Amplify.

Welcome to Amplify Science!

This site contains supporting resources designed for the Los Angeles Unified School District Amplify Science adoption for grades TK–8.

All LAUSD schools have access to Amplify Science resources at this time.

Click here for Remote Learning Resources for Amplify Science

Click here to go back to the LAUSD homepage.

Click the button below to preview the digital Teacher's Guide, and check back for exciting updates to this site!

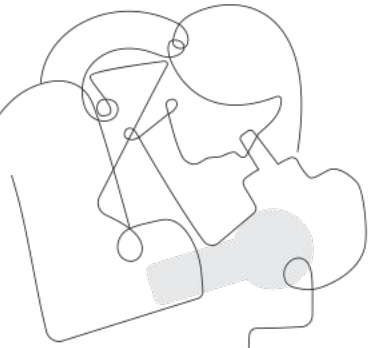
https://amplify.com/lausd-science/

Do Now: *Use the link in the chat to add your best remote learning tips and tricks for teaching Amplify Science to the Jamboard.*

Amplify Science

Unit Internalization & Guided Planning

Deep-dive and strengthening workshop
Grade 6: Ocean, Atmosphere, and Climate



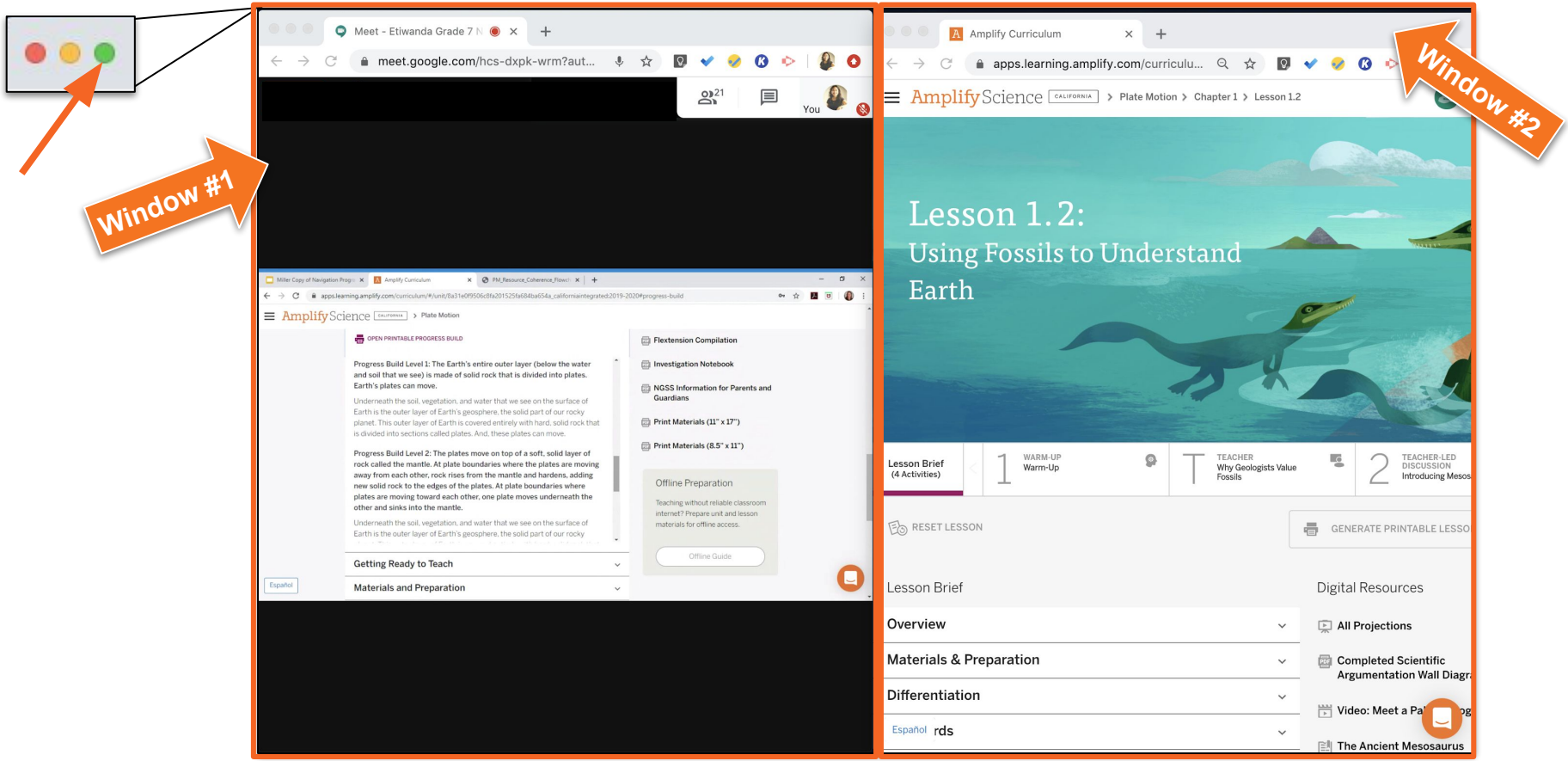
LAUSD

xx/xx/2021

Presented by Your Name

In a new tab, please log in to your Amplify Science account through Schoology.

Use two windows for today's webinar



Norms: Establishing a Culture of Learners

- Please keep your camera on, if possible.
- 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

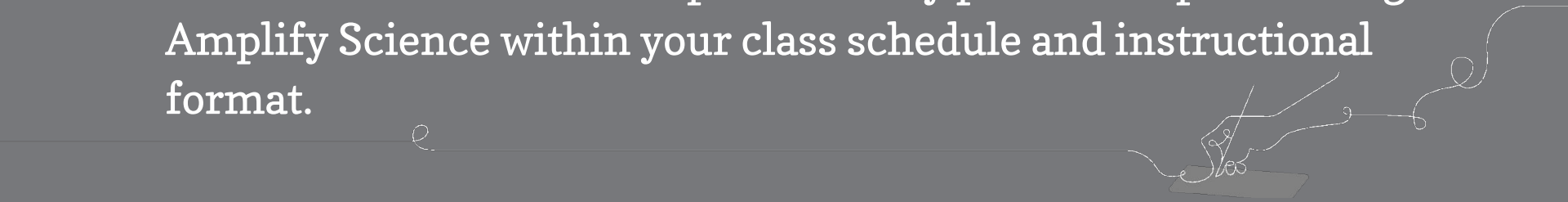
- Make sure you have a note-catcher present

- Be an active participant - chat, ask questions, discuss, share!

