

# Amplify Science

### Navigating Program Essentials Grade 5

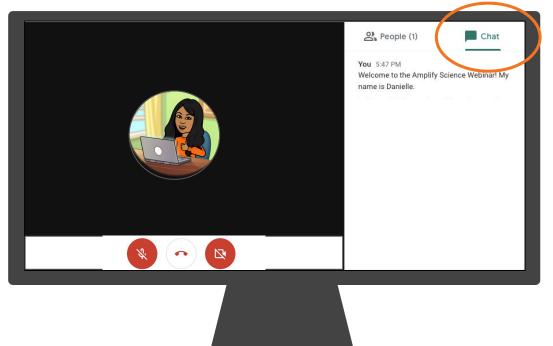
Presented by:

Date:



### Introductions! Who do we have in the room today?

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

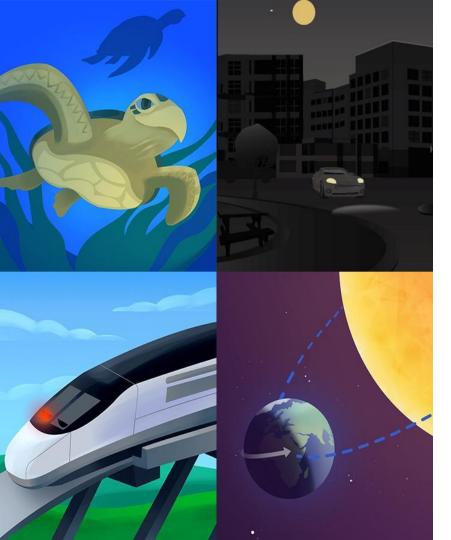


## Objectives

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

- Navigate the Amplify Science curriculum
- Navigate the Program Hub





### Plan for the day

- Introducing Amplify Science
- Navigation essentials
- Assessments
- Remote & Hybrid Learning Resources
- Reflection and closing

### Remote Professional Learning Norms



Take some time to orient yourself to the platform

• "Where's the chat box? What are these squares at the top of my screen?, where's the mute button?"



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



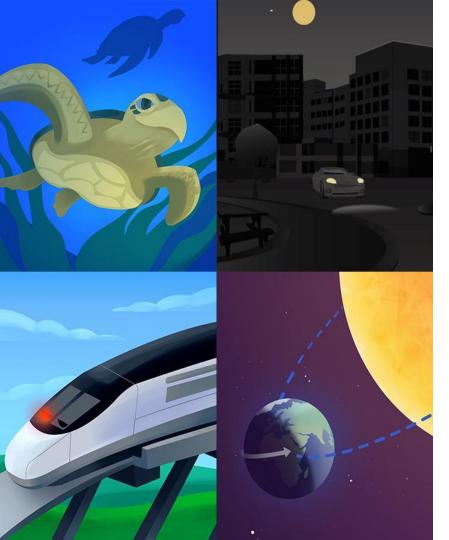
The chat box is available for posting questions or responses to during the training



Make sure you have a note-catcher present



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



### Plan for the day

- Introducing Amplify Science
- Navigation essentials
- Assessments
- Remote & Hybrid Learning Resources
- Reflection and closing

# What is Amplify Science?

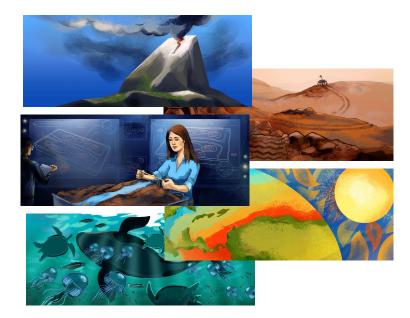


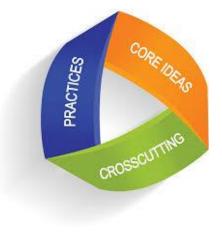


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# **Amplify**Science

# A new phenomena-based core curriculum for grades K-8









THE LAWRENCE HALL OF SCIENCE UNIVERSITY OF CALIFORNIA, BERKELEY Amplify.

#### Year at a Glance: Grade 5



Patterns of Earth and Sky

**Domains**: Physical Science, Earth and Space Science

Unit type: Investigation

Student role: Astronomers

**Phenomenon:** An ancient artifact depicts what we see in the sky at different times — the sun during the daytime and different stars during the nighttime — but it is missing a piece.



Modeling Matter

Domain: Physical Science

Unit type: Modeling

Student role: Food scientists

Phenomenon: Chromatography is a process for separating mixtures. Some solids dissolve in a salad dressing while others do not. Oil and vinegar appear to separate when mixed in a salad dressing.



The Earth System

Domains: Earth and Space Science, Physical Science, Engineering Design

Unit type: Engineering Design

Student role: Water resource engineers

**Phenomenon**: East Ferris, a city on one side of the fictional Ferris Island, is experiencing a water shortage, while West Ferris is not.



Ecosystem Restoration

**Domains:**Physical Science, Life Science, Earth and Space Science, Engineering Design

Unit type: Argumentation

Student role: Ecologists

**Phenomenon:** The jaguars, sloths, and cecropia trees in a reforested section of a Costa Rican rain forest are not growing and thriving.

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#### Unit at a Glance: Patterns of Earth and Sky



Patterns of Earth and Sky 20 lessons

60 minutes each 2 assessment days **Domain**: Physical Science, Earth and Space Science

Unit type: Investigation

Student role: Astronomers

**Phenomenon:** An ancient artifact depicts what we see in the sky at different times — the sun during the daytime and different stars during the nighttime — but it is missing a piece.

#### l'm an astronomer.

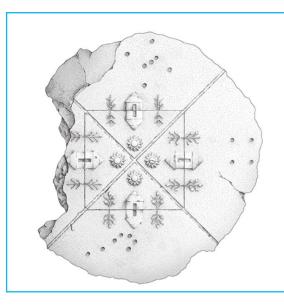
What stars are missing from the ancient astronomical artifact?

