

Part of the Day	Timing (min)	*PLS use only* Plan for the day
Framing the Day (Slides 1-31)	25 min (9:00-9:25)	<ul style="list-style-type: none"> Welcome and Introductions (5) Reflection and Vision setting (10) Revisiting the Amplify Approach (10)
Unit Internalization (Slides 32-52)	25 min (9:25-9:50)	<ul style="list-style-type: none"> Resource review (10) Traditional Amplify Science lesson walk through (15) Live Navigation (if needed) <p>**Change bullet traditional walk through to 10 min and allocate 10 for navigation if needed**</p>
Break (Slide 53)	5 min (9:50-9:55)	
@Home Resources Internalization (Slides 54-133)	60 min (9:55-10:55)	<ul style="list-style-type: none"> @Home Units (15 min) @Home Videos (15 min) Lesson Internalization (20min) Resource Selection/Guidance (10 min)
Break (Slide 134)	5 min (10:55-11:00)	
Guided Planning (Slides 135-145)	55 min (11:00-11:55)	<ul style="list-style-type: none"> Planning document walk through (10 min) Lesson planning work time (45 min)
Closing (Slides 146-153)	5 min (11:55-12:00)	<ul style="list-style-type: none"> Reflection/additional resources (3) Survey (2)

Amplify Science

Grade 6: Thermal Energy

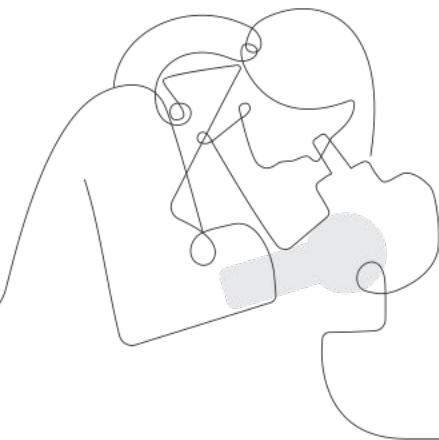
Guided Unit Internalization with @Home Resources

Deep-dive and strengthening workshop

School/District Name

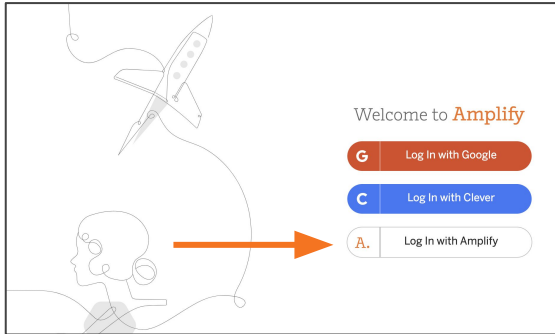
Date

Presented by Your Name

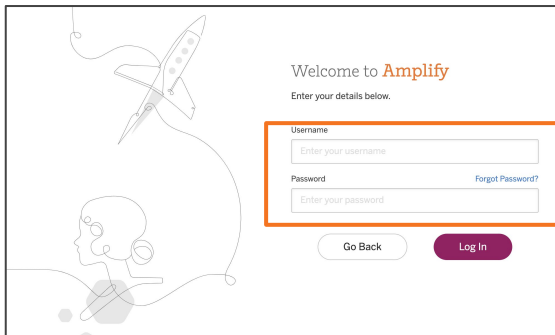


Welcome to Amplify Science!

Do Now: Login



1. Go to **learning.amplify.com**
2. Select **Log in with Amplify**
3. Enter your credentials
4. Explore the curriculum



Use two windows for today's webinar

The image illustrates how to maximize two browser windows for a webinar. It shows two windows side-by-side:

- Window #1:** A Google Meet page titled "Meet - Etiwanda Grade 7 N". Below it, a second browser window is open to the Amplify Science curriculum page for "Plate Motion".
- Window #2:** The Amplify Science curriculum page for "Lesson 1.2: Using Fossils to Understand Earth".

An inset in the top-left corner shows a mouse cursor clicking the maximize button (the green square) in the top-left corner of the first window's title bar.

Window #1 Content:

- Amplify Science Curriculum
- Plate Motion
- Progress Build Level 1: The Earth's entire outer layer (below the water and soil that we see) is made of solid rock that is divided into plates. Earth's plates can move.
- Underneath the soil, vegetation, and water that we see on the surface of Earth is the outer layer of Earth's geosphere, the solid part of our rocky planet. This outer layer of Earth is covered entirely with hard, solid rock that is divided into sections called plates. And, these plates can move.
- Progress Build Level 2: The plates move on top of a soft, solid layer of rock called the mantle. At plate boundaries where the plates are moving away from each other, rock rises from the mantle and hardens, adding new solid rock to the edges of the plates. At plate boundaries where plates are moving toward each other, one plate moves underneath the other and sinks into the mantle.
- Underneath the soil, vegetation, and water that we see on the surface of Earth is the outer layer of Earth's geosphere, the solid part of our rocky planet.
- Getting Ready to Teach
- Materials and Preparation
- Flexension Compilation
- Investigation Notebook
- NGSS Information for Parents and Guardians
- Print Materials (11" x 17")
- Print Materials (8.5" x 11")
- Offline Preparation
- Teaching without reliable classroom internet? Prepare unit and lesson materials for offline access.
- Offline Guide

Window #2 Content:

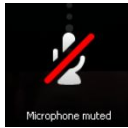
- Amplify Curriculum
- Amplify Science
- CALIFORNIA
- Plate Motion > Chapter 1 > Lesson 1.2
- Lesson 1.2: Using Fossils to Understand Earth
- Lesson Brief (4 Activities)
- 1 WARM-UP Warm-Up
- TEACHER Why Geologists Value Fossils
- 2 TEACHER-LED DISCUSSION Introducing Mesos
- RESET LESSON
- GENERATE PRINTABLE LESSON
- Lesson Brief
- Digital Resources
- Overview
- Materials & Preparation
- Differentiation
- Español rds
- All Projections
- Completed Scientific Argumentation Wall Diagram
- Video: Meet a Paleontologist
- The Ancient Mesosaurus

Remote Professional Learning Norms



Take some time to orient yourself to the platform

- *“Where’s the chat box? What are these squares at the top of my screen?, where’s the mute button?”*



Mute your microphone to reduce background noise unless sharing with the group



The chat box is available for posting questions or responses to during the training



Make sure you have a note-catcher present



Engage at your comfort level - chat, ask questions, discuss, share!

Objectives:

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

- Leverage your understanding of your upcoming unit to make instructional decisions about remote or hybrid learning using the Unit Guide and Amplify Science@Home resources.
- Apply new understanding of the unit to determine which @Home resources best meet the needs of students and give them the most robust experience in figuring out the phenomenon of the unit.
- Plan for the next week of instruction using the @Home resources, your class schedule, instructional format, and internalize the planning protocol to use for future planning.



Capturing key takeaways!

<i>Unit Internalization</i>	<i>@Home Units</i>
<i>@Home Videos</i>	<i>Resource Selection</i>

Plan for the day

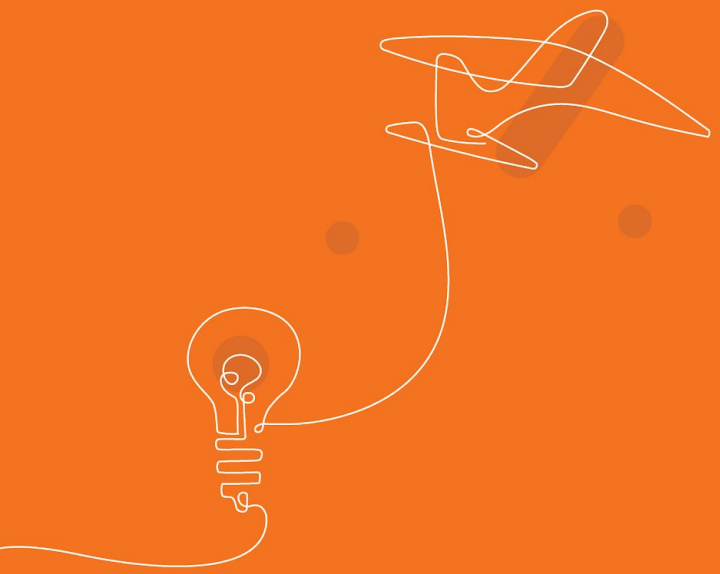
- Framing the day
 - Welcome and introductions
 - Reflection and vision setting
 - Revisiting the Amplify Approach
- Unit Internalization
- @Home Resources Internalization
 - @Home Units
 - @Home Videos
 - Lesson Level Internalization
 - Resource selection/Guidance
- Guided Planning
 - Planning to Teach using @Home
- Reflection and closing



Plan for the day

- Framing the day
 - Welcome and introductions
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Welcome and Introductions

Who's in the Room?

Represent for your borough!



Share your **name, role, & borough.**

Example: Isis, Teacher, 1

- 1- Brooklyn North**
- 2- Brooklyn South**
- 3- Queens North**
- 4- Queens South**
- 5- The Bronx**
- 6- Staten Island**



Reflection and goal-setting

Reflection: what was last year like?

Stop and jot: **Choose One:** Last year, while teaching remotely...

- What was **one** challenge, problem, or roadblock you or your students experienced?
- What were **two** successes you or your students experienced?
- What are **three** new things you learned or new insights you gained?

Setting a vision

What are you hoping students at your school get out of science this year?

Cultivate a
love of
science

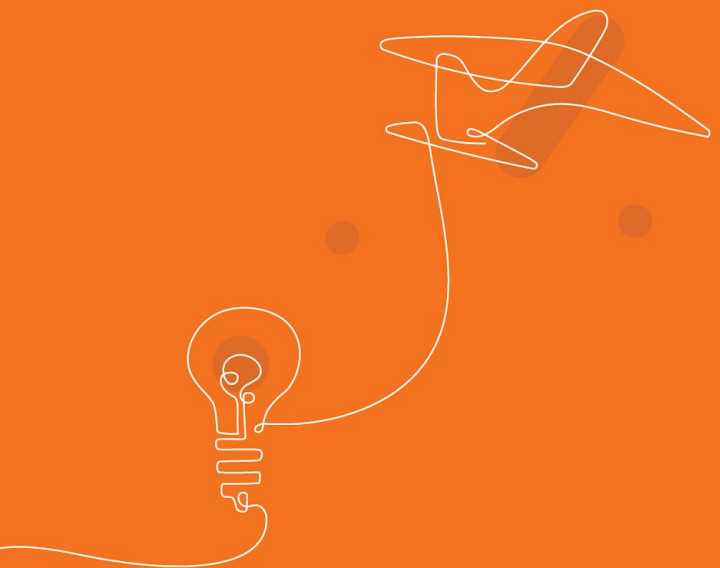
Problem solve

Develop flexible
scientific
understanding

Think and
work like real
scientists

Feel successful
and build
academic
confidence

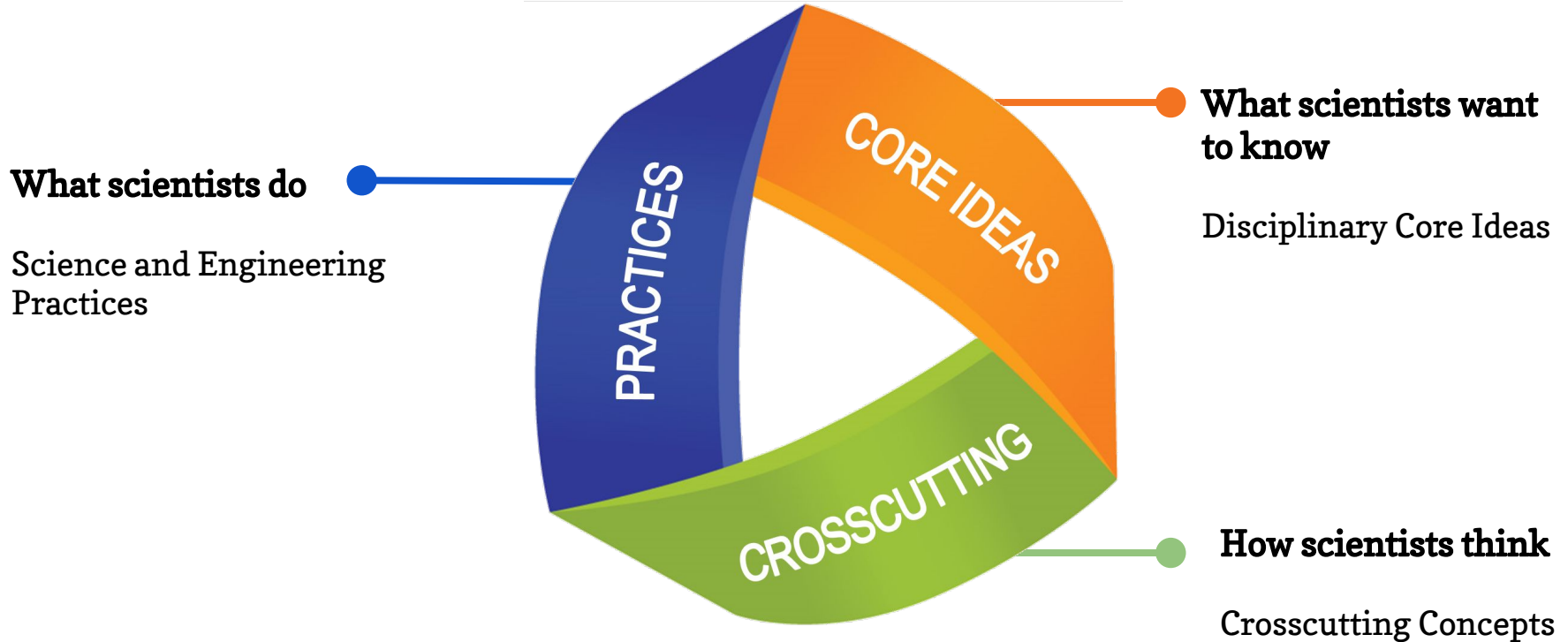
Collaborate
and
communicate



Revisiting the Amplify Science approach

Next Generation Science Standards

Designed to help students build a cohesive understanding of science

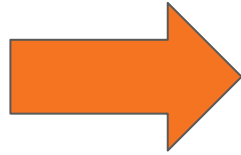


Comparing topics and phenomena

A shift in science instruction

from learning about

(like a student)

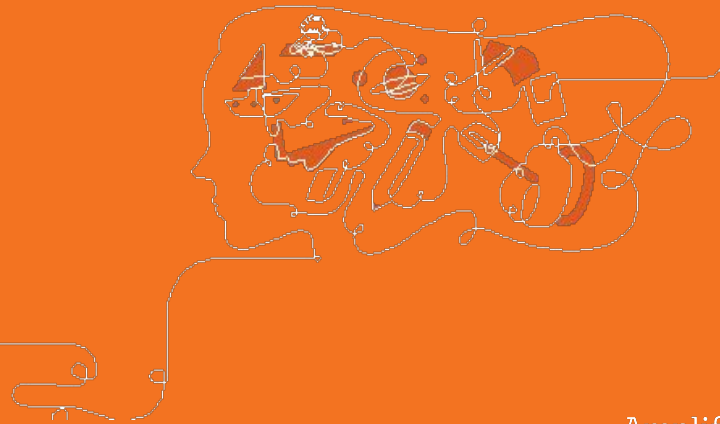


to figuring out

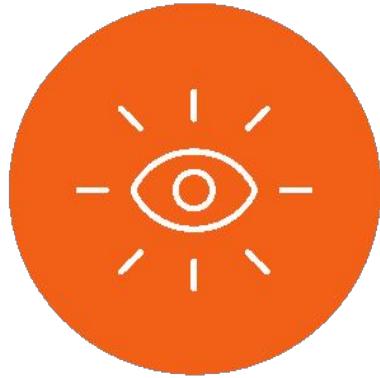
(like a scientist)

Problem-based deep dives

Students inhabit the role of scientists and engineers to explain or predict phenomena. They use what they figure out to solve real-world problems.