Workshop goals

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

- Internalize your upcoming unit.
- Plan for collecting **evidence of student learning** in order to make instructional decisions to **support diverse learner needs**.
- Gather resources to develop a multi-day plan for implementing Amplify Science within your class schedule and instructional format.



Plan for the day

- Framing the day
  - Welcome
  - Instructional Materials
- Unit Internalization
- Planning to teach
  - Collecting evidence of student learning to meet diverse learner needs
- Reflection and closing

Plan for the day

- **Framing the day**
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  - **Instructional Materials**
- Unit Internalization
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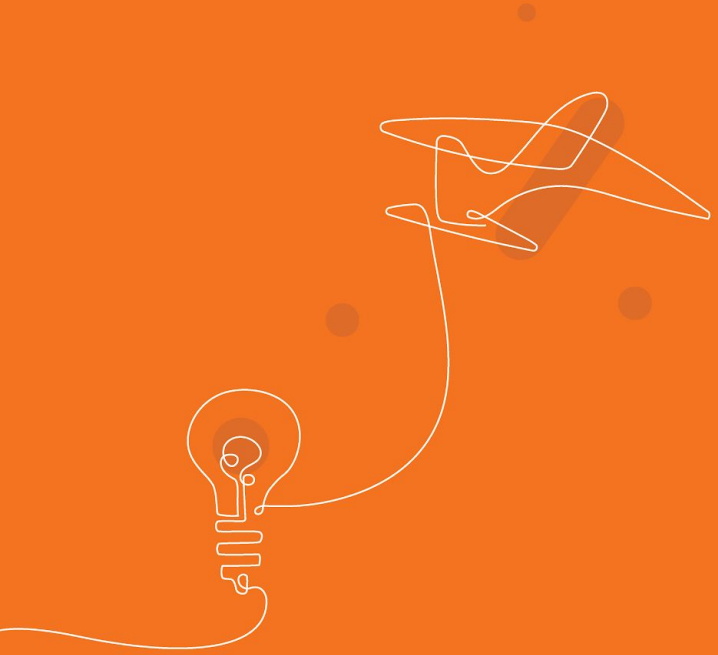

Instructional Materials

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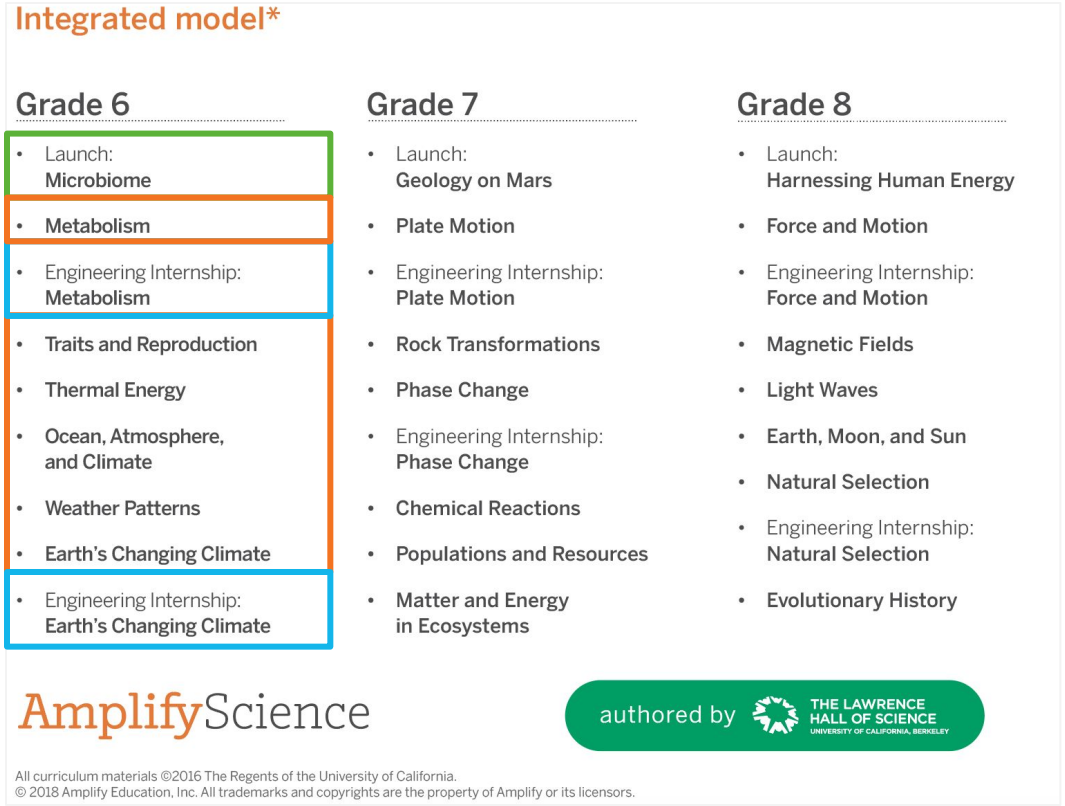
Middle school course curriculum structure