Grade 5



22 Lessons

#### Patterns of Earth and Sky







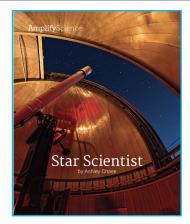


HANDBOOK OF Stars and Constellations



22 Lessons

#### Patterns of Earth and Sky



#### Two Completed Rows of the Data Table



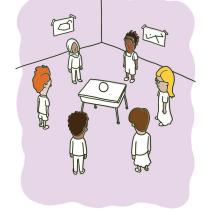


#### **Investigating Distances to Stars**

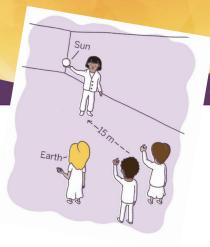
- 1. Record the distance from Earth to the stars. Begin with the sun and then the four stars that form the Great Square of Pegasus.
- With your partner, use Sky View to choose four additional stars. Record their names in the left-hand column and their distances from Earth in the right-hand column.

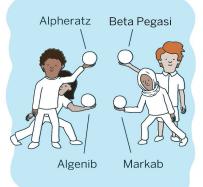
Name of star	Distance from Earth to star (light-years)
sun	
Alpheratz	
Beta Pegasi	
Algenib	
Markab	
Patterns of Ear	th and Sky—Lesson 1.4

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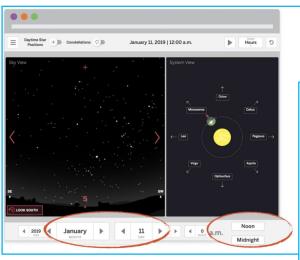


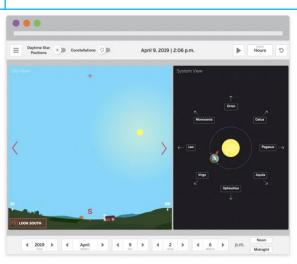




22 Lessons

#### Patterns of Earth and Sky





	Investigation Plan	
1. Record you	r investigation question. Include the name of the constellatio	n
or star as p	art of the question.	
2. Write what	you will observe and record, what you will change, and what	
	p the same in your investigation.	
	he headings for each column in the data table.	
5. complete t	he riedangs for each columnit the data table.	
What is your i	nvestigation question?	
		e:
		-
		-
What will you	observe and record?	
		-
		-
14.0	change every time you make an observation?	
what will you	change every time you make an observation?	
		-
		_
		_
What will you	keep the same every time you make an observation?	
		_
68	Patterns of Earth and Sky—Lesson 4.2, 4.3	
0.	SSI The Regards of the University of California. All rights reserved. Permission granted to photocopy for classroom use.	

Patterns of Earth and Sky—Lesson 4.2, 4.3 The fagets of the University of California All ratio reveal Permission particular between the descence are 69

### Elementary school components



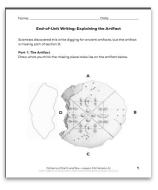
#### Hands-on materials



Investigation Notebooks



#### Student books



Assessments



#### Teacher's Guide (Digital + Print)

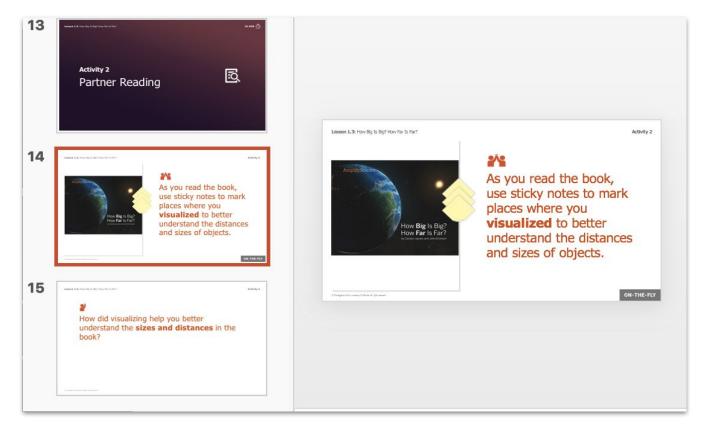


**Classroom Slides** 



### 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



#### Amplify.

### Classroom Wall Print Materials

<b>Unit Question</b> Why do we see	Key Concepts	Vocabulary
different stars at different times?	Key Concept: Stars are very far	bright
	away from Earth in every direction. (1.4)	Earth
Chapter 1 Question Why don't we see a lot of stars in the		evidence
daytime?		solar system
		solar system

### **Literacy Integration**



by Kevin Beals and Joel W. Knopf illustrated by Martin Wickstrom

**Amplify**Science



-What Does a Scientist Look Like?



#### Sirius, the Dog Star

Each of the dog constellations has one especially bright star, but the bright star in Comis Major is the brightest star in the right sky. Astronomers usually call this star Sirius. That is what the ancient forman people called it. Many other people just call in the Dog Star There is one star that looks brighter than the Dog Star, but it's not a star you see at night. That star is the **sun**. The sun looks bigger and brighter only because it is much closer to farth than any other star. The Dog Star is actuably larger than the sun. but it is much farther away from Earth—more than half a million times farther.





This picture shows the size of the Dog Star compared to the sun. The Dog Star is very far away from Earth. It's so far away that it looks tiny to us, even though it is actually higger and brighter than the sun.

#### Harvesting by the Stars

Many different people have used the stars to help them time their farming activities. The ancient Egyptians used the constellation Virgo to decide when to harvest their crops. Virgo is visible in the night sky all summer. However, in fall every year Virgo sets at around the same time that the sun sets. This means that, beginning in fall every year, Virgo is no longer visible in the night sky. Each fall, when they could no longer observe Virgo, the ancient Egyptians knew that it was time to harvest their crops.

Virgo does not disappear from the sky forever, though, By springtime, that constellation is again fully visible in the night sky.



The constellation Virgo appears This painting shows a farmer in the night sky in summer. The harvesting crops in ancient Egypt. ancient Egyptians used it to time their harvest.

