

Amplify Science

Standard Curriculum Relaunch / Guided Planning

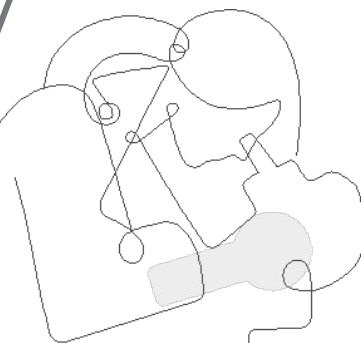
Grade 6 Elementary: Thermal Energy

Part 1

School/District Name: LAUSD

Date: October, 2021

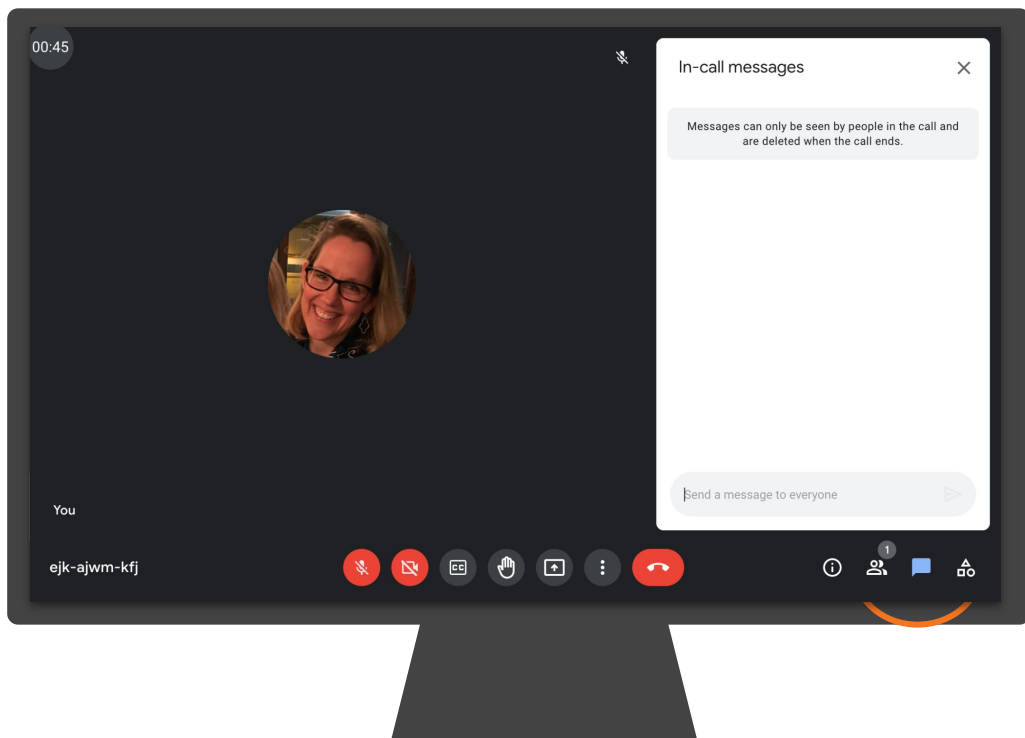
Presented by:



Ice Breaker!

Who do we have in the room today?

- **Question 1:** Which aspects of implementing the Standard Amplify Science curriculum are you most excited or hopeful about?
- **Question 2:** What do you feel most hesitant about?



Amplify's Purpose Statement

Dear teachers,

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

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

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

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

Sincerely,
Amplify

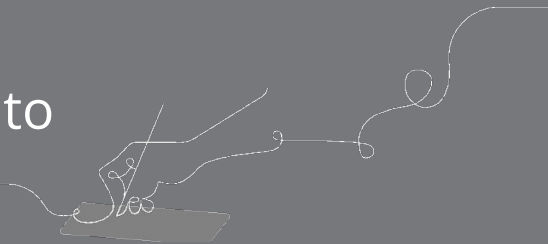
Norms: Establishing a culture of learners

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


Overarching goals

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

- ❑ Navigate the Amplify Science standard curriculum.
- ❑ Describe what teaching and learning look like in Amplify Science.
- ❑ Apply the program essentials to prepare to teach.




Last year's Amplify apps.



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LOS ANGELES UNIFIED SCHOOL DISTRICT


[mCLASS Student](#)



Content Area: ELA
Grade Level: ES
Content Type: Assessment
Integration Type: App (Left Navigation)
Purchase Type: District
[Getting Started Guide](#)
Other Info: App to be installed for all course members.

Vendor Support Desk:
P: 800.823.1969
E: help@amplify.com
S: amplify.com/support/
Textbook Title(s):
NA


[mCLASS Assessment](#)



Content Area: ELA
Grade Level: ES
Content Type: Assessment
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[mCLASS Portal](#)



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LOS ANGELES UNIFIED


COURSES





Course Options


 **Materials**


 Updates


 Gradebook


 Grade Setup


 Mastery

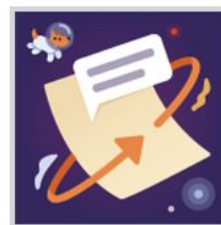
 Amplify Reading: Teac...

 Amplify Science: Eleme...


 Amplify Science: Middl...

 mCLASS Portal

 mCLASS Student




This year's app(s).



LOS ANGELES UNIFIED SCHOOL DISTRICT

About Los Angeles Unified Find a School Offices Classic View



LOS ANGELES UNIFIED SCHOOL DISTRICT

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COURSES GROUPS RESOURCES TOOLS

Back to Schoology Home Page

LMS App Center

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


For information on District-approval policies and procedures, please visit: udpp.lausd.net.

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


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

Search Again

All Amplify Products



Grade Sync for MS Science



LMS App Center

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Publisher Name Starts With

Content Area All

Grade Level All

Content Type All

Textbook Title Starts With

Submit

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[Search Again](#)


Amplify



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

Vendor Support Desk:
P: 800.823.1969
E: help@amplify.com
S: amplify.com/support/
Textbook Title(s):
NA

Amplify Classwork



Content Area: ELA
Grade Level: ES
Content Type: Supplemental
Integration Type: App (Left Navigation)
Purchase Type: District and School
[Getting Started Guide](#)
Other Info: School licenses required. This app is for teacher use only (install for Course Admins only)

Vendor Support Desk:
P: 800.823.1969
E: help@amplify.com
S: amplify.com/support/
Textbook Title(s):
NA

 mCLASS Educators: To view or make changes to your account go to mclass.amplify.com.

Hi, Terin

Classes

Programs & Licenses

Account Settings

Help Center 



[CKLA Hub](#)



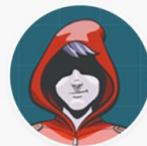
[CKLA Resource Site](#)



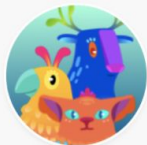
[mCLASS Assessment](#)



[mCLASS Reporting](#)



[Reading 6-8](#)



[Reading K-5](#)



[Science](#)



[Vocabulary](#)



Amplify. on Schoology

2021-2022



2020-2021
SCHOOL YEAR
SCHOOL YEAR



Join Amplify Science Schoology Group

To join Amplify Science Schoology

ES Group: W4PK-W466-63F5B

To join Amplify MS Group: SPG7G-K7BT9

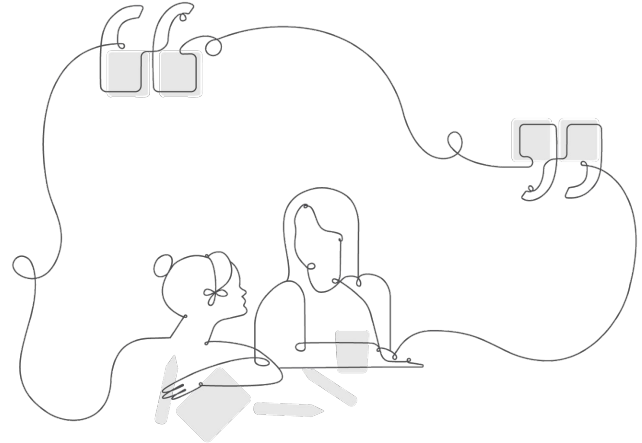
Upcoming LAUSD Office Hours

Last working Monday of the month

Next Office Hour:

January 31, 2022

- Monday, (4-5pm)



<https://meet.google.com/uwc-uuaz-qdc?authuser=0>

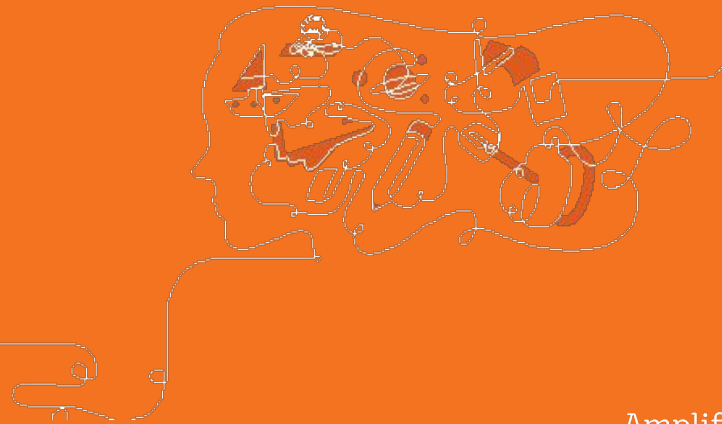
Upcoming **Amplify Science** Professional Learning Workshops

- **ES 6th Grade:** Unit 6: Ocean
Atmosphere and Climate
 - 3/5/22 Part 1 & 2, 8:30 – 12:00

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Check the [microsite](#) for more upcoming trainings

