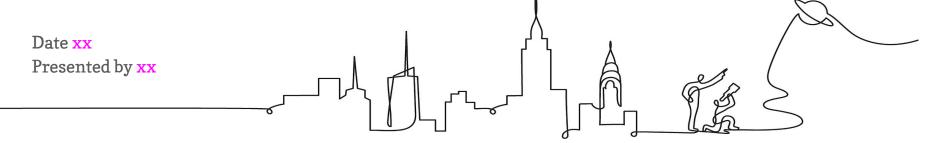
# Amplify Science New York City

### Exploring the Amplify Science Curriculum: Digging Deeper Session 1: Grades 3-5



# 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

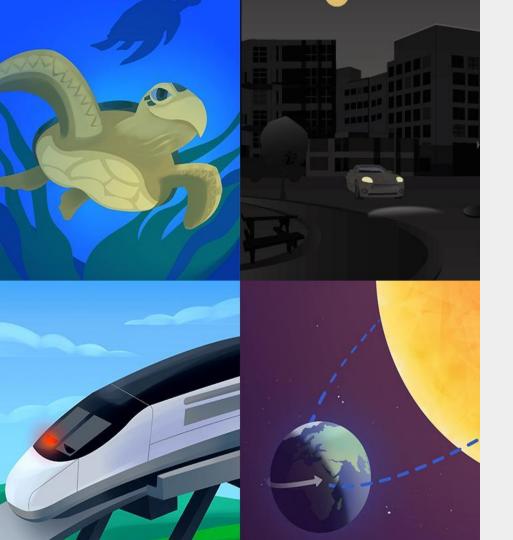
# Goals for session #1

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

- Explain the benefits & navigate to key resources related to transitioning to teaching with the standard Amplify Science curriculum
- Dig deeper into the Amplify Science formative assessment system & how it can be utilized to meet the needs of all learners

### 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.



### Plan for session 1

Pg. 1

- Introduction
- Navigation
- Comparing @Home resources to standard curriculum
- Guidance for a responsive relaunch part 1
  - NYSSLS-designed
  - Figuring out phenomena
  - Formative assessment
- Closing

### **Opening reflection**

Reflect on your experiencing using Amplify Science.

What has gone well for you and/or your students?

What has been challenging?

What have you learned?

What do you wonder?

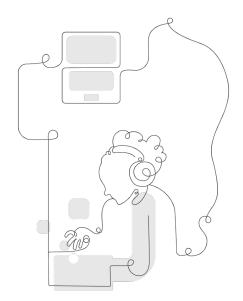


Navigating the standard Amplify Science curriculum Pulse check: What's your comfort with the digital Teacher's Guide?

- 1: I have rarely or never navigated the digital Teacher's Guide
- 2: I have a little experience but I mostly feel lost
- 3: I can get around the Teacher's Guide but I don't feel that confident
- 4: I know what I'm doing but sometimes it's challenging to find things
- 5: I navigate with automaticity. I'm an expert.

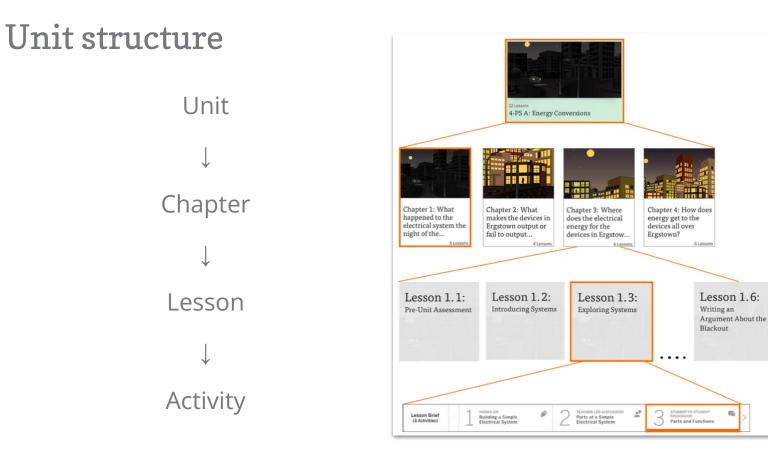
Navigating the standard Amplify Science curriculum Key aspects of navigating the digital Teacher's Guide

- Navigating to and between lessons
- Familiarity with the Lesson Brief
- Accessing the Unit Guide



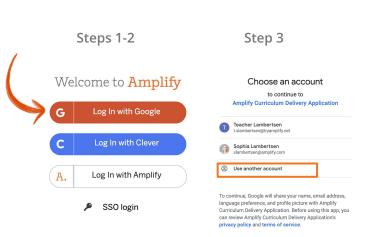
Pgs. 3-5

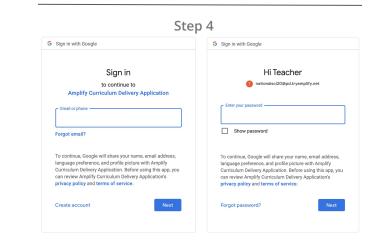
Pg. 2



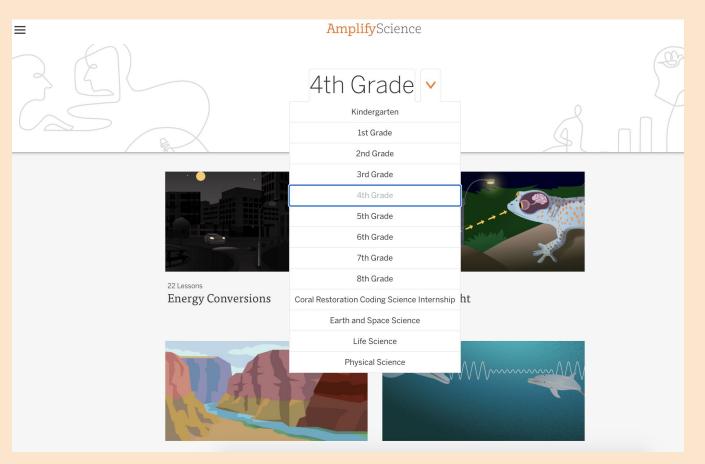
Logging in (demo account) Safari or Chrome

- 1. Go to learning.amplify.com
- 2. Select Log in with Google
- 3. If you're already logged in with other Google accounts, click **Use another account**
- 4. Enter teacher demo account credentials
  - xxxxxx@pd.tryamplify.net
  - Password: xxxx