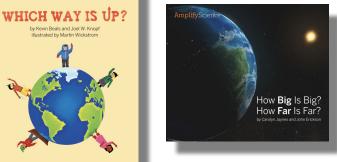
#### Patterns of the Stars

appear in the night sky and times when they do not. Like the Dog Star, these stars can be used as markers for important times of year. The whole yearly calendar can be matched to stars that seem to come and go, and so the Greeks, Romans, Egyptians, Zuni, and many other people all over the world have kept track of the seasons by the stars.

causes the patterns of change we see in the sky. With each orbit of Earth around the sun, the pattern repeats:



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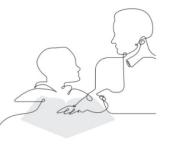
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#### Content connections

Amplify Science CALIFORNIA

Grades K–5

#### Amplify Science and Benchmark Advance crosswalk

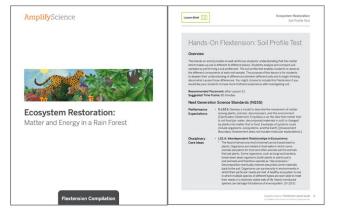


authored by 💸 HALL OF SCIENCE

			Grade K	
	Benchmark unit 10	Amplify Science		
Unit title	The Power of Electricity: Where Do Scientific Discoveries Lead Us?	Energy Conversions: Blackout in Ergstown. Students play the role of systems engineers for Ergstown, a fictional town that experiences frequent blackouts. They explore reasons why an electrical system can fail, choose new energy sources and energy converters for the town, and use evidence to esplain why their choices will make the town's electrical system more reliable.		
Next Generation Science Standards	4-PS3-2: Energy can be Transferred 4-PS3-4: Design an Energy Converter 4-ESS3-1: Energy and Fuels	4-PS3-1: Relationship Between Speed and En 4-PS3-2: Energy can be Transferred 4-PS3-3: Collisions 4-PS3-4: Design an Energy Converter 4-PS3-4: Dering the Problem 3-6: ETS1-2: Developing Possible Solutions Crosscutting Concepts: Systems and System Structure and Function: Cause and Effect		
ELA reading standards	<ul> <li>Reading Informational Text: Ri4.1; Ri4.2; Ri4.6; Ri4.7; Ri4.8; Ri4.9; Ri4.10</li> <li>Writing: W4.1; W4.18; W4.16; W4.10; W4.4; W4.5; W4.6; W4.7; W4.8; W4.98; W4.10</li> <li>Speaking and Listening: SL4.1; SL4.2; SL4.3; SL4.4; SL4.5; SL4.6</li> <li>Language: L44.4; L44.C; L4.6</li> </ul>	<ul> <li>Reading Informational Text: RI.4.1; 4.2; 4.3; 4.4; 4.6; 4.7; 4.10</li> <li>Writing: W.4.1; 4.2; 4.4; 4.8; 4.9; 4.10</li> <li>Speaking and Listening: SL.4.1; 4.4; 4.6</li> <li>Language: L.4.6</li> </ul>		
Math standards		<ul> <li>Math Practices: MP1; 2; 4; 5</li> <li>Math Content: 4.0A.3; 4.NBT.2; 4.NBT.4; 4</li> </ul>	.MD.5.A; 4.MD.6	
Foundational reading standards	• RF.4.3.A			

#### Amplify Science: Additional Resources





Hands-on Flextensions

New digital K–5 Student Books

What Does a Scientist Look Like?

by Lizzy Vlasses and Ashley Chase

Kindergarten v

Library

**Amplify**Science

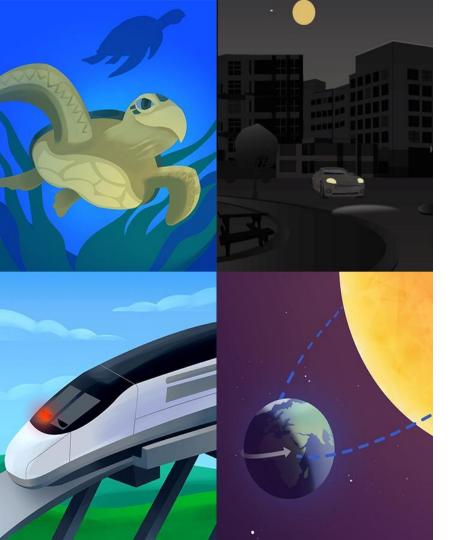
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### Questions?





### Plan for the day

- Introducing Amplify Science
- Navigation Essentials
- Assessments
- Remote & Hybrid Learning Resources
- Reflection and closing

# **Navigation Essentials**





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### Schoology Apps

You should have these 2 apps in schoology



ES School Student Edition - downloading this app pushes the content to students (students DO NOT need to download anything)



 Teacher Edition - downloading this app gives full teacher access - this is the app that teachers will ACTUALLY USE