Part 1: Unit Internalization

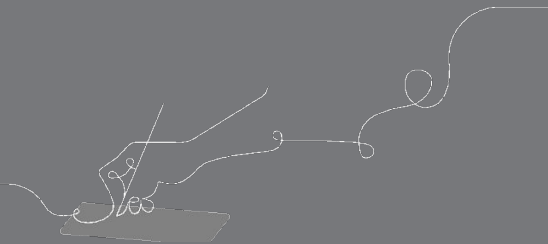


Overarching goals

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

- ❑ Navigate the full Amplify Science curriculum.
- ❑ Internalize the upcoming unit
- ❑ Apply the program essentials to prepare to teach.

e





Plan for the day: Part 1

- Introduction and Framing
- Unit Internalization



Course curriculum structure

Integrated model*

Grade 6

- Launch: Microbiome
- Metabolism
- Engineering Internship: Metabolism
- Traits and Reproduction
- Thermal Energy
- Ocean, Atmosphere, and Climate
- Weather Patterns
- Earth's Changing Climate
- Engineering Internship: Earth's Changing Climate

Grade 7

- Launch: Geology on Mars
- Plate Motion
- Engineering Internship: Plate Motion
- Rock Transformations
- Phase Change
- Engineering Internship: Phase Change
- Chemical Reactions
- Populations and Resources
- Matter and Energy in Ecosystems

Grade 8

- Launch: Harnessing Human Energy
- Force and Motion
- Engineering Internship: Force and Motion
- Magnetic Fields
- Light Waves
- Earth, Moon, and Sun
- Natural Selection
- Engineering Internship: Natural Selection
- Evolutionary History

Key takeaways:

- 9 units per grade level
- 145 lessons total per year
- Lessons are 45 minutes long

6th Grade Elementary course curriculum 2021-2022

Integrated model*

Grade 6

- Launch: Microbiome
- Metabolism
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AmplifyScience

authored by



THE LAWRENCE
HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

**These are the possible prioritized units for 6th grade elementary*

Launch units

- First unit
- 11 lessons

Core units

- Elementary 6th Grade will be teaching 4 Core Units

Engineering Internships

- Elementary 6th Grade will be teaching only one: Metabolism

6th Grade Elementary course curriculum 2021-2022

Integrated model*

Grade 6

- Launch: Microbiome
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6th Grade Elementary course curriculum 2022-2023

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AmplifyScience

All curricular
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**These are the possible prioritized units for 6th grade elementary*

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Launch units

- First unit
- 11 lessons

Core units

- Majority of units
- 19 lessons

Engineering Internships

- Two per year
- 10 lessons

6th Grade Elementary course curriculum 2023-2024

Integrated model*

Grade 6

- Launch: Microbiome
- Metabolism
- Engineering Internship: Metabolism
- Traits and Reproduction
- Thermal Energy
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- Earth's Changing Climate
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AmplifyScience

All curricular
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THE LAWRENCE
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- 11 lessons

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Engineering Internships

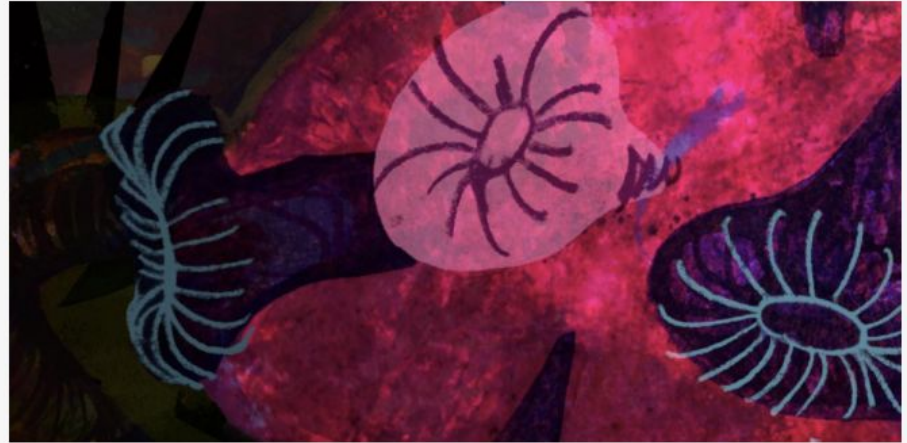
- Two per year
- 10 lessons

6-8 Curriculum: Unit types

Launch Units

Each year starts with an 11-day Launch Unit.

Launch Units introduce instructional routines and norms as well as key science practices students will leverage in every Amplify Science unit.



11 Lessons

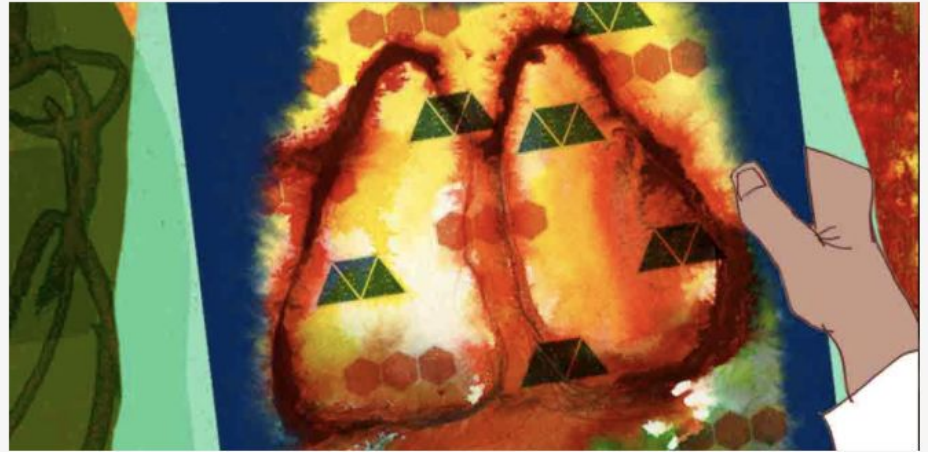
Microbiome

6-8 Curriculum: Unit types

Core Units

Each year has six Core Units. Core Units are 19 days long. The expectation this year, is to teach four.

In each Core Unit, students take on the role of a scientist or engineer and work to solve a real-world problem.



19 Lessons

Metabolism

Curriculum: Unit types

Engineering Internships

Each year has two Engineering Internships. Engineering Internships are 10 days long. The expectation this year, is to teach one.

In these units, students work as interns for a fictional company, Futura Engineering. They focus on designing solutions to real-world problems.



FUTURA
FOOD ENGINEERING

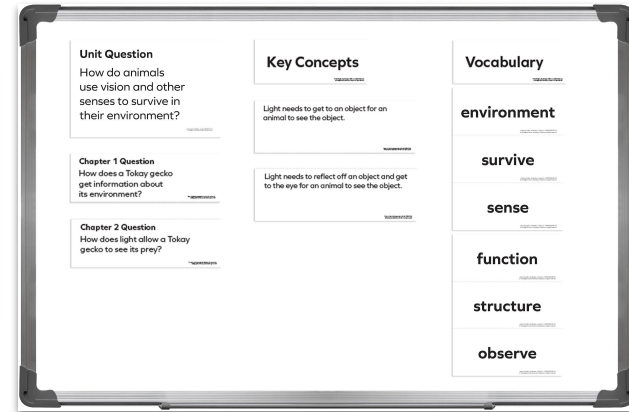
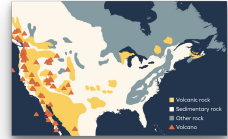
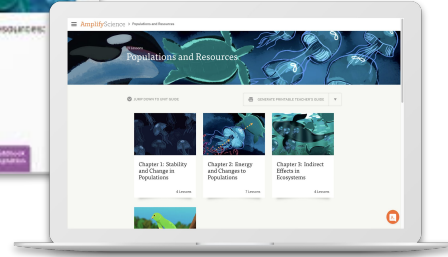
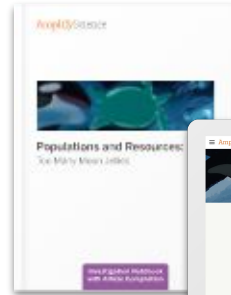
10 Lessons

Metabolism Engineering Internship

Program components

Teacher materials

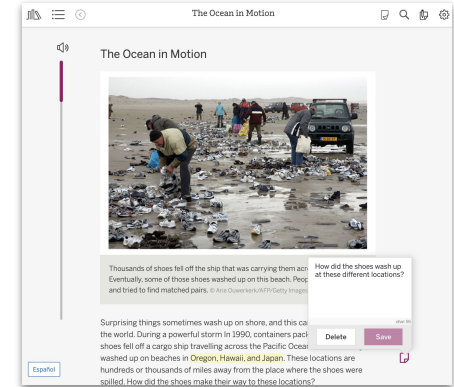
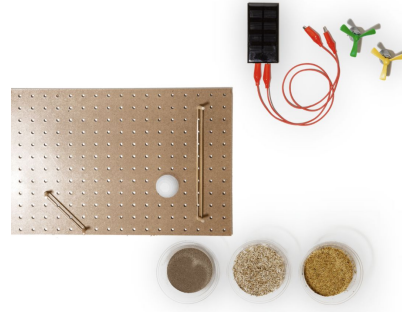
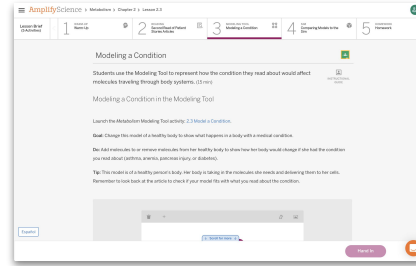
- Teacher's Guide
- Classroom Slides
- Classroom Wall materials
- Argumentation wall materials
- Embedded assessments
- Classwork
- Reporting App
- Assign feature
- Program Guide
- Program Hub
- Amplify Help site