### Hidden slide: Navigating to your grade level



### Hidden slide: Unit landing page

#### **Amplify**Science > Energy Conversions



JUMP DOWN TO UNIT GUIDE

GENERATE PRINTABLE TEACHER'S GUIDE



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

6 Lessons



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



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

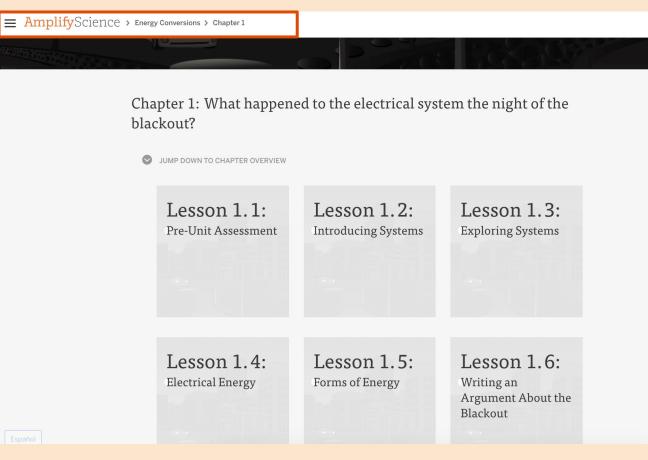
4 Lessons

6 Lessons

W



### Hidden slide: Chapter 1 landing page

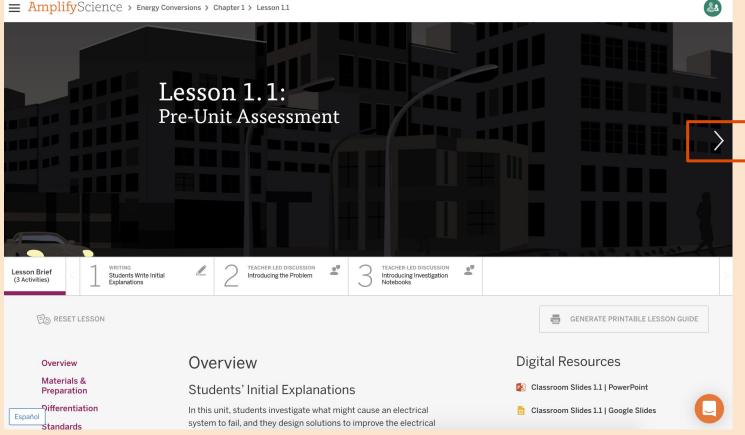


### Hidden slide: Lesson 1.1 Lesson Brief

<b>■ Amplify</b> Science > Energy Conve	rsions > Chapter 1 > Lesson 1.1	<b>&amp;</b>
	esson 1.1: e-Unit Assessment	
Lesson Brief (3 Activities)	2 TEACHER-LED DISCUSSION TACHER-LED DISCUSSION Introducing the Problem 3 TEACHER-LED DISCUSSION Introducing Investigation Notebooks 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	
Eo RESET LESSON		GENERATE PRINTABLE LESSON GUIDE
Overview	Overview	Digital Resources
Materials & Preparation	Students' Initial Explanations	😰 Classroom Slides 1.1   PowerPoint
Differentiation Español Standards	In this unit, students investigate what might cause an electrical system to fail, and they design solutions to improve the electrical	Classroom Slides 1.1   Google Slides

### Hidden slide: Using arrows to navigate between lessons in order

= AmplifyScience > Energy Conversions > Chapter 1 > Lesson 1.1



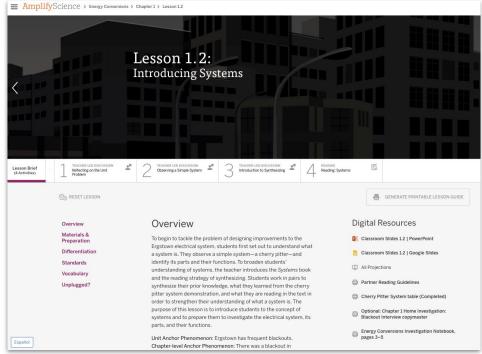
### Hidden slide: Using the breadcrumb trail to navigate to a specific lesson

**Amplify**Science > Energy Conversions > Chapter 1 > Lesson 1.1 23 Lesson 1.1: **Pre-Unit Assessment** WRITING TEACHER-LED DISCUSSION TEACHER-LED DISCUSSION -Lesson Brief Introducing Investigation Students Write Initial Introducing the Problem (3 Activities) Explanations Notebooks For RESET LESSON -GENERATE PRINTABLE LESSON GUIDE Overview **Digital Resources** Overview Materials & Students' Initial Explanations Classroom Slides 1.1 | PowerPoint Preparation Differentiation In this unit, students investigate what might cause an electrical Classroom Slides 1.1 | Google Slides Español system to fail, and they design solutions to improve the electrical

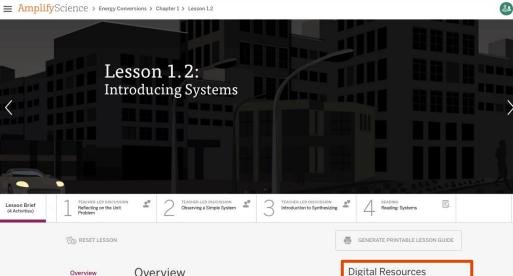
Standards

### Preparing to teach a lesson Lesson Brief

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



### Hidden slide: Digital resources



Overview Materials & Preparation Differentiation Standards Vocabulary Unplugged?

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

Classroom Slides 1.2 | PowerPoint

- Classroom Slides 1.2 | Google Slides
- All Projections
- Partner Reading Guidelines
- Cherry Pitter System table (Completed)

Optional: Chapter 1 Home

### Hidden slide: Overview

■ AmplifyScience > Energy Conversions > Chapter 1 > Lesson 1.2 Lesson 1.2: Introducing Systems TEACHER-LED DISCUSSION TEACHER-LED DISCUSSION Introduction to Synthesizing 0 -2 READING Lesson Brief Reading: Systems Reflecting on the Unit Observing a Simple System (4 Activities) Problem ES RESET LESSON GENERATE PRINTABLE LESSON GUIDE Overview **Digital Resources** Overview Materials & To begin to tackle the problem of designing improvements to the Classroom Slides 1.2 | PowerPoint Preparation Ergstown electrical system, students first set out to understand what Differentiation Classroom Slides 1.2 | Google Slides a system is. They observe a simple system-a cherry pitter-and identify its parts and their functions. To broaden students' Standards All Projections understanding of systems, the teacher introduces the Systems book Vocabulary and the reading strategy of synthesizing. Students work in pairs to Partner Reading Guidelines Unplugged? synthesize their prior knowledge, what they learned from the cherry pitter system demonstration, and what they are reading in the text in Cherry Pitter System table (Completed) order to strengthen their understanding of what a system is. The Optional: Chapter 1 Home Investigation: purpose of this lesson is to introduce students to the concept of systems and to prepare them to investigate the electrical system, its Blackout Interview copymaster parts, and their functions. Energy Conversions Investigation Notebook, Unit Anchor Phenomenon: Ergstown has frequent blackouts. pages 3-5 Español Chapter-level Anchor Phenomenon: There was a blackout in

### Hidden slide: Lesson at a Glance and floating menu

#### ■ AmplifyScience > Energy Conversions > Chapter 1 > Lesson 1.2

 Overview
 Materials & Preparation
 Differentiation
 Standards
 Vocabulary
 Unplugged?