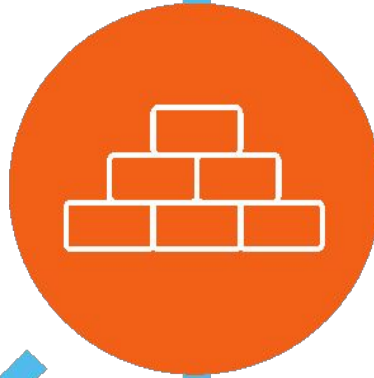
Amplify Science approach



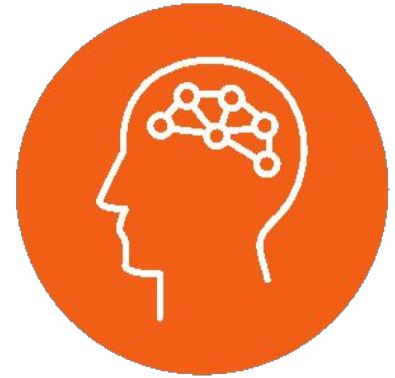
Introduce a real world problem



Collect evidence from multiple sources



Build increasingly complex explanations



Apply knowledge to solve a different problem

What is the first step to the Amplify Science Approach?

A

Collect evidence
from multiple
sources

C

Apply knowledge to
solve different
problem

B

Introduce a
Phenomenon and/or
real world problem

D

Build an increasingly
complex explanation

Multimodal, phenomenon-based learning

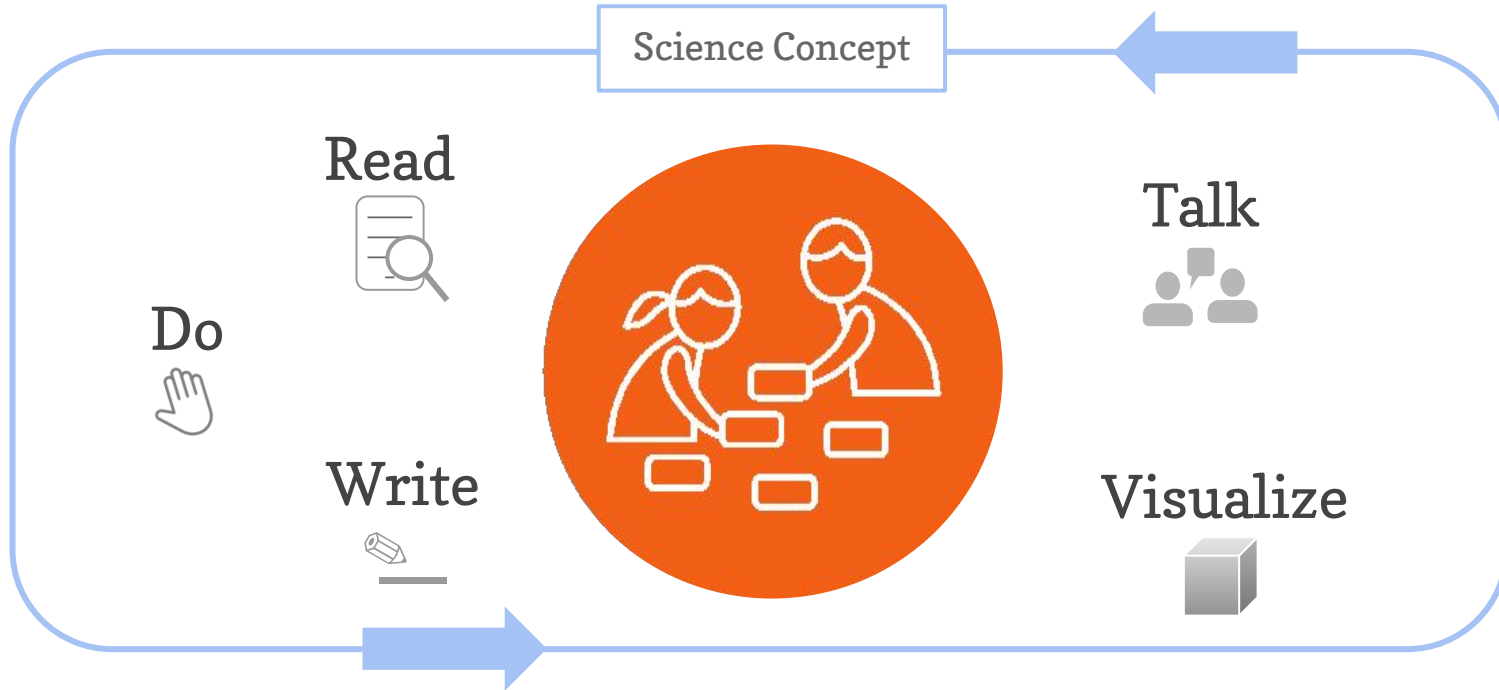
In each Amplify Science unit, students embody the role of a scientist or engineer to figure out phenomena.

They gather evidence from multiple sources, using multiple modalities.



Multimodal learning

Gathering evidence from different sources



What are the multiple modalities?

A

Do, talk, read,
write, visualize

C

Do, visualize,
hands-on
projects

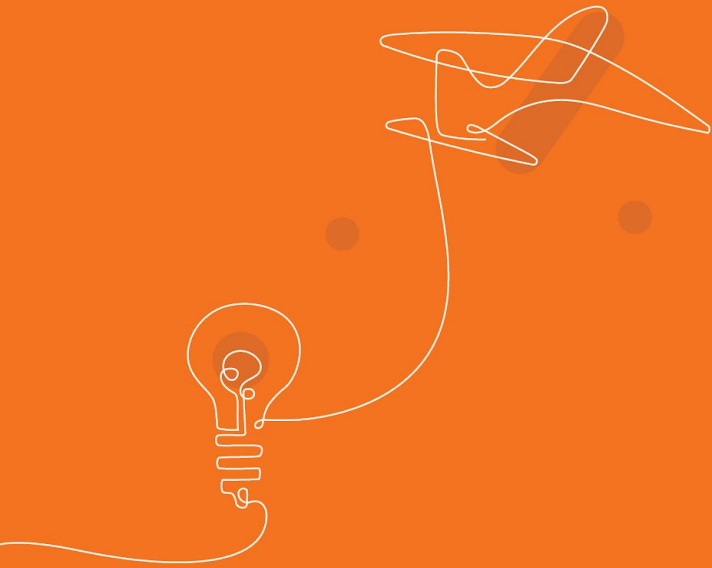
B

Read, write,
google search

D

Reading, writing,
math

Revisiting Resources



Middle School Curriculum New York City Edition

*** Companion Lessons
must be completed***

Grade 6

- Launch: *
Harnessing Human Energy
- Thermal Energy
- Ocean, Atmosphere, and Climate
- Weather Patterns
- Populations and Resources
- Matter and Energy in Ecosystems
- Earth's Changing Climate

Grade 7

- Launch: *
Microbiome
- Metabolism
- Phase Change
- Chemical Reactions
- Plate Motion
- Engineering Internship:
Plate Motion
- Rock Transformations
- Engineering Internship:
Earth's Changing Climate

Grade 8

- Launch:
Geology on Mars
- Force and Motion
- Engineering Internship:
Force and Motion
- Earth, Moon, and Sun
- Magnetic Fields
- Light Waves
- Traits and Reproduction
- Natural Selection
- Evolutionary History



Middle School curriculum: Unit types

Launch Units



11 Lessons

Harnessing Human Energy

Core Units



19 Lessons

Thermal Energy

Middle school unit resources



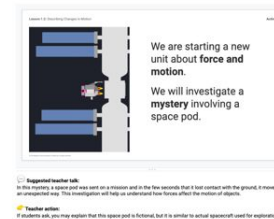
Investigation
Notebooks or digital
student experience



Articles
(digital or print)



Simulations and other
digital tools



Classroom Slides



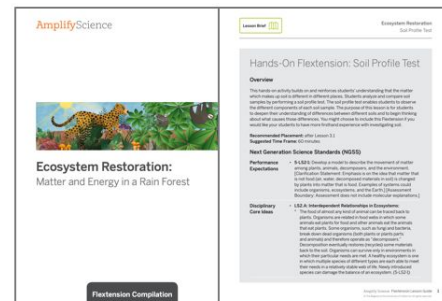
Teacher's Guide
(digital or print)

ACTIVITIES	LEVELS
25/06 5:26 PM Wed. 0/100%	0
25/06 5:00 PM Wed. 0/100%	2 missing
25/06 4:57 PM Wed. 0/100%	0
25/06 3:42 PM Thu. 0/100%	0

Assessments and
Reporting






Hands-on and print
materials



Hands-on Flextions

Middle School Online Component

Warm-Up Assign in Google  

Students record and discuss their initial ideas about what might be causing Elisa to feel tired.
(5 min)  INSTRUCTIONAL GUIDE

Step-by-step Teacher Support Possible Responses My Notes

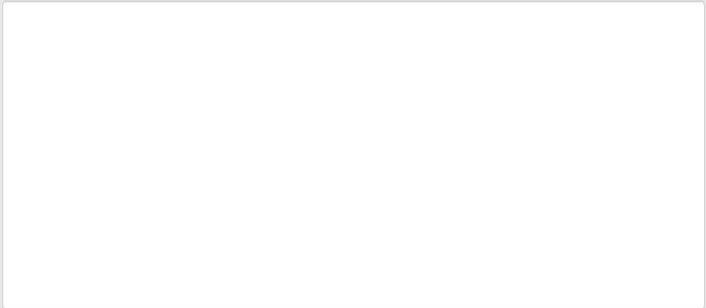
1. Project Warm-Up questions and review routine. Collapse the instructional guide and project the student screen, or have students turn to page 6 in their Investigation Notebooks. Explain that at the beginning of every lesson, there will be a prompt (a question or an activity) for students to complete independently that will help them begin to think about the science ideas they will learn. Point out that today, they will answer questions about the video they just watched.


2. Have students work independently. Give students a few minutes after the video is finished to individually respond to the Warm-Up activity. Circulate and offer support, as needed.

3. Invite students to share their responses with a partner. When most students are done with the activity, prompt them to share their ideas about Elisa's symptoms with their partners.

Warm-Up

Why do you think your new patient, Elisa, is feeling tired all the time? Explain your ideas.





Plan for the day

- Framing the day
 - Welcome and introductions
 - Reflection and vision setting
 - Revisiting the Amplify Approach
- **Unit Internalization**
- @Home Resources Internalization
 - @Home Units
 - @Home Videos
 - Lesson Level Internalization
 - Resource selection/Guidance
- Guided Planning
 - Planning to Teach using @Home
- Reflection and closing



Navigation Temperature Check

Rate yourself on your comfort level accessing the traditional Amplify Science site (learning.amplify.com)

1 = Extremely Uncomfortable

2 = Uncomfortable

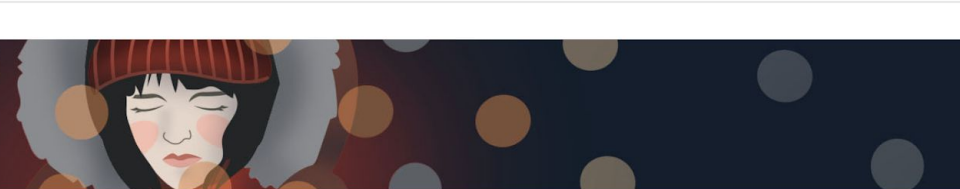
3 = Mild

4 = Comfortable

5 = Extremely Comfortable

19 Lessons

Thermal Energy



☑ JUMP DOWN TO UNIT GUIDE

🖨 GENERATE PRINTABLE TEACHER'S GUIDE



Chapter 1:
Understanding
Temperature

4 Lessons



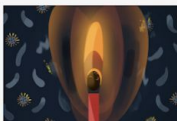
Chapter 2:
Temperature and
Energy

7 Lessons



Chapter 3: Changes
in Temperature

4 Lessons



Chapter 4: Water
Pasteurization

4 Lessons

Planning for the Unit

Unit Overview



Unit Map



Progress Build



Getting Ready to Teach



Materials and Preparation



Science Background



Printable Resources

🖨 Article Compilation

🖨 Coherence Flowchart

🖨 Copymaster Compilation

🖨 Flexension Compilation

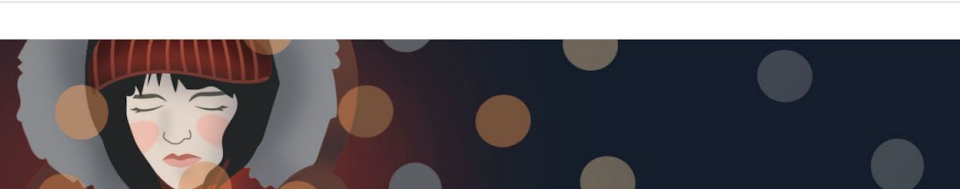
🖨 Investigation Notebook

🖨 NGSS Information for Parents and Guardians



19 Lessons

Thermal Energy



☑ JUMP DOWN TO UNIT GUIDE

🖨 GENERATE PRINTABLE TEACHER'S GUIDE



Chapter 1:
Understanding
Temperature

4 Lessons



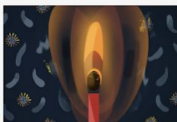
Chapter 2:
Temperature and
Energy

7 Lessons



Chapter 3: Changes
in Temperature

4 Lessons



Chapter 4: Water
Pasteurization

4 Lessons

Planning for the Unit

Unit Overview

Unit Map

Progress Build

Getting Ready to Teach

Materials and Preparation

Science Background

Printable Resources

📄 Article Compilation

📄 Coherence Flowchart

📄 Copymaster Compilation

📄 Flextension Compilation

📄 Investigation Notebook

📄 NGSS Information for Parents and Guardians



Thermal Energy: Using Water to Heat a School

Problem students work to solve

Which heating system will best heat Riverdale School?

Chapter 1 Question

What is happening when the air in the school gets warmer?

Investigation Question

How is something different when it is warmer or cooler? (1.2-1.4)

Evidence sources and reflection opportunities

- Observe how food coloring spreads in hot and cold water (1.2)
- Discuss how something is different when it is hot and when it is cold (1.2)
- Use the Sim to compare hot and cold water at the molecular scale (1.3)
- Identify a molecular model that shows the difference between hot and cold water (1.3)

Key concepts

- Things are made of molecules (or other types of atom groups). (1.3)
- When a thing gets hotter, its molecules are moving faster. (1.3)
- When a thing gets colder, its molecules are moving slower. (1.3)
- Temperature is a measure of the average speed of the molecules of a thing. (1.4)

Application of key concepts to problem

- Use the paper Modeling Tool to show the difference between warmer and cooler air inside Riverdale School (1.4)

Explanation that students can make to answer the Chapter 1 Question

If the heating systems make the school's air warmer, it is because they increase the average speed of the molecules of the school's air. Things are made of molecules (or other types of atom groups). When a thing gets hotter, its molecules are moving faster. When a thing gets colder, its molecules are moving slower. Temperature is a measure of the average speed of the molecules of a thing.

Chapter 1: What is happening when the air in the school gets warmer?

Investigation Question:
How is something different when it is warmer or cooler?