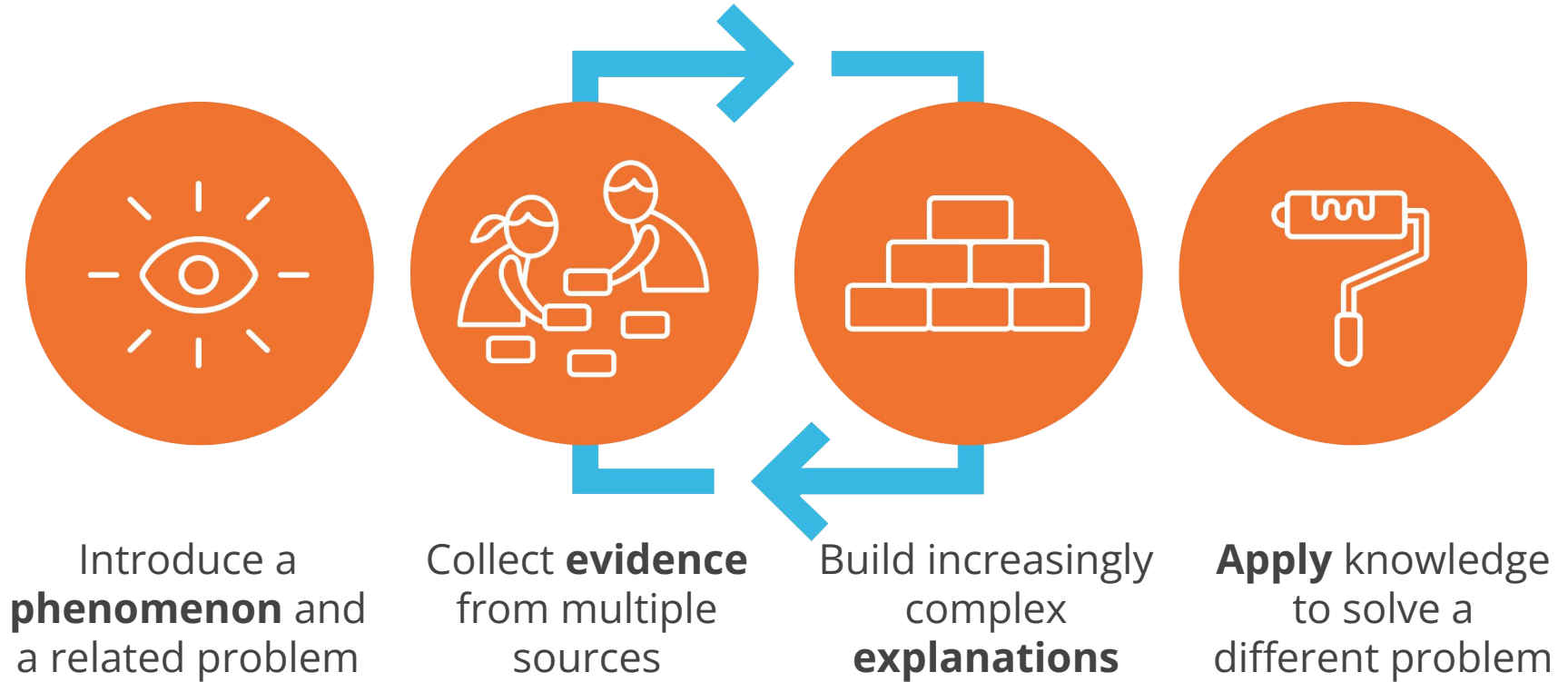
Program components

Student materials

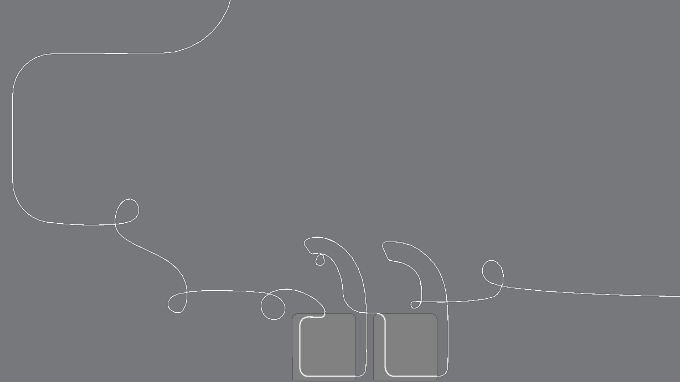
- Hands-on materials
- Digital student experience
- Articles (digital or print)
- Simulations and other digital tools
- Investigation Notebooks
- My Work



Amplify Science Approach



Questions?





Plan for the day: Part 1

- Introduction and Framing
- Unit Internalization



CORE Unit 5

Thermal Energy

Why do things change temperature?

Thermal Energy

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.



Students go beyond intuition to 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.

Thermal Energy

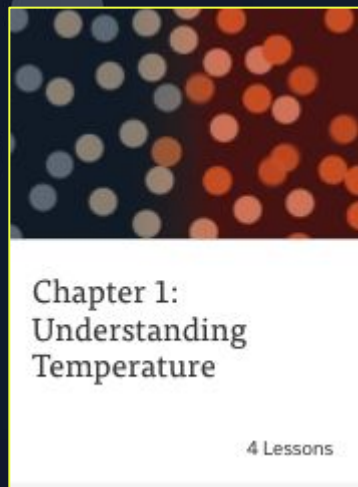
Problem: Which heating system will best heat Riverdale School?

Role: Thermal scientists

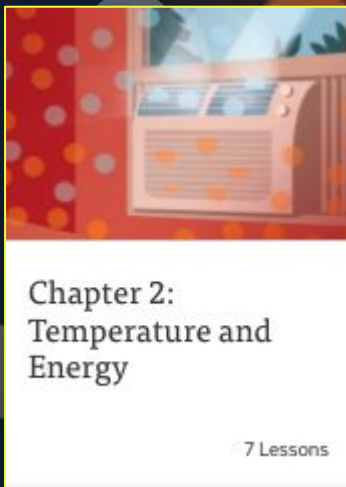
Students are called upon to analyze the differences between two systems at the molecular scale and to explain how and why they will heat the school. Students make use of the *Thermal Energy* Simulation, which provides evidence about the molecular nature of temperature and its relationship to kinetic energy. Students make a recommendation to the principal in favor of the system that will heat the school more during the winter.

Coherent storylines

Which heating system will best heat Riverdale School?



What is happening when the school gets warmer?



What causes air molecules inside the school to speed up?



Which heating system will warm the air in the school more?

Explaining the phenomenon: Science Concepts

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

Progress Build

Thermal Energy

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.

Level 2

Warmer objects transfer energy to cooler objects when they are in contact.

Level 3

The size of the objects in contact affects the amount of energy transfer between them and the amount of temperature change.

Key Unit Guide Documents for Planning

Planning for the Unit	Printable Resources
Unit Overview ▾	Coherence Flowcharts
Unit Map ▾	Copymaster Compilation
Progress Build ▾	Flexextension Compilation
Getting Ready to Teach ▾	Investigation Notebook
Materials and Preparation ▾	Multi-Language Glossary
Science Background ▾	NGSS Information for Parents and Guardians
Standards at a Glance ▾	Print Materials (8.5" x 11")
	Print Materials (11" x 17")
Teacher References	
Lesson Overview Compilation ▾	
Standards and Goals ▾	
3-D Statements ▾	
Assessment System ▾	
Embedded Formative Assessments ▾	
Books in This Unit ▾	
Apps in This Unit ▾	
Flexextensions in This Unit ▾	

Offline Preparation

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

[Offline Guide](#)

Key Unit Guide Documents for Planning

We will **take 5 minutes** to give you a chance to look at these important unit planning documents.

A screenshot of the 'Key Unit Guide Documents for Planning' interface. The interface is divided into two main columns. The left column, titled 'Planning for the Unit', contains a list of documents with dropdown arrows. The right column, titled 'Printable Resources', contains a list of downloadable PDFs. An orange arrow points to the 'Unit Overview' document in the left column. Another orange arrow points to the 'Coherence Flowcharts' PDF in the right column. A third orange arrow points to the 'Standards and Goals' document in the left column. A fourth orange arrow points to the '3-D Statements' document in the left column. A fifth orange arrow points to the 'Assessment System' document in the left column. A sixth orange arrow points to the 'Offline Preparation' section in the right column. The 'Offline Preparation' section includes the text 'Teaching without reliable classroom internet? Prepare unit and lesson materials for offline access.' and a button labeled 'Offline Guide'.

Planning for the Unit	Printable Resources
Unit Overview	Coherence Flowcharts
Unit Map	Copymaster Compilation
Progress Build	Flexension Compilation
Getting Ready to Teach	Investigation Notebook
Materials and Preparation	Multi-Language Glossary
Science Background	NGSS Information for Parents and Guardians
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Standards and Goals	Offline Preparation
3-D Statements	Teaching without reliable classroom internet? Prepare unit and lesson materials for offline access.
Assessment System	Offline Guide
Embedded Formative Assessments	
Books in This Unit	
Apps in This Unit	
Flexensions in This Unit	

Core Unit Planning & Internalization

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

Unit Guide resources:

- Unit Overview
- Unit Map
- Coherence Flowchart

Unit Guide resources:

- Lesson Overview Compilation
- Unit Overview

Unit Guide resources:

- Unit Map

Unit Guide resources:

- 3D Statements at the Unit Level

Core Unit Planning & Internalization

Unit Title:

Thermal Energy

Overview

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

What is the phenomenon/real-world problem students are investigating in your unit?

Which heating system will best heat Riverdale School?

Student Role:

Thermal Scientists

Unit Question:

Why do things change temperature?

Relationship between the Unit Phenomenon and Unit

By asking students to interpret molecular evidence and then encouraging them to construct molecular explanations, this unit is designed to provide students with a greater capacity for explaining changes in temperature.

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.

How do students engage with three-dimensional learning to figure out the phenomenon/real-world problem in your unit?

Students gather evidence from hands-on activities, as digital simulation, and science texts about thermal energy and temperature at the molecular and macroscale (scale, proportion, and quantity). Using both digital and physical models, students simulate thermal energy transfers in which objects of different masses and starting temperatures eventually reach equilibrium (energy and matter, stability and change).