Launch unit

- First unit
- 11 lessons

Core units

- Majority of units
- 19 lessons

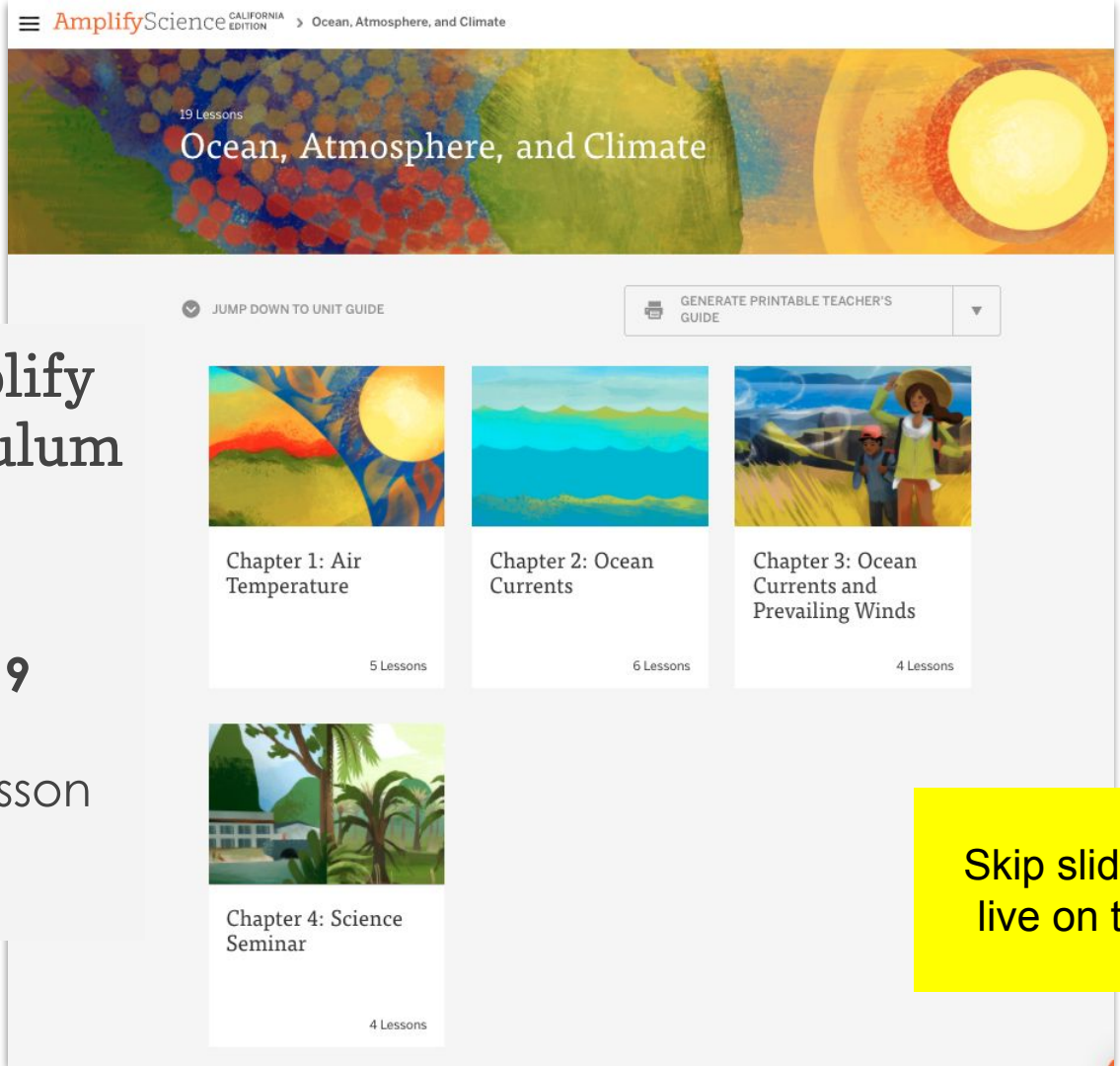
Engineering Internships

- Two per year
- 10 lessons

Standard Amplify Science Curriculum

Standard Amplify Science Curriculum

The Ocean, Atmosphere, and Climate unit has **19 lessons** across 4 chapters. Each lesson is written to be **45 minutes** long.

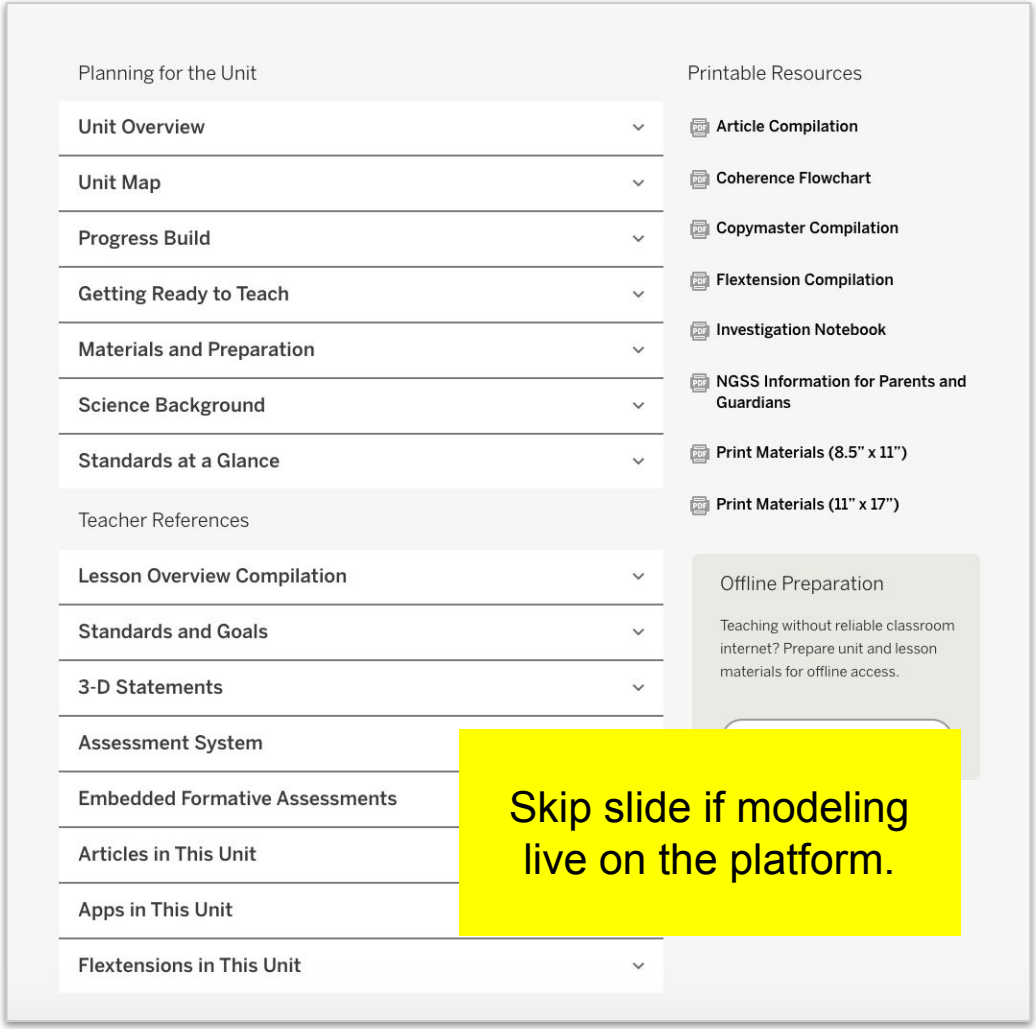


Skip slide if modeling live on the platform.

Standard Amplify Science Curriculum

On the standard Amplify Science platform you will find all of your key documents for planning for the unit.