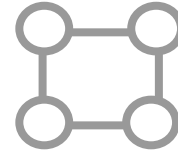
Multiple sources of evidence



Visualize

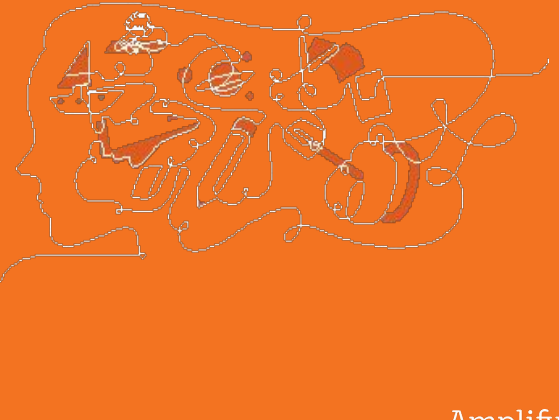


Discussion



Modeling tool

Live Navigation



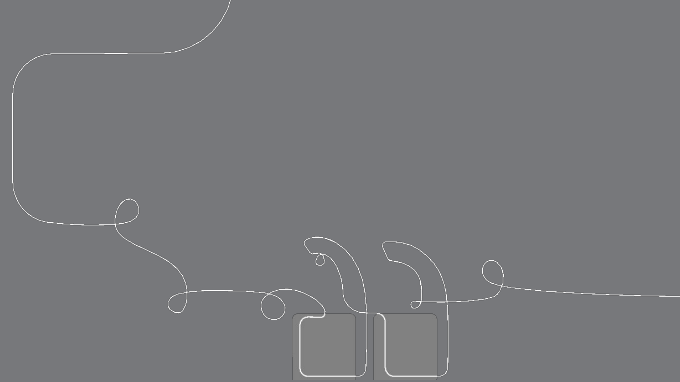
What are the two unit level resources you to find connections between the unit and chapters while lesson planning?

A Lesson overview

C In the offline preparation guide

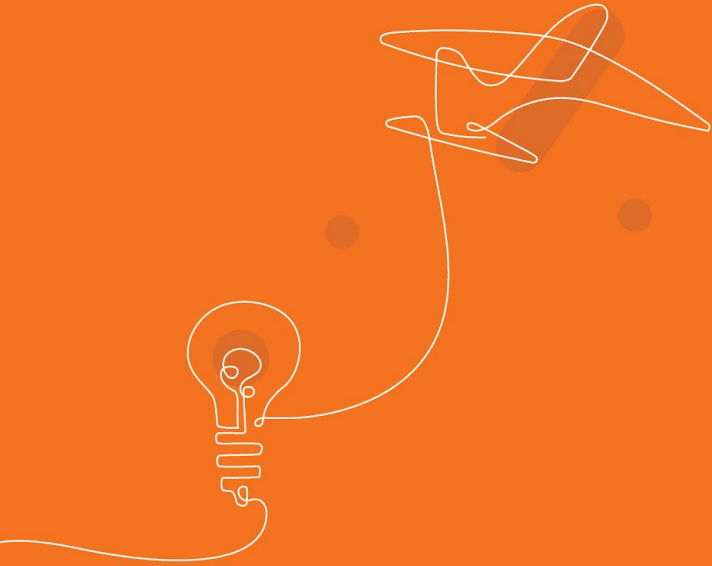
B The Program Hub

D The unit map and coherence flowchart



Questions?

Unit Internalization



Unit Guide Resources

Planning for the Unit	Printable Resources
Unit Overview	Article Compilation
Unit Map	Coherence Flowchart
Progress Build	Copymaster Compilation
Getting Ready to Teach	Flexextension Compilation
Materials and Preparation	Investigation Notebook
Science Background	NGSS Information for Parents and Guardians
Standards at a Glance	Print Materials (8.5" x 11")
Teacher References	Print Materials (11" x 17")
Lesson Overview Compilation	Offline Preparation Teaching without reliable classroom internet? Prepare unit and lesson materials for offline access. Offline Guide
Standards and Goals	
3-D Statements	
Assessment System	
Embedded Formative Assessments	
Articles in This Unit	
Apps in This Unit	
Flexextensions in This Unit	

Unit Guide resources

Once a unit is selected, select **JUMP DOWN TO UNIT GUIDE** in order to access all unit-level resources in an Amplify Science unit.

Planning for the unit

Unit Overview	Describes what's in each unit, the rationale, and how students learn across chapters
Unit Map	Provides an overview of what students figure out in each chapter, and how they figure it out
Progress Build	Explains the learning progression of ideas students figure out in the unit
Getting Ready to Teach	Provides tips for effectively preparing to teach and teaching the unit in your classroom
Materials and Preparation	Lists materials included in the unit's kit, items to be provided by the teacher, and briefly outlines preparation requirements for each lesson
Science Background	Adult-level primer on the science content students figure out in the unit
Standards at a Glance	Lists Next Generation Science Standards (NGSS) (Performance Expectations, Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts), Common Core State Standards for English Language Arts, and Common Core State Standards for Mathematics

Teacher references

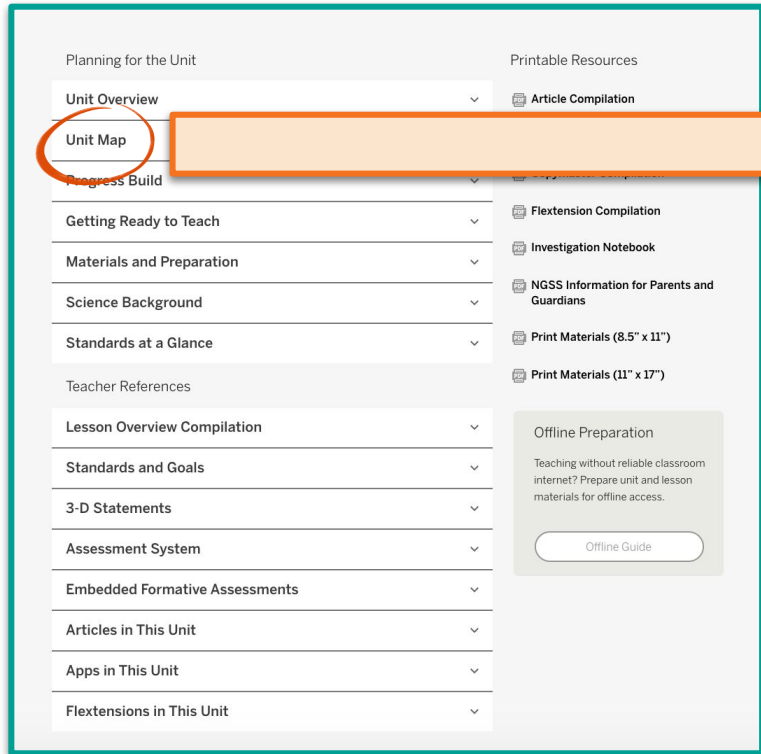
Lesson Overview Compilation	Lesson Overview of each lesson in the unit, including lesson summary, activity purposes, and timing
Standards and Goals	Lists NGSS (Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts) and CCSS (English Language Arts and Mathematics) in the unit, explains how the standards are reached
3-D Statements	Describes 3-D learning across the unit, chapters, and in individual lessons
Assessment System	Describes components of the Amplify Science Assessment System, identifies each 3-D assessment opportunity in the unit
Embedded Formative Assessments	Includes full text of formative assessments in the unit
Books in This Unit	Summarizes each unit text and explains how the text supports instruction
Apps in This Unit	Outlines functionality of digital tools and how students use them (in grades 2-5)

Printable resources

Copymaster Compilation	Compilation of all copymasters for the teacher to print and copy throughout the unit
Investigation Notebook	Digital version of the Investigation Notebook, for copying and projecting
Multi-Language Glossary	Glossary of unit vocabulary in multiple languages
Print Materials (8.5" x 11")	Digital compilation of printed cards (i.e. vocabulary cards, student card sets) provided in the kit
Print Materials (11" x 17")	Digital compilation of printed Unit Question, Chapter Questions, and Key Concepts provided in the kit



Unit Map



Planning for the Unit

- Unit Overview
- 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
- Articles in This Unit
- Apps in This Unit
- Flextensions in This Unit

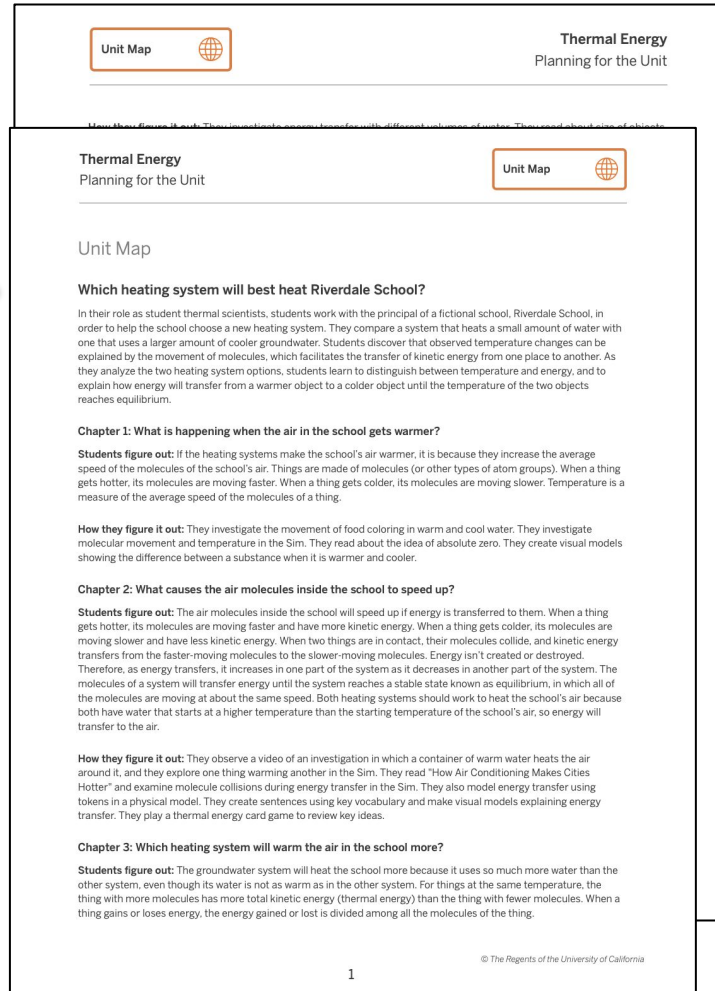
Printable Resources

- Article Compilation
- Flextension Compilation
- Investigation Notebook
- NGSS Information for Parents and Guardians
- Print Materials (8.5" x 11")
- Print Materials (11" x 17")

Offline Preparation

Teaching without reliable classroom internet? Prepare unit and lesson materials for offline access.

Offline Guide



Unit Map

Thermal Energy
Planning for the Unit

Unit Map

Unit Map

Which heating system will best heat Riverdale School?

In their role as student thermal scientists, students work with the principal of a fictional school, Riverdale School, in order to help the school choose a new heating system. They compare a system that heats a small amount of water with one that uses a larger amount of cooler groundwater. Students discover that observed temperature changes can be explained by the movement of molecules, which facilitates the transfer of kinetic energy from one place to another. As they analyze the two heating system options, students learn to distinguish between temperature and energy, and to explain how energy will transfer from a warmer object to a colder object until the temperature of the two objects reaches equilibrium.

Chapter 1: What is happening when the air in the school gets warmer?

Students figure out: If the heating systems make the school's air warmer, it is because they increase the average speed of the molecules of the school's air. Things are made of molecules (or other types of atom groups). When a thing gets hotter, its molecules are moving faster. When a thing gets colder, its molecules are moving slower. Temperature is a measure of the average speed of the molecules of a thing.

How they figure it out: They investigate the movement of food coloring in warm and cool water. They investigate molecular movement and temperature in the Sim. They read about the idea of absolute zero. They create visual models showing the difference between a substance when it is warmer and cooler.

Chapter 2: What causes the air molecules inside the school to speed up?

Students figure out: The air molecules inside the school will speed up if energy is transferred to them. When a thing gets hotter, its molecules are moving faster and have more kinetic energy. When a thing gets colder, its molecules are moving slower and have less kinetic energy. When two things are in contact, their molecules collide, and kinetic energy transfers from the faster-moving molecules to the slower-moving molecules. Energy isn't created or destroyed. Therefore, as energy transfers, it increases in one part of the system as it decreases in another part of the system. The molecules of a system will transfer energy until the system reaches a stable state known as equilibrium, in which all of the molecules are moving at about the same speed. Both heating systems should work to heat the school's air because both have water that starts at a higher temperature than the starting temperature of the school's air, so energy will transfer to the air.

How they figure it out: They observe a video of an investigation in which a container of warm water heats the air around it, and they explore one thing warming another in the Sim. They read "How Air Conditioning Makes Cities Hotter" and examine molecule collisions during energy transfer in the Sim. They also model energy transfer using tokens in a physical model. They create sentences using key vocabulary and make visual models explaining energy transfer. They play a thermal energy card game to review key ideas.

Chapter 3: Which heating system will warm the air in the school more?

Students figure out: The groundwater system will heat the school more because it uses so much more water than the other system, even though its water is not as warm as in the other system. For things at the same temperature, the thing with more molecules has more total kinetic energy (thermal energy) than the thing with fewer molecules. When a thing gains or loses energy, the energy gained or lost is divided among all the molecules of the thing.

1

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Guided Unit Internalization

Part 1: Unit-level internalization

Unit title: Thermal Energy

What is the phenomenon students are investigating in your unit?

Which heating system will best heat Riverdale school?

Unit Question:

Student role:

Thermal Scientists

By the end of the unit, students figure out ...

What science ideas do students need to figure out in order to explain the phenomenon?



Guided Unit Internalization

Part 1: Unit-level internalization

Unit title: Thermal Energy

What is the phenomenon students are investigating in your unit?

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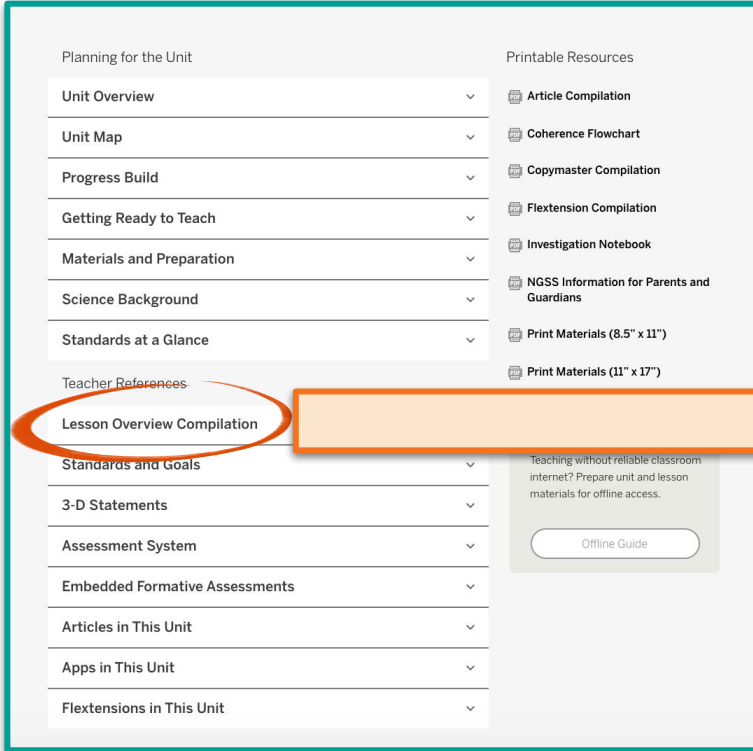
By the end of the unit, students figure out ...

What science ideas do students need to figure out in order to explain the phenomenon?



