Welcome to Amplify Science!

Do Now: Login and open your digital participant packet

1. Go to learning.amplify.com
2. Select Log in with Amplify
3. Enter teacher demo account credentials
   - nycdoe_middle@tryamplify.net
   - Password: AmplifyNumber1
4. Explore as we wait to begin
Welcome to Amplify Science!

Student log-in (optional)

1. Go to learning.amplify.com
2. Select Log in with Amplify
3. Enter teacher demo account credentials
   - s.nycdoe_middle@tryamplify.net
   - Password: AmplifyNumber1
4. Explore as we wait to begin
Use two windows for today’s webinar
Introduction to Amplify Science
NYC Summer Institute, Day 1
Grade 6: Harnessing Human Energy & Thermal Energy
Remote Professional Learning Norms

**Orient yourself to the platform**

- “Where’s the chat box? Where’s the mute button?”

**Mute your microphone** unless sharing with the group

**Use the chat box** for posting questions or responses

**Have a note-catcher**

**Engage at your comfort level** - chat, ask questions, discuss.
Introductions!

Who do we have in the room today?

- **Question 1:** What do you love about teaching science?

- **Question 2:** What do you need to learn today and tomorrow to feel confident with this new curriculum?
Overarching goals

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

• Navigate the Amplify Science curriculum.
• Understand the program’s multimodal approach and instructional materials.
• Apply program essentials to prepare to teach an Amplify Science unit.
• Make an informed decision about which of the Amplify Science Hybrid Learning Resources will best support your students.
Day 1 Objectives

By the end of today you will be able to:

• Navigate the Amplify Science curriculum.

• Understand the program’s phenomenon-based approach and instructional materials.
Plan for the day

- What is Amplify Science?
- Navigation essentials
- Teaching a phenomenon-based lesson
- Unit Guide Resources
- Assessments
- Closing and reflection
What is Amplify Science?
Next Generation Science Standards

Designed to help students build a cohesive understanding of science

What scientists do
Science and Engineering Practices

What scientists want to know
Disciplinary Core Ideas

How scientists think
Crosscutting Concepts
NYC Companions

Amplify Science + Companion Lessons

NGSS

NYSSLS

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NYC Companion Lesson Slides, Grade 6

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

<table>
<thead>
<tr>
<th>Grade 6 lesson guides and copymasters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harnessing Human Energy: Investigating Electrical Devices:</td>
</tr>
<tr>
<td>Harnessing Human Energy: Investigating Non-Touching Forces:</td>
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<tr>
<td>Harnessing Human Energy: Reading About Non-Touching Forces:</td>
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<tr>
<td>Thermal Energy: Designing Hot and Cold Packs:</td>
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<tr>
<td>Populations and Resources: Reading “The Amazing Variety of Life in a Coral Reef”:</td>
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<tr>
<td>Weather Patterns: Reading “What Makes Water Move?”</td>
</tr>
<tr>
<td>Ocean, Atmosphere, and Climate: Investigating Deep Ocean Currents:</td>
</tr>
</tbody>
</table>

Slides for the first unit will be available on the NYC Resources site in September.
Middle School Units: **Launch; Core; Internship**

11 Lessons
Geology on Mars

19 Lessons
Plate Motion

10 Lessons
Plate Motion Engineering Internship

AmplifyScience authored by THE LAWRENCE HALL OF SCIENCE
Middle School Curriculum  New York City Edition

**Grade 6**
- Launch: Harnessing Human Energy
- Thermal Energy
- Populations and Resources
- Matter and Energy in Ecosystems
- Weather Patterns
- Ocean, Atmosphere, and Climate
- 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
- Earth, Moon, and Sun
- Force and Motion
- Engineering Internship: Force and Motion
- Magnetic Fields
- Light Waves
- Traits and Reproduction
- Natural Selection
- Evolutionary History
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Unit at a Glance: Thermal Energy

**Domain:** Physical Science

**Unit type:** Core

**Student role:** Thermal Scientists

**Phenomenon:** Riverdale School needs a new heating system.

Thermal Energy

16 lessons
45 minutes each
3 assessment days
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)
- Assessments and Reporting
- Hands-on and print materials
- Hands-on Flexensions

NYC Print student editions
Coming Soon for Back to School!

Classroom Slides

Each lesson will have a downloadable and editable PowerPoint file to help guide teachers and their students through the lesson.
Classroom Kits
Hands On Learning Materials
Unit Question
Why do things change temperature?