Navigation Temperature Check

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

1 = Extremely Uncomfortable

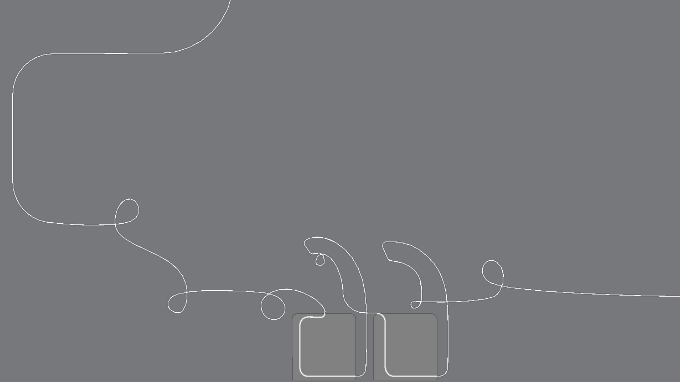
2 = Uncomfortable

3 = Mild

4 = Comfortable

5 = Extremely Comfortable

Questions?

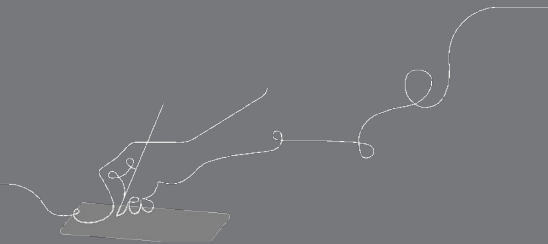


Overarching goals

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

- ✓ Navigate the full Amplify Science curriculum.
- ✓ Internalize the upcoming unit
- ✓ Apply the program essentials to prepare to teach.

e





Plan for the day: Part 1

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

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

Additional resources

Welcome, caregivers!

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

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

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



Grades 6-8



[Caregivers](#)

Additional resources and ongoing support

Customer Care

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



help@amplify.com



800-823-1969



Amplify Chat



Please provide feedback!

surveymonkey.com/r/InitialAmplifySciPL

Presenter name:

Workshop title:

Part 1: Relaunching the Standard Curriculum

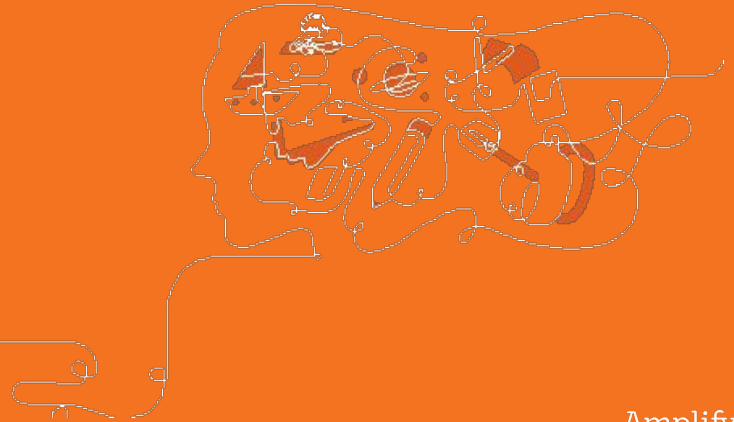
Part 2: Guided Planning (Planning for a Lesson)

Modality:

Remote



End of Part 1



Break

10:00 - 10:30

Amplify Science

Standard Curriculum Relaunch / Guided Planning

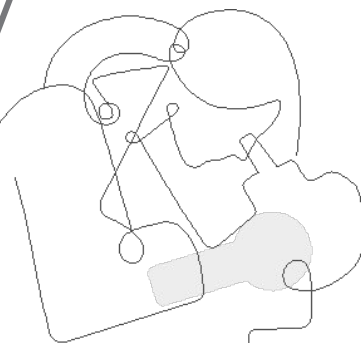
Grade 6 Elementary: Metabolism

Part 2

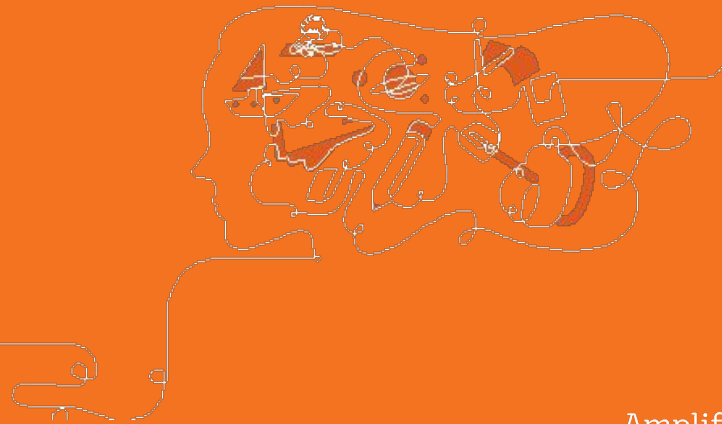
School/District Name: LAUSD

Date: ,

Presented by:



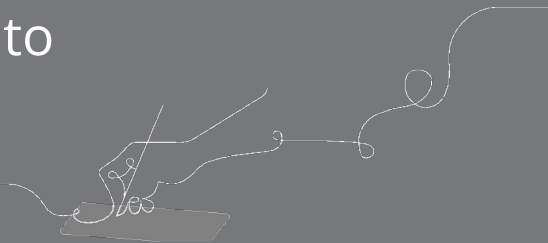
Part 2: Guided Planning



Overarching goals

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

- ❑ Navigate the Amplify Science curriculum.
- ❑ Describe what teaching and learning look like in Amplify Science.
- ❑ Apply the program essentials to prepare to teach.





Plan for the day: Part 2

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

Leading up to Lesson 1.2

Chapter 1: Understanding Temperature

✓ JUMP DOWN TO CHAPTER OVERVIEW

Lesson 1.1:
Pre-Unit Assessment

⚙️ SETTINGS

Lesson 1.2:
Investigating Hot
and Cold

Lesson 1.3:
Temperature and
Motion

Lesson 1.4:
Molecules and
Temperature



Thermal Energy

Lesson 1.2: Investigating Hot and Cold

Thermal Energy

Warm-Up



Today, we will begin a new unit called ***Thermal Energy***.

You will start with a Warm-Up each day to get you thinking about science ideas. You can begin working on it independently as soon as you come in.



Warm-Up

Warm-Up: Anticipation Guide

Read each statement below and decide if you agree or disagree. Write Agree or Disagree below each statement, based on your decision.

1. Temperature is the measurement of how hot or cold something is.

2. When something heats up, it moves faster, and when something cools down, it moves slower.



Activity 2

Introducing the Unit





Unit Question

Why do things change temperature?

To help us understand this question, we'll take on the role of student **thermal scientists** and work to solve a problem with the heating systems in a school.

First, we'll watch a video message that will help clarify your role and the heating system problem.

How are the heating systems similar and how are they different?

What questions do you have about how the heating systems work?

Which heating system do you think will warm the school more during the winter? Why?

As you watch the video, keep these **guiding questions** in mind.

After, you will discuss them with a partner.





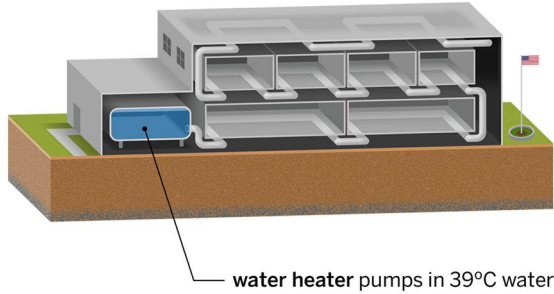
Chapter 1 Question

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



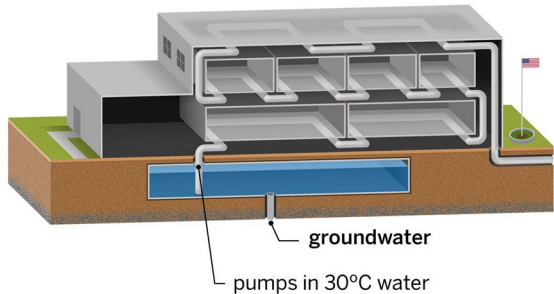
Proposal #1:
Water Heater System

morning air temperature: 11°C



Proposal #2:
Groundwater System

morning air temperature: 11°C



We will begin our investigation by thinking about and discussing the school **heating systems** you learned about in the video.



Introducing the Unit

Observing the Heating System Diagrams

- Look closely at the two diagrams below.
- Discuss the following guiding questions with your partner:
 - How are the heating systems similar and how are they different?
 - What questions do you have about how the heating systems work?
 - Which heating system do you think will warm the school more during the winter? Why?

Proposal #1: Water Heater System



Activity 3

Investigating Hot and Cold Things



Today, we will investigate this question:

Investigation Question:

How is something different when it is warmer or cooler?

Before we can recommend a heating system, we need to learn more about how warming or cooling can change the properties of things.



When you've just taken a stick of butter out of the fridge, what is it like? What are some of its **properties**? What about after you've let it sit at room temperature for 20 minutes and get **warmer**?

The Investigation Question asks how something is different when it is warmer or cooler because you'll be testing out and thinking about how different things **change temperature**. In this unit, you'll also start to think about what is happening to something's **molecules** when it gets warmer or colder.



What are some other examples and ideas about how things are **different** when they are **warmer** or **cooler**?

Investigation Question:

How is something different when it is warmer or cooler?



What are your **initial ideas** about the Investigation Question?



Today, you will **investigate** how warm water is different from cold water. You'll test to see what happens when you add food coloring to a cup of hot water and a cup of cold water.

Safety Guidelines for Science Investigations

1. Follow instructions.
2. Don't taste things.
3. Smell substances like a chemist.
4. Protect your eyes.
5. Protect your hands.
6. Keep your hands away from your face.
7. Tell your teacher if you have allergies.
8. Be calm and careful.
9. Report all spills, accidents, and injuries to your teacher.
10. Avoid anything that could cause a burn.
11. Wash your hands after class.





