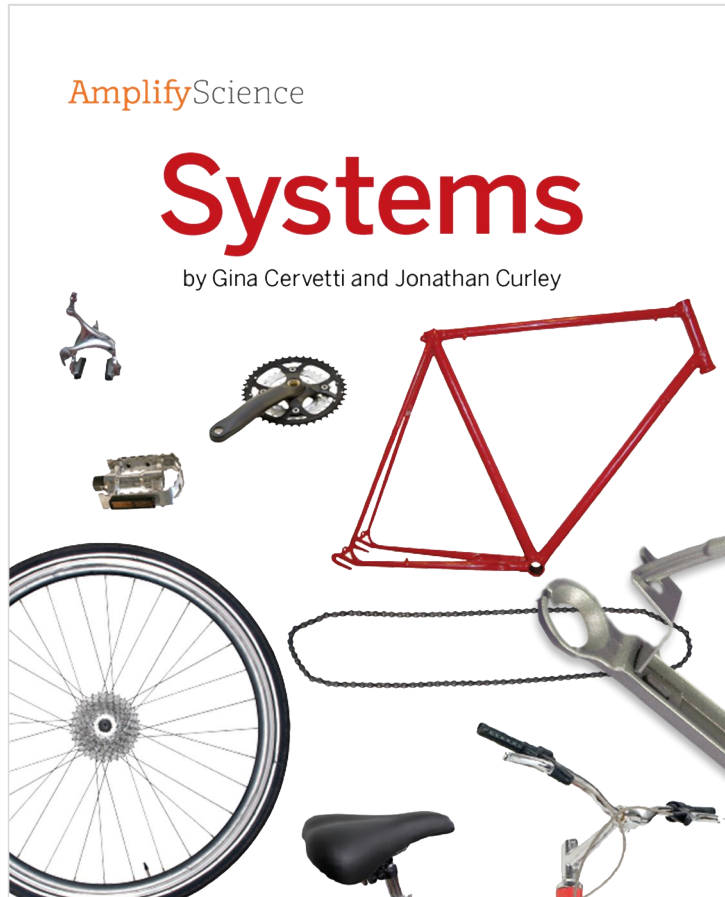
Activity 4

Reading: Systems





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



THE LAWRENCE
HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY


Amplify.

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Reflection

Small group discussion

After experiencing the model lesson, share your new ideas about teaching and learning with Amplify Science.

<i>Teaching</i>	<i>Learning</i>
	

Social Emotional Learning

5 Core Competencies

- Identified by the Collaborative for Academic, Social, & Emotional Learning (CASEL)
- Widely accepted across the country & adopted by NYS



Figure 1: Framework for Systemic Social and Emotional Learning.
©CASEL 2017

Read, reflect, & discuss

5 competencies of SEL

- ❏ Take a few moments to review these competencies.
- ❏ Reflect on how you already incorporate these competencies & skills into your instruction.
- ❏ Share in the chat!

SOCIAL EMOTIONAL LEARNING'S FIVE CORE COMPETENCIES

There are many frameworks and ways to talk about social emotional competence and skills. For simplicity and clarity, this document uses a set of five competencies identified by the Collaborative for Academic, Social, and Emotional Learning (CASEL) that all young people and adults need to learn to be successful in school and in life. This framework has been widely accepted across the country. New York State has endorsed these five core competencies.