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

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

Key Concepts
1. Things are made of molecules (or other types of atom groups).
2. When a thing gets hotter, its molecules are moving faster.
3. When a thing gets colder, its molecules are moving slower.

Vocabulary
molecule
Questions?
Plan for the day

- What is Amplify Science?
  - Navigation essentials
  - Teaching a phenomenon-based lesson
  - Unit Guide Resources
  - Assessments
  - Closing and Reflection
Navigation Essentials
3 Easy Steps for lesson preparation

Step 1: Read the lesson overview

Step 2: Read the Materials and Preparation section

Step 3: Read the Differentiation section
Welcome to Amplify Science!

Do Now: Login

1. Go to learning.amplify.com
2. Select Log in with Amplify
3. Enter teacher demo account credentials
   - xxxxxxxx@pd.tryamplify.net
   - Password: xxxx
4. Explore as we wait to begin
Lesson Level Exploration

Scavenger Hunt

Lesson-level scavenger hunt

Goals:
• Practice navigating the lesson level and deepen your understanding of the student role and anchor phenomenon in your unit.

PART 1: Lesson 1.

Task | Notes
---|---
Navigate to lesson 1 in your launch unit. Scroll down to the Lesson Brief and scroll click to view the Overview. Click the section then answer the following questions:

What is the purpose of this lesson?

How many activities are in this lesson?

How long is the activity that introduces the anchor phenomenon? Explain why.
• Micromolar: Activity 1
• Harnessing Human Energy: Teacher-only activity between 2 and 3
• Geology on Mars: Teacher-only activity between activities 3 and 4

Task | Notes
---|---
Scroll to view Materials & Preparations:

List the materials you need for this lesson.

Describe one step of preparation you will want to do before this lesson, between classes, and at the end of the day.

6-8 Lesson-level scavenger hunt cont.

Task | Notes
---|---
Send up to the Lesson Map. Select the activity in which the student role is introduced. [No clue as to what is left of this instruction; read the map to reveal all activities.]
Read the steps for teaching the activity listed in the Step-by-Step to gain a better understanding of the activity.

What is the student role and how is it introduced?

Task | Notes
---|---
Try the following navigational features:
• Click on the instruction for the lesson, and click on it again to toggle back to the lesson instructions.
• Click Next Activity at Next at the bottom to read the next activity in the lesson.

What additional resources can you find on the lesson page? What links, tabs, and other supports do you notice?

PART 2: Introduction of the anchor phenomenon or design problem

Task | Notes
---|---
Use the breakouts (H-Unit Lesson 1) below to navigate to the lesson and activity in which the anchor phenomenon is introduced:
• Micromolar Lesson 2.2 Teacher-only activity: video message and Activity 3: message from the Micromolar Research Institute
• Geology on Mars Lesson 1.2: Activity 3 (deacon to INC at the bottom)
• Harnessing Human Energy: Lesson 1.2 Teacher-only activity: video message (introduces both the student role and the design problem)

How is the design problem or anchor phenomenon introduced to students? What ideas or questions do you think students will have about the problem they’ve been asked to solve?
Questions?
5 min break

05:00
MR. TIMER
Plan for the day

- What is Amplify Science?
- Navigation essentials
  - Teaching a phenomenon-based lesson
  - Unit Guide Resources
  - Assessments
  - Closing and Reflection
What is phenomenon-based instruction?
Next Generation Science Standards

Phenomenon-based teaching and learning

A scientific phenomenon is an \textbf{observable event} that occurs in the universe that we can use science ideas to explain or predict.
Next Generation Science Standards

Think-Type-Discuss: How might learning be different?

<table>
<thead>
<tr>
<th>Topic-based</th>
<th>Phenomenon-based</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the water cycle?</td>
<td>What caused the storms in this area to be severe?</td>
</tr>
<tr>
<td>What is an ecosystem?</td>
<td>Why are there suddenly so many moon jellies?</td>
</tr>
<tr>
<td>How does light energy interact with matter?</td>
<td>Why does Australia have an elevated skin cancer rate?</td>
</tr>
</tbody>
</table>

Answer in the chat feature
Comparing topics and phenomena

A shift in science instruction

from learning about  
(like a student)  

to figuring out  
(like a scientist)
Teaching a phenomenon-based lesson
Thermal Energy
Instructional sequence
Chapter 1: Understanding Temperature

Lesson 1.1: Pre-Unit Assessment

Lesson 1.2: Investigating Hot and Cold

Lesson 1.3: Temperature and Motion

Lesson 1.4: Molecules and Temperature
Go ‘Live’ to Model Preparing to Teach
Unit Question
Why do things change temperature?