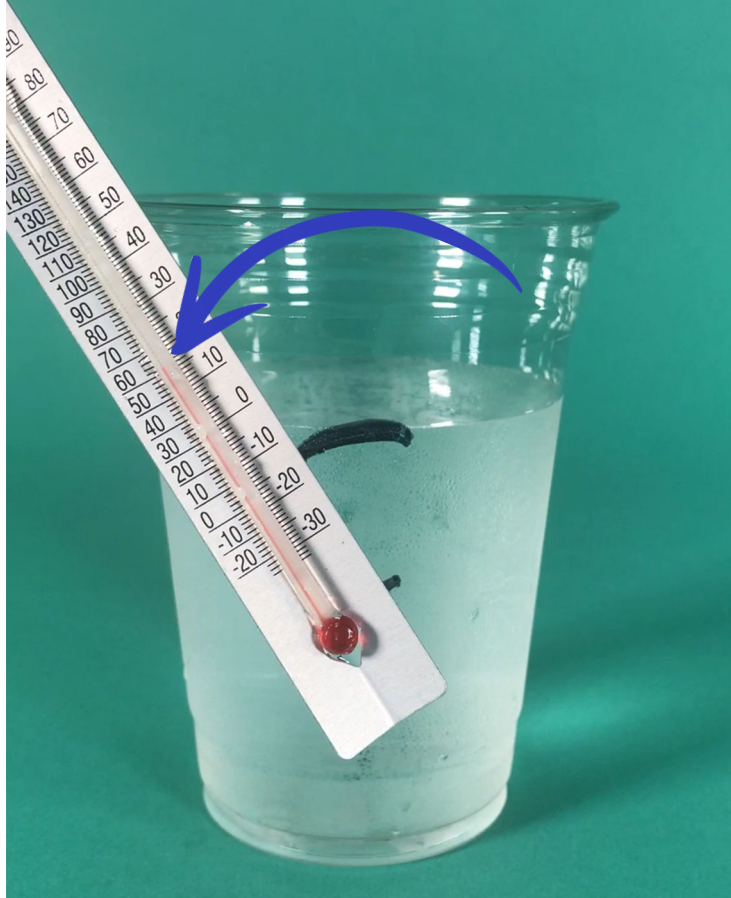
For this activity, you will need one cup of **hot water** and one cup of **cold water**.

Make sure each cup is only three-quarters full.



You'll then use a **thermometer** to measure the temperature of the water.

Let's review how to use the thermometers and read them correctly.



You read the thermometer by finding the **top of the red line**.

For this activity, you'll use the side of the thermometer that shows degrees **Celsius**.



After filling the cups, allow the water to settle before adding the food coloring.

Try **not to move** the cups once you begin the activity.

Investigating Hot and Cold

Follow these instructions to set up your investigation.

1. Carefully fill three-quarters of the cup labeled with a "C" with cold water.
2. Carefully fill three-quarters of the cup labeled with an "H" with hot water.
3. Place the thermometer in the cup of cold water, wait for 15 seconds, then record the temperature of the cold water below.
4. Place the thermometer in the cup of hot water, wait for 15 seconds, then record the temperature of the hot water below.
5. Make a prediction about what you will see when you add food coloring to each cup.

The temperature of the cold water is

The temperature of the hot water is

I predict that when I add food coloring to the water in the cups, the food coloring will:

spread out faster in the cold water.

spread out faster in the hot water.

spread out equally fast in the cold and hot water.

6. Add 2 drops of food coloring to each plastic cup.
7. Observe what happens in the two plastic cups and record your observations below.

How did the temperature of the water affect the movement of the food coloring?

You'll record the temperatures and your observations.

Before you start, you'll also make a prediction about what you think will happen.



Investigating Hot and Cold Things

SAFETY NOTE

Safety Note: Using Hot Water

Make sure the water is not hot enough to burn. Don't fill hot water to the top of the cup. Be careful around the hot water.

Investigating Hot and Cold

Follow these instructions to set up your investigation.

1. Carefully fill three-quarters of the cup labeled with a "C" with cold water.
2. Carefully fill three-quarters of the cup labeled with an "H" with hot water.
3. Place the thermometer in the cup of cold water, wait for 15 seconds, then record the temperature of the cold water below.



Investigating Hot and Cold

Follow these instructions to set up your investigation.

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2. Carefully fill three-quarters of the cup labeled with an "H" with hot water.
3. Place the thermometer in the cup of cold water, wait for 15 seconds, then record the temperature of the cold water below.
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6. Add 2 drops of food coloring to each plastic cup.
7. Observe what happens in the two plastic cups and record your observations below.

How did the temperature of the water affect the movement of the food coloring?



Answer the **follow-up** question.



What did you **observe** in the hands-on investigation?

Activity 4

Reflecting on the Investigation



At the end of most lessons in this unit, there will be a reflection question or activity that will help you **summarize the science ideas** you have learned.

Investigation Question:

How is something different when it is warmer or cooler?

Today, you'll reflect on the initial ideas you had about this question and consider how the results of the hands-on investigation **confirmed your thinking** or made you **change your mind**.



Reflecting on the Investigation

Reflecting on the Investigation

Today you worked on collecting evidence to answer the Investigation Question: *How is something different when it is warmer or cooler?*

How did the experiment with the cold and warm water change your thinking about the Investigation Question?



End of Lesson

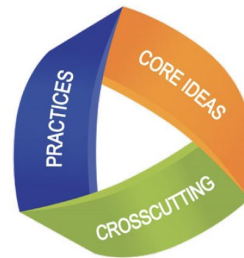


THE LAWRENCE
HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

Amplify.

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What Science and Engineering Practices did students engage with during the lesson?



Science and Engineering Practices

1. Asking Questions and Defining Problems

2. Developing and Using Models

3. Planning and Carrying Out Investigations

4. Analyzing and Interpreting Data

5. Using Mathematics and Computational Thinking

6. Constructing Explanations and Designing Solutions

7. Engaging in Argument from Evidence

8. Obtaining, Evaluating, and Communicating Information



Plan for the day: Part 2

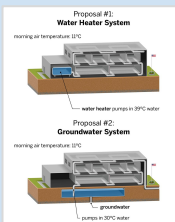
- Teaching and Learning in an Amplify Science Lesson
- Instructional Approach Reflection
- Planning a Lesson
- Closing

Gathering evidence

Thermal Energy 1.2

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

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



Name _____ Date _____

Investigating Hot and Cold Things

Safety Note: Using Hot Water
Make sure the water is not hot enough to burn. Don't fill hot water to the top of the cup. Be careful around the hot water.

Investigating Hot and Cold
Follow these instructions to set up your investigation.

1. Carefully fill three quarters of the cup labeled with a "C" with cold water.
2. Carefully fill three quarters of the cup labeled with an "H" with hot water.
3. Place the thermometer in the top of cold water, wait for 15 seconds, then record the temperature of the cold water below.
4. Place the thermometer in the top of hot water, wait for 15 seconds, then record the temperature of the hot water below.
5. Make a prediction about what you will see when you add food coloring to each cup.

The temperature of the cold water is _____. The temperature of the hot water is _____.

I predict that when I add food coloring to the water in the cups, the food coloring will: (check one)

☐ spread out faster in the cold water.

☐ spread out faster in the hot water.

☐ spread out equally fast in the cold and hot water.

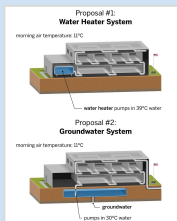


Gathering evidence

Thermal Energy 1.2

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

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



Name: _____ Date: _____

Investigating Hot and Cold Things

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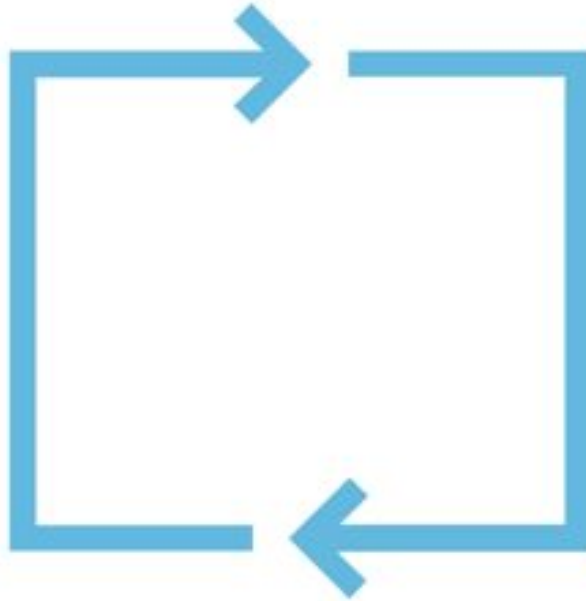
☐ spread out equally fast in the cold and hot water.



What have students figured out so far?

Multimodal learning

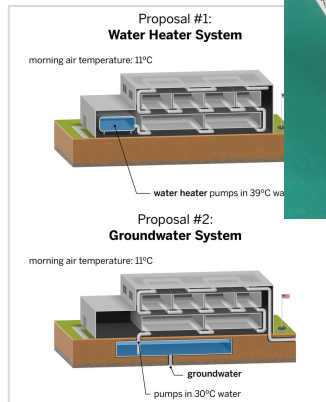
Gathering evidence over multiple lessons



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

Evidence sources work together

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



Name: _____ Date: _____

Investigating Hot and Cold Things

Safety Note: Using Hot Water
Make sure the water is not hot enough to burn. Don't fill hot water to the top of the cup. Be careful around the hot water.

Investigating Hot and Cold
Follow these instructions to set up your investigation.