Lesson Overview Compilation

Pages 4-5



Planning for the Unit

- Unit Overview
- Unit Map
- Progress Build
- Getting Ready to Teach
- Materials and Preparation
- Science Background
- Standards at a Glance

Teacher References

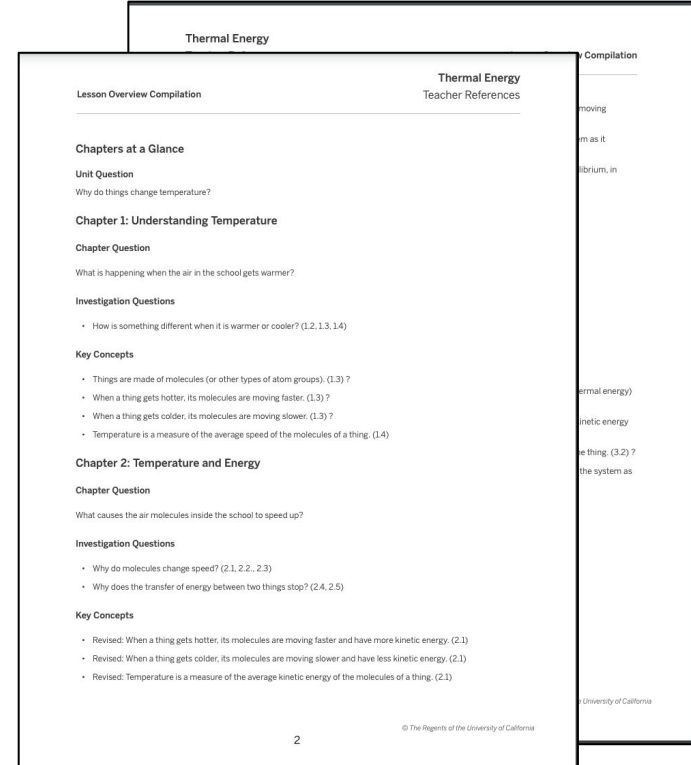
- Lesson Overview Compilation**
- Standards and Goals
- 3-D Statements
- Assessment System
- Embedded Formative Assessments
- Articles in This Unit
- Apps in This Unit
- Flextensions in This Unit

Printable Resources

- Article Compilation
- Coherence Flowchart
- Copymaster Compilation
- Flextension Compilation
- Investigation Notebook
- NGSS Information for Parents and Guardians
- Print Materials (8.5" x 11")
- Print Materials (11" x 17")

Teaching without reliable classroom internet? Prepare unit and lesson materials for offline access.

Offline Guide



Thermal Energy

Lesson Overview Compilation

Thermal Energy
Teacher References

Chapters at a Glance

Unit Question

Why do things change temperature?

Chapter 1: Understanding Temperature

Chapter Question

What is happening when the air in the school gets warmer?

Investigation Questions

- How is something different when it is warmer or cooler? (1.2, 1.3, 1.4)

Key Concepts

- Things are made of molecules (or other types of atom groups). (1.3) ?
- When a thing gets hotter, its molecules are moving faster. (1.3) ?
- When a thing gets colder, its molecules are moving slower. (1.3) ?
- Temperature is a measure of the average speed of the molecules of a thing. (1.4)

Chapter 2: Temperature and Energy

Chapter Question

What causes the air molecules inside the school to speed up?

Investigation Questions

- Why do molecules change speed? (2.1, 2.2, 2.3)
- Why does the transfer of energy between two things stop? (2.4, 2.5)

Key Concepts

- Revised: When a thing gets hotter, its molecules are moving faster and have more kinetic energy. (2.1)
- Revised: When a thing gets colder, its molecules are moving slower and have less kinetic energy. (2.1)
- Revised: Temperature is a measure of the average kinetic energy of the molecules of a thing. (2.1)

2

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Guided Unit Internalization

Part 1: Unit-level internalization

Unit title: Thermal Energy

What is the phenomenon students are investigating in your unit?

Which heating system will best heat Riverdale school?

Unit Question:

Why do things change temperature?

Student role:

Thermal Scientists

By the end of the unit, students figure out ...

What science ideas do students need to figure out in order to explain the phenomenon?





Guided Unit Internalization

Part 1: Unit-level internalization

Unit title: Thermal Energy

What is the phenomenon students are investigating in your unit?

Which heating system will best heat Riverdale school?

Unit Question: Why do things change temperature?	Student role: Thermal Scientists
--	--

By the end of the unit, students figure out ...

The groundwater system will heat the school more because it uses so much more water than the other system, even though its water is not as warm as in the other system. For things at the same temperature, the thing with more molecules has more total kinetic energy (thermal energy) than the thing with fewer molecules. When a thing gains or loses energy, the energy gained or lost is divided among all the molecules of the thing.

What science ideas do students need to figure out in order to explain the phenomenon?

Progress Build

Pages 6-7

Planning for the Unit

Unit Overview

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

Articles in This Unit

Apps in This Unit

Flextensions in This Unit

Printable Resources

- Article Compilation
- Coherence Flowchart
- Investigation Notebook
- NGSS Information for Parents and Guardians
- Print Materials (8.5" x 11")
- Print Materials (11" x 17")

Offline Preparation

Teaching without reliable classroom internet? Prepare unit and lesson materials for offline access.

Offline Guide

Thermal Energy Planning for the Unit

Progress Build

Each Amplify Science Middle School unit is structured around a unit-specific learning progression, which we call the Progress Build. The unit's Progress Build describes the way students' explanatory understanding of the unit's focal phenomena is likely to develop and deepen over the course of a unit. It is an important tool in understanding the structure of a unit and in supporting students' learning; it organizes the sequence of instruction (generally, each level of the Progress Build corresponds to a chapter), defines the focus of assessments, and grounds the inferences about student learning progress that guide suggested instructional adjustments and differentiation. By aligning instruction and assessment to the Progress Build (and therefore to each other), evidence about how student understanding is developing may be used during the course of the unit to support students and modify instruction in an informed way.

The *Thermal Energy* Progress Build consists of three levels of science understanding. To support a growth model for student learning progress, each level encompasses all of the ideas of prior levels and represents an explanatory account of unit phenomena, with the sophistication of that account increasing as the levels increase. At each level, students add new ideas and integrate them into a progressively deeper understanding of how objects in contact can heat up and cool down. Since the Progress Build reflects an increasingly complex yet integrated explanation, we represent it by including the new ideas for each level in bold.

Prior knowledge (preconceptions). At the start of the *Thermal Energy* unit, middle school students will have ideas about hot and cold that draw heavily from sensory experiences. Based on experiences such as opening a freezer door or feeling a cold wind, students may believe that cold is a substance that can be transferred to warmer objects. Most students at this age will not distinguish between temperature and thermal energy. However, when faced with two objects in contact at different temperatures, most will have a productive notion that some change will occur due to the temperature difference.

Most students will have been exposed to the idea that objects are made of molecules (which themselves are composed of atoms). However, students are likely to have some alternate conceptions or partial conceptions about molecules; for example, they may think that the characteristics of each molecule mirror the characteristics of the object. If your students have had the *Harnessing Human Energy* unit, or another unit about energy, they may be familiar with kinetic energy as the energy of motion, but they may not have considered kinetic energy at the molecular scale. Thus, the idea of a motionless object being composed of molecules with kinetic energy might initially be confusing. The *Thermal Energy* Progress Build is structured to utilize all of these experiences and insights that students possess in order to refine and build upon students' understanding.

Progress Build Level 1: The temperature of an object is related to the kinetic energy of its molecules, which increases as the speed of the molecules increases.

Molecules move and change speed. Temperature is a measure of kinetic energy, which is the energy of the movement of the molecules. Hotter things are made up of faster-moving molecules, which have more kinetic energy. Colder things are made up of slower-moving molecules, which have less kinetic energy. Changes in temperature are the result of molecules changing kinetic energy.

Progress Build Level 2: Warmer objects transfer energy to cooler objects when they are in contact.

Molecules move and change speed. Temperature is a measure of kinetic energy, which is the energy of the movement of the molecules. Hotter things are made up of faster-moving molecules, which have more kinetic energy. Colder things are made up of slower-moving molecules, which have less kinetic energy. Changes in temperature are the result of

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Amplify.

Guided Unit Internalization

Part 1: Unit-level internalization

Unit title: Thermal Energy

What is the phenomenon students are investigating in your unit?

Which heating system will best heat Riverdale school?

Unit Question:

Why do things change temperature?

Student role:

Thermal Scientists

By the end of the unit, students figure out ...

The groundwater system will heat the school more because it uses so much more water than the other system, even though its water is not as warm as in the other system. For things at the same temperature, the thing with more molecules has more total kinetic energy (thermal energy) than the thing with fewer molecules. When a thing gains or loses energy, the energy gained or lost is divided among all the molecules of the thing.

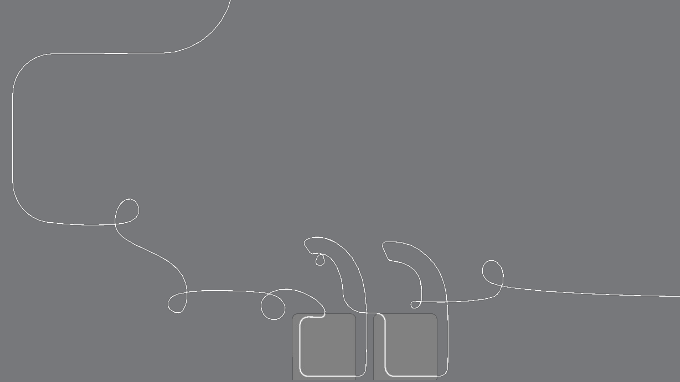
What science ideas do students need to figure out in order to explain the phenomenon?

For things at the same temperature, the thing with more molecules has more total kinetic energy (thermal energy) than the thing with fewer molecules. When a thing gains or loses energy, the energy gained or lost is divided among all the molecules of the thing.

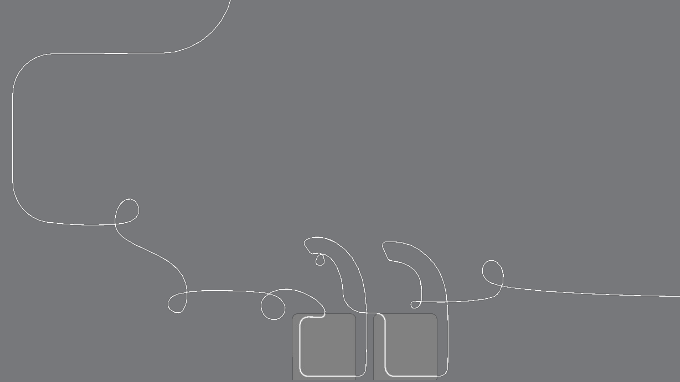


Think & Share:

In 15 words or less, what do students figure out by the **end of the unit?**



Questions?



5 min break



Plan for the day

- Framing the day
 - Welcome and introductions
 - Reflection and vision setting
 - Revisiting the Amplify Approach
- Unit Internalization
- **@Home Resources Internalization**
 - @Home Units
 - @Home Videos
 - Lesson Level Internalization
 - Resource selection/Guidance
- Guided Planning
 - Planning to Teach using @Home
- Reflection and closing



Navigation Temperature Check

Rate yourself on your comfort level accessing the Amplify Science @Home resources for planning

1 = Extremely Uncomfortable

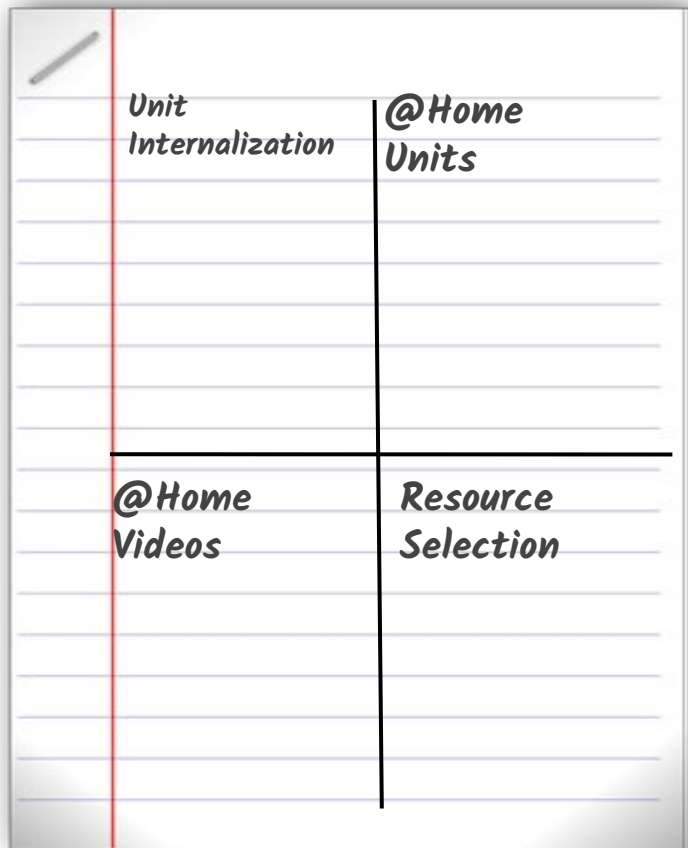
2 = Uncomfortable

3 = Mild

4 = Comfortable

5 = Extremely Comfortable

Capturing key takeaways!



A 2x2 grid is drawn on a lined notebook page. The grid is defined by a vertical red line on the left, a vertical black line on the right, and a horizontal black line across the middle. The text is handwritten in a cursive style.

<i>Unit Internalization</i>	<i>@Home Units</i>
<i>@Home Videos</i>	<i>Resource Selection</i>



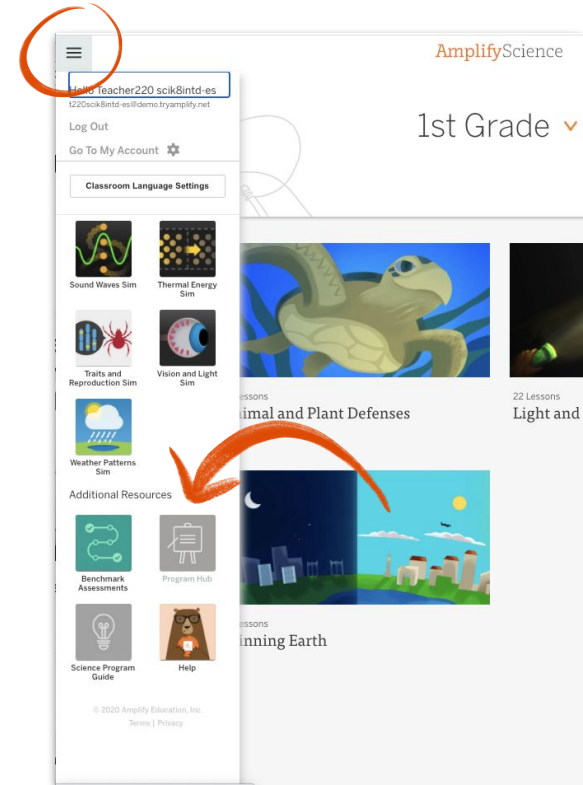
@Home Resources Internalization

A suite of new resources designed
to make extended remote and
hybrid learning easier for teachers
and students.

Accessing Amplify Science@Home

Amplify Science Program Hub

- New site containing Amplify Science@Home and additional PL resources
- Accessible via the Global Navigation menu



AmplifyScience@Home

- Built for a variety of instructional formats
- Digital and print-based options
- No materials required
- Available in English and Spanish (student and family materials)
- Accessible on the Amplify Science Program Hub



AmplifyScience@Home

Two different options:

@Home Units

- Packet or slide deck versions of Amplify Science units condensed by about 50%

@Home Videos

- Video playlists of Amplify Science lessons, taught by real Amplify Science teachers



AmplifyScience@Home

- First unit for each grade level is now available on the Science Program Hub
- Additional units rolling out throughout back-to-school



AmplifyScience


Hello Teacher Sinha-Das
17616-0401@amplify.net

Log Out
Go To My Account


Classroom Language Settings

ELA Resources
Job Postments
LA Science Program Guide
Science Program Guide
Help


1st Grade ▾ **Step 1**



22 Lessons
Animal and Plant Defenses



22 Lessons
Light and Sound



22 Lessons
Spinning Earth

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AmplifyScience Program Hub

LAUNCH PROGRAMS TEACHER SINHA-DAS


Step 2

Welcome, Amplify Science Educators!