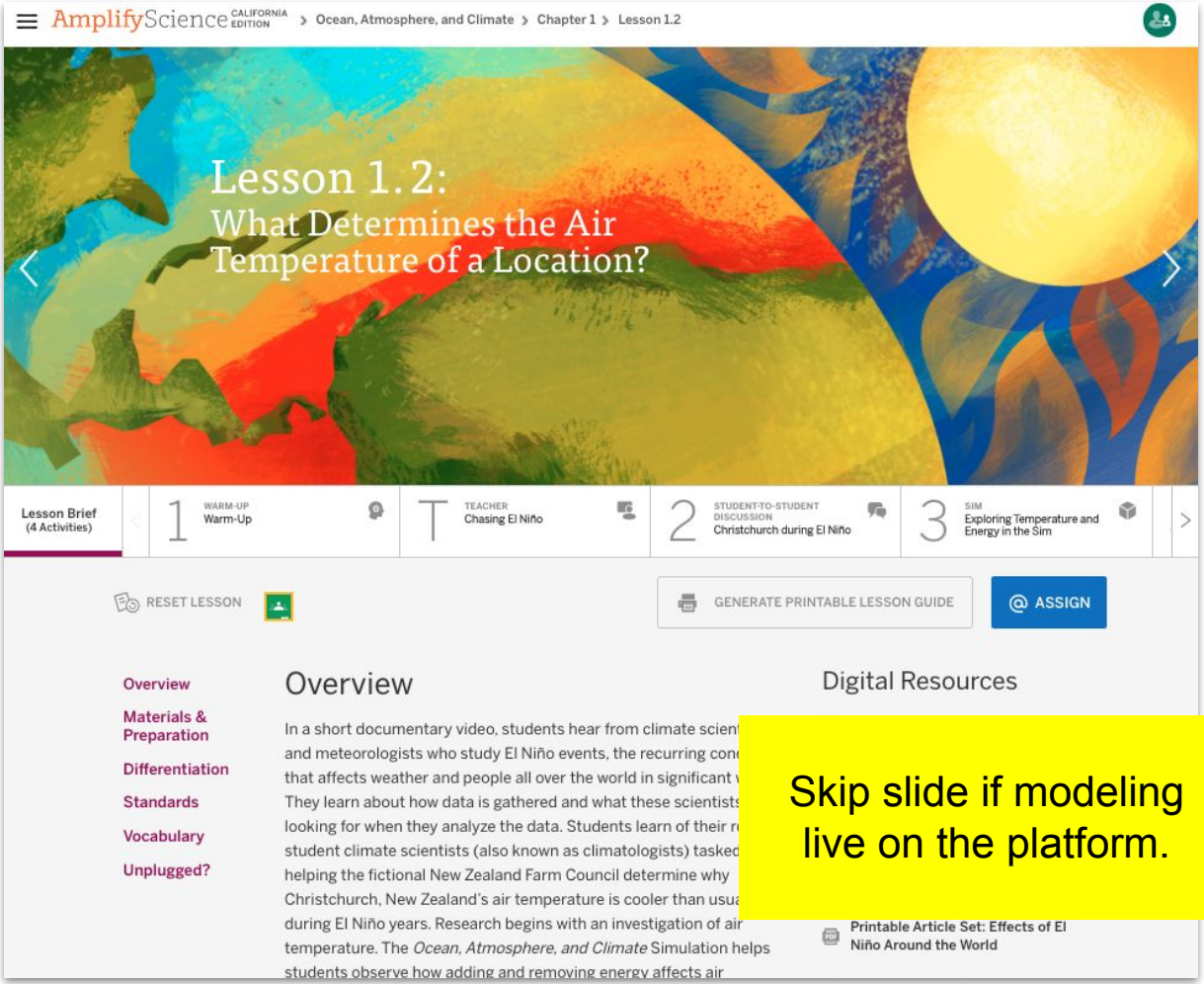
We will be using many of these in today's workshop.



Standard Amplify Science Curriculum

On the standard Amplify Science platform you will find key lesson level information.

We will be navigating to lessons during today's workshop in order to better plan for collecting evidence of student learning in order to plan to meet the needs of diverse learners.



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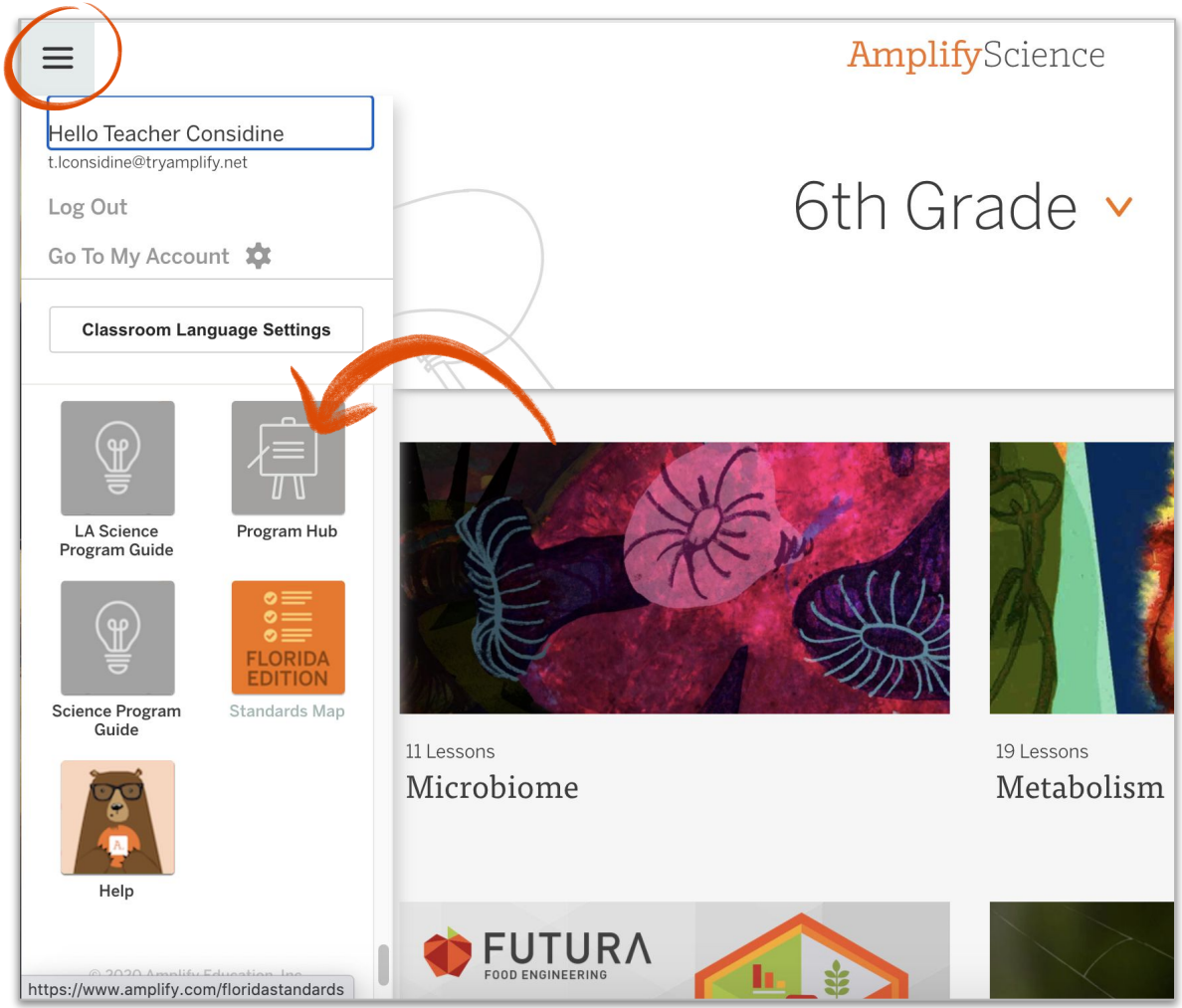
Amplify Science @Home Curriculum

Amplify Science @Home Curriculum

In addition to the standard Amplify Science curriculum, you also have access to Amplify Science @Home Curriculum on the Science Program Hub.