1. Carefully fill three-quarters of the cup labeled with a "C" with cold water.
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The temperature of the cold water is _____. The temperature of the hot water is _____

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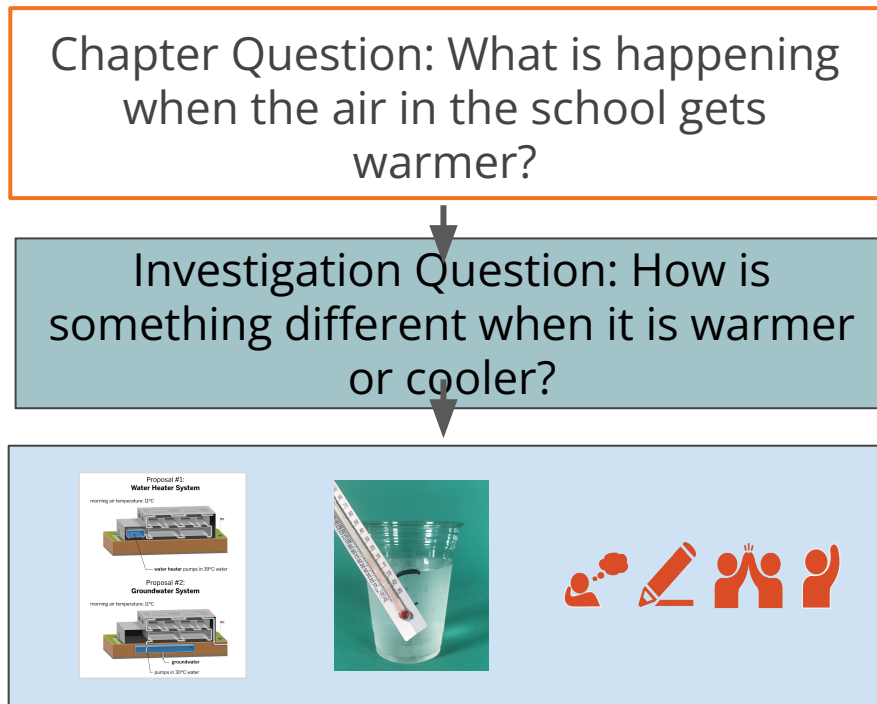
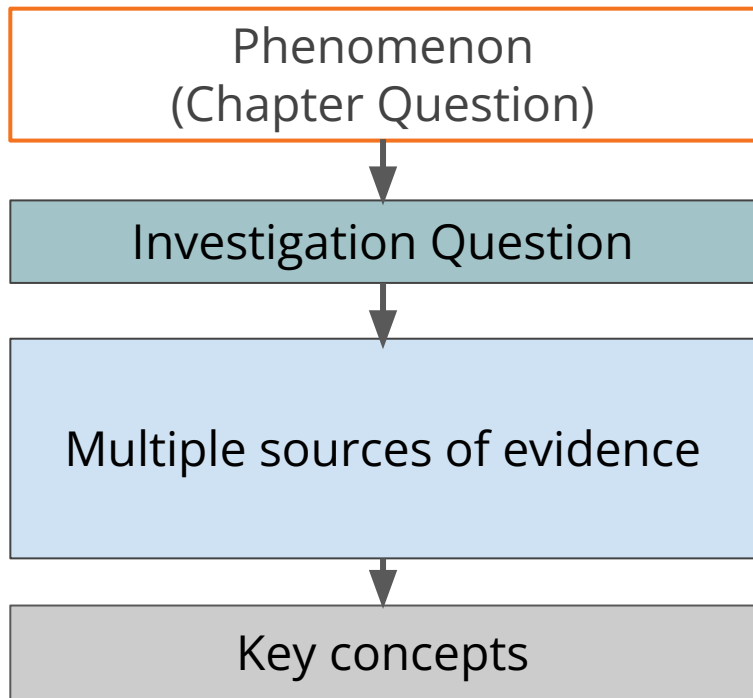
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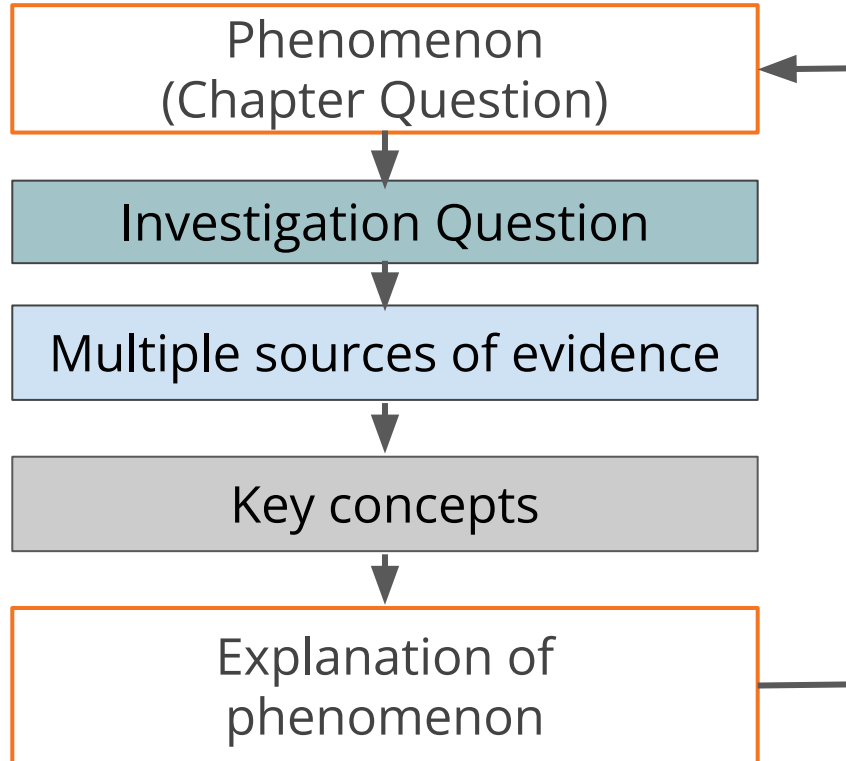
Coherence Flowchart

A diagram of student learning

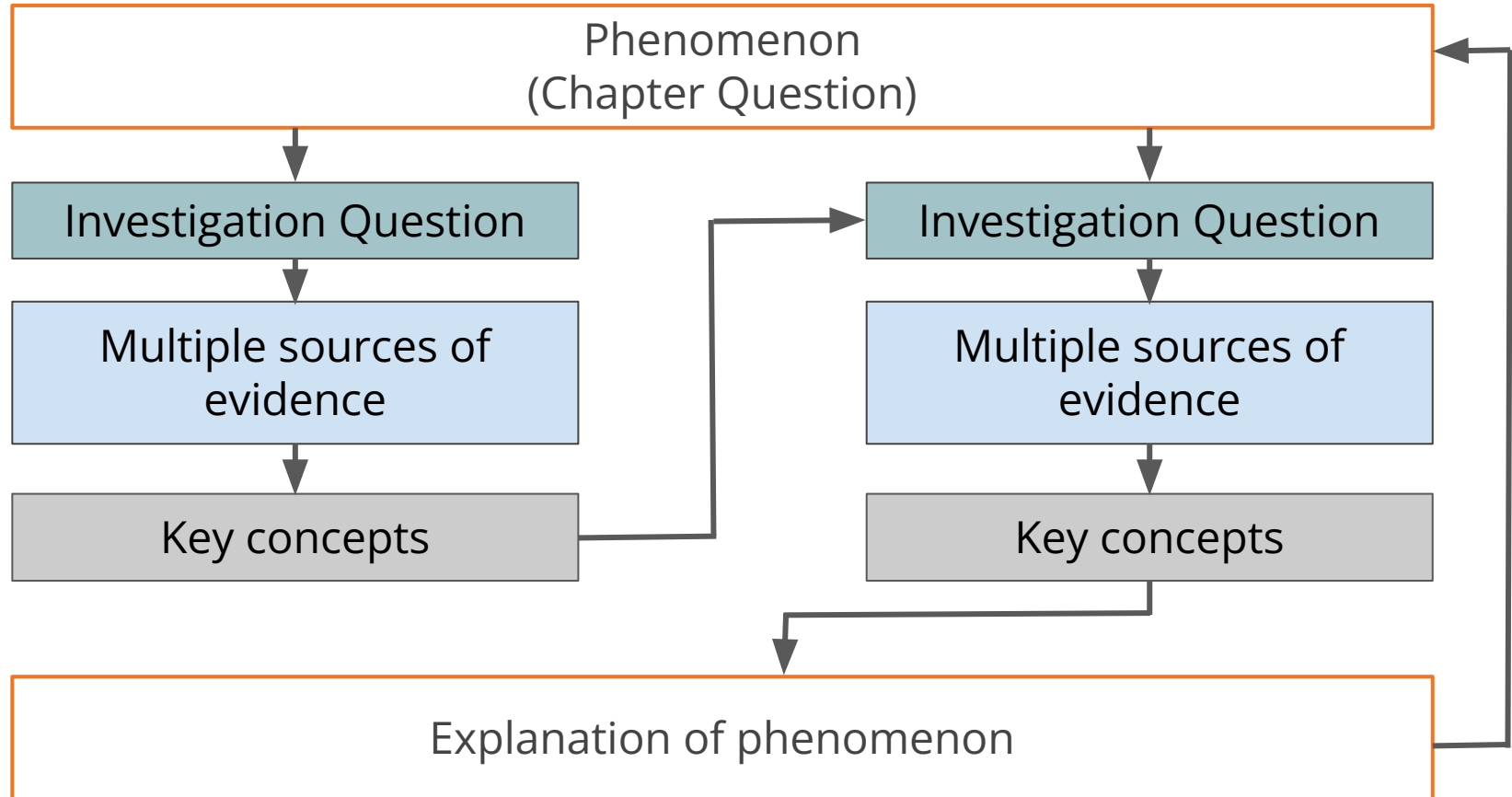


Coherence Flowchart

A diagram of student learning



Coherence Flowchart



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)

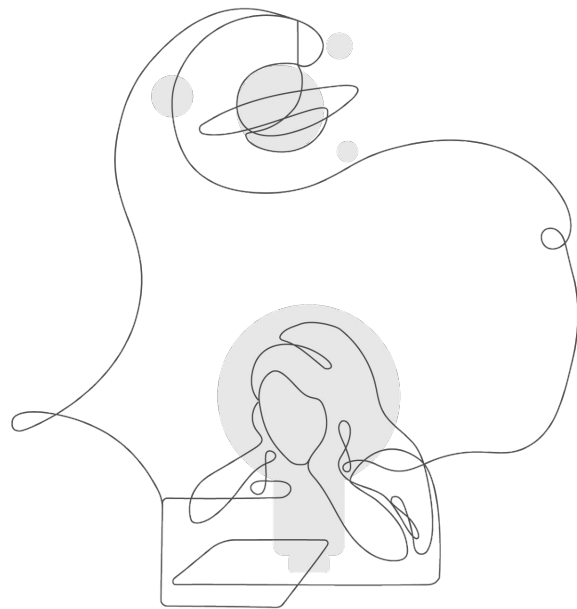
Explanation that
students can make
to answer the
Chapter 1
Question

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.