The Amplify Science Program Hub consists of resources, tools, and advice to help you make the most of getting started with your program. We've also provided tips and guidance on how to use Amplify Science in a remote and hybrid learning model.

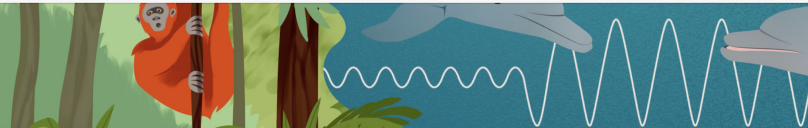
We're excited to partner with you on this journey and can't wait to get started! Please select the button below that best describes your role:

I am a Teacher I am a Leader



AmplifyScience Program Hub

LAUNCH PROGRAMS TEACHER SINHA-DAS



Hello, Teacher!

Search

Welcome

Remote learning: Amplify Science@Home

Hands-on investigations support

Unit extensions

Using this site for self study

Program Overview

Navigation and Materials

Welcome, Amplify Science teacher!

Let's get started! This site will provide you with the knowledge and skills you need to start teaching with Amplify Science. Here you will:

- learn to navigate the digital Teacher's Guide
- become familiar with unit resources
- get planning tips, and
- find our new, flexible remote and hybrid learning supports

This site will be continuously updated, so please check back regularly.

Step 3

AmplifyScience Program Hub

LAUNCH PROGRAMS TEACHER SINHA-DAS

Hello, Teacher!

Search

Welcome

Remote learning: Amplify Science@Home

About Amplify Science@Home

Grade-level resources

@Home Resources Orientation Videos

Additional resources

Hands-on investigations support

Unit extensions

Using this site for self study

Program Overview

Navigation and Materials

Grade-level resources

Select your grade below to access the @Home resources. Please do not share or distribute these materials outside of your district.

- Kindergarten
- Grade 1
- Grade 2
- Grade 3
- Grade 4
- Grade 5
- Grade 6
- Grade 7
- Grade 8

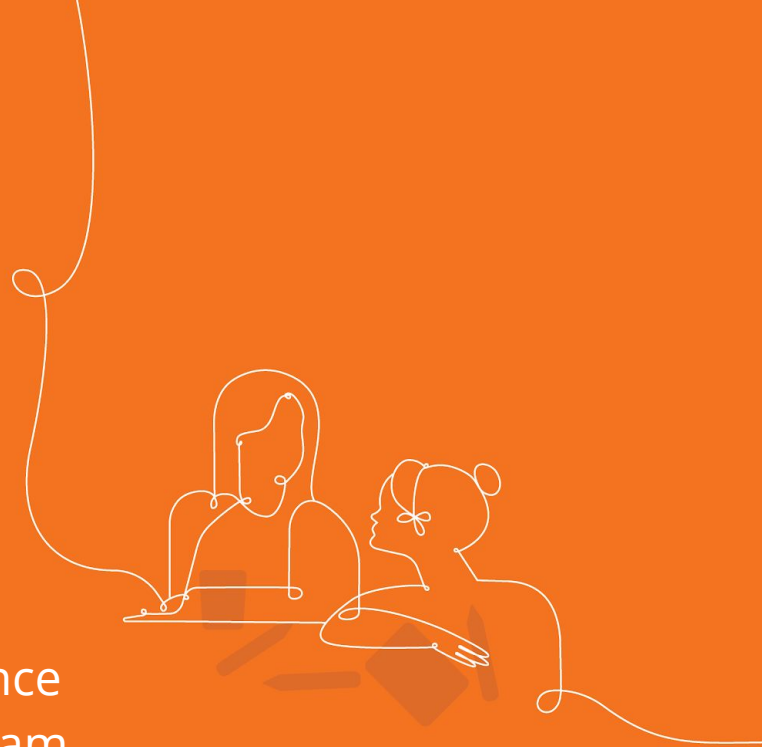
Step 4 (scroll down and choose your grade)

@Home Resources Orientation Videos

Check out these videos for an overview of what's available, plus tips and strategies for teaching with Amplify Science@Home this back to school.

@Home Units

Strategically modified versions of Amplify Science units, highlighting key activities from the program



@Home Units

- Solution for reduced instructional time
- Two options for student access

Amplify Science
Harnessing Human Energy @Home Lesson 2

INTRODUCING ARGUMENTATION
Remember, as student energy scientists we are investigating this question:

Unit Question
How is it possible to charge electrical devices when the power is out?

Scientists ask questions and make observations. Then, when they think they have an idea how something works, they make an argument to support that idea.

Scientific argumentation is the way that scientists communicate, evaluate, and revise their explanations about the natural world.

This image shows many of the resources you will use when you participate in scientific argumentation this year. This is also available at the end of this lesson. You can use this as a resource in this and other units.

Think about this question:
How do you use argumentation in your everyday life?

The purpose of scientific argument is to convince others, using evidence and reasoning.

Argumentation Resonator

Let's think a little bit about what makes a **strong, convincing scientific argument**. We will also look at two tools that can help you use evidence and reasoning in an argument.

Let's use an **everyday example** to think about making **convincing arguments**. Read the argument about Cola. Is this argument **convincing**? Why or why not? This argument has a **claim** and some **evidence**. What is the argument **missing**?

Argument About Cola

Claim: Drinking cola is bad for your health.

Evidence: Cola contains a caramel coloring ingredient called 4-mel.

One reason the cola argument above is **not very convincing** is that it does not explain how the evidence supports the claim. It doesn't explain what 4-mel is or how it relates to health.

Remember, part of creating a strong argument is making your **reasoning** clear. By showing how the evidence connects to the claim.

Many people forget to **explain that thinking** clearly in an argument. To help us, we'll use a graphic organizer called the **Reasoning Tool**. Let's use the cola argument as an example.

Reasoning Tool

Evidence A: studies show people who are more have tooth an people not drink

Evidence B: Many of my friends drink cola and say that it is a treat that they like to have every day.

Evidence C: A can of cola has about 7 teaspoons of sugar.

These questions with your partner:
If evidence was **stronger** or **more convincing**? Did you place it on the Evidence Gradient?
If evidence was **weaker** or **less convincing**? Did you place it on the Evidence Gradient?
Get pieces of **evidence**, what reasoning would you use to help connect it to the claim?
Why cola is bad for your health?

If we will continue to use the practice of **scientific use** to help us understand the natural world.

Scientific Argumentation Resonator

Harnessing Human Energy @Home Lesson 2

Harnessing Human Energy @Home Lesson 2

Harnessing Human Energy @Home Lesson 2

@Home Packets:
print-based

Harnessing Human Energy @Home Lesson 2

@Home Slides and Student
Sheets: tech-based

Harnessing Human Energy @Home Lesson 2

Argument About Cola

Question: How does drinking cola affect your health?

Claim: Drinking cola is bad for your health.

Evidence: Cola contains a caramel coloring ingredient called 4-mel.

Let's use an everyday example to think about making convincing arguments.

Is this argument convincing?
Why or why not?

Harnessing Human Energy @Home Lesson 2

The purpose of scientific argument is to convince others, using evidence and reasoning.

How do you use argumentation in your everyday life?

Harnessing Human Energy @Home Lesson 2

Options for student access

Embedded links to videos:

- Hands-on demonstrations
- Digital tool activities
- Read-alouds

Mara would like you to find out more about why fecal transplants work. This will help the lab provide evidence that microorganisms can cure people with life-threatening infections, so they can fight the bill.

You probably have a lot of questions about fecal transplants. Here is one question that many students had (you might have thought of this question, too):

Chapter 2 Question
How can fecal transplants cure patients infected with harmful bacteria?

Figuring out this question will guide us over the next few lessons. We will need to learn more about bacteria and what they do in the human microbiome to answer this question.

We will be investigating this question:

Investigation Question:
What is the human microbiome?

Today, you will read an article called "The Human Microbiome" to learn more about this.

An important word you will read today:

microbiome: all the microorganisms that live in a particular environment, such as a human body

microbiome


INTRODUCING ACTIVE READING

Introducing Active Reading page or [Lesson 2.1, Activity 2](#)

Life scientists read a lot. They read about investigations that other scientists have done, and they read to learn more about life science. **Active Reading** is a way of reading

2

Harnessing Human Energy @Home Lesson 7



The Little Sun lamp has a light bulb on the front and a solar panel on the back.

Energy Inventions

Many people around the world don't have easy access to the energy they need to power lights, phones, and other electrical devices. There may not be an electrical grid nearby, or they may not have electrical wires to bring power from the electrical grid to their homes or where they may need electrical wires. But the nearest power plant may only provide energy part of the time, leaving people in the dark when it doesn't work. These people may not have much money, so they can't just buy lots of batteries to power their lights. They face an energy problem: they need access to cheap, reliable electricity. All over the world, people from professional engineers and energy scientists to students, makers, and inventors are working to solve this problem. They have designed ways to provide portable light or cables where electrical power isn't always available. In this article, you'll read about a few of them.

Gathering Energy from the Sun

When Oduar Ekesson and Frederik Ottosen heard that more than 1 billion people in Earth don't have access to electricity, they wanted to help. In many places, lack of electricity means students can't study after dark and teachers can't work after the sun goes down. It's also harder for doctors and nurses to treat patients without good lighting. Some people light their homes by burning a type of fuel called kerosene, but kerosene is expensive and produces thick black smoke that causes lung disease—and it can cause houses to catch fire. Ekesson and Ottosen decided to invent a solar lamp that would provide light without costing a lot of money, polluting the air, or causing fires. Their solution? The Little Sun lamp, a sun-shaped light with a light bulb on one side and a solar panel on the other.

The Little Sun lamp uses energy to provide light to people who need it. But the Little Sun doesn't make its own energy. To run, the lamp needs to get energy from somewhere else. In this case, that source of energy is the sun. The solar panel on the back of the lamp converts light energy

Energy Inventions

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Go to your copy of the "Energy Inventions" article from @Home Lesson 5.

"Energy Inventions" article or [Lesson 2.2, Activity 2](#)

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Options for student access

Alternative to embedded video links

Access via curriculum:

- Science practice tools
- Simulations
- Amplify Library

Hands-on demos accessible only via embedded YouTube links

The image shows two overlapping screenshots of an educational platform. The background screenshot is titled "Energy Conversions" and features a "Simulation" section with a large orange "1" icon. Below it are "Science Practice Tools" with two blue icons labeled "1" and "2", and "Student Books" with six purple icons labeled "1" through "6". The foreground screenshot is titled "Cells: The Basic Unit of Life" and displays a text passage: "Your entire body is made of cells—trillions of them! Cells are the tiny structures that make up all living organisms, including sharks, plants, cats, insects, bacteria, and you. People often say that cells are the basic building blocks of life. That's true, but the phrase 'building blocks' makes it sound as if all cells are the same. In fact, organisms are different from one another because of the *differences* in their cells. There are many types of cells." Below the text is a microscopic image of a cell with purple-stained internal structures. A "Español" button is visible in the bottom left corner of the foreground window.

@Home Unit resources

All resources are fully editable and customizable

- **Family Overview**
 - Provides context for families
- **Teacher Overview**
 - Outlines the unit and summarizes each lesson
 - Suggestions for adapting for different scenarios
- **Student materials**
 - ~30-minute lessons (slide decks or packets) featuring prioritized activities from Amplify Science curriculum

Example lesson: *Thermal Energy 1.2*



Lesson 1.2: Investigating Hot and Cold

Lesson Brief
(4 Activities)

1

WARM-UP
Warm-Up



T

TEACHER
Video: A Tale of Two Heating
Systems



2

TEACHER-LED DISCUSSION
Introducing the Unit



3

HANDS-ON
Investigating Hot and Cold
Things



4

CLASS
Reflecting on the
Investigation



@Home Lesson : Amplify Science lesson 1.2

@Home Lesson 1

Adapted from: Amplify Science *Metabolism* Lesson 1.2

Key Activities

- **Introducing the Thermal Energy Unit:** Students are introduced to the unit problem and their role as thermal scientists. As thermal scientists they will work to solve a problem with a school's heating system. Students watch a video to clarify their role and the problem.
- **Do:** Students will determine how warm and cold water differ and how the difference in temperature affects the spread of food coloring. Students will watch the @Home video to observe students completing this hands on activity.
- **Reflect:** Students will consider the initial ideas they had about how substances are different when they are warmer or cooler and determine whether the activity confirmed their thinking or changed their mind.

Amplify Science @Home Curriculum

You will have access to the Thermal Energy @Home Unit late November 2020.

The Thermal Energy @Home Unit has a paper option and a digital option. Each lesson is written to be **30 minutes** long.

Metabolism@Home Unit resources

- Teacher Overview ([PDF](#), [Google](#)) and [Lesson Index](#)
- Family Overview ([PDF](#), [Google](#)) *To come: Spanish versions of this and all student materials*
- @Home Slides compilation ([PDF](#), [Google](#))
- @Home Packet compilation ([PDF](#), [Google](#))
- @Home Student Sheets Compilation ([PDF](#), [Google](#)) *Note: Either Students Sheets or student access to their Amplify account is required when using @Home Slides.*
- Individual @Home Lesson materials (see table below)

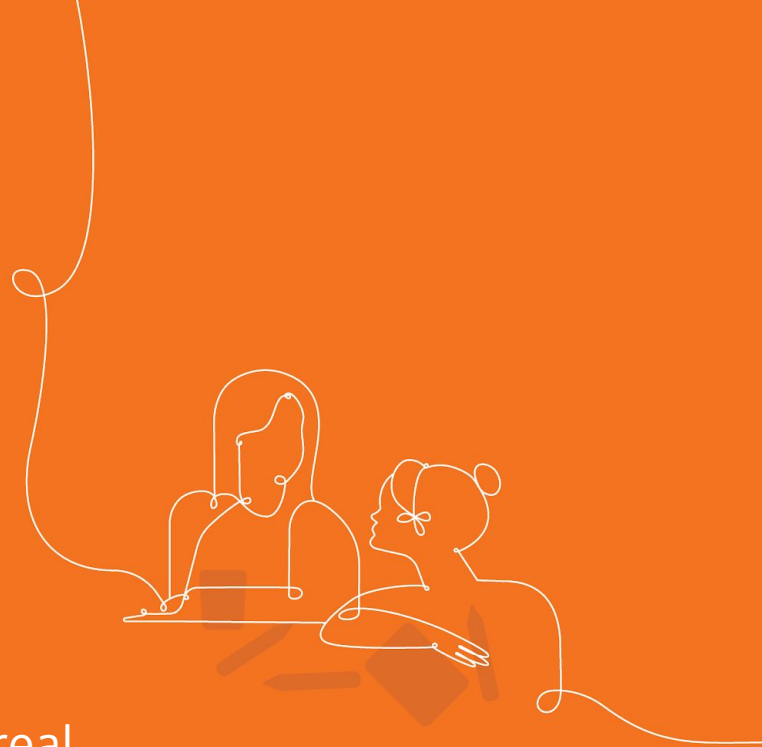
Paper option

	Print-based option	Digital option
Lesson 1	Packet (PDF , Google) – Spanish to come	Slides (PDF , Google) + Student Sheets (Google) – Spanish to come
Lesson 2	Packet (PDF , Google) – Spanish to come	Slides (PDF , Google) + Student Sheets (Google) – Spanish to come
Lesson 3	Packet (PDF , Google) – Spanish to come	Slides (PDF , Google) + Student Sheets (Google) – Spanish to come
Lesson 4	Packet (PDF , Google) – Spanish to come	Slides (PDF , Google) + Student Sheets (Google) – Spanish to come
Lesson 5	Packet (PDF , Google) – Spanish to come	Slides (PDF , Google) + Student Sheets (Google) – Spanish to come