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

Investigation Question
How is something different when it's warmer or cooler?
Transition to model lesson
End model lesson
Unit Question
Why do things change temperature?

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

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

Key Concepts
1. Things are made of molecules (or other types of atom groups).
2. When a thing gets hotter, its molecules are moving faster.
3. When a thing gets colder, its molecules are moving slower.

Vocabulary
molecule
I notice, I wonder...

What did you notice about the model lesson?

What do you now wonder?
Chapter 1: What is happening when the air in the school gets warmer?

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

Multiple sources of evidence

- Simulation
- Hands-on
- Discourse
Multimodal learning

Gathering evidence from different sources

Science Concept

Read

Talk

Do

Write

Visualize
Amplify Science approach

Introduce a real world problem
Collect evidence from multiple sources
Build increasingly complex explanations
Apply knowledge to solve a different problem
Questions?
Plan for the day

- What is Amplify Science?
- Navigation essentials
- Teaching a phenomenon-based lesson

- Unit Guide Resources
- Assessments
- Closing and reflection
Unit Guide Resources
Unit Guide Resources

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
Books in This Unit
Apps in This Unit
Flextensions in This Unit

Printable Resources

Coherence Flowcharts
Copymaster Compilation
Flextension Compilation
Investigation Notebook
Multi-Language Glossary
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.

Off-line Guide
Scavenger Hunt

**Unit Guide scavenger hunt**

The purpose of this optional activity is to practice utilizing the Unit Guide resources to answer questions. Practicing now will help you determine which Unit Guide resources you use when questions arise as you’re teaching. Use the Unit Guide Resources document to help decide and record which resources you would use to answer each question. For additional practice, open the resources you’ve identified, and record your answer in the space provided.

What do students do in the first activity of Lesson 3?

<table>
<thead>
<tr>
<th>Unit Guide document to reference</th>
<th>Answer</th>
</tr>
</thead>
</table>

Which lesson will take the most time to prepare for Chapter 3?

<table>
<thead>
<tr>
<th>Unit Guide document to reference</th>
<th>Answer</th>
</tr>
</thead>
</table>

Describe one piece of evidence students can get using the simulation.

<table>
<thead>
<tr>
<th>Unit Guide document to reference</th>
<th>Answer</th>
</tr>
</thead>
</table>

What is some background information pertaining to the science context of the unit?

<table>
<thead>
<tr>
<th>Unit Guide document to reference</th>
<th>Answer</th>
</tr>
</thead>
</table>

List some of the NGSS crosscutting concepts emphasized in the unit.

<table>
<thead>
<tr>
<th>Unit Guide document to reference</th>
<th>Answer</th>
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</table>

Describe one material you will print and make copies of during this unit.

<table>
<thead>
<tr>
<th>Unit Guide document to reference</th>
<th>Answer</th>
</tr>
</thead>
</table>

What is one article that students read in this unit?

<table>
<thead>
<tr>
<th>Unit Guide document to reference</th>
<th>Answer</th>
</tr>
</thead>
</table>

Which lessons in Chapter 2 include On-the-Fly Assessments?

<table>
<thead>
<tr>
<th>Unit Guide document to reference</th>
<th>Answer</th>
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5 min break
Plan for the day

- What is Amplify Science?
- Navigation essentials
- Teaching a Lesson
- Unit Guide Resources

- Assessments
- Closing and Reflection
Progress Build
A unit-specific learning progression
Progress Build

Teaching tip

Being familiar with your unit’s Progress Build means you know what’s coming. This will help you avoid giving ideas away too early in the unit!
Thermal Energy

How do these ideas relate to one another?

- The temperature of an object is related to the kinetic energy of its molecules, which increases as the speed of the molecules increases.

- Warmer objects transfer energy to cooler objects when they are in contact.
Chapter 1
The temperature of an object is related to the kinetic energy of its molecules, which increases as the speed of the molecules increases.

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

A unit-specific learning progression

Level 1 → Level 2 → Level 3

Prior knowledge → Deep, causal understanding
The size of the objects in contact affects the amount of energy transfer between them and the amount of temperature change.

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

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.