AmplifyScience@Home

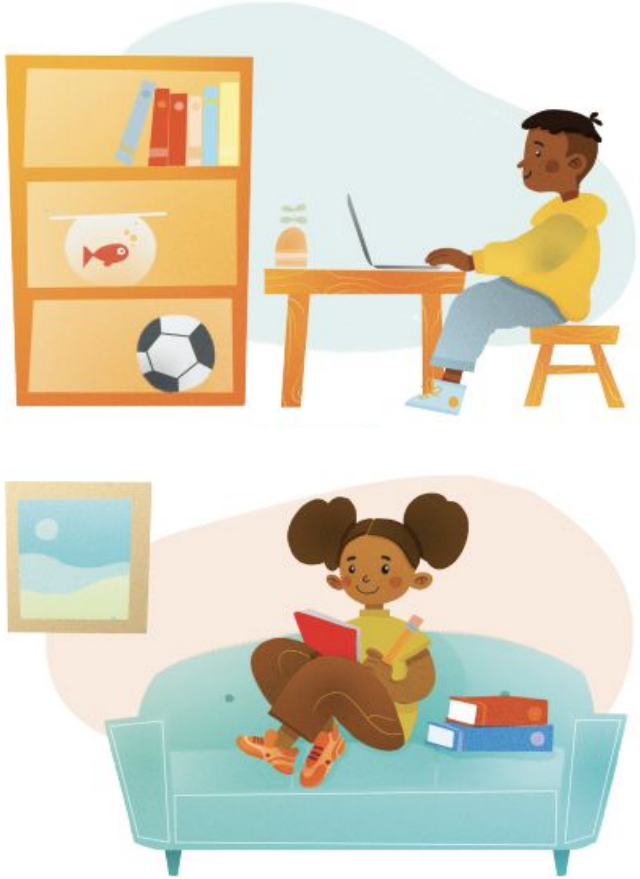
Two different options:

@Home Units

- Digital or print-based versions of Amplify Science units condensed by about 50%

@Home Videos

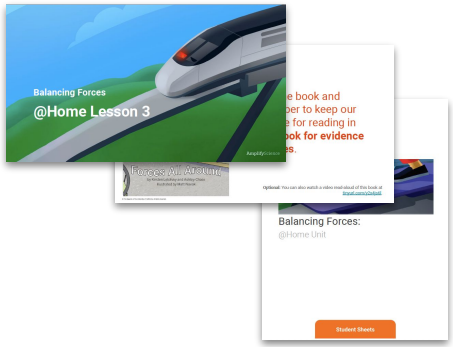
- Video playlists of Amplify Science lessons, taught by real Amplify Science teachers



@Home Units

A shift in approach to respond to user feedback

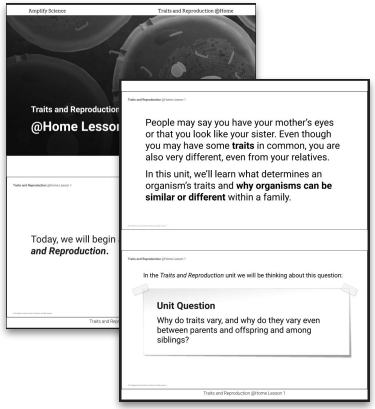
Original approach: two different resources