Digital option

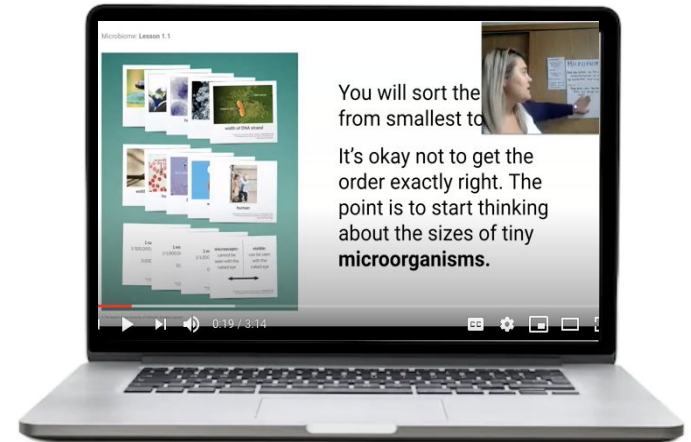
@Home Videos

Versions of original Amplify Science lessons adapted for remote learning and recorded by real Amplify Science teachers



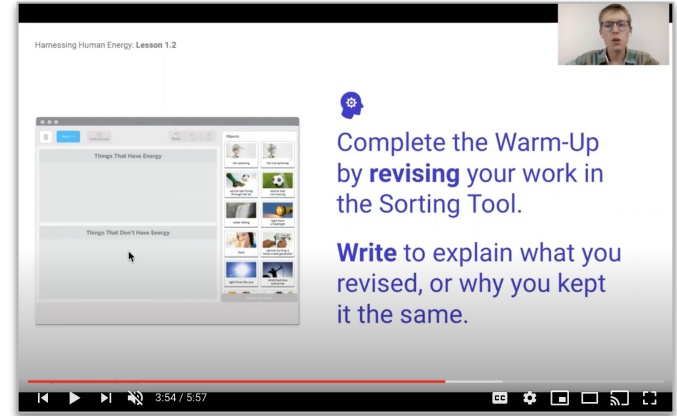
@Home Videos

- Lesson playlists include **all activities** from original units
- Great option if have the **same amount of instructional time** as you typically would for science
- Requires **tech access** at home
- Use videos as **models for making your own lesson videos** or leading **online science class**



Interactive video experience

- **Calls to action**
 - Think prompts, pause and take notes, stand up and try it, talk to someone
- **Stand-alone videos within lesson playlists**
 - Read-alouds, digital tool uses, hands-on
- **Options** to use notebooks and/or materials if available



Hamessing Human Energy: Lesson 1.2

Things That Have Energy

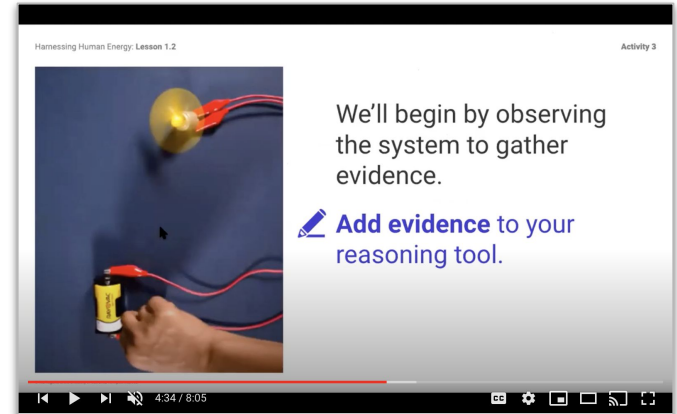
Things That Don't Have Energy

Complete the Warm-Up by **revising** your work in the Sorting Tool.

Write to explain what you revised, or why you kept it the same.

3:54 / 5:57

This screenshot shows a video player interface for 'Hamessing Human Energy: Lesson 1.2'. The main content area displays a 'Sorting Tool' with two sections: 'Things That Have Energy' and 'Things That Don't Have Energy'. To the right, there is a blue speech bubble icon followed by text: 'Complete the Warm-Up by **revising** your work in the Sorting Tool.' Below that, it says '**Write** to explain what you revised, or why you kept it the same.' The video player controls at the bottom show a progress bar at 3:54 / 5:57.



Hamessing Human Energy: Lesson 1.2

Activity 3

We'll begin by observing the system to gather evidence.

Add evidence to your reasoning tool.

4:34 / 8:05

This screenshot shows a video player interface for 'Hamessing Human Energy: Lesson 1.2'. The main content area features a photograph of a hand holding a battery connected to a light bulb. To the right, the text reads: 'We'll begin by observing the system to gather evidence.' Below that, it says '**Add evidence** to your reasoning tool.' The video player controls at the bottom show a progress bar at 4:34 / 8:05.

Amplify Science @Home Curriculum

You have access to the
Metabolism @Home Videos.

There are 16 @Home Videos for the Metabolism unit. This covers all lessons expect for the assessment lessons (1.1, 2.5, and 4.4). The video playlists on YouTube teach the standard Amplify Science Lessons.

Metabolism@Home Video playlists

Note: Assessment lessons are not included. Spanish videos to come.

Instructions:

- The @Home Videos are separate from the @Home Units. The lessons listed below correspond with the lessons in the full version of Amplify Science. Each lesson is linked to a playlist of recorded versions of the activities that make up that lesson, which you can share with your students

Chapter 1

- Lesson 1.2
- Lesson 1.3

Chapter 2

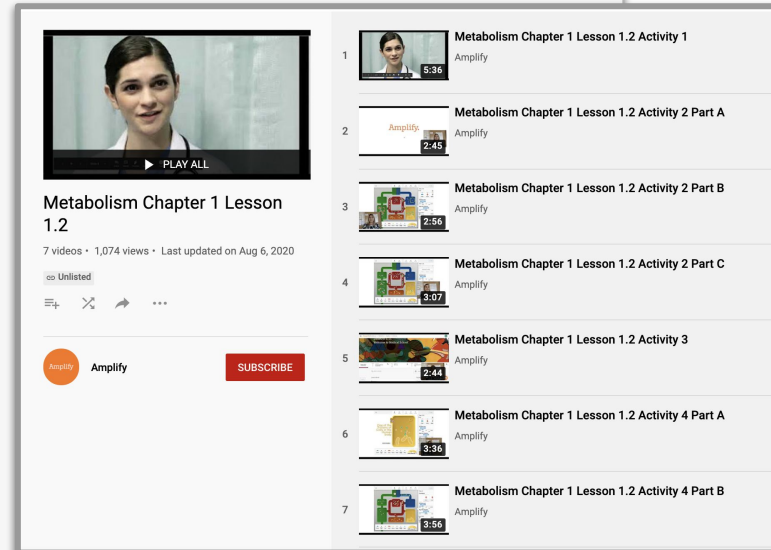
- Lesson 2.1
- Lesson 2.2
- Lesson 2.3
- Lesson 2.4
- Lesson 2.6
- Lesson 2.7

Chapter 3

- Lesson 3.1
- Lesson 3.2
- Lesson 3.3
- Lesson 3.4
- Lesson 3.5

Chapter 4

- Lesson 4.1
- Lesson 4.2
- Lesson 4.3



The screenshot shows a YouTube video player interface. The main video is titled "Metabolism Chapter 1 Lesson 1.2" and has 7 videos, 1,074 views, and was last updated on Aug 6, 2020. Below the video player are the Amplify logo and a red "SUBSCRIBE" button. To the right of the video player is a vertical playlist of related videos, numbered 1 through 7. Each item in the playlist includes a thumbnail, the video title, and the channel name "Amplify".

Number	Video Title	Channel
1	Metabolism Chapter 1 Lesson 1.2 Activity 1	Amplify
2	Metabolism Chapter 1 Lesson 1.2 Activity 2 Part A	Amplify
3	Metabolism Chapter 1 Lesson 1.2 Activity 2 Part B	Amplify
4	Metabolism Chapter 1 Lesson 1.2 Activity 2 Part C	Amplify
5	Metabolism Chapter 1 Lesson 1.2 Activity 3	Amplify
6	Metabolism Chapter 1 Lesson 1.2 Activity 4 Part A	Amplify
7	Metabolism Chapter 1 Lesson 1.2 Activity 4 Part B	Amplify

@Home Videos

Using the resources

- Assign videos for students to watch during remote, asynchronous time
- Leverage synchronous time for live teaching
 - Lots of time? Teach full lessons
 - Less time? Revisit and preview (see table)

Synchronous time	
In-person	Online class
<ul style="list-style-type: none">● Discourse routines● Class discussions● Hands-on investigations (option for teacher demo)● Physical modeling activities	<ul style="list-style-type: none">● Online discussions● Sim demonstrations● Interactive read-alouds● Shared Writing● Co-constructed class charts

@Home videos

Completing written work

Students can complete written work using:

- Digital student platform
- Investigation Notebook
- Pencil and paper

Teaching Tips:

- Use in collaboration with instruction
- Make a plan for how students will **submit** written work.
- Use the **Teacher's Guide** to plan which work products you will collect.

Metabolism: Lesson 1.3 Activity 2

Molecules Cells Need

1. When your body is healthy, it runs so smoothly that you probably don't even notice it without thinking about it. You can get up in the morning, breathe, laugh, dance, grow, fight off viruses, and live your life! But what makes a body healthy and able to do things that you'll be amazed to learn all the systems work together to make sure every cell gets the **oxygen** it needs, **sugar**, **glucose**, and **amino acids**. **Metabolism** is the body's use of these molecules for **energy** and growth.

Rate how successful you were at using Active Reading skills by responding to the following statements.

Be honest. I paid attention to my own understanding and recorded my thoughts and questions.

1. Never
2. Almost never
3. Sometimes
4. Frequently often
5. All the time

Review your annotations and then answer the reflection question.

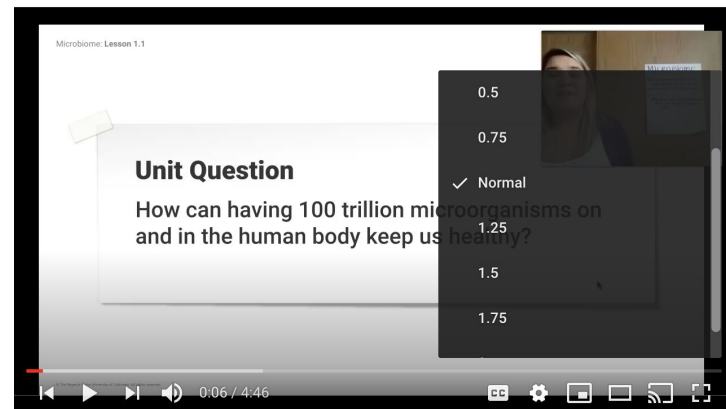
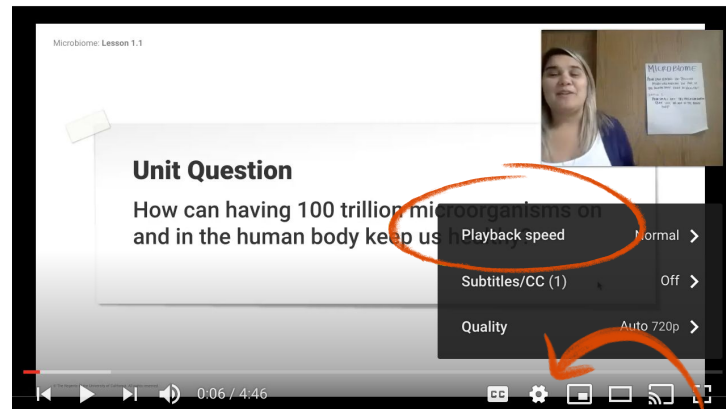
2:15 / 2:18

Planning suggestions: @Home Videos

The Teacher's Guide is the best planning tool for @Home videos.

- Use the **Lesson Overview Compilation** in the Unit Guide as a pacing and planning tool.
- Refer to the lessons themselves to plan for synchronous instruction.

Try **adjusting the playback speed** of videos to preview them.



Navigating the Program HUB

Welcome, Amplify Science Educators!

The Amplify Science Program Hub consists of resources, tools, and advice to help you make the most of getting started with your program. We've also provided tips and guidance on how to use Amplify Science in a remote and hybrid learning model.

We're excited to partner with you on this journey and can't wait to get started!
Please select the button below that best describes your role:

I am a Teacher

I am a Leader



Explore your @Home Unit & @Home Videos

Navigate to **Harnessing Human Energy** on the Program Hub and explore. You may choose to start with the **Teacher Overview**, or dig into a lesson.

Consider how this resource can help you reach the vision you set for science this year.



Share insights

1. How could the @Home Unit resources in your remote instruction?
2. How could the @Home video resources in your remote instruction?



Questions?

Navigation Temperature Check

Rate yourself on your comfort level accessing the Amplify Science @Home resources for planning

1 = Extremely Uncomfortable

2 = Uncomfortable

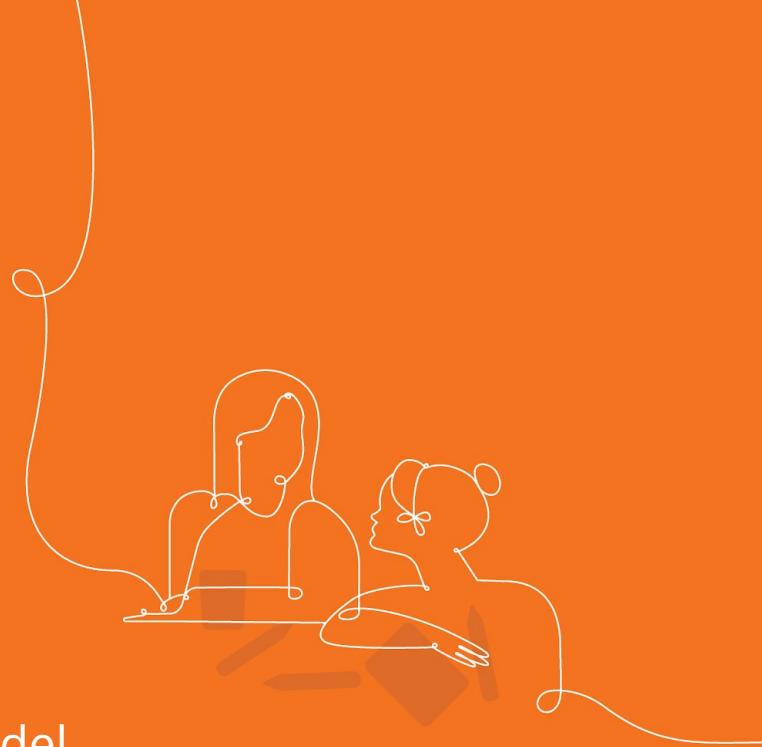
3 = Mild

4 = Comfortable

5 = Extremely Comfortable

@Home Resources Lesson Internalization

Determine which resource you will use in accordance with your schools instructional model.



Key Activities

- **Introducing the Thermal Energy Unit:** Students are introduced to the unit problem and their role as thermal scientists. As thermal scientists they will work to solve a problem with a school's heating system. Students watch a video to clarify their role and the problem.
- **Do:** Students will determine how warm and cold water differ and how the difference in temperature affects the spread of food coloring. Students will watch the @Home video to observe students completing this hands on activity.
- **Reflect:** Students will consider the initial ideas they had about how substances are different when they are warmer or cooler and determine whether the activity confirmed their thinking or changed their mind.

Ideas for synchronous or in-person instruction

Before the meeting have students watch the introductory video and share their initial ideas about the school heating systems.