#### Lesson at a Glance

1: Reflecting on the Unit Problem (5 min.) To prepare to begin their investigations, students reflect on the unit problem and their role as systems engineers.

#### 2: Observing a Simple System (15 min.)

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

#### 3: Introduction to Synthesizing (15 min.)

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

#### 4: Reading: Systems (25 min.)

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

#### We'd love to hear from you! Submit your feedback here.

#### **Digital Resources**

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

### Hidden slide: Materials and preparation

= AmplifyScience > Energy Conversions > Chapter 1 > Lesson 1.2

### Overview Materials & Preparation Differentiation Standards Vocabulary Unplugged?

Materials & Preparation Materials

#### For the Classroom Wall

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

#### For the Class

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

#### For Each Pair of Students

1 copy of Systems

#### For Each Student

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

#### \*teacher provided

#### ■ AmplifyScience > Energy Conversions > Chapter 1 > Lesson 1.2

#### Overview

#### Materials & Preparation

#### Differentiation Standards

- Vocabulary
- Unplugged?

A BACK TO TOP

Español

#### Preparation

#### Before the Day of the Lesson

#### 1. Gather the following materials for the classroom wall:

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



BACK TO TOP

### Hidden slide: Differentiation

■ AmplifyScience > Energy Conversions > Chapter 1 > Lesson 1.2

#### Overview

Materials & Preparation

Differentiation

Standards

Vocabulary

Unplugged?

#### Differentiation

#### Embedded Supports for Diverse Learners

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

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

#### Potential Challenges in This Lesson

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

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

Specific Differentiation Strategies for English Learners

#### Ŀ

#### **Digital Resources**

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

Energy Conversions Investigation Notebook, pages 3–5

A BACK TO TOP

Español

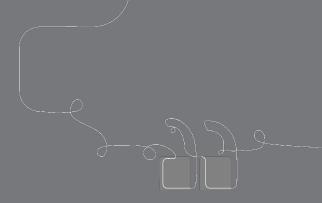
### Unit Guide

The Unit Guide is a collection of resources to support planning and day-to-day instruction in the unit.

You can access the Unit Guide on the Unit landing page below the chapter buttons.

AmplifyScier	1Ce → Energy Conversions		
	Planning for the Unit		Printable Resources
	Unit Overview	~	3-D Assessment Objectives
	Unit Map	~	Coherence Flowcharts
	Progress Build	~	Copymaster Compilation
	Getting Ready to Teach	~	Flextension Compilation
	Materials and Preparation	~	Investigation Notebook
	Science Background	~	🖾 Multi-Language Glossary
	Standards at a Glance	~	In NGSS Information for Parents and Guardians
	Teacher References		Print Materials (8.5" x 11")
	Lesson Overview Compilation	~	Print Materials (11" x 17")
	Standards and Goals	~	Offline Preparation
	3-D Statements	~	Teaching without reliable classroom internet? Prepare unit and lesson
	Assessment System	~	materials for offline access.
	Embedded Formative Assessments	~	Offline Guide
	Books in This Unit	~	
	Apps in This Unit	~	
	Flextensions in This Unit	~	
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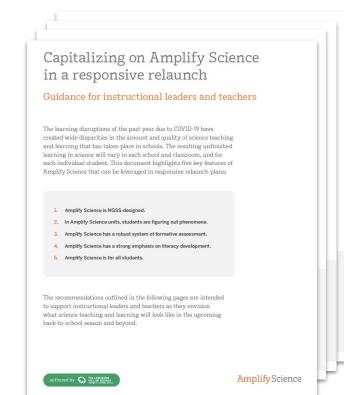
# Questions?



# Capitalizing on Amplify Science in a responsive relaunch

### Amplify Science...

- Is NYSSLS-designed
- Engages students in figuring out phenomena
- Has a robust system of formative assessment
- Has a strong emphasis on **literacy** development
- Is for all students



### "As you transition back to in-person learning, it's time to shift back to the standard Amplify Science curriculum to fully meet the NGSS."

-Capitalizing on Amplify Science in a responsive relaunch





### **Comparative experience**

### @Home resources and the standard Amplify Science curriculum

As we compare the versions of the model lesson, consider the ways in which the standard curriculum provides a **deeper and more equitable learning experience** for all students.

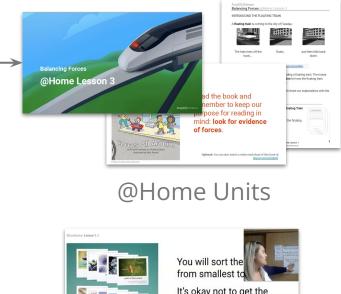


# Amplify Science@Home

### Resources for remote and hybrid teaching



### Amplify Science@Home



It's okay not to get the order exactly right. The point is to start thinking about the sizes of tiny **microorganisms.** 

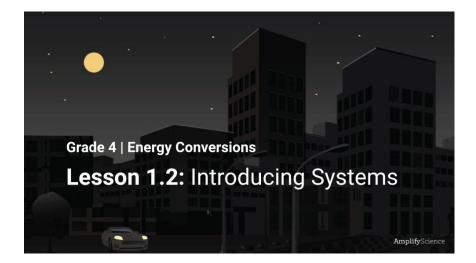
@Home Videos

### **Energy Conversions**

The purpose of this lesson is to introduce students to the concept of systems and to prepare them to investigate the electrical system, its parts, and their functions.

### Standard Curriculum Lesson 1.2

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



### **Energy Conversions**

### Standard Curriculum Lesson 1.2 @Ho

- 1. Reflecting on the Unit Problem
- 2. Observing a Simple System
- 3. Introduction to Synthesizing
  - . Introduction to Synthesizi
- 4. Reading: Systems

### @Home Lesson 2

- → 1. Introducing the Ch. 1 Question
- $\rightarrow$  2. Observe a cherry pitter system
- $\rightarrow$  3. Read the book Systems

### Energy Conversions Lesson 1.2: Activity 1

### Standard curriculum

#### Reflecting on the Unit Problem 1.

Lesson 1.2: Introducing Systems

Activity 1

### ....

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









→ 1. Introducing the Ch. 1 Question

#### Energy Conversions @Home Lesson 2



Remember we are taking on the role of systems engineers.

We will work to understand how the electrical system works in order to help **Ergstown solve its** blackout problem.

### Energy Conversions Lesson 1.2: Activity 2

### Standard curriculum

2. Observing a Simple System

### @Home Lesson

 $\rightarrow$  2. Observe a cherry pitter system

.....

Activity 2



**X 2** What do ve

What do you observe about how the mystery system works?

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



This is a cherry pitter.

The **function** of this system is to **take the pits out of cherries**.

Observe how the cherry pit gets pushed out of the cherry.