Prior knowledge

Deep, causal understanding
5 min break
Assessment System

Think to yourself: How do your students show you what they know?
Pre- and End-of-Unit Assessments

Pre-Unit Assessment → Level 1 → Level 2 → Level 3 → End-of-Unit Assessment
Critical Juncture Assessments

Level 1

Level 2

Level 3

Pre-Unit Assessment

Critical Juncture

End-of-Unit Assessment
On-the-Fly Assessments

- Pre-Unit Assessment
- Critical Juncture
- End-of-Unit Assessment

Level 1
- Level 2
- Level 3
Student Self-Assessments

- Level 1
- Level 2
- Level 3

Pre-Unit Assessment → Critical Juncture → End-of-Unit Assessment
Capture your thinking!

- How will you use these embedded assessment opportunities?
Assessment System:
- explains the organization of the assessment system
- lists out each assessment in the unit with key information
- goes into an explanation of each type of assessment found in the unit

Embedded Formative Assessments:
- explains what to look for at each assessment opportunity
- gives guidance for instructional next steps

Lesson 1.2, Activity 4
On-the-Fly Assessment 1: Synthesizing Information

Look for: This lesson provides students’ first opportunity to learn about and discuss how to synthesize information as a reading strategy. They will continue to develop facility with this strategy throughout the unit through repeated practice. As you circulate, make note of what students are connecting to the reading and what deeper understanding they come to as a result. Are they connecting together relevant pieces of information from different sources? Are they using these connections to help them better understand systems?

Now what? If students are having trouble getting started with synthesizing, or if they are connecting the reading to unrelated information, provide some additional models. You may wish to provide examples that combine information from the first section of Systems with information from other sources. Depending on how many students need this support, you could either coach a few students individually during the reading or you could work with a small group or the whole class. Be sure to remind students to keep in mind the goal of connecting pieces of information in order to come to a deeper understanding of the concept of systems.
Go ‘live’ to show assessment resources and assessments
Part 1: Choose an Assessment Opportunity

1. Navigate to the Assessment System reference in the Unit Guide.

2. Choose an ‘Assessment opportunity’ to preview. *i.e.* Pre-Unit, On-the-Fly, Critical Juncture, or End-of-Unit.

3. Navigate to the lesson and review the assessment.

Part 2: Review the Assessment

4. As you review the assessment, answer these questions:

   a. What are students doing?

   b. What would student performance tell me about student understanding?

   c. How could I adjust instruction based on student performance?

   d. How could I record student data?
Classwork and Reporting

[Image of Amplify Science platform]

Hello Teacher: Williams
Ldawilliams@tryamplify.net
Log Out
Go To My Account

Tools

Classwork
Library
Spotlight

[Image of Amplify Classwork interface]

Pre-Unit Assessment

PB LEVELS

% OF THIS CLASS

87%
0%
7%
7%

PB 0
PB 1
PB 2
PB 3

[Table of tasks and due dates]

Evaluating New Evidence About Elisa
Lesson 3
1/15 1:30 PM
1/3/2019
0

[Another task]

Bulk Export
1/15 11:25 AM
1/3/2019
0
Go ‘live’ to show classwork and reporting tool
Questions?
Plan for the day

- What is Amplify Science?
- Navigation essentials
- Teaching a phenomenon-based lesson
- Unit Guide Resources
- Assessments

- Closing and reflection
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?
Revisiting Day 1 Objectives

Are you able to...

• Navigate the Amplify Science curriculum?

• Understand the program’s phenomenon-based approach and instructional materials?
Day 2 Objectives

By the end of day 2 you will be able to:

• Understand the purpose of Launch Units.

• Apply program essentials to prepare to teach an Amplify Science Launch Unit.

• Make an informed decision about which of the Amplify Science Hybrid Learning Resources will best support your students.
Overarching goals

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

• Navigate the Amplify Science curriculum.
• Understand the program’s multimodal approach and instructional materials.
• Apply program essentials to prepare to teach an Amplify Science unit.
• Make an informed decision about which of the Amplify Science Hybrid Learning Resources will best support your students.
Closing reflection

Based on our work today, share:

**Brain:** something you’ll keep in mind

**Heart:** something you’re feeling

**Feet:** something you’re planning to do
Additional Amplify resources

Program Guide
Gather additional insight into the program’s structure, intent, philosophies, supports, and flexibility.

my.amplify.com/programguide

Amplify Help
Find advice and answers from the Amplify team.

my.amplify.com/help
Additional Amplify support

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

✉️ scihelp@amplify.com
📞 800-823-1969
 נכון Amplify Chat
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.
Thank you for your participation in day 1. See you tomorrow for day 2!