Key Activities

- **Introducing the Thermal Energy Unit:** Students are introduced to the unit problem and their role as thermal scientists. As thermal scientists they will work to solve a problem with a school's heating system. Students watch a video to clarify their role and the problem.
- **Do:** Students will determine how warm and cold water differ and how the difference in temperature affects the spread of food coloring. Students will watch the @Home video to observe students completing this hands on activity.
- **Reflect:** Students will consider the initial ideas they had about how substances are different when they are warmer or cooler and determine whether the activity confirmed their thinking or changed their mind.

Ideas for synchronous or in-person instruction

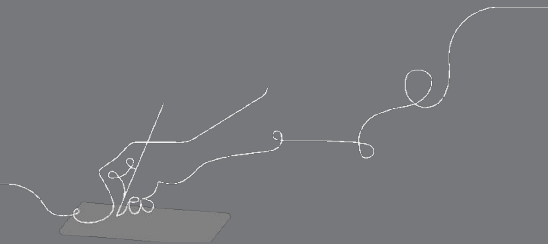
Before the meeting have students watch the introductory video and share their initial ideas about the school heating systems.

Reflection

Revisit the vision you set for your students at the beginning of today's session.

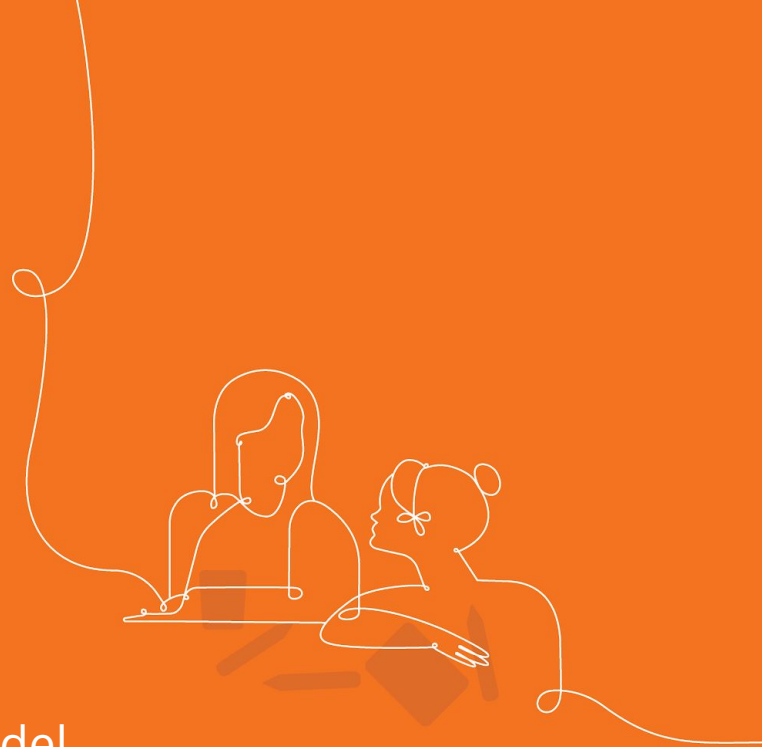
How will the Amplify Science@Home resources help you reach that goal?

e



@Home Resource Selection/ Guidance

Determine which resource you will use in accordance with your schools instructional model.



Which instructional model has your school adopted?

A



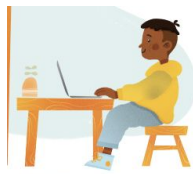




Hybrid Model

B

Remote Only

Sample instructional scenario




Hybrid pod model

	M-T	W	Th-F
Pod 1	In class 	Remote online class 	Remote 
Pod 2	Remote 	 	In class 

Sample instructional scenario

Hybrid pod model

Select 1-2 lessons for the week and decide the best instructional format for the different parts of the lesson

In class 	Remote online class 	Remote 
<ul style="list-style-type: none">● Hands-on investigations (option for teacher demo)● Discourse routines● Class discussions● Physical modeling activities	<ul style="list-style-type: none">● Sim demonstrations● Read-alouds● Shared Writing● Co-constructed class charts	<ul style="list-style-type: none">● @Home video lessons● @Home Unit activities● Reflective writing● Independently review

@Home Resources example use case

Hybrid Model: Teach live during in-person/synchronous time



Day 1

Remote

Assign: Lesson 1.1
@Home Video



Day 2

In-person

Teach: Lesson 1.2
live



Day 3

Synchronous

Teach: Lesson 1.3
using clips from
@Home Video



Day 4

Remote

Assign: Lesson 1.4
@Home
Packet/Slides



Day 5

In-person

Revisit: hands-on
or discourse-based
activities the week's
lessons

@Home Resources example use case

Remote Model: with synchronous & asynchronous learning



Days 1 & 2

Asynchronous

Assign: Lesson 1.1 @Home Video and sheets for students to work through on their own



Day 3

Synchronous

Teach: Lesson 1.2 using clips from the @Home Video



Day 4

Asynchronous

Assign: Lesson 1.3 @Home Packet or @Home Slides for students to work through on their own



Day 5

Synchronous

Revisit: hands-on or discourse-based activities from the week's lessons

What resources can my students access?



Reading and digital tool uses

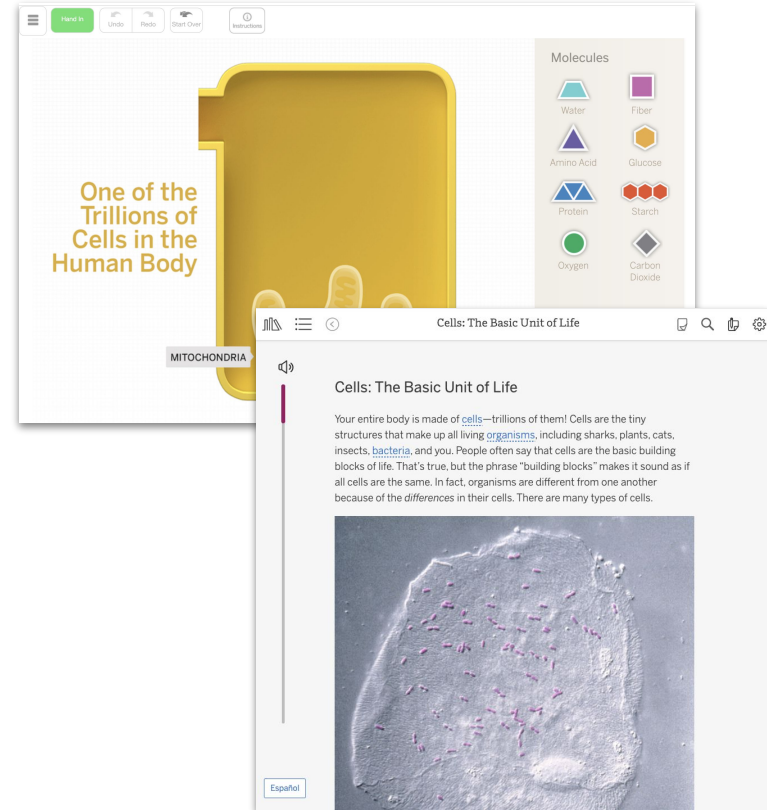
Options for student access

Access via curriculum (students using tablets or laptops):

- Digital tools
- Amplify Library

Access via @Home Videos (students using smartphones):

- Read-alouds of articles
- Screencast videos of digital tool uses



@Home Units: student experience

@Home Slides and @Home Packets

- Student-friendly text
- Supportive images (photos and illustrations)
- Activity instructions
- Prompts for writing, discussion, and reflection
- Embedded links to supplementary material

The collage features three overlapping educational materials:

- Top Right:** A page from Amplify Science titled "Geology on Mars @Home Lesson 5". It includes a paragraph about reading an article on Venus landforms, a "Think" prompt, and a "TALK" activity section with instructions for partner work and a list of two tasks: "Choose" and "Talk about".
- Bottom Left:** A "Second Read" activity card for "Investigating Landforms on Venus". It contains a small image of a landscape and a list of questions for students to answer.
- Bottom Right:** A white card with blue text that reads: "Go to the **Second Read of 'Investigating Landforms on Venus'** activity. Read and annotate the **assigned sections**. Then, answer the questions." Below this text is a small URL: "Second Read of 'Investigating Landforms on Venus' page or [Lesson 2.7, Activity 2](#)".

@Home Units: student experience

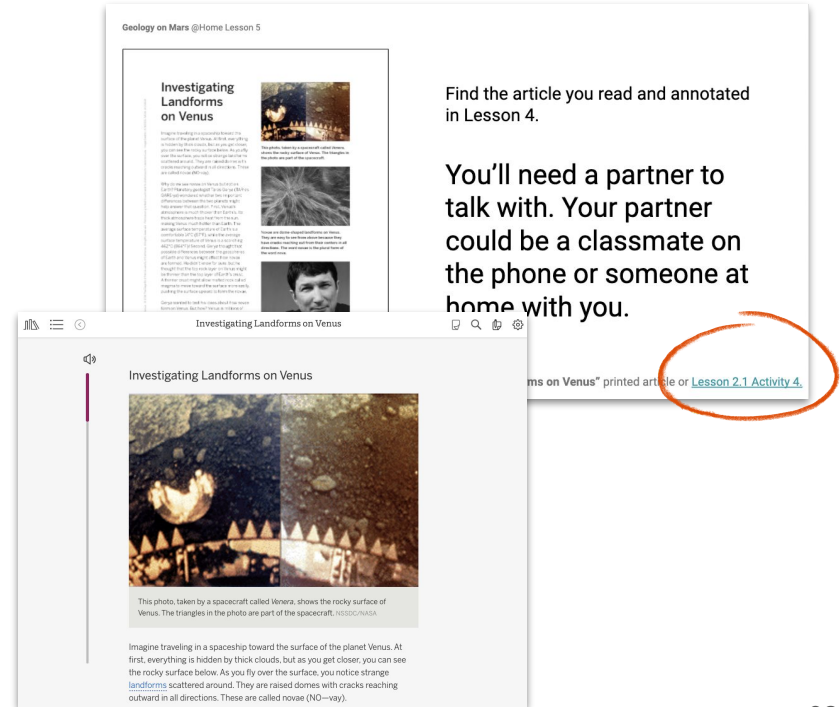
Embedded links in @Home Slides and @Home Packets

Links to curriculum resources:

- Amplify Library
- Sims and digital tools
- Student platform

Links to videos:

- Hands-on demonstrations
- Read-alouds



The image shows a presentation slide on the right and a browser window on the left. The slide, titled "Geology on Mars @Home Lesson 5", features an article titled "Investigating Landforms on Venus". The article text is partially visible, discussing the Venus Express mission and the discovery of landforms. A photo of a spacecraft's view of Venus is shown, with a caption: "This photo, taken by a spacecraft called Venus Express, shows the rocky surface of Venus. The triangles in the photo are part of the spacecraft." Below the photo, a paragraph reads: "Imagine traveling in a spaceship toward the surface of the planet Venus. At first, everything is hidden by thick clouds, but as you get closer, you can see the rocky surface below. As you fly over the surface, you notice strange landforms scattered around. They are raised domes with cracks reaching outward in all directions. These are called novae (NO—way)." The browser window shows the same article, with a link to "Lesson 2.1 Activity 4" circled in orange. The slide also contains text: "Find the article you read and annotated in Lesson 4." and "You'll need a partner to talk with. Your partner could be a classmate on the phone or someone at home with you."

@Home Units: Slides and Student Sheets

Completing written work

Written work can be submitted through the **Amplify Science student platform** or completed using Student sheets.

Student sheets are **not used** with @Home Packets. Students can complete their written work right in the packets.

Name: _____ Date: _____

Second Read of "Investigating Landforms on Venus"

Gerya and his team wanted to answer the question: What formed the rouse on Venus? Their idea was that the higher surface temperatures and thinner coat of Venus caused the rouse to form.

- Read the final three paragraphs of the "Investigating Landforms on Venus" article.
- Then, highlight or add annotations to parts of the text that relate to the questions next to the article.
- Using your annotations, answer the questions below.

How were the rouse on Venus similar to the landforms in Gerya's computer model?

How did the results of Gerya's model provide evidence for what formed the rouse on Venus?

Geology on Mars @Home Lesson 5
©2018 Amplify Science. All rights reserved.

The screenshot shows a digital reading interface. At the top, there are navigation tabs for '2 Second Read of Investigating Landforms', '3 Investigate the Flowing Water Model', '4 Investigate the Flowing Water Model', and '5 Investigate the Flowing Water Model'. The main content area is titled 'Investigating Landforms on Venus' and features a photograph of a rocky landscape with a bright light source. Below the photo is a caption: 'This photo, taken by a spacecraft called Venera, shows the rocky surface of Venus. The triangles in the photo are part of the spacecraft.' To the right of the photo are two text boxes with empty space for student answers. The first box asks: 'How were the rouse on Venus similar to the landforms in Gerya's computer model?' The second box asks: 'How did the results of Gerya's model provide evidence for what formed the rouse on Venus?'



Go to the **Second Read of "Investigating Landforms on Venus"** activity

Read and annotate the assigned sections.

Then, answer the questions.

5 min break



Plan for the day

- Framing the day
 - Welcome and introductions
 - Reflection and vision setting
 - Revisiting the Amplify Approach
- Unit Internalization
- @Home Resources Internalization
 - @Home Units
 - @Home Videos
 - Lesson Level Internalization
 - Resource selection/Guidance
- Guided Planning
 - Planning to Teach using @Home
- Reflection and closing



<p>@Home Unit lesson #: 6</p>		
<p>Date(s) to administer: Thursday, 10/15 & Tuesday, October 20</p>		
<p>Investigation question: Why can an animal live where it does?</p>		
<p>@ Home Unit lesson (asynchronous)</p>		
<p>Key activities from @ Home lesson:</p> <ul style="list-style-type: none"> ● Reviewing Key Concepts and Vocabulary: Students review what they have figured out so far in the unit. ● Introducing Investigating: Students are introduced to ideas about how they will investigate questions about plants in this unit. ● Do: Students set up an investigation to compare whether or not a garlic clove 	<p>Dates to administer:</p> <p>Thursday, 10/15</p>	<p>Other notes:</p>
<p>needs water to grow into a garlic plant.</p> <ul style="list-style-type: none"> ● Draw and Write: Students record their first observation of garlic cloves with water and with no water. 		