### Energy Conversions Lesson 1.2: Activity 2

### Standard curriculum

2. Observing a Simple System

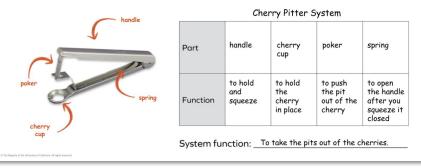
### @Home Lesson

 $\rightarrow$  2. Observe a cherry pitter system

-	System			
Part				
Function				

Energy Conversions @Home Lesson 2

### We can summarize our ideas about the cherry pitter system with this diagram and table:



### Energy Conversions Lesson 1.2: Activities 3 and 4

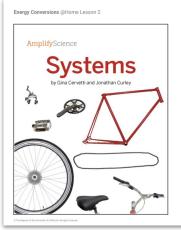
### Standard curriculum

- 3. Introduction to Synthesizing
- 4. Reading: Systems



### @Home Lesson

→3. Read the book Systems



Read the rest of the book. Synthesize as you read to better understand what a system is.

ON-THE-FLY

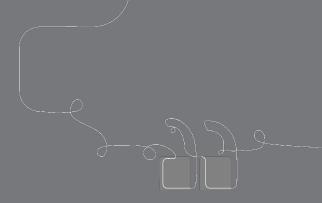
Activity 4

### Reflection

### @Home resources and the standard Amplify Science curriculum

How does the version of the lesson from the standard curriculum provide a **deeper and more equitable learning experience** for all students?





# Questions?



# Capitalizing on Amplify Science in a responsive relaunch

#### Amplify Science...

- Is NYSSLS-designed
- Engages students in figuring out phenomena
- Has a robust system of formative assessment
- Has a strong emphasis on literacy development
- Is for all students

The Next Generation Science Standards (NGSS) are not a list of discrete pieces of knowledge for students to acquire; rather, the **three dimensional structure of the NGSS** supports students in deepening their understanding of disciplinary core ideas across grade bands, by engaging in science and engineering practices and using Crosscutting Concepts, Thus, our systems of relaunch should emphasize helping students continue to progress in their ability to figure out, like a scientist, using all three dimensions.

#### How can this feature of Amplify Science support our responsive relaunch plans?

- Amplify Science learning experiences are three dimensional.
- The Science and Engineering Practices (SEP) and Crosscutting Concepts (CCC) are not specified at each grade level but rather defined with increasing sophistication in each grade band (K-2, 3-5, 6-8). Therefore there is no "loss" of these dimensions, only opportunities to strengthen them in the upcoming year.
- The content in the Disciplinary Core Ideas (DCI) spirals and is not taught in each grade level, but rather in each grade band (K-2, 3-5, 6-8). This means there are no direct dependencies in teaching one grade level's content from the grade level prior.
- Each Amplify Science unit can be taught independently and includes supports to make sure all students can succeed regardless of their prior instruction. For unitspecific information, see the Standards and Qoals Unit Guide document in the section called, "How This Unit Fits into the Amplify Science Curriculus Where a unit's ideas fit in the trajectory of core ideas, as well as guidance around perrequisite Noneleging the automation of the section of the section of the section called and the section of the section of the section of the section of the section period section of the section of the section of the section period section of the section of the section of the section period section of the section of the section of the section period section of the section of the section of the section period section of the section of the section of the section period section of the section of the section of the section period section of the section of the section of the section period section of the section of the section of the section period section of the section of the section of the section period section of the section of the section of the section period section of the section of the section of the section period section of the section period section of the section

#### What are recommendations for capitalizing on this feature of Amplify Science?

- Move forward with this year. Focus on the current grade level standards and units rather than working to identify "missing" content or trying to backfill discreet science ideas from the previous year.
- Continue strengthening the use of the Science and Engineering Practices and Crosscutting Concepts. Authentic engagement and development of these scientific critical thinking skills is what allows students to apply their knowledge to real-world situations in and out of the classroom.
- Use a system of formative assessment to monitor student understanding (see more details in the next feature).

#### Can I continue to use the Amplify Science @Home Units in my responsive relaunch plans?

As you transition back to in-person learning, it's time to shift back to the standard Amplify Science curriculum to fully meet the NGSS: The 6Home Units were designed only for use in rometo and hybrid teaching settings. During the year of disrupted schooling, they provided a way for all students, regardless of time constraints or materialia access, to be exposed to activities related to figuring out phenomena. To create these instructional materials, about 50% of activities were cut, resulting in learning experiences that do not fully engage students using all three dimensions. Examples include: less explicit neutriculori in disciplinary literacy practices, modifications to hands-on investigations. Initide opportunities to payloaders' soutient's downers these are core components of student's eagement in deep learning towards figuring out phenomena, we do not recommend using the @Home Units for in-person instruction. As needed, the materials can be word in instances where a student's labout, 50 miles apprincipies with the student the science of the student science

## Amplify Science... is NYSSLS-designed

Key points:

- Students progress in their ability to figure out using three dimensions across multiple years.
- Disciplinary Core Ideas spiral across grade bands (K-2, 3-5, 6-8).
- Amplify Science units are not dependent on specific science concepts from previous grades.

#### Key recommendations:

• Focus on standards and **units at your grade level** instead of revisiting "missing" content.

## Amplify Science is designed for NYSSLS

Navigate to the **Standards and Goals** document in your unit's Unit Guide.

Skim the following subsections:

- Trajectory of Core Ideas
- Prerequisite Knowledge

	Planning for the Unit		Printable Resources		
	Unit Overview	~	3-D Assessment Objectives		
	Unit Map	~	Coherence Flowcharts		
(.	Progress Build	~	Copymaster Compilation		
	Getting Ready to Teach	~	Flextension Compilation     Investigation Notebook		
	Materials and Preparation	~			
	Science Background	~	🔤 Multi-Language Glossary		
	Standards at a Glance	~	<ul> <li>NGSS Information for Parents and Guardians</li> </ul>		
	Teacher References	eferences a Print Materials (8.5" x 11")			
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	Assessment System	~	materials for offline access.		
	Embedded Formative Assessments	~	Offline Guide		
	Books in This Unit	~			
	Apps in This Unit	~			
	Flextensions in This Unit	~			

# Amplify Science engages students in figuring out phenomena

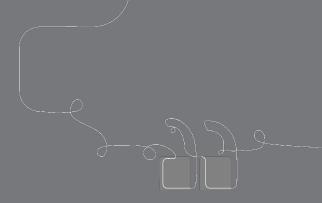
Key points:

- Figuring out phenomena increases student motivation and makes learning relevant.
- Students construct increasingly complete explanations of anchor phenomena throughout Amplify Science units.

Key recommendations:

• Prioritize **teaching units fully** so students can come to a complex explanation of the unit phenomenon. Key takeaway Teaching complete units at your grade level is the best way to ensure your students progress along the Next Generation Science Standards as you return to onsite teaching.