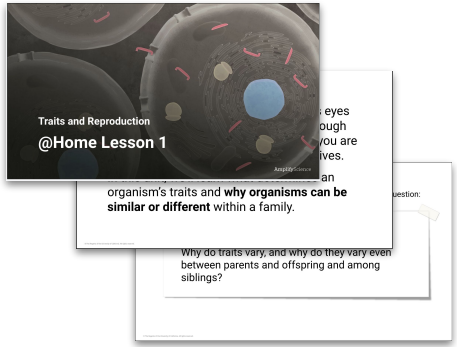


Print-based: @Home packets

Digital: @Home slides and student sheets

Updated approach: one resource, two formats





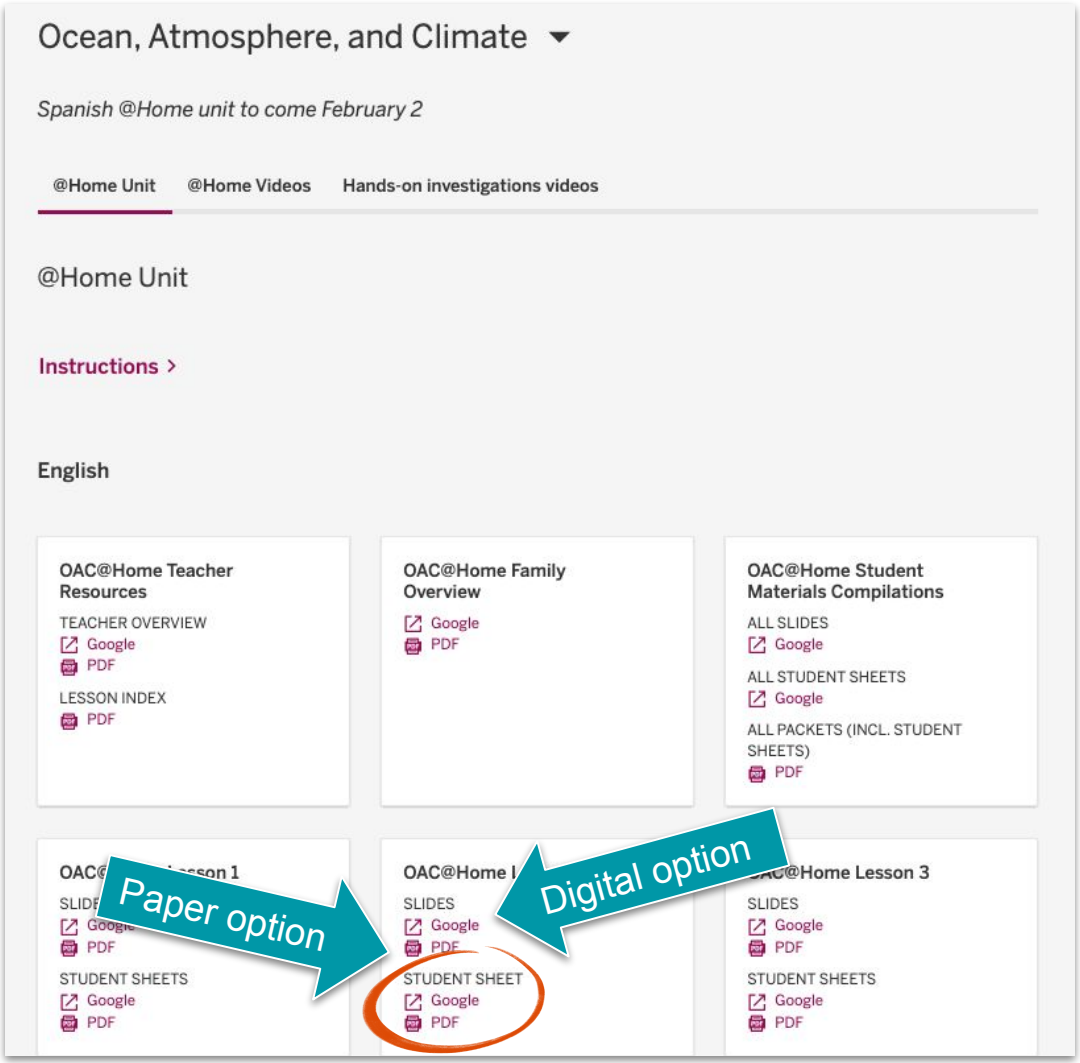
Print-based: PDFs of @Home Slides and student sheets

Digital: Google Slides @Home Slides and Google Doc student sheets

Amplify Science @Home Curriculum

You have access to the Ocean, Atmosphere, and Climate @Home Unit.

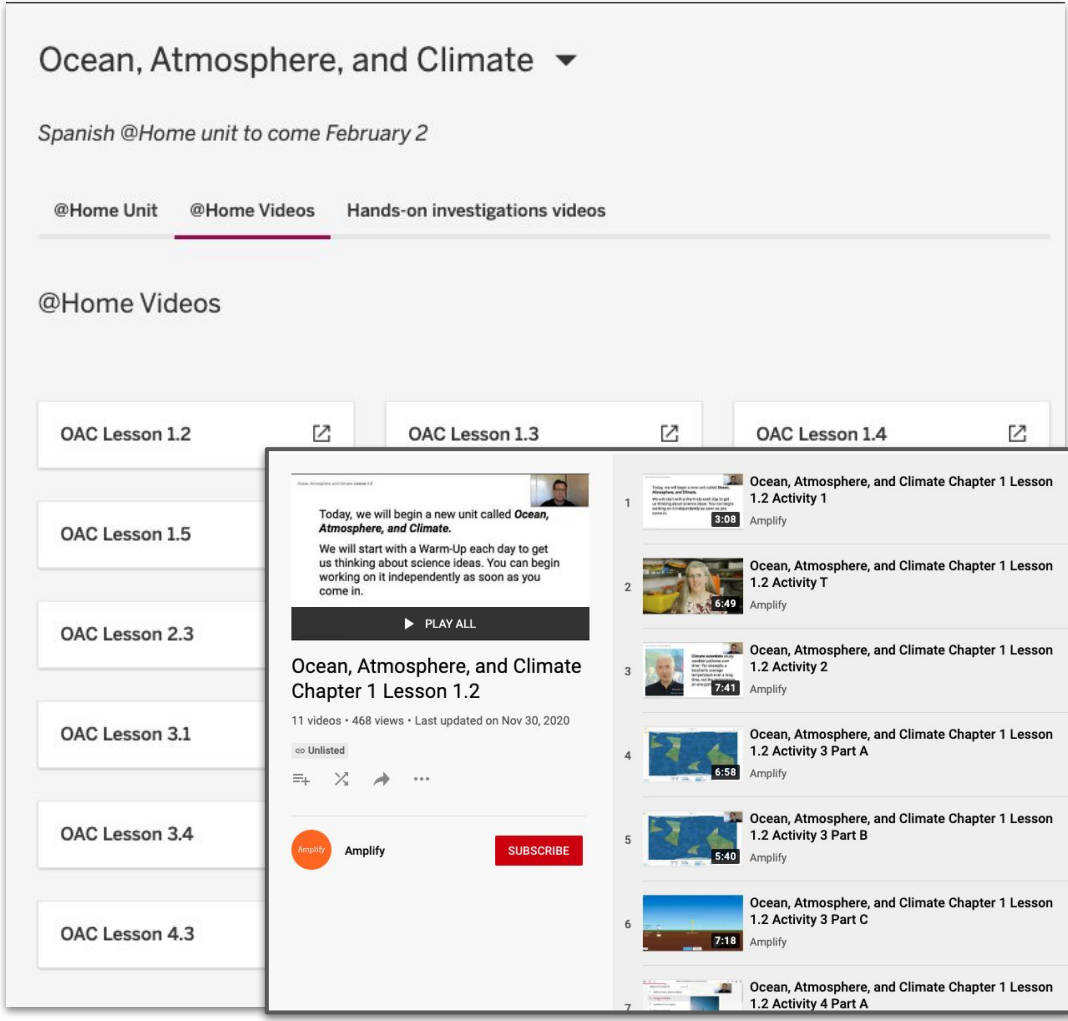
The Ocean, Atmosphere, and Climate @Home Unit has **14 lessons.** Each lesson is written to be **30 minutes** long.

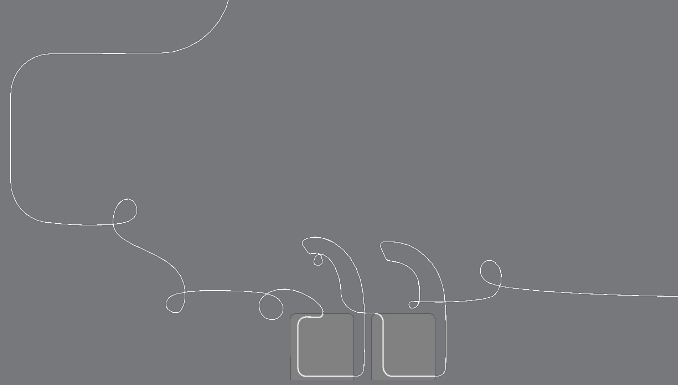


Amplify Science @Home Curriculum

You have access to the Ocean, Atmosphere, and Climate @Home Videos.