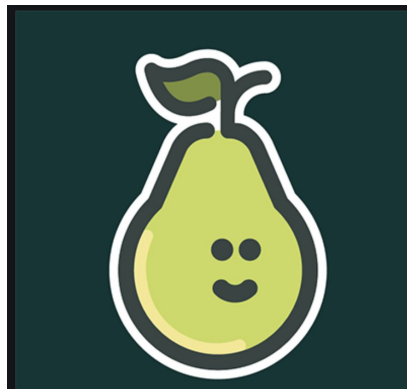
Corresponding synchronous ideas		
<p>In-person or remote?</p> <p><input type="checkbox"/> In-person X</p> <p><input type="checkbox"/> Remote</p>	<p>Synchronous activity:</p> <p>Engage students in setting up the investigation of garlic with water and with no water, and then recording their initial observations.</p> <p>Dates(s) to administer:</p> <p>Tuesday, October 20</p>	<p>Other notes:</p> <p>Refer to materials and preparation section of this corresponding lesson in Teacher's Guide</p> <p>Take out slides 14 onwards from Home Slides. Ask students to propose an investigation set-up. Edit slide 14 to include this.</p>
@Home Videos		
<p>Use for synchronous or asynchronous?</p> <p><input type="checkbox"/> Synchronous X</p> <p><input type="checkbox"/> Asynchronous X</p> <p><input type="checkbox"/> Neither</p> <p>If using, note lesson & activity/activities:</p> <p>Use hands-on preparation video</p>	<p>View for best practices?</p> <p><input type="checkbox"/> Yes X</p> <p><input type="checkbox"/> No</p> <p>If yes, notes some best practices:</p> <p>Tips on how to set-up investigation</p>	<p>Other notes:</p> <p>Send investigation video to students who missed in-person demonstration</p>

Corresponding original lesson(s)		
<p>Differentiation strategies:</p> <ul style="list-style-type: none"> ● additional teacher modeling in a small group setting ● strategic partnering to provide students who need more support with a peer to check in with ● write a few sentences that more fully describe what they have recorded about their investigation students who need more challenge 	<p>Additional synchronous activity notes:</p> <p>Locate the following materials (<i>Needs of Plants and Animals</i> kit)clear plastic cups, 9 oz.</p> <ul style="list-style-type: none"> ● clamp lamp ● grow light lightbulb ● 2 large planter trays ● automatic light timer ● grow light lightbulb ● 2 large planter trays ● automatic light timer <p>Need to provide 2 index cards (3" x 5"), 1 garlic bulb (intact), 2 garlic cloves for each pair of students and 2 for demonstration purposes, pitcher with water, large mixing bowl, large spoon, pair of scissors.</p>	<p>Use any original slides?</p> <p><input type="checkbox"/> Yes X</p> <p><input type="checkbox"/> No</p> <p>Other notes:</p> <p>Slides 21 onwards for in-person</p>
Differentiation plan		
<p>Synchronous, remote ideas:</p> <ul style="list-style-type: none"> ● additional teacher modeling in Zoom break-outs 	<p>Synchronous, in-person ideas:</p> <ul style="list-style-type: none"> ● strategic partnering to provide students who need more support with a peer to check in with 	<p>Asynchronous ideas:</p> <ul style="list-style-type: none"> ● send scaffolded versions of student sheets to students who need more support

Preparing to teach: Step 3

3rd party applications

1. Edit original **Classroom slides** (for synchronous instruction) or **@Home slides** (synchronous or asynchronous) with usage/inclusion of **apps** such as:
 - Jamboard
 - Pear Deck
2. Upload assignments on to **Google Classroom**



Google Classroom

3rd party apps to use

Using a Jamboard ?

- Yes X
- No

Notes:

To answer the question: How can we find out if the garlic plant needs water to live?

Using a Pear Deck slide(s)?

- Yes X
- No

Notes:

For Critical juncture in activity 1 of original lesson

Google Classroom:

Which @Home Resources to upload?

- @Home Unit pdf X
- @Home Unit slides X
- @Home Video url X
- Other

Notes:

Hands-on lesson video for students who missed in-person instruction

Other apps & notes:

Flip Grid for audio responses?

Sample Jamboard



We will share our ideas here on how we would test to see if a garlic plant needs water to live.

Sample Pear Deck slide

Lesson 1.7: Setting Up an Investigation

Activity 1

The Garden



A monarch caterpillar **cannot live** in this place. Why not?

Students, write your response!

Pear Deck Interactive Slide
Do not remove this bar

TEMPLATE LIBRARY

Our Template Library

Explore and add premade content to your lesson



ASK STUDENTS A QUESTION

Adds a question to your current slide:



Text



Choice



Number



Website



Draw



Draggable™

ADD AUDIO

Record or upload audio files for your

Sample Google Classroom entry

Instructions

Student work



Home Lesson 6



Amplify Science • 5:00 PM

100 points

Hello Scientists!

Please complete this home lesson and come prepared to discuss your ideas on how to test if a garlic plant needs water to live.



Copy of Needs of Plants and...
Google Slides

Class comments



Add class comment...



Sample Seesaw Slide

Sample Student's Post

In response to: [Lesson 1.3 : Activity 1 Describing Tortoise Structures](#)



Amplify Science - Structure-Function

A tortoise uses its mouth to eat leaves .

A tortoise uses its eyes to see .

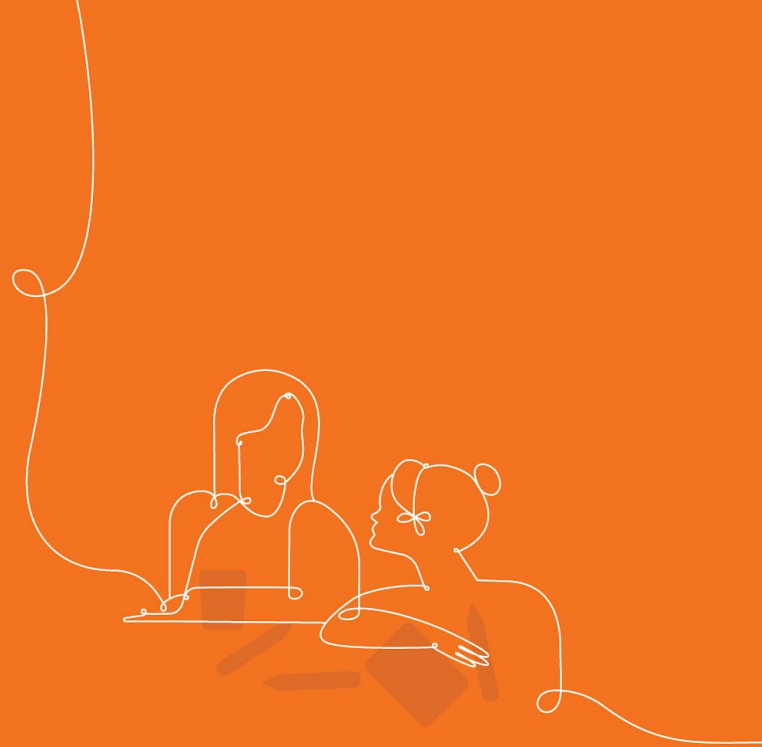
A tortoise uses its toenails to protect .

A tortoise uses its shell to dig .

October 21, 2020, 9:46 PM

Independent Planning Preparation

Begin planning for upcoming instruction



AmplifyScience

Hello Teacher Sinha-Das
17616-0401@amplify.net

Log Out

Go To My Account

Classroom Language Settings

ELA Resources

Job Postments

LA Science Program Guide

Science Program Guide


FLORIDA EDITION

Standards Map


Help

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1st Grade ▾ **Step 1**



22 Lessons
Animal and Plant Defenses



22 Lessons
Light and Sound



22 Lessons
Spinning Earth

AmplifyScience Program Hub

LAUNCH PROGRAMS

TEACHER SINHA-DAS


Step 2

Welcome, Amplify Science Educators!

The Amplify Science Program Hub consists of resources, tools, and advice to help you make the most of getting started with your program. We've also provided tips and guidance on how to use Amplify Science in a remote and hybrid learning model.

We're excited to partner with you on this journey and can't wait to get started! Please select the button below that best describes your role:

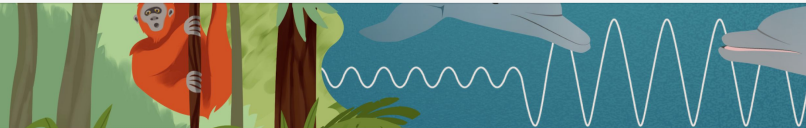
I am a Teacher **I am a Leader**



AmplifyScience Program Hub

LAUNCH PROGRAMS

TEACHER SINHA-DAS



Hello, Teacher!

Search

Welcome

Remote learning: Amplify Science@Home

Hands-on investigations support

Unit extensions

Using this site for self study

Program Overview

Navigation and Materials

Welcome, Amplify Science teacher!

Let's get started! This site will provide you with the knowledge and skills you need to start teaching with Amplify Science. Here you will:

- learn to navigate the digital Teacher's Guide
- become familiar with unit resources
- get planning tips, and
- find our new, flexible remote and hybrid learning supports

This site will be continuously updated, so please check back regularly.

Step 3

AmplifyScience Program Hub

LAUNCH PROGRAMS

TEACHER SINHA-DAS

Hello, Teacher!

Search

Welcome

Remote learning: Amplify Science@Home

About Amplify Science@Home

Grade-level resources

@Home Resources Orientation Videos

Additional resources

Hands-on investigations support

Unit extensions

Using this site for self study

Program Overview

Navigation and Materials

Grade-level resources

Select your grade below to access the @Home resources. Please do not share or distribute these materials outside of your district.

- Kindergarten
- Grade 1
- Grade 2
- Grade 3
- Grade 4
- Grade 5
- Grade 6
- Grade 7
- Grade 8

Step 4 (scroll down and choose your grade)

@Home Resources Orientation Videos

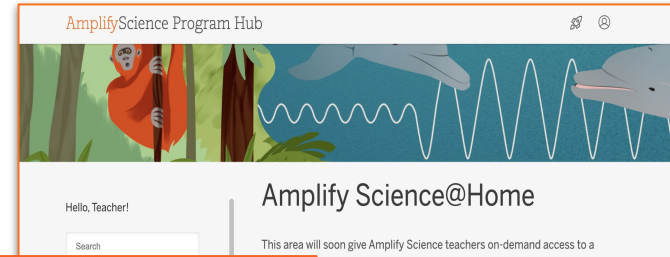
Check out these videos for an overview of what's available, plus tips and strategies for teaching with Amplify Science@Home this back to school.

Preparing to teach

3-step method

1. Program Hub: @
Home Resources
2. Teacher's Guide:
Lesson Brief
3. 3rd party
applications

Step 1



Step 2



Step 3

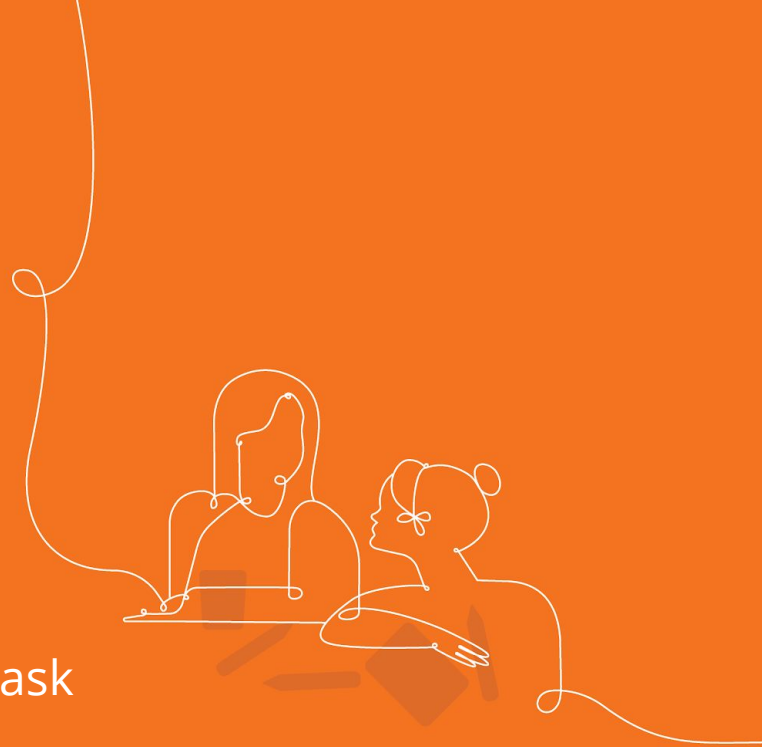


5 min break



Guided Planning

Independent planning with the opportunity to ask questions



Guided Planning Work Time

Pages 14-16

- Use the planning template and @Home resources (found on the Program HUB) to plan an upcoming lesson
- While planning consider the information below to select the appropriate resources:
 - Do you have more, less, or the same time as last year for Science?
 - Your classroom instructional model (Hybrid or Remote)
 - Student's access to technology (packet or slides/sheets)
 - The 3rd party applications will you pair with Amplify resources (if any)?
 - Do I want to add a hands on component? (model via video? Or complete during in person synchronous instruction)

Questions?



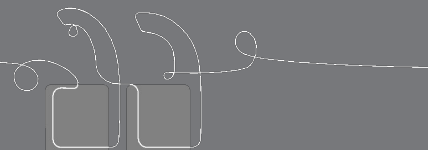
Plan for the day

- Framing the day
 - Welcome and introductions
 - Reflection and vision setting
 - Revisiting the Amplify Approach
- Unit Internalization
- @Home Resources Internalization
 - @Home Units
 - @Home Videos
 - Lesson Level Internalization
 - Resource selection/Guidance
- Guided Planning
 - Planning to Teach using @Home
- Reflection and closing



Revisiting Our Objective:

- Leverage your understanding of your upcoming unit to make instructional decisions about remote or hybrid learning using the Unit Guide and Amplify Science@Home resources.
- Apply new understanding of the unit to determine which @Home resources best meet the needs of students and give them the most robust experience in figuring out the phenomenon of the unit.
- Plan for the next week of instruction using the @Home resources, your class schedule, instructional format, and internalize the planning protocol to use for future planning.



Revisiting our objectives

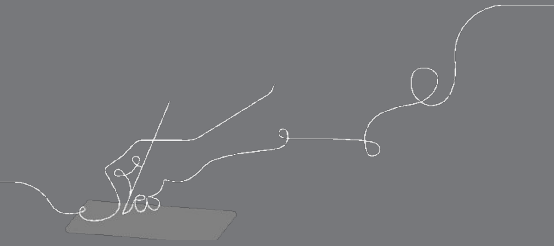
Do you feel ready to...

- Select the Amplify Science@Home resources that best fit your instructional context?
- Internalize tips and strategies for remote and hybrid instruction using Amplify Science@Home?
- Plan how you will leverage Amplify Science@Home resources in a remote setting for back-to-school?

1- I'm not sure how I'm going to do this!

3- I have some good ideas but still have some questions.

5- I have a solid plan for how to make this work!

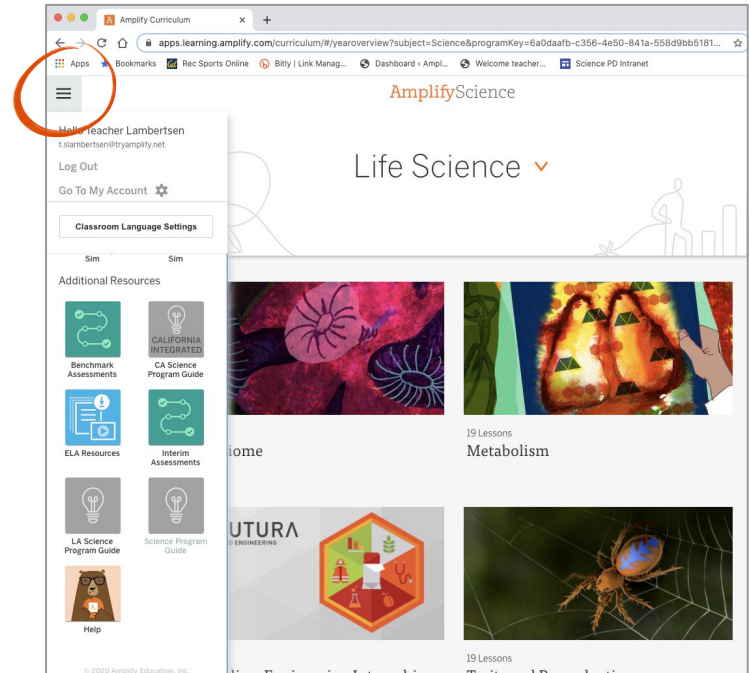


Amplify Science Program Hub

A new hub for Amplify Science resources

- **Videos and resources to continue getting ready to teach**
- Amplify@Home resources
- Keep checking back for updates

science.amplify.com/programhub



New York City Resources Site

<https://amplify.com/resources-page-for-nyc-6-8/>



Amplify.

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 Amplify resources



Program Guide

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

<https://my.amplify.com/programguide/content/national/welcome/science/>

Amplify Help

Find lots of advice and answers from the Amplify team.

my.amplify.com/help

Additional Amplify Support

Customer Care

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



scihelp@amplify.com



800-823-1969



Amplify Chat

When contacting the customer care team:

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