Amplify



# Questions?



## **Amplify Science**

#### has a robust system of formative assessment

Key points:

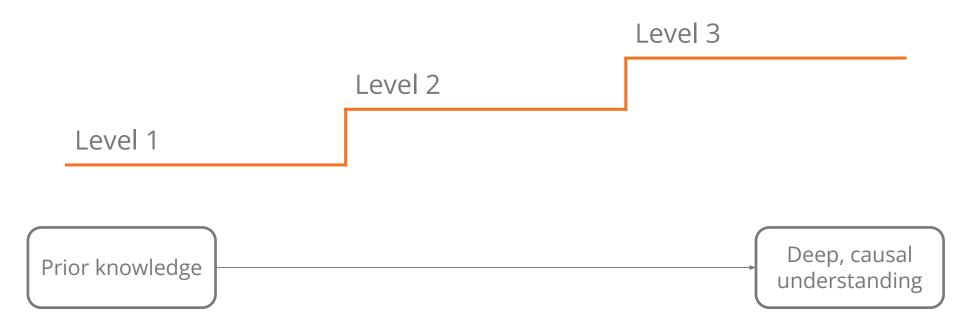
- Formative assessments in Amplify Science allow frequent insight into student learning in all three dimensions.
- Formative assessments include "Now what" suggestions for providing more support when needed.

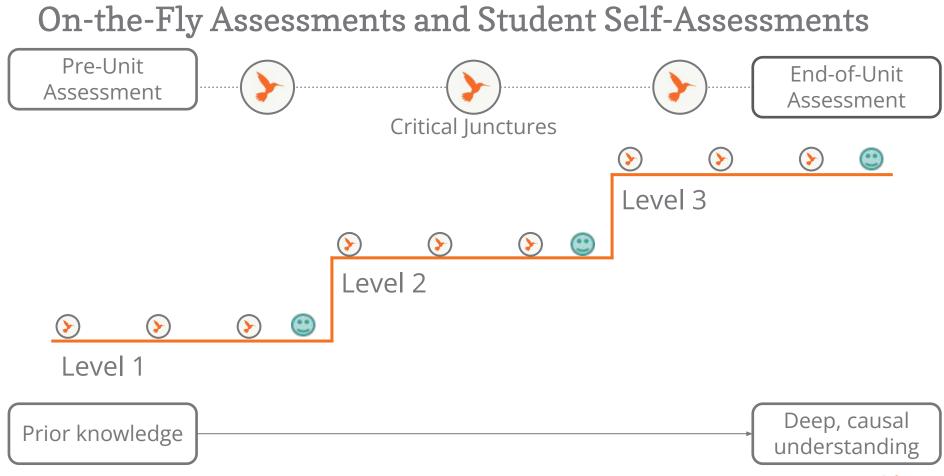
#### Key recommendations:

 Use unit resources to get familiar with the Assessment System. Formatively assess your students and adjust instruction as needed.

#### Progress Build

#### A unit-specific learning progression





Amplify.

# What is formative assessment?

Formative assessment is a cycle of eliciting, interpreting, and taking action on information about student learning.

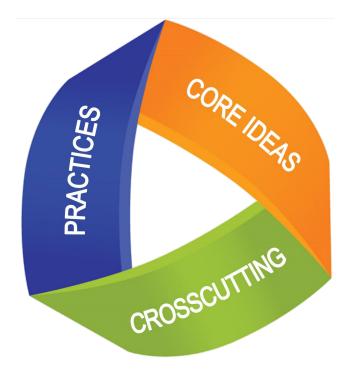


### **Design Principles of Formative Assessment**

- **Credible:** information from the assessment is trustworthy
- Actionable: information is at a level of specificity such that a teacher can use it to bolster instruction
- **Timely:** information comes at a time when a teacher is able to take action and when a student can productively leverage feedback



### Assessment as a Three Dimensional System



#### Lesson 2.1, Activity 4:

Student Drawing and Discussion: The Function of Plant Parts

Assessment Type: On-the-Fly Assessment

#### **Evaluation Guidance:**

Look For/Now What?
 Notes

#### DCI:

• LS2.A: Interdependent Relationships in Ecosystems

#### SEPs:

- Practice 2: Developing and Using Models
- Practice 4: Analyzing and Interpreting
   Data
- Practice 7: Engaging in Argument from Evidence
- Practice 8: Obtaining, Evaluating, and Communicating Information

#### CCCs:

- Systems and System Models
- Structure and Function

## Energy Conversions Progress Build

#### Level 3

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

Level 1 📎

Devices work by converting electrical energy to another form.

#### Level 2

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



Situating an Assessment

**Lesson 1.2 Purpose:** The purpose of this lesson is to introduce students to the concept of systems and to prepare them to investigate the electrical system, its parts, and their functions.

## **Progress Build Level 1:**

Devices work by converting electrical energy to another

form.

## Lesson 1.2 Overview: Activity 4

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

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

2: Observing a Simple System (15 min.)

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

3: Introduction to Synthesizing (15 min.)

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

#### 4: Reading: Systems (25 min.) (>

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

#### 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, 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.



### **Collecting Data**

- How do you typically collect and record student data?
- What strategies have you successfully used for collecting data in a remote learning setting ?



#### Data Collection Tool Sample

Look for 1:					
Look for 2: tudent Name	Look for	Look for	Notes		
	1	2			
	8	-			

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# Model Analysis: 1.2 Activity 1

Analyzing student data: section of the Lesson's as your observation notes.		Taking action based on student data: refer to the Now what section of the lesson's assessment and consider how you might adjust instruction in your classroom.		
Which misconception? 🦚	Which students?	When?	How?	
Key Concept Practice Crosscutting Concept Notes: Students should be able to synthesize as a reading strategy	Tristian Trent Wanda Zena	In the moment In upcoming activity Outside of lesson Notes: During the activity itself.	Keep an eye on certain students Provide additional instruction Revisit an activity Notes: Coach students listed as by providing models of connecting information from various sources to come to a deeper understanding of systems.	

### Planning for an Upcoming Assessment

	Unit: Lesson:			
1. Choose an upcoming assessment	<b>Analyzing student data:</b> refer to the Look for section of the Lesson assessment. (If using the @Home Units refer to the chapter assessment considerations).		Taking action based on student data: refer to the Now what section of the assessment and consider how you might adjust instruction in your classroom.	
for your unit. 2. Plan using	How will I collect data?	Which misconception?	When?	How?
the template or your note catcher.		<ul> <li>Key Concept</li> <li>Practice</li> <li>Crosscutting Concept</li> <li>Notes:</li> </ul>	<ul> <li>In the moment</li> <li>In upcoming activity</li> <li>Outside of lesson</li> <li>Notes:</li> </ul>	<ul> <li>Keep an eye on certain students</li> <li>Provide additional instruction</li> <li>Revisit an activity</li> <li>Notes:</li> </ul>
56				

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### Assessment System

Key takeaways: On-the-Fly and Critical Juncture Assessments

- Gather data about conceptual understanding, 3-D learning, literacy skills, and collaboration
- Embedded into instruction
- "Look for" defines what's being assessed
- "Now what?" suggestions for providing differentiated support