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



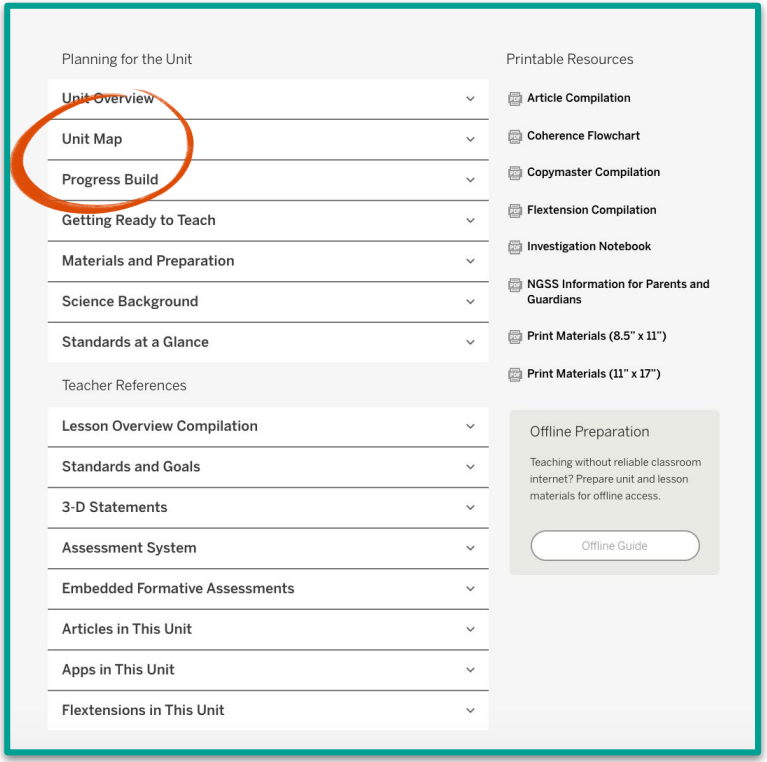


Questions?

Plan for the day

- Framing the day
  - Welcome
  - Instructional Materials
- **Unit Internalization**
- Planning to teach
  - Collecting evidence of student learning to meet diverse learner needs
- Reflection and closing

Unit Guide Resources



Page 1

Unit Guide resources

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

Planning for the unit	
Unit Overview	Describes what's in each unit, the rationale, and how students learn across chapters
Unit Map	Provides an overview of what students figure out in each chapter, and how they figure it out
Progress Build	Explains the learning progression of ideas students figure out in the unit
Getting Ready To Teach	Provides tips for effectively preparing to teach and teaching the unit in your classroom
Materials and Preparation	Lists materials included in the unit's kit, items to be provided by the teacher, and briefly outlines preparation requirements for each lesson
Science Background	Adult-level primer on the science content students figure out in the unit
Standards at a Glance	Lists NGSS Standards (Performance Expectations, Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts), Common Core State Standards for English Language Arts, and Common Core State Standards for Mathematics
Teacher references	
Lesson Overview Compilation	Lesson Overview of each lesson in the unit, including lesson summary, activity purposes, and timing
Standards and Goals	Lists NGSS (Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts) and CCSS (English Language Arts and Mathematics) standards in the unit, explains how the standards are reached
3-D Statements	Describes 3-D learning across the unit, chapters, and in individual lessons
Assessment System	Describes components of the Amplify Science assessment system, identifies each 3-D assessment opportunity in the unit
Embedded Formative Assessments	Includes full text of formative assessments in the unit
Articles in This Unit	Summarizes each unit text and explains how the text supports instruction
Apps in This Unit	Outlines functionality of digital tools and how students use them (in grades 6-8)
Flextensions in This Unit	Summarizes information about the Hands-On Flextension lesson(s) in the unit
Printable resources	
Coherence Flowcharts	Visual representation of the storyline of the unit
Copymaster Compilation	Compilation of all copymasters for the teacher to print and copy throughout the unit
Flextension Compilation	Compilation of all copymasters for Hands-on Flextension lessons throughout the unit
Investigation Notebook	Digital version of the Investigation Notebook, for copying and projecting
Multi-Language Glossary	Unit vocabulary words in 10 languages
NGSS Information for Parents and Guardians	Information for parents about the NGSS and the shifts for teaching and learning
Print Materials (8.5" x 11")	Digital compilation of printed cards (i.e. vocabulary cards, student card sets) provided in the kit
Print Materials (11" x 17")	Digital compilation of printed Chapter Questions and Key Concepts provided in the kit