Figure 1: Framework for Systemic Social and Emotional Learning. ©CASEL 2017

Five Core Social Emotional Competencies

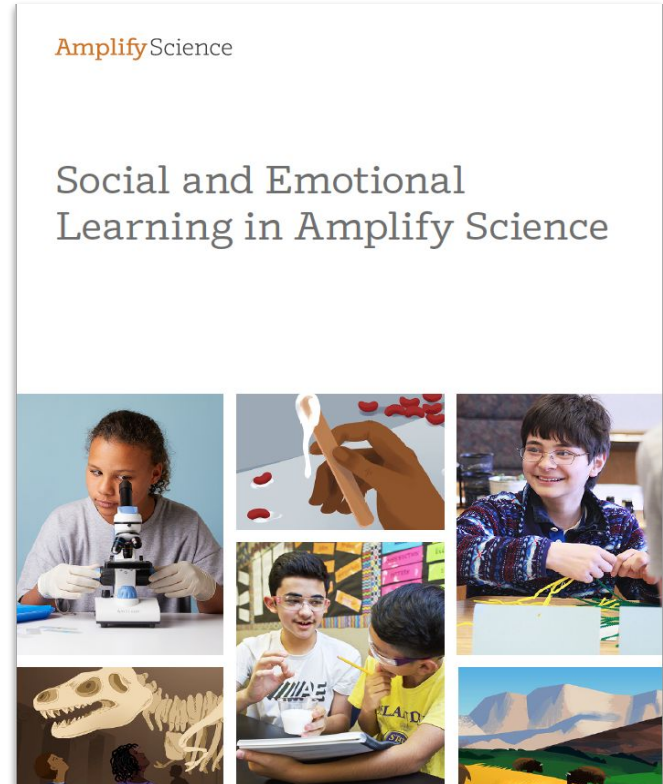
Competency	Description
Self-Awareness	Competence in the self-awareness domain involves understanding one's emotions, personal goals, and values. This includes accurately assessing one's strengths and limitations, having a positive mindset, and possessing a well-grounded sense of self-efficacy and optimism. High levels of self-awareness require the ability to recognize how thoughts, feelings, and actions are interconnected.
Self-Management	Competence in the self-management domain requires skills and attitudes that facilitate the ability to regulate emotions and behaviors. This includes skills necessary to achieve goals, such as the ability to delay gratification, manage stress, control impulses, and persevere through challenges.
Social Awareness	Competence in the social awareness domain involves the ability to take the perspective of and have respect for those with different backgrounds or cultures, and to empathize and feel compassion. It also involves understanding social norms for behavior and recognizing family, school and community resources and supports.
Relationship Skills	Competence in this domain involves communicating clearly, listening actively, cooperating, resisting inappropriate social pressure, negotiating conflict constructively, and seeking help when needed. Relationship skills provide individuals with the tools they need to establish and maintain healthy and rewarding relationships, and to act in accordance with social norms.
Responsible Decision-Making	Competence in this domain requires the ability to consider ethical standards, safety concerns, and make accurate behavioral assessments to make realistic evaluations of the consequences of various actions, and to take the health and well-being of self and others into consideration. Responsible decision-making requires the knowledge, skills, and attitudes needed to make constructive choices about personal behavior and social interactions across diverse settings.

Derived from NYS Education Department's "Social Emotional Learning: A Guide to System Whole-School Implementation" March 2019

Social & Emotional Learning in Amplify Science

Collaborate in break-out rooms

- ❑ Each group will be randomly assigned 1 competency.
- ❑ Read respective blurb.
- ❑ Prepare a slide with words & images that describes how Amplify Science supports each competency. Be creative!





Plan for part 1

- **Framing the day**
 - Welcome
- **The Amplify Approach**
 - Multimodal learning
- **Model Lesson Experience**
 - SEL suggestions
 - Lesson reflection
- **Closing**
 - Final Questions & Feedback

Closing reflection

Based on our work today, share:

Head: something you'll keep in mind

Heart: something you're feeling

Feet: something you're planning to do

New York City Resources Site

<https://amplify.com/amplify-science-nyc-doe-resources/>



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Amplify Science Resources for NYC (K-5)

Welcome! This site contains supporting resources designed for the New York City Department of Education Amplify Science adoption for grades K-5.

UPDATE: Summer 2020

Introduction

Getting started resources

Planning and implementation resources

Admin resources

Parent resources

COVID-19 Remote learning resources 2020

Professional learning resources

Questions

UPDATE: Summer 2020

Account Access: It's an exciting time for Amplify Science! We have access to the many updates and upgrades in our curriculum until late August/early September when we will update our rosters from STARS.

Any schools or teachers new to Amplify Science in 20/21 are encouraged to contact our Help Desk (1-800-823-1969) for access to your temporary login for summer planning.

Upcoming PL Webinars: Join us for our Summer 2020 Professional Learning opportunities in July for NEW teachers and administrators and August for RETURNING teachers and administrators. Links to register coming soon!

Site Resources

- Login information
- Pacing guides
- Getting started guide
- NYC Companion Lessons
- **Resources from PD sessions**
- And much more!

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.