Explore the Coherence Flowchart

Skim the Chapter 1 Coherence Flowchart.

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





Ask in the chat feature

Questions?



Plan for the day: Part 2

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

Hands On Material Organization

Directions

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

2. Look for the lessons with Hands On.

HANDS-ON 

3. Note in the table below.

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

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

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


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

AmplifyScience CALIFORNIA EDITION > Thermal Energy

19 Lessons

Thermal Energy

JUMP DOWN TO UNIT GUIDE GENERATE PRINTABLE TEACHER'S GUIDE



Overview

Materials & Preparation

Differentiation

Standards

Vocabulary

Unplugged?

Overview



Students begin the unit with an introduction to their role as thermal scientists investigating how two types of heating systems will heat a school differently during the winter. To begin their research, students focus on the differences between the two heating systems. Students collect evidence by experimenting with food coloring in hot and cold water, and find that the food coloring disperses more quickly in warmer water. The purpose of this lesson is for students to begin to build an understanding that temperature is related to motion, a stepping stone to understanding temperature in terms of molecular motion.

Chapter 1 Activities

Lesson 1.1: Pre-Unit Assessment


1	Multiple-Choice Questions	CLASS	
2	Written-Response Question #1	CLASS	
3	Written-Response Question #2	CLASS	

Lesson 1.2: Investigating Hot and Cold

1	Warm-Up	WARM-UP	
T	Video: A Tale of Two Heating Systems	TEACHER	
2	Introducing the Unit	TEACHER-LED DISCUSSION	
3	Investigating Hot and Cold Things	HANDS ON	
4	Reflecting on the Investigation	CLASS	



Lesson 1.3: Temperature and Motion

1	Warm-Up	WARM-UP	
2	Simulating Hot and Cold Water	SIM	
3	Reflection	CLASS	
4	Homework	HOMEWORK	

Hands On Material Organization

Completed for Thermal Energy

Chapter/Lesson	Activity	Prep Prior	Prep Day of	What to do
1.2	3	x	x	<p>Prep Prior: Label 20 cups with C & 20 cups with H. An electric kettle is a very efficient way to heat the water. A pitcher with ice cubes for the cold water.</p> <p>Prep Day of: Put two plastic cups, a thermometer, and a dropper bottle of food coloring on a tray for each group of two students.</p>
2.4	3	x		<p>Prep Prior: Each group of eight students will need a bag containing 32 counting cubes</p>
2.7	3	x		<p>Prep Prior: Each pair of students will need 1 Energy 3-in-a-Row Rules sheet (Green, Blue, or Purple)*, Energy 3-in-a-Row Game Board (Green/Blue or Purple), Energy 3-in-a-Row Action Cards, Energy 3-in-a-Row Object Cards, 50 energy cubes, tokens for game board* (i.e., coins, small sticky notes, bits of paper) For each student: Energy 3-in-a-Row Scorecard (Green, Blue, or Purple)*</p>

4 Easy Steps to Teaching an Amplify Lesson

Step 1: Download the Classroom Slides

Step 2: Read the Overview Section

Step 3: Read the Materials & Preparation Section

Step 4: Read the Differentiation Section

The screenshot shows the Amplify lesson interface. At the top, there's a header with a background image of a spider and a blue circle. Below the header, there's a navigation bar with three tabs: 1. TEACHER: Playing Spiders in the Lab, 2. READING: Active Reading: Surprising Spider Silk, and 3. HANDS-ON: Building Physical Models of Proteins. Below the navigation bar, there's a main content area. On the left, there's a sidebar with a 'RESET LESSON' button and a list of sections: Overview, Materials & Preparation, Differentiation, Standards, Vocabulary, and Unplugged?. On the right, there's a 'DIGITAL RESOURCES' section with links to Classroom Slides 1.3 | PowerPoint, Classroom Slides 1.3 | Google Slides, All Projections, Classroom Videos 1.3 | Zip, Video: Spiders in the Lab, and Surprising Spider Silk. The main content area displays the 'Overview' section, which describes the lesson's focus on protein molecules and spider silk.

RESET LESSON

TEACHER: Playing Spiders in the Lab

2 READING: Active Reading: Surprising Spider Silk

3 HANDS-ON: Building Physical Models of Proteins

GENERATE PRINTABLE LESSON GUIDE

ASSIGN

Overview

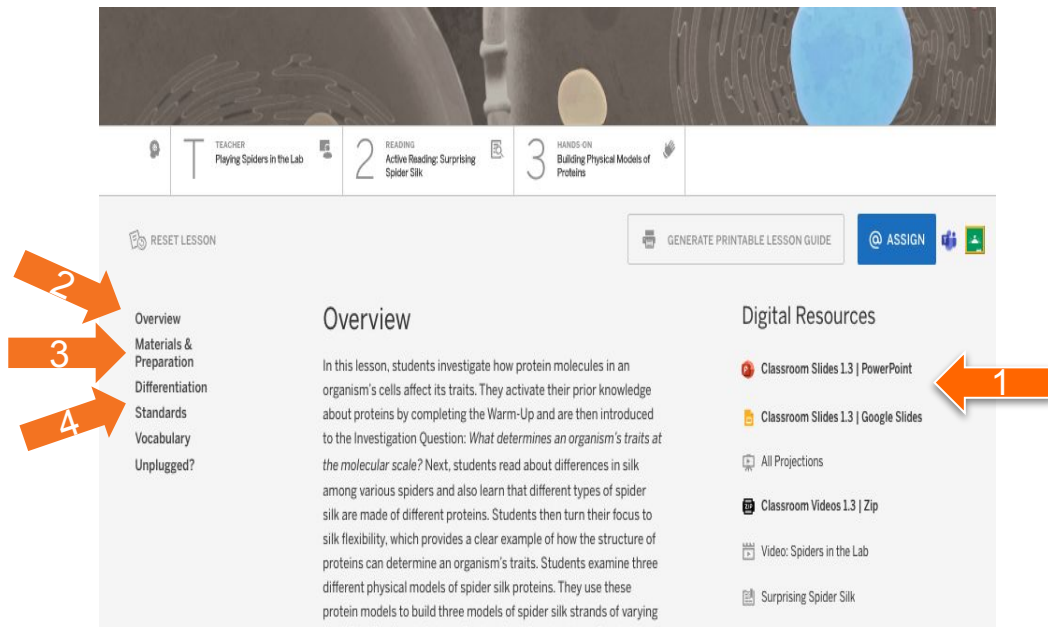
In this lesson, students investigate how protein molecules in an organism's cells affect its traits. They activate their prior knowledge about proteins by completing the Warm-Up and are then introduced to the Investigation Question: *What determines an organism's traits at the molecular scale?* Next, students read about differences in silk among various spiders and also learn that different types of spider silk are made of different proteins. Students then turn their focus to silk flexibility, which provides a clear example of how the structure of proteins can determine an organism's traits. Students examine three different physical models of spider silk proteins. They use these

Digital Resources

- Classroom Slides 1.3 | PowerPoint
- Classroom Slides 1.3 | Google Slides
- All Projections
- Classroom Videos 1.3 | Zip
- Video: Spiders in the Lab
- Surprising Spider Silk

Key Unit Guide Documents for Lesson Planning

We will **give you 5 minutes** to look at these important lesson planning documents.



The screenshot shows a lesson planning interface for a unit on spiders. At the top, there are three tabs: 'TEACHER: Playing Spiders in the Lab', '2 READING: Active Reading: Surprising Spider Silk', and '3 HANDS-ON: Building Physical Models of Proteins'. Below the tabs, there are three orange arrows pointing to specific elements: arrow 2 points to the 'Overview' link in the left sidebar; arrow 3 points to the 'Materials & Preparation' link in the left sidebar; and arrow 4 points to the 'Standards' link in the left sidebar. In the main content area, the 'Overview' section is visible, describing the lesson's focus on protein molecules and spider silk. On the right, the 'Digital Resources' section lists several items: 'Classroom Slides 1.3 | PowerPoint', 'Classroom Slides 1.3 | Google Slides', 'All Projections', 'Classroom Videos 1.3 | Zip', 'Video: Spiders in the Lab', and 'Surprising Spider Silk'. An orange arrow labeled '1' points to the 'Classroom Slides 1.3 | PowerPoint' item.