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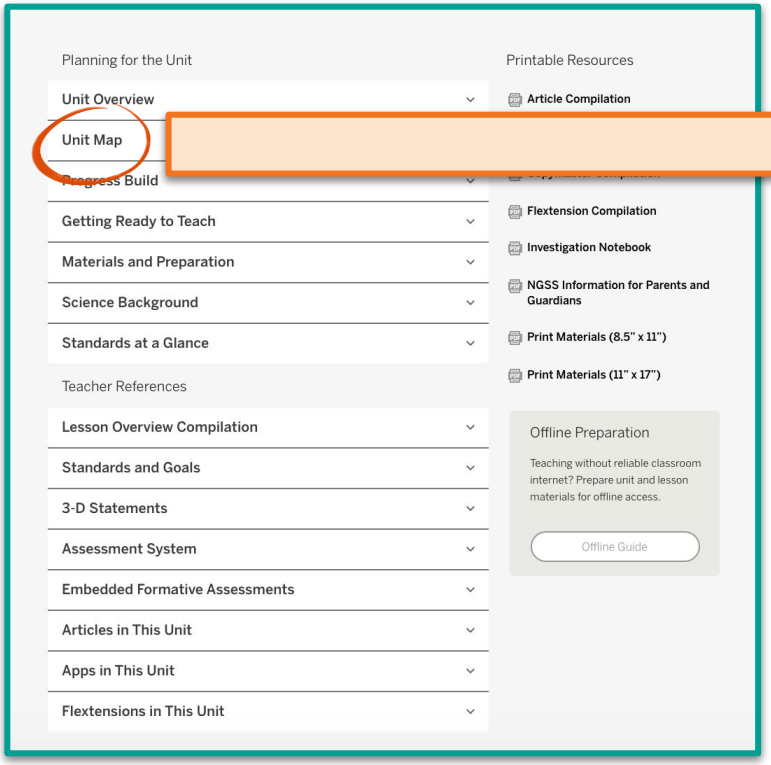
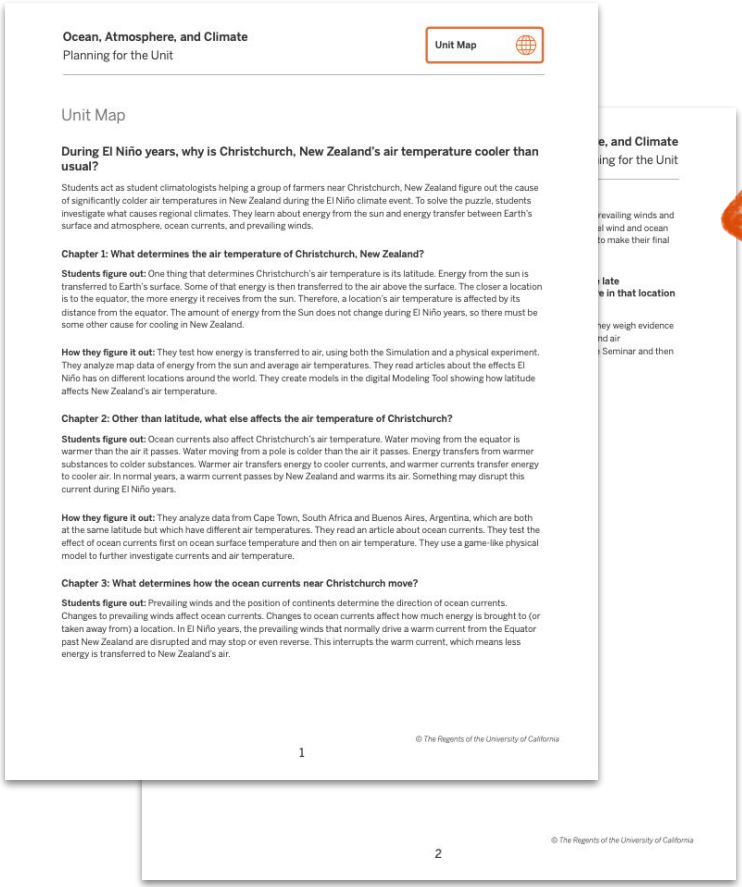
Unit Map

Pages 2-3





Ocean, Atmosphere, and Climate
Planning for the Unit
Unit Map

Unit Map

During El Niño years, why is Christchurch, New Zealand's air temperature cooler than usual?

Students act as student climatologists helping a group of farmers near Christchurch, New Zealand figure out the cause of significantly colder air temperatures in New Zealand during the El Niño climate event. To solve the puzzle, students investigate what causes regional climates. They learn about energy from the sun and energy transfer between Earth's surface and atmosphere, ocean currents, and prevailing winds.

Chapter 1: What determines the air temperature of Christchurch, New Zealand?

Students figure out: One thing that determines Christchurch's air temperature is its latitude. Energy from the sun is transferred to Earth's surface. Some of that energy is then transferred to the air above the surface. The closer a location is to the equator, the more energy it receives from the sun. Therefore, a location's air temperature is affected by its distance from the equator. The amount of energy from the Sun does not change during El Niño years, so there must be some other cause for cooling in New Zealand.

How they figure it out: They test how energy is transferred to air, using both the Simulation and a physical experiment. They analyze map data of energy from the sun and average air temperatures. They read articles about the effects El Niño has on different locations around the world. They create models in the digital Modeling Tool showing how latitude affects New Zealand's air temperature.

Chapter 2: Other than latitude, what else affects the air temperature of Christchurch?

Students figure out: Ocean currents also affect Christchurch's air temperature. Water moving from the equator is warmer than the air it passes. Water moving from a pole is colder than the air it passes. Energy transfers from warmer substances to colder substances. Warmer air transfers energy to cooler currents, and warmer currents transfer energy to cooler air. In normal years, a warm current passes by New Zealand and warms its air. Something may disrupt this current during El Niño years.

How they figure it out: They analyze data from Cape Town, South Africa and Buenos Aires, Argentina, which are both at the same latitude but which have different air temperatures. They read an article about ocean currents. They test the effect of ocean currents first on ocean surface temperature and then on air temperature. They use a game-like physical model to further investigate currents and air temperature.

Chapter 3: What determines how the ocean currents near Christchurch move?

Students figure out: Prevailing winds and the position of continents determine the direction of ocean currents. Changes to prevailing winds affect ocean currents. Changes to ocean currents affect how much energy is brought to (or taken away from) a location. In El Niño years, the prevailing winds that normally drive a warm current from the Equator past New Zealand are disrupted and may stop or even reverse. This interrupts the warm current, which means less energy is transferred to New Zealand's air.

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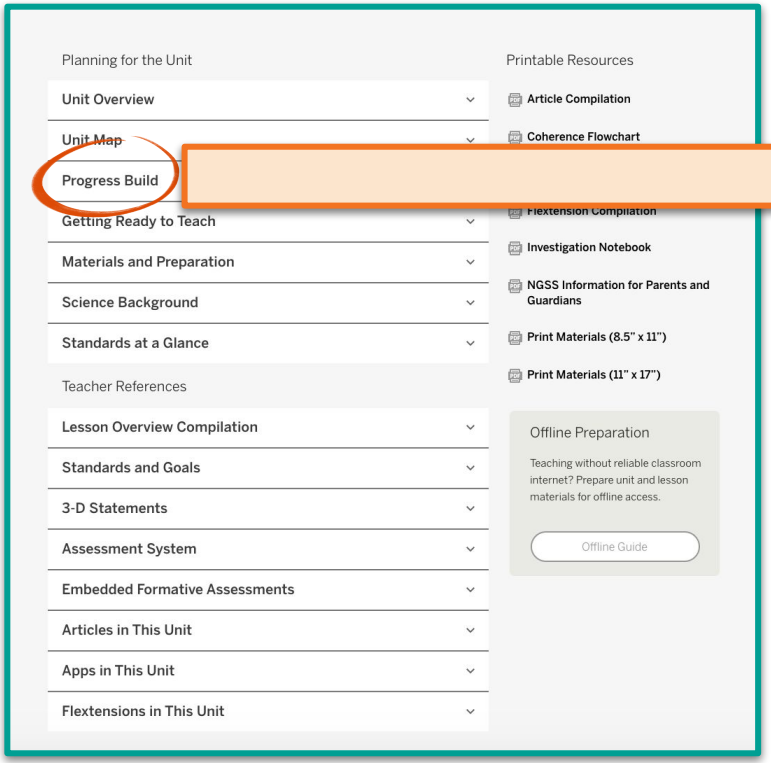