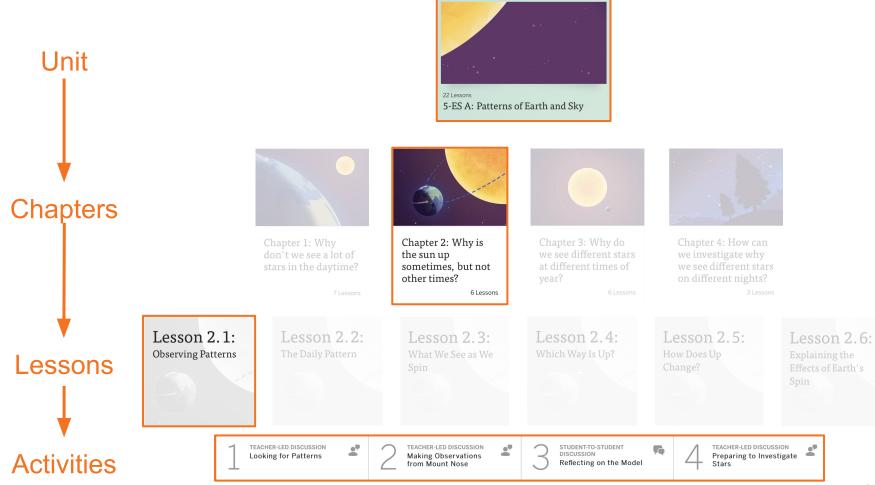
### Schoology Apps

#### To join Amplify ES Group:

### W4PK-W466-63F5B

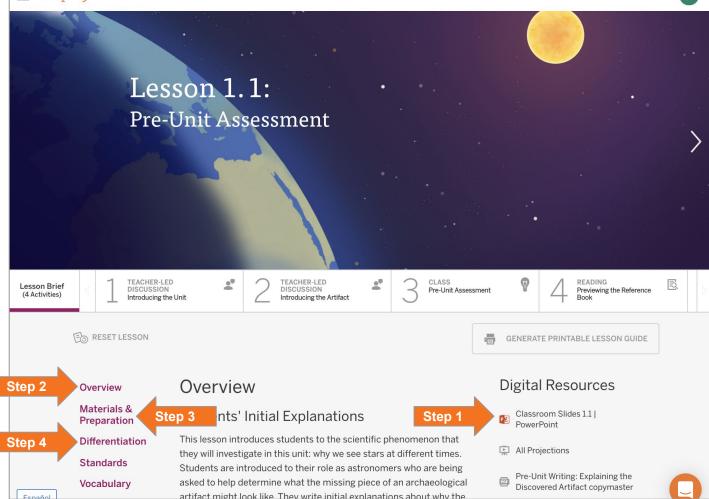






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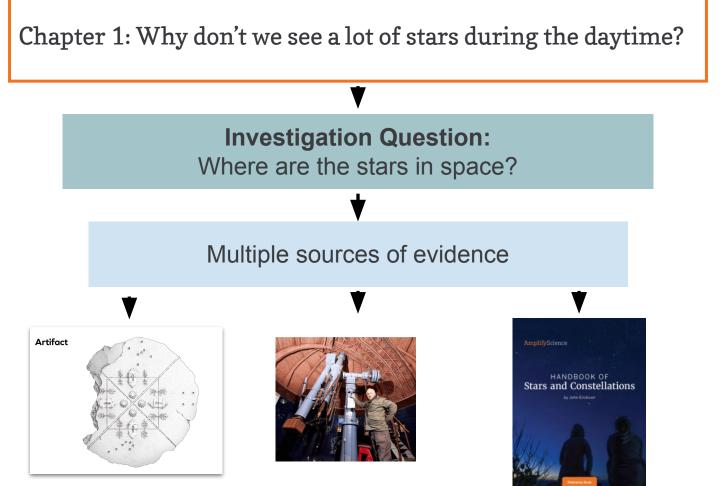


#### 4 Steps for Preparing to Teach

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Step 1: Download Classroom Slides Step 2: Read the Lesson Overview Step 3: Read the Materials and Preparation section Step 4: Read the Differentiation

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#### **Chapter 1 Question**

model

THE WORLD

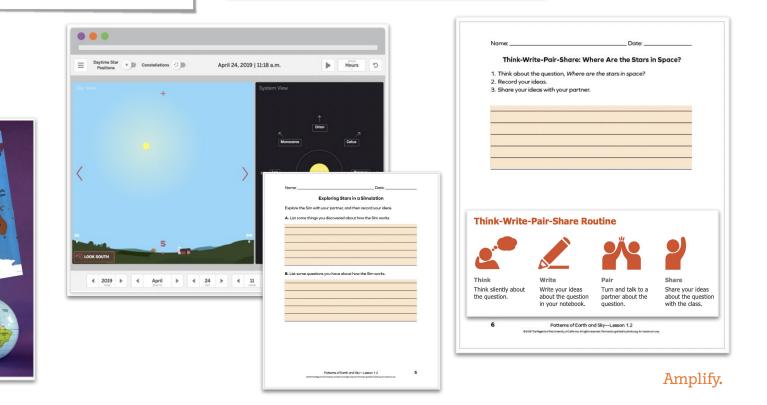
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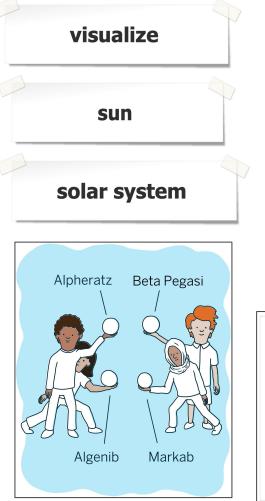
Why don't we see a lot of stars during the daytime?

We're going to investigate this question:

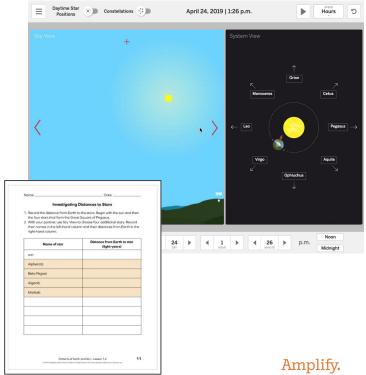
Where are the stars in space?







Introduction to the purpose of this lesson's Sim activity to prepare students for their first Sim investigation.



#### **Key Concept**

#### Stars are very far away from Earth in every

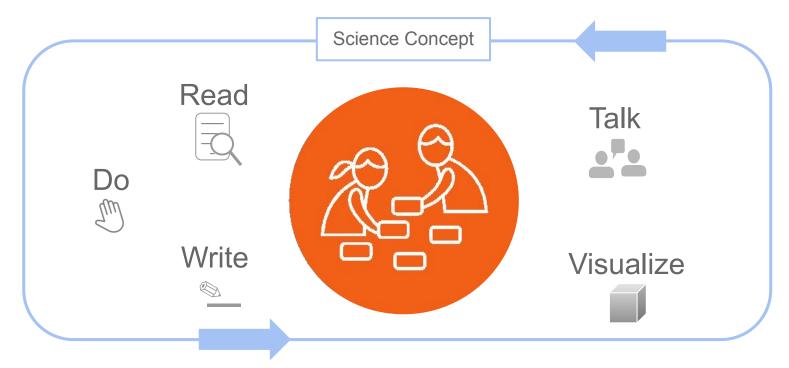
direction.

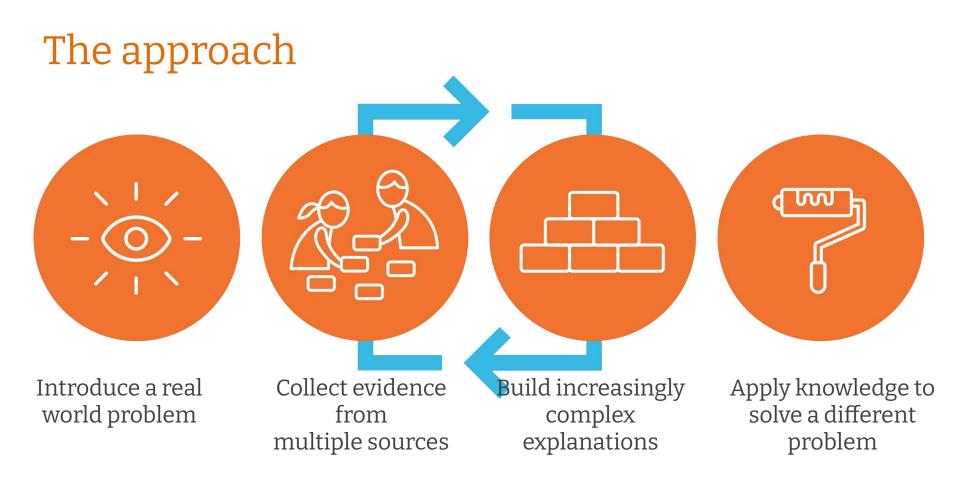
### Classroom Wall

Key Concepts	Vocabulary
Key Concept: Stars are very far	bright
direction.	Earth
	evidence
	solar system
	Key Concept: Stars are very far away from Earth in every