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

Lesson 1.3	Activity Overview	
<p>What is the purpose of this lesson?</p> <p>For students to begin to build an understanding that temperature is related to motion, a stepping stone to understanding temperature in terms of molecular motion.</p>	Activity 1 (5 min)	<p>Warm Up</p>
<p>What will students learn?</p> <p>There is more movement within warmer liquid than colder liquid.</p>	Activity 2 (5 min)	(Teacher Only) Video: A Tale of Two Heating Systems
<p>3-D Statement (identify SEP, CCC, and DCI):</p> <p>Students watch a video to obtain information about two proposed heating systems designed to warm the air temperature of a fictional school (systems and system models). They conduct investigations about the connection between temperature and movement with an experiment observing food coloring as it disperses in warm water and in cold water.</p>	Activity 3 (5 min)	Introducing the unit
<p>Student Resources:</p> <p>For each group of 2: 1 plastic cup with hot water, 1 cup with cold water, 1 thermometer, 1 bottle of food coloring</p>	Activity 4 (25 min)	Introducing hot and cold things
<p>Assessment Opportunities:</p> <p>none</p>	Activity 5 (5 min)	Reflecting on Investigation

Planning Time

4 Easy Steps to Teaching an Amplify Lesson

Step 1: Download the Classroom Slides

Step 2: Read the Overview Section

Step 3: Read the Materials & Preparation Section

Step 4: Read the Differentiation Section

The screenshot shows the Amplify lesson interface for the lesson 'Playing Spiders in the Lab'. At the top, there is a navigation bar with three tabs: 'TEACHER' (selected), 'READING', and 'HANDS-ON'. Below the navigation bar, there is a 'RESET LESSON' button and a 'GENERATE PRINTABLE LESSON GUIDE' button. The main content area is divided into three sections: 'Overview', 'Materials & Preparation', and 'Digital Resources'. The 'Overview' section contains a paragraph about protein molecules and spider silk. The 'Materials & Preparation' section contains a list of links: 'Classroom Slides 1.3 | PowerPoint', 'Classroom Slides 1.3 | Google Slides', 'All Projections', 'Classroom Videos 1.3 | Zip', 'Video: Spiders in the Lab', and 'Surprising Spider Silk'. The 'Digital Resources' section contains a list of links: 'Classroom Slides 1.3 | PowerPoint', 'Classroom Slides 1.3 | Google Slides', 'All Projections', 'Classroom Videos 1.3 | Zip', 'Video: Spiders in the Lab', and 'Surprising Spider Silk'. Four orange arrows with numbers 1, 2, 3, and 4 point to the 'Classroom Slides 1.3 | PowerPoint' link, the 'Overview' section, the 'Materials & Preparation' section, and the 'Digital Resources' section respectively.

TEACHER Playing Spiders in the Lab

2 READING Active Reading: Surprising Spider Silk

3 HANDS-ON Building Physical Models of Proteins

RESET LESSON

GENERATE PRINTABLE LESSON GUIDE

ASSIGN

Overview

In this lesson, students investigate how protein molecules in an organism's cells affect its traits. They activate their prior knowledge about proteins by completing the Warm-Up and are then introduced to the Investigation Question: *What determines an organism's traits at the molecular scale?* Next, students read about differences in silk among various spiders and also learn that different types of spider silk are made of different proteins. Students then turn their focus to silk flexibility, which provides a clear example of how the structure of proteins can determine an organism's traits. Students examine three different physical models of spider silk proteins. They use these

Digital Resources

- Classroom Slides 1.3 | PowerPoint
- Classroom Slides 1.3 | Google Slides
- All Projections
- Classroom Videos 1.3 | Zip
- Video: Spiders in the Lab
- Surprising Spider Silk

Remember to plan for...

Student work:

- How do you plan to collect evidence of student work?

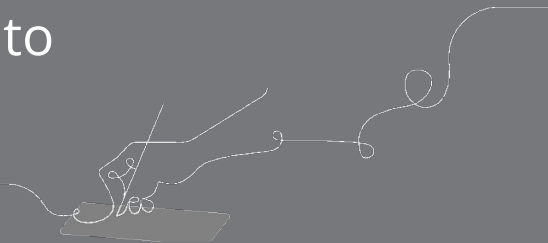
Differentiation:

- How do you plan to differentiate the lesson for diverse learners?

Overarching goals

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

- ☑ Navigate the Amplify Science curriculum.
- ☑ Describe what teaching and learning look like in Amplify Science.
- ☑ Apply the program essentials to prepare to teach.





Plan for the day: Part 2

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

Classwork

Classwork is a feedback tool for all student work that is submitted digitally through the student platform.

Classwork allows you to track who has completed which assignments, score student work, and send digital feedback.

AmplifyClasswork

LAUNCH PROGRAMS

TEACHER

7th Grade Science Period 2

ACTIVITIES

PORTFOLIOS

GROUPS

UNIT

CHAPTER

LESSON

ACTIVITY TYPE

Metabolism

2 | The Body System

all

all

ACTIVITY

SUBMISSIONS

LAST SUBMISSION

FEEDBACK

5. HOMEWORK

Homework

Lesson 2

20/22

10/13/20
Thurs. 12:21pm

22
awaiting

STUDENT

STATUS

MC

GENERAL COMMENT

CUSTOM SCORE

WORDS

COMMENTS

FEEDBACK

Anthony Bryk

Handed In
10/13/20 11:59am

3/6

I can tell you were thinking...

B

99

3

Mihaly Csikszentmihalyi

In Progress

-

0

0

-

Carol Dweck

Not Started

-

Please complete!

0

1

Jamie Escalante

Resubmitted
10/12/20 7:04pm

3/6

Try rereading the passage...

B+

126

1

Fatima al-Fihri

Handed In
10/13/20 11:40am

6/6

Wow! Great use of evidenc...

A

54

1

Herbert Ginsburg

Handed In
10/13/20 11:54am

4/6

Big improvement from last...

B

96

2

Eric Donald Hirsch

Handed In
10/13/20 11:37am

3/6

Next time, try to work on...

B-

51

1

Jovita Idár

Resubmitted
10/14/20 11:59am

6/6

You really wrote effectively...

A+

134

1

Assign feature

Teacher tip: Use the Assign feature to assign activities and due dates.

Students will be notified with a bell icon. This makes it easier for students to know what's assigned and what's due.

The screenshot displays the AmplifyScience web interface. At the top, the navigation bar includes the AmplifyScience logo, a breadcrumb trail (Force and Motion > Chapter 1 > Lesson 1.2), and a user profile icon. Below this, a secondary navigation bar shows 'Lesson Brief (5 Activities)', a left arrow, a large number '4' with the text 'STUDENT-TO-STUDENT DISCUSSION Discussing Changes in Motion', a right arrow, a large number '5' with the text 'HOMEWORK Homework', and a home icon. The main content area is titled 'Discussing Changes in Motion' and includes an '@ ASSIGN' button with a bell icon. Below the title, it states 'Students summarize what they have learned about changes in motion.(10 min)' and features an 'INSTRUCTIONAL GUIDE' icon. A tabbed interface below this shows 'Step-by-step' (selected), 'Possible Responses', and 'My Notes'. The 'Step-by-step' tab contains four numbered instructions for a classroom activity. At the bottom left is a language toggle for 'Español'. At the bottom right are page indicators '1' and '2', a 'Next' button, and a bell icon for notifications.

AmplifyScience > Force and Motion > Chapter 1 > Lesson 1.2

Lesson Brief (5 Activities) < 4 STUDENT-TO-STUDENT DISCUSSION Discussing Changes in Motion > 5 HOMEWORK Homework

Discussing Changes in Motion @ ASSIGN

Students summarize what they have learned about changes in motion.(10 min) INSTRUCTIONAL GUIDE

Step-by-step Possible Responses My Notes

1. Introduce summarizing question. Collapse the instructional guide and project the student screen, or have students look at the instructions on page 9 of their Investigation Notebooks. Explain that partners will discuss and work together to record the five ways an object's motion can change.

2. Allow about 5 minutes for discussing and responding. Circulate as pairs talk. If students are having difficulty, encourage them to look back at their responses from the previous activity.

3. Invite volunteers to share ideas. As students identify the 5 ways that motion can change, condense their statements into a few words and list them on the board. [1. start moving. 2. stop moving. 3. speed up. 4. slow down. 5. change direction.]

4. Highlight that all these changes in motion involve a change in speed or direction. Note that in science, there is a specific term for speed in a certain direction.

Español

1 2 Next

Grade sync from Classwork to Schoology

ACTIVITY	SUBMISSIONS	LAST SUBMISSION ↕	DUE DATE	FEEDBACK	
1. INDIVIDUAL Selected Response Questions Lesson 1	20/22	9:34am Wed. 3/1/21	11:59pm Fri. 3/5/21	20 awaiting	
STUDENT	STATUS	MC	GENERAL COMMENT	CUSTOM SCORE	FEEDBACK
				100 ⓘ	
Anthony Bryk	Handed In 3/5/21 9:31am	12/20		60/100	
Mihaly Csikszentmihalyi	In Progress	-		0/100	
Carol Dweck	Handed In 3/2/21 11:45am	16/20		80/100	
Jamie Escalante	Handed In 3/5/21 2:32pm	20/20		100/100	
	Handed In				

Michelle Obama	Handed In 3/3/21 9:35am	15/20		75/100	
Seymour Papert	Handed In 3/5/21 4:15am	16/20		80/100	
Linda Roberts	Handed In 3/2/21 12:33am	16/20		80/100	
Dorothy Strickland	Handed In 3/2/21 10:15am	14/20		70/100	
Kenneth Koch	Handed In 3/3/21 9:20am	12/20		60/100	

Last sync with LMS
3/7/21 8:20am

[Reporting](#)[Send all feedback](#)

☐ Mark Incorrect☐ Reveal Correct

2. INDIVIDUAL Constructed Response Lesson 1.2	22/22	10:19am Tues. 2/28/21	11:59pm Fri. 3/5/21	22 awaiting
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Questions?



End of Part 2

Additional resources

Welcome, caregivers!

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

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

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



Grades 6-8



[Caregivers](#)

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

Additional resources and ongoing support

Customer Care

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



help@amplify.com



800-823-1969



Amplify Chat



Please provide feedback!

surveymonkey.com/r/InitialAmplifySciPL

Presenter name:

Workshop title:

Part 1: Relaunching the Standard Curriculum

Part 2: Guided Planning (Planning for a Lesson)

Modality:

Remote