### **Amplify Science**

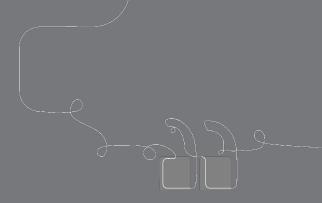
#### has a strong emphasis on literacy development

Key points:

- Amplify Science supports students with scientific reading, writing, speaking, and listening
- Literacy and discourse are key aspects of the work professional scientists do

Key recommendations:

- Use the standard curriculum as written to develop students' disciplinary literacy
- Attend to the CCSS-ELA standards addressed in Amplify Science lessons



# Questions?



# Session 1 goals

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

- Explain the benefits & navigate to key resources related to transitioning to teaching with the standard Amplify Science curriculum
- Dig deeper into the Amplify Science formative assessment system & how it can be utilized to meet the needs of all learners

**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

#### Pg. 30

## 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.



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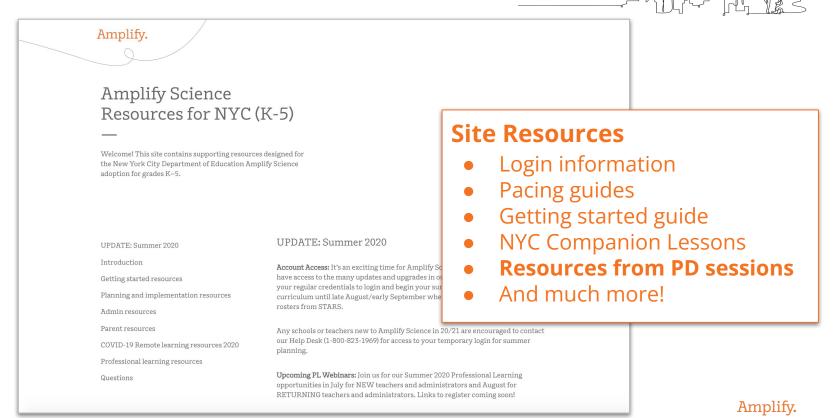






# New York City Resources Site

#### https://amplify.com/amplify-science-nyc-doe-resources/



# Please provide us feedback!

**URL:** https://www.surveymonkey.com/r/5DQW2T6

**Presenter name:** 

Session Title:







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# Thank you & be well!

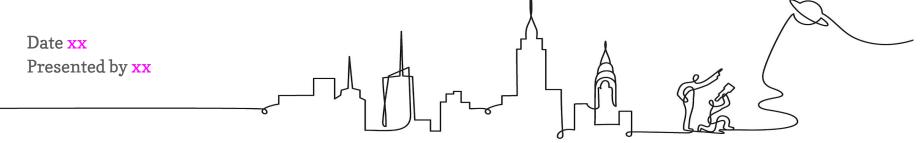






# Amplify Science New York City

## Exploring the Amplify Science Curriculum: Digging Deeper Session 2: Grades 3-5



Welcome back! Opening reflection Reflect & share your thoughts on Jamboard:

- Do you agree? Why or why not?
- What would you add to this quote? Why?
- What would you take away from this quote? Why?

#### Who are our Diverse Learners?

"Diverse learning is not based on race or dependent on a deficit model. Students who are considered gifted are also diverse learners. All students are diverse and unique, in their own right. Let's agree that diverse learning recognizes that all students have unique learning needs and we educators must be prepared to provide multiple entry points for all learners to access the rigor of the goals and standards."

Anonymous Educator

### Norms: Establishing a culture of learners

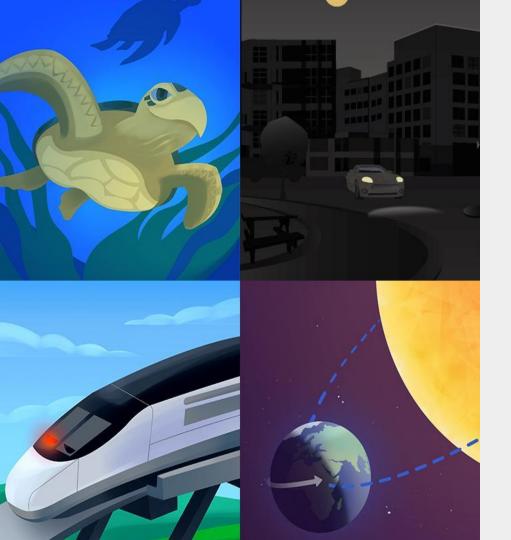
- **Take risks:** Ask any questions, provide any answers.
- **Participate:** Share your thinking, participate in discussion and reflection.
- **Be fully present:** Unplug and immerse yourself in the moment.
- **Physical needs:** Stand up, get water, take breaks.

# Goals for session #2

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

- Explore how the tools & activities in Amplify Science support equity, relevance, and engagement for all learners.
- Leverage successes and learnings from remote and hybrid teaching as you begin planning your first unit for back to school.





## Plan for session 2

Pg. 1

- Welcome back!
- Guidance for a responsive relaunch part 2
  - Supporting diverse learners
  - CR-SE
  - SEL
- Sensemaking
- Closing

### Amplify Science is for all students

Empower student scientists by establishing a **culture of figuring out** in your classroom.

#### Tips for establishing a culture of figuring out To promote equity, relevance, and engagement

- Elicit and leverage students' prior knowledge, personal experiences, and cultural backgrounds
  - Find space and time where students can share their experiences and ideas related to the unit phenomenon or problem that they will be seeking to explain or solve.
  - Have students return to their funds of knowledge at key moments of the figuring out process for the purpose of building on their ideas, using their connections as a source of evidence, or to notice if their ideas have changed over time.
  - Think about how to attribute ideas from students who might not see themselves as contributors to the conversation.
- Value student questions
  - Utilize the embedded question-asking opportunities in the unit to elicit questions from students.
  - Document, return to, and sort student questions at key moments, such as the beginning of the unit when the unit phenomenon is introduced and at the beginning and end of each chapter.
- Connect to local and relevant phenomena
  - Welcome in students' interest in and experience with local and everyday
    phenomena, and help draw connections to what they're figuring out throughout
    the year about the unit phenomena.
  - Compare and contrast the unit phenomenon to local phenomena.
  - Encourage students' explorations and observations of everyday phenomena at home or in their communities.
  - Identify community resources that can help students explore phenomena in their community.
- Allow for a variety of sensemaking types and paces
  - Attend to how different students thrive with different modalities, or need less or more time with them.
  - Use the storyline in the unit to teach sequentially but allow for flexibility based on student need.
- Take on the role of an interested skeptic<sup>1</sup>
  - Students might not be intrigued by a phenomenon right away because they believe they already know how or why it happens. Help students become dissatisfied with what they can explain.<sup>2</sup>
  - Ask questions such as: "Is that how a scientist would do it?", "Is that consistent with what we read about?", or "Do you agree with your partner's idea?"