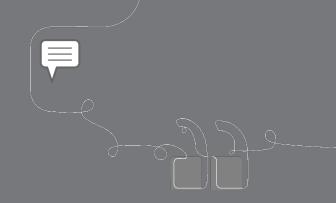
### Multimodal learning

#### Gathering evidence from different sources





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# Questions?







# How do you normally prepare to teach a new lesson?





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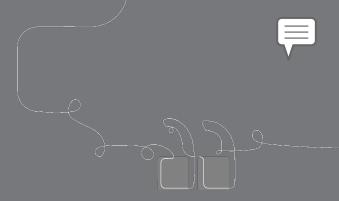
### First Days of Teaching

Day 1	Day 2	Day 3	Day 4	Day 5
1.1: Pre-Unit Assessment	1.2: Earth and Stars in Space	1.3: How Big is Big? How Far is Far?	1.4: Distances to the Stars	1.5: Investigating Size and Distance
Prep: 45 min	Prep: 45 min	Prep: 15 min	Prep: 20 min	Prep:15 min
<ol> <li>1: Introducing the Unit (10 min.)</li> <li>2: Introducing the Artifact (10 min.)</li> <li>3: Pre-Unit Assessment (30 min.)</li> <li>4: Previewing the Reference Book (10 min.)</li> </ol>	<ol> <li>Modeling the Shape of Earth (20 min.)</li> <li>Exploring a Simulation of Earth and Sky (20 min.)</li> <li>Sharing What We Discovered (10 min.)</li> <li>Ideas About Where the Stars Are (10 min.)</li> </ol>	<ol> <li>1: Introducing How Big Is Big? How Far Is Far? (15 min.)</li> <li>2: Partner Reading (35 min.)</li> <li>3: Thinking About Scale (10 min.)</li> </ol>	<ol> <li>Preparing to Measure Distances (10 min.)</li> <li>Investigating Distances to Stars (20 min.)</li> <li>Modeling the Sun and Other Stars (20 min.)</li> <li>Reflecting on Where Stars Are (10 min.)</li> </ol>	<ol> <li>1: Observing Artifacts (10 min.)</li> <li>2: Investigating Stars in Daytime and Nighttime (20 min.)</li> <li>3: Size and Distance Investigation (30 min.)</li> </ol>
42				Amplify.

# How are students thinking and solving problems like a scientist?

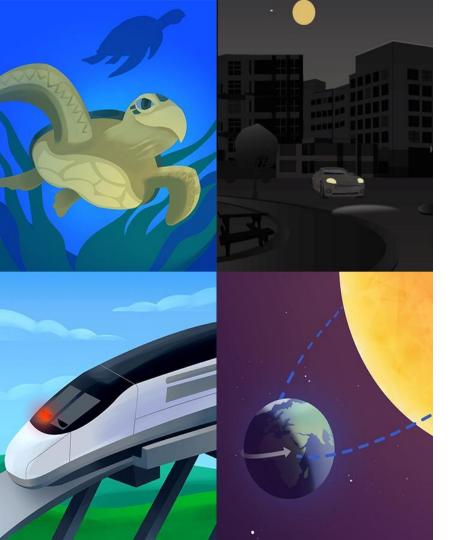
# What might your students be challenged by?





# Questions?





# Plan for the day

- Introducing Amplify Science
- Navigation essentials
- Assessments
- Remote & Hybrid Learning Resources
- Reflection and closing



## Assessments

# How do students show you what they know?





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# Amplify Science Assessment System

### Credible

Assessments provide reliable information about student learning

### Actionable

• Assessments provide actionable suggestions

### Timely

Assessments are embedded into instruction





### **Pre-Unit**

Designed to gauge students' initial understanding and pre-conceptions about core ideas in the unit.

### **On-the-Fly**

Quick check for understanding designed to help monitor and support student progress throughout the unit.

### **Critical Juncture**

Designed to occur at points in the unit in which it is especially important that students understand the content before continuing.



### **Summative Assessments**

Used to measure student learning at the end of instruction

### **End-of-Unit**

Final evaluation of students' understanding of core ideas in the unit.

### Progress Build

Planning for the Unit	P	rintable Resources
Unit Overview	× E	Article Compilation
Unit Map	~ 6	Coherence Flowchart
Progress Build		
Cotting Ready to Teach	~ ~	<b>.</b>
Materials and Preparation	~	Investigation Notebook
Science Background	~	NGSS Information for Parents and Guardians
Standards at a Glance	~ 8	Print Materials (8.5" x 11")
Teacher References	E.	Print Materials (11" x 17")
Lesson Overview Compilation	~	Offline Preparation
Standards and Goals	~	Teaching without reliable classroom internet? Prepare unit and lesson
3-D Statements	~	materials for offline access.
Assessment System	~	Offline Guide
Embedded Formative Assessments	~	
Articles in This Unit	~	
Apps in This Unit	~	
Flextensions in This Unit	~	

#### Patterns of Earth and Sky

Planning for the Unit



#### Progress Build

A Progress Build describes the way in which students' explanations of the central phenomenon should develop and deepen over the course of a unit. It is an important tool in understanding the design of the unit and in supporting students' learning. A Progress Build organizes the sequence of instruction, defines the focus of the assessments, and grounds inferences about students' understanding of the content, specifically at each of the Critical Juncture Assessments found throughout the unit. A Critical Juncture Assessments found throughout the darkers specific gaps in students' understanding. This document will serve as an overview of the Patterns of Earth and Sky Progress Build. Since the Progress Build is an increasingly complex yet integrated explanation, we represent it below by including the new ideas for each level in bold.

In the Patterns of Earth and Sky unit, students will learn to construct scientific explanations about why we see different stars at different times.