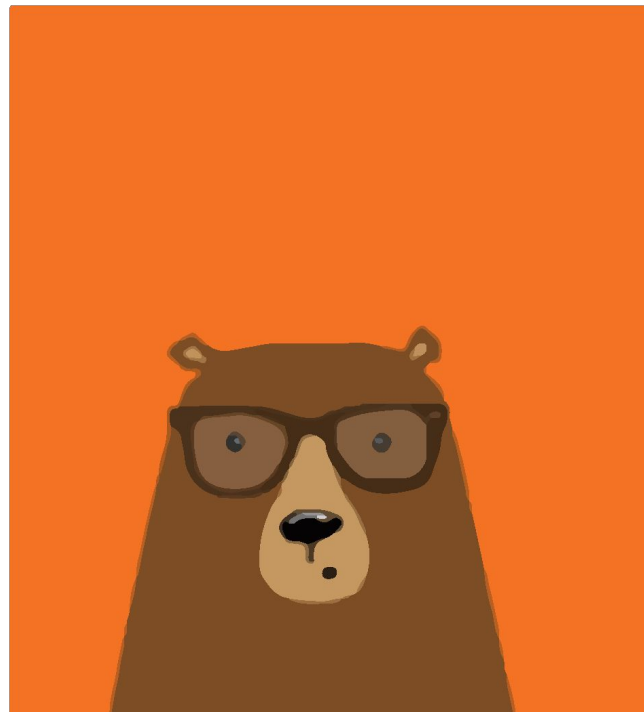
help@amplify.com



800-823-1969



Amplify Chat



Hidden slide: Amplify Chat



Overview

Materials & Preparation

Differentiation

Standards

Vocabulary

Differentiation

Embedded Supports for Diverse Learners

Gradual release of responsibility. In this lesson, students are introduced to the strategy of visualizing. Explicitly modeling how you evaluate you picture what is described in a book or imagine how something shown in a photograph or illustration would look as it moves prepares students to use this strategy more independently later in the unit. As the unit proceeds, students will practice visualizing with less teacher modeling and explicit support.

Shared Reading. Engaging in Shared Reading provides more support for reading and understanding at the beginning of the unit as students build their vocabulary and scientific knowledge. The book *Tortoise Parts* was designed to support a rich Shared Reading experience, during which you will guide students in reading, visualizing, and making sense of the text. *Tortoise Parts* has a repetitive sentence structure and text layout that may help students read some of the text along with you.

What Scientists Do chart. In this lesson, students are introduced to the What Scientists Do chart. By creating this chart with the class, you will model a way to organize information. The chart uses simple illustrations, which the teacher draws, to connect new concepts about the role of scientists to key vocabulary words (e.g., the word *observe* in this lesson). This chart records new information in an organized manner and provides an ongoing and accessible visual reference for students. The end result is a class reference tool that helps solidify new terms and related concepts in students' minds.

Multimodal instruction. Students gather evidence about how animals use body parts to meet their needs (particularly, their need for food) from text and photographs in a book, by eating a carrot, by observing their partner eat a carrot, and by discussing. Having experience with key ideas in many modalities gives students multiple opportunities to make sense of the concepts, as well as provides students who learn in different ways with different entry points.

Potential Challenges in This Lesson

Transfer of ideas from one context to another. In this lesson, students are asked to connect ideas about how a tortoise uses its

Digital Resources

Classroom Slides 1.2 | PowerPoint

Classroom Slides 1.2 | Google Slides

What Scientists Do Chart—Completed

BACK TO TOP

Español



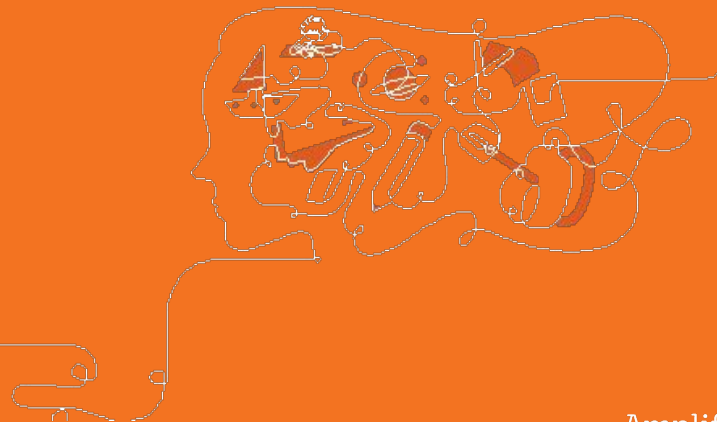


Final Questions?

Please provide us feedback!

URL: <https://www.surveymonkey.com/r/5DQW2T6>

Presenter name:



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Thank you & be well!