<sup>1</sup> Sara Goodman, knowatom.com <sup>2</sup> Using Phenomena in NGSS-Designed Lessons and Units

> Tips for a Culture of Figuring Out by The Learning Design Group © 2021 The Regents of the University of California

## Amplify Science is for all students

#### Key points:

- Multimodal instruction provides multiple entry points into complex science ideas, and allows for multiple means of expression.
- Amplify Science prioritizes representation of diverse scientists.

#### Key recommendations:

 Leverage lesson-specific differentiation resources to support all learners in your class. The Amplify Science curriculum was developed with supporting diverse learning needs in mind.



## Differentiation strategies to support ALL students

t.rsinha-das@tryamplify.net Log Out Go To My Account Classroom Language Settings LLA RESUUICES пценти Assessments ิพ LA Science Program Hub Program Guide  $\mathcal{H}$  $\odot \equiv$ FLOP Science Program тиар Guide Help

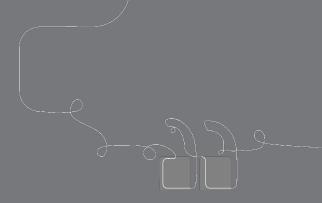
<b>Amplify</b> Science		Access and equity
		Universal Design for Learning
Amplify Science		Culturally and linguistically responsive
Welcome		Differentiation strategies
Program developers		– English learners
Designed for the NGSS		<ul> <li>Students with disabilities</li> </ul>
Program components		
Scope and Sequence		<ul> <li>Standard English learners</li> </ul>
Phenomena, standards, and progressions		- Girls and young women
Assessments		<ul> <li>Advanced learners and gifted learners</li> </ul>
Science and literacy		– Students living in poverty, foster
Access and equity	N	children and youth, and migrant students
Resources		Lesson-level differentiation

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## Diverse learner needs

Student population	Strategies for support
English learners	
Students with disabilities	
Standard English learners	
Girls and young women	
Advanced learners and gifted learners	
Students living in poverty, foster children and youth, and migrant students	

- In pairs, choose a **student population.**
- Jot down strategies you've read about from the Program Guide & those from your own practice.



# Questions?



Culturally Responsive-Sustaining Education Principles of the framework



Welcoming and affirming environment





Inclusive curriculum and assessment



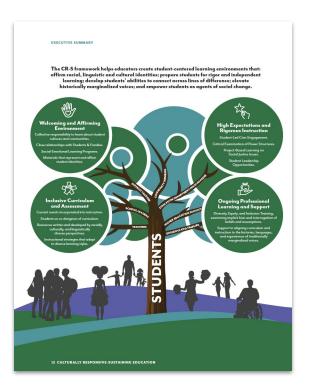
Pg.16

#### Pg. 16

# Read, reflect, & discuss

## 4 principles of CR-SE

- Take a few moments to review these principles.
- Reflect on how you already incorporate these principles into your regular practice.
- Share in the chat!



# Culturally Responsive-Sustaining Education in Amplify Science

Collaborate in break-out rooms

- Each group will be randomly assigned 1 common element of equitable teaching & learning.
- Read respective blurb.
- Prepare a slides with words & images that best summarizes how Amplify Science supports each element. Be creative!



Pgs. 17-21

# Eliciting and Leveraging Students' Prior Knowledge, Personal Experiences, and Cultural Backgrounds Unit-specific document

#### **E Amplify**Science >

#### Animal and Plant Defenses

Eliciting and Leveraging Students' Prior Knowledge, Personal Experiences, and Cultural Backgrounds

#### Overview

An important element of promoting learning and equity in the science classroom is to elicit and build upon students' prior knowledge, personal experiences, and cultural and social backgrounds. This practice fosters more robust and durable conceptual understanding and higher engagement. Helping students to:

- feel that science learning is purposeful and useful.
- know that their personal experiences and expertise, and experiences and expertise from their families and communities, are valued in the classroom.
   embrace the idea that their personal experiences and expertise are assets to be used in
- embrace the idea that their personal experiences and expertise are assets to be used in their scientific investigations.
- feel confident in their identity as science learners and their ability to contribute in the science classroom.

Eliciting these connections from students helps teachers to:

leverage students' experiences and ideas as resources during teaching.
 formatively assess students' understanding of concepts and familiarity with contexts.

When students engage with new questions and with new evidence sources such as physical materials and tests, their pior knowledge and experiences (bith in Ife and in the dissource) are important resources they can leverage to help construct their initial scientific explanations, arguments, and models. As students subult do and infinite their dises, they can control the provide the student of the student students and any student students and the generalize and papy the concept, revise their com alternatic conceptions, papy science sides to that row they and generate new questions.

#### How to Use This Guide

This guide and the Amplify Science lessons themselves provide the support needed to effectively elicit and leverage students' prior knowledge, experiences, and backgrounds over the course of this unit. This guide is divided into two sections:

- Part 1: Eliciting Students' Prior Knowledge, Personal Experiences, and Cultural Backgrounds. This section describes where in this unit there are opportunities to elicit students' prior knowledge and experiences, how this information is recorded, prompts to use during these discussions, and examples of what students might say.
   Part 2: Leveraing Students' Prior Knowledge. Personal Experiences, and Cultural
- Part 2. Leveraging soucents Prior Knowledge, Personal Experiences, and Cultural Backgrounds. This section describes where in this unit there are opportunities to leverage atudents' prior knowledge and experiences, prompts to use during these discussions, and examples of how to leverage funds of knowledge students may have shared.

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Planning for the Unit		Printable Resources
Unit Overview	~	3-D Assessment Objectives
Unit Map	~	Coherence Flowcharts
Progress Build	~	Copymaster Compilation
Getting Ready to Teach	~	Crosscutting Concept Tracker
Materials and Preparation	~	Eliciting and Leveraging Students' Prior Knowledge, Personal Experiences, and Cultural
Science Background	~	Backgrounds

## Read & reflect

#### Eliciting & leveraging student's prior knowledge & experiences

- Skim your first unit's "Eliciting & Leveraging Students' Prior Knowledge, Personal Experiences, & Cultural Backgrounds" document.
- Share one example in the chat of how you plan to leverage funds of knowledge students may share in your first unit.