Prior knowledge (preconceptions): By grade 5, students will have had many everyday experiences looking up at the sky. They are likely to know the sun is up during the daytime and stars are up during the nighttime. Students may understand that Earth is round and that Earth moves, in they although they may not know that Earth moves in two different ways simultaneously (spin and orbit). Students may have been exposed to the concept of gravity and that it makes things fail down to the ground. While these ideas are not necesary for students to participate fully in the unit, having exposure to these ideas will prepare students will for what they will be learning.

Progress Build Level 1: The sun looks bigger and brighter than all other stars because it is much closer to Earth than all other stars.

We see the sun and not the other stars during the dayline, even though stars are all around Earth. This is because the sun is the closest star to Earth. Because the sun is so much closer to Earth than all other stars, the sun appears to be much bigger and brighter than all other stars. When the sun is up during the daytime, it looks so bright that it makes it difficult for us to see the other stars.

#### Progress Build Level 2: As Earth spins, what we see in the sky changes throughout the day.

We see the sun and not the other stars during the daytime, even though stars are all around Earth. This is because the sun is the closest star to Earth. Because the sun is so much closer to Earth than all other stars, the sun appears to be much bigger and brighter than all other stars. When the sun is up during the daytime, it looks so bright that It makes it difficult for us to set the other stars. The sun appears sometimes, but not at other times, because Earth appins once each day (24 hours) while other stars, including the sun, remain in place. Since Earth always pulls things down toward the ground with gravitational force, that we see up in the sky changes as Earth spins. When the side of Earth we are on faces the sun, the sun is in the sky. When Earth spins to face away from the sun, the sun is not in the sky, so we can see other stars.

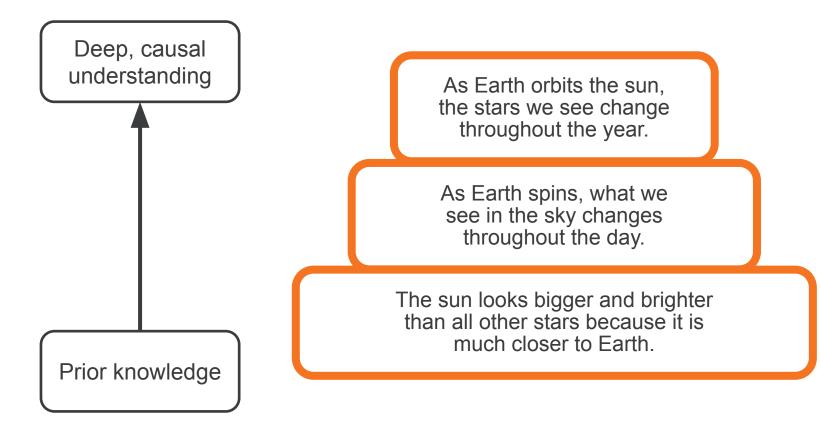
#### Progress Build Level 3: As Earth orbits the sun, the stars we see in the night sky change throughout the year.

We see the sun and not the other stars during the daytime, even though stars are all around Earth. This is because the sun is the closest star to Earth. Because the sun is so much closer to Earth than all other stars, the sun appears to be much bigger and brighter than all other stars. When the sun is up during the daytime. It looks so bright that It makes it difficult for us to see the other stars. The sun appears sometimes, but not at other times, because Earth spins once each day (24 hours) while other stars, including the sun, remain in place. Since Earth abays pulls things down toward

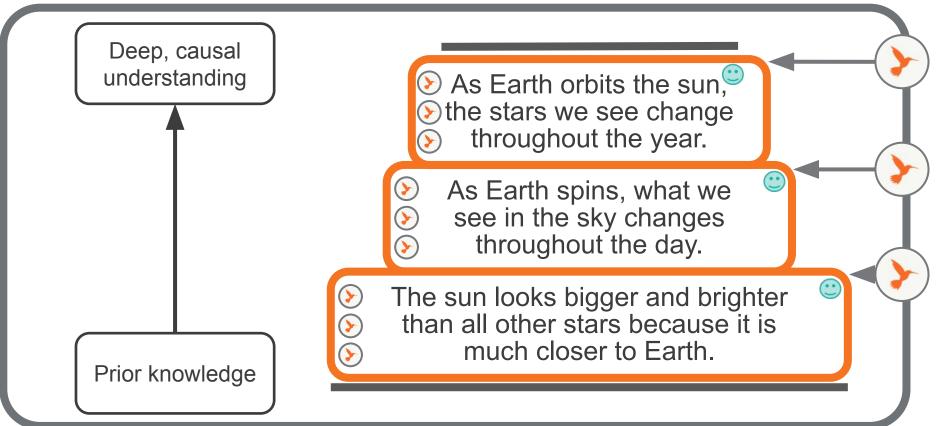
#### Earth and Sky

of Earth we are on sky, so we can see n's position in different times of night sky

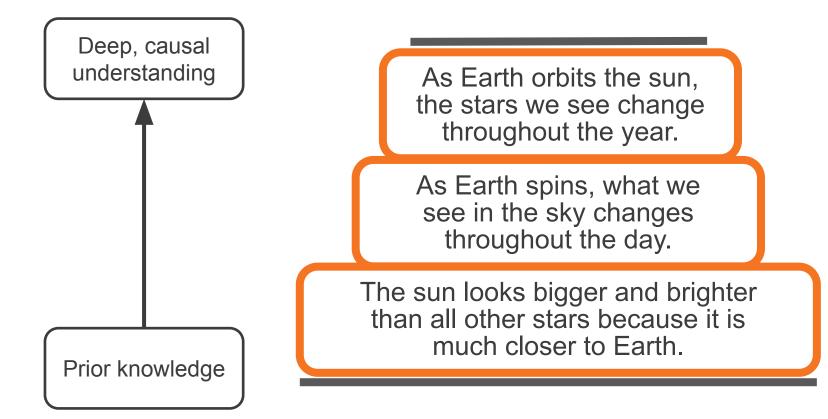
### Patterns of Earth and Sky Progress Build



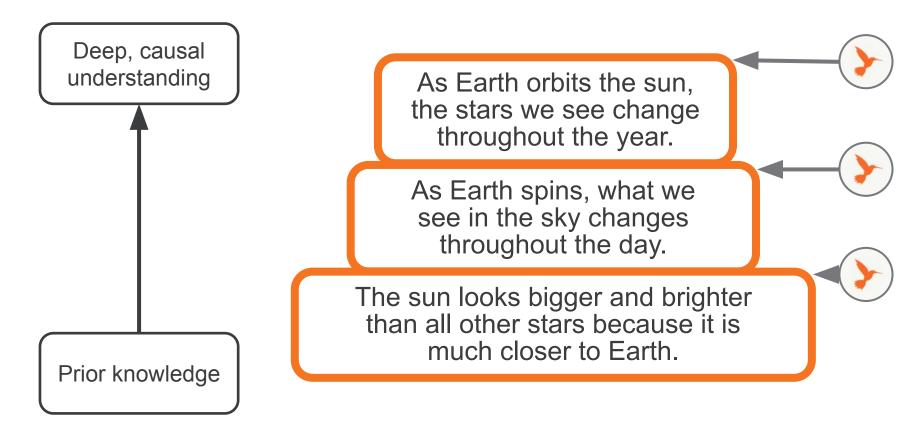
### **Assessment System**



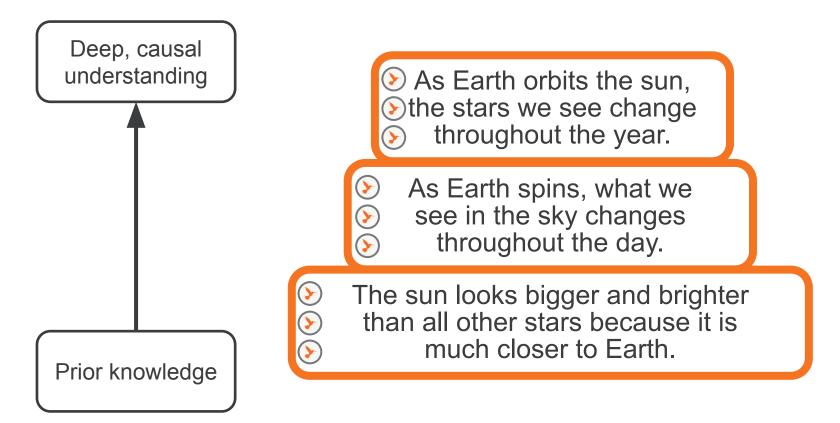
### Pre- and End-of-Unit Assessments



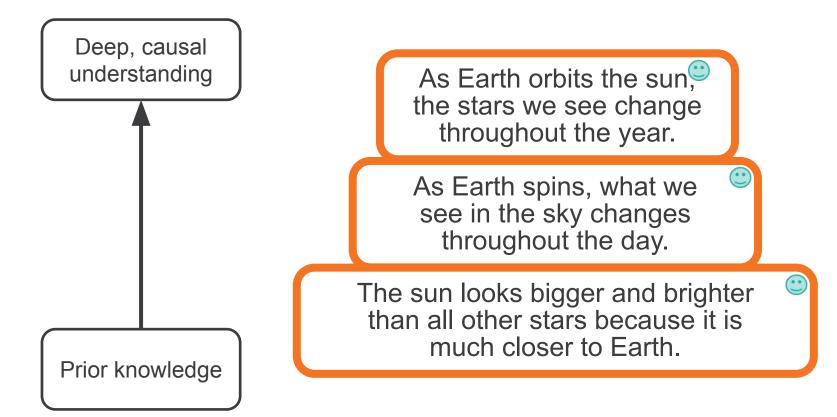
### **Critical Juncture Assessments**



### **On-the-Fly Assessments**



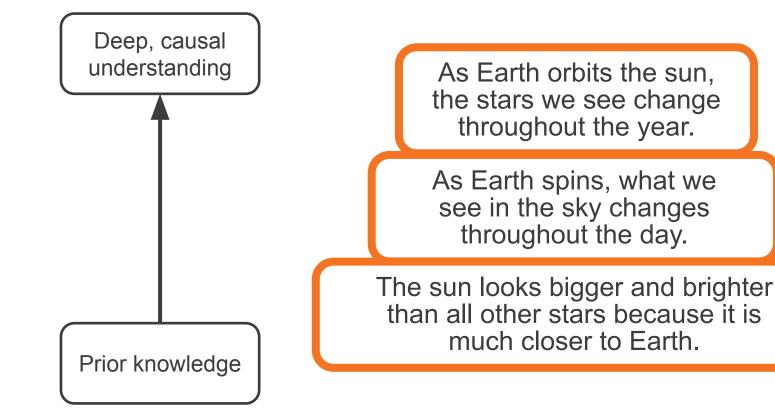
### Self-Assessments





### **Investigation Assessment**







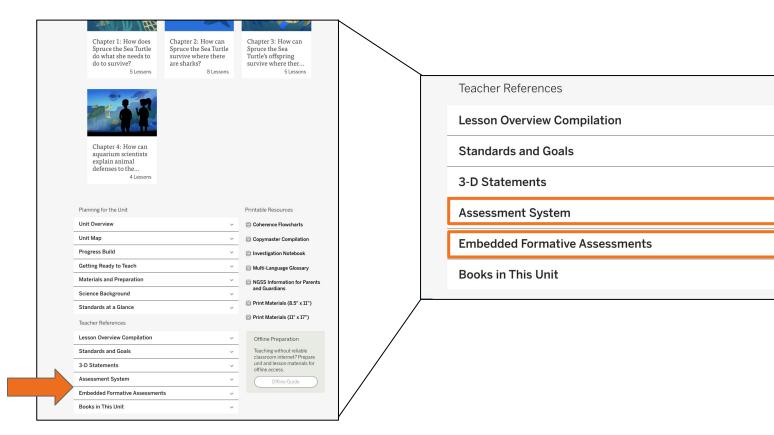
### **Investigation Assessments**



Grade	Unit Title	
Kindergarten	Sunlight and Weather	
First Grade	Light and Sound	
Second Grade	Plant and Animal Relationships	
Third Grade	Balancing Forces	
Fourth Grade	Vision and Light	
Fifth Grade	Patterns of Earth and Sky	



### Locating Assessment Resources



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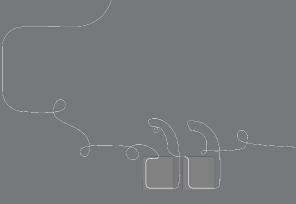
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### Which questions have we answered?