Planning for the Unit	Printable Resources
Unit Overview	✓ a 3-D Assessment Objectives
Unit Map	✓
Progress Build	Copymaster Compilation
Getting Ready to Teach	Crosscutting Concept Tracker
Materials and Preparation	<ul> <li>Eliciting and Leveraging Students'</li> <li>Prior Knowledge, Personal</li> </ul>
Science Background	Experiences, and Cultural Backgrounds
Standards at a Glance	✓ Investigation Notebook

## Social Emotional Learning

### **5 Core Competencies**

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



## Read, reflect, & discuss

#### 5 competencies of SEL

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

about soc skills. For document identified b Social, and all young p be success framework the countr these five o	many frameworks and ways to talk al emotional competence and simplicity and clarity, this uses a set of five competencies by the Calaborative for Academic, Emotional Learning (CASEL) that exple and adults need to learn to ful in school and in life. This has been widely accepted across p. New York State has endorsed or competencies.
Competency	Five Core Social Emotional Competencies
Self- Awareness	Competence in the self-awareness domain involves understanding one's emotions, personal goals, and values. This includes accurately assessing one's strengths and limitations, having a positive mindset, and possessing a well-grounded sense of self-efficacy and optimism. High levels of self-awareness require the ability to recognize how thoughts, feelings, and actions
Self- Management	are interconnected. Competence in the self-management domain requires skills and attitudes that facilitate the ability to regulate emotions and behaviors. This includes skills necessary to achieve goals, such
	are interconnected. Competence in the self-management domain requires skills and attitudes that facilitate the ability to regulate emotions and behaviors. This includes skills necessary to achieve goals, such as the ability to delay grafification, manage stress, control impubes, and persevere through challenges. Competence in the social awareness domain involves the ability to take the perspective of and
Management	are interconnected. Competence in the self-management domain requires skills and attitudes that facilitate the ability to regulate emotions and behaviors. This includes skills necessary to achieve goals, such as the ability to delay grafification, manage stress, control impulses, and persevere through challenges. Competence in the social awareness domain involves the ability to take the perspective of and have respect for those with different backgrounds or cultures, and to empatible and feel compasion. It also involves understanding social norms for behavior and recogniting family.

# Social & Emotional Learning in Amplify Science Collaborate in break-out rooms

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

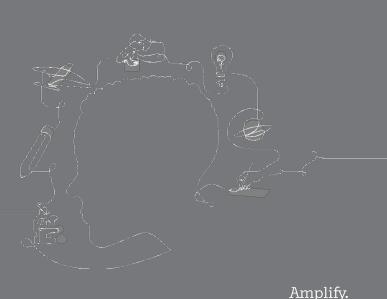
**Amplify** Science

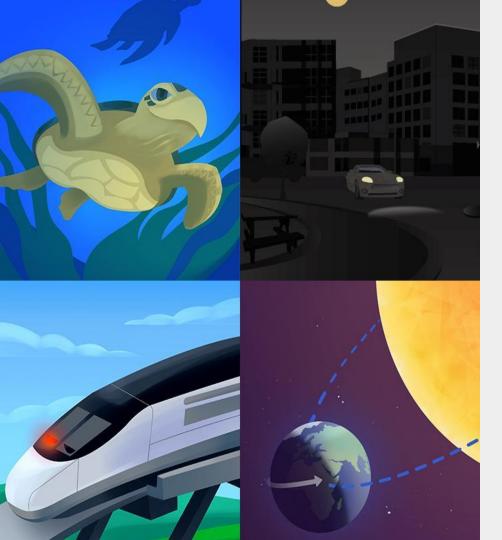
#### Social and Emotional Learning in Amplify Science



# Key takeaway

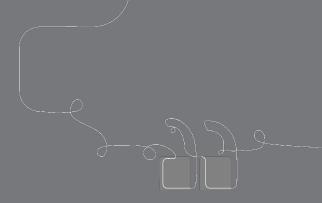
Formative assessments, explicit literacy instruction, lesson-specific differentiation suggestions, & supports related to CR-SE & SEL are some of the **built-in tools** for ensuring your students have equitable access to rigorous science learning.





# Plan for the day

- Introduction
- Navigation
- Comparing @Home resources to the standard curriculum
- Guidance for a responsive relaunch
- Sensemaking
- Closing



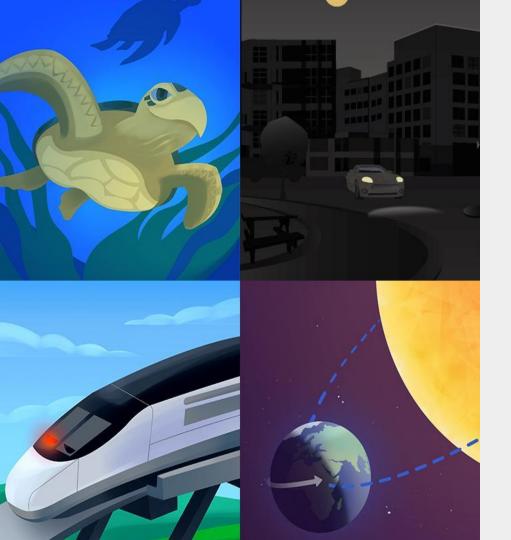
# Questions?



## Sensemaking discussion prompts

- How can we use what we've learned during our time teaching remotely as we transition back to onsite teaching?
- 2. What can we do to **establish a culture of figuring out** in our classrooms?
- 3. How might this **first year back in the classroom** look different than the years that follow?
- 4. What are our **next steps** in general, based on what we've learned and discussed today?

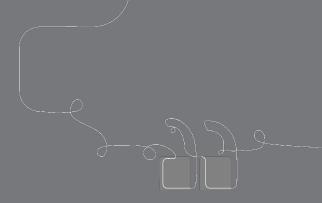




## Plan for session 2

Pg. 1

- Welcome back!
- Guidance for a responsive relaunch part 2
  - Supporting diverse learners
  - CR-SE
  - SEL
- Sensemaking
- Closing



# Questions?



# Session 2 goals

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

- Explore how the tools & activities in Amplify Science support equity, relevance, and engagement for all learners.
- Leverage successes and learnings from remote and hybrid teaching as you begin to plan your first unit for back to school.

**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

#### Pg. 30

# Additional resources and ongoing support

**Customer Care** 

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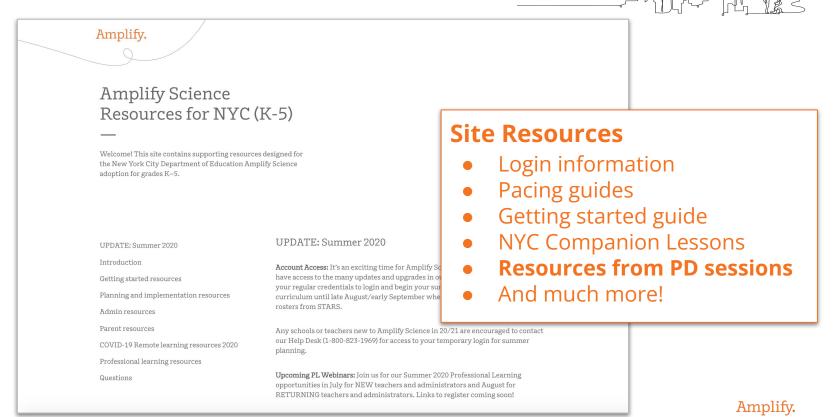






# New York City Resources Site

#### https://amplify.com/amplify-science-nyc-doe-resources/



# Please provide us feedback!

**URL:** https://www.surveymonkey.com/r/5DQW2T6

**Presenter name:** 

Session Title:





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# Thank you & be well!