### • What new questions do you have?



### Benchmark Assessment Grades 3-5

#### Amplify.

Science

English Language Arts

#### NGSS Benchmark Assessments

The Next Generation Science Standards (NGSS) Benchmark Assessments by Amplify are designed to help teachers measure student progress against the three dimensions and performance expectations of the NGSS. They provide important insight into how students are progressing toward mastery of the standards ahead of high-stakes, end-of-year assessments.

#### Overview

Administered digitally or on paper, the Benchmarks are authored to provide multiple opportunities per year to assess standards comprehension across grades 3 through 8. The order of the Benchmark assessments may differ from the recommended teaching sequence for the Amplify Science curriculum. Before administering each assessment, note the suggested units to complete, indicated under the title of each assessment.

Elementary assessments have 14-15 questions per form. Middle school assessments have approximately 25 questions per form. We suggest planning for 90-minutes of instructional time to administer the first Benchmark of the school year, then adjusting the time as needed for subsequent Benchmarks.

Assessment Rollout by Grade		
Grades 3–5	4 benchmarks per grade	
Grades 6–8 Integrated	3 benchmarks per grade	
Grades 6–8 Domain	3 benchmarks per grade	

#### Administering the Assessments

The assessments are available in PDF and digital QTI forms. The assessments can also be turned on automatically in Illuminate, for schools that use that assessment platform.

#### \*Last updated: October 10, 2019

On paper	>
In Illuminate	>
Using other platforms	>

#### Amplify.

Benchmark

Assessments

Amplify Science

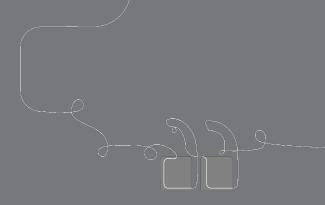
CA Science

Program Guide

Hello Teacher Menéndez t.amenendez@tryamplify.net

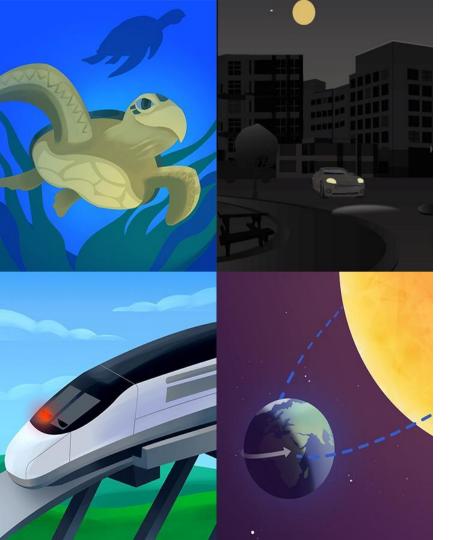
Go To My Account 🗱

Log Out





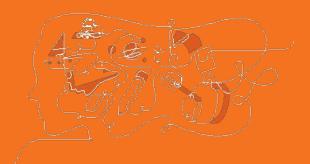




# Plan for the day

- Introducing Amplify Science
- Navigation essentials
- Assessments
- Remote & Hybrid Learning Resources
- Reflection and closing

# Remote/Hybrid Learning Resources





# AmplifyScience@Home

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





# AmplifyScience@Home

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





## AmplifyScience@Home

### Two different options:

### **@Home Units**

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

### @Home Videos

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





### @Home Units

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



### @Home Units

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



@Home Slides and Student
Sheets: tech-based

### @Home Videos

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





### @Home Videos

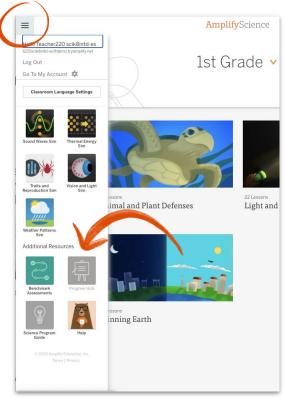
- Lesson playlists include **all activities** from original units
- Great option if have the same amount of instructional time as you typically would for science
- Requires **tech access** at home
- Can be used as models for creating your own videos





# Accessing Amplify Science@Home Amplify Science Program Hub

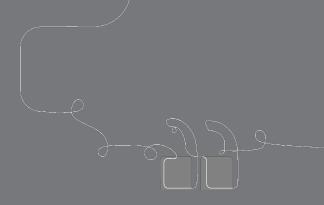
- New site containing Amplify Science@Home and additional PL resources
- Accessible via the Global Navigation menu



### Which resource should I choose?

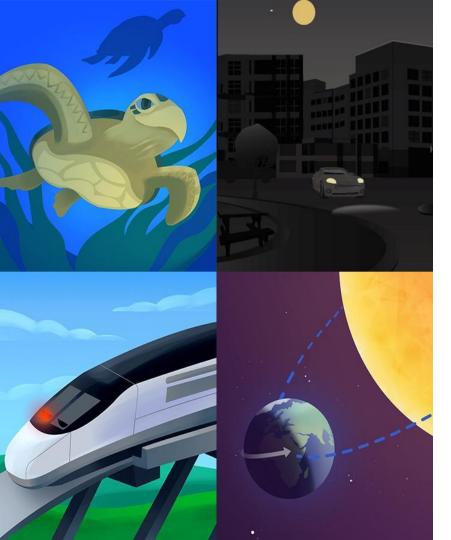
Use @Home Units if	Use @Home Videos if	
<ul> <li>You have reduced instructional time for science</li> <li>You need a print-based solution for some or all of your students</li> </ul>	• You have about the same amount of instructional time for science	

As you explore the resources, you may decide to use both!









# Plan for the day

- Introducing Amplify Science
- Navigation essentials
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## 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

# Objectives

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

- Navigate the Amplify Science curriculum
- Navigate the Program Hub



### LAUSD Amplify resources



### **Amplify Science for LAUSD**

Glean additional insight into the program's structure, intent, philosophies, supports, and flexibility. Review previous trainings and access materials from the trainings.

### https://amplify.com/lausd-science



## Additional Amplify resources



### **Program Guide**

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

https://my.amplify.com/programguide/co ntent/national/welcome/science/

### **Amplify Help**

Find lots of advice and answers from the Amplify team. **my.amplify.com/help** 



### Additional Amplify resources



### **Caregivers site**

Provide your students' families information about Amplify Science and what students are learning **amplify.com/amplify-science-family**resource-intro/

# 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



# 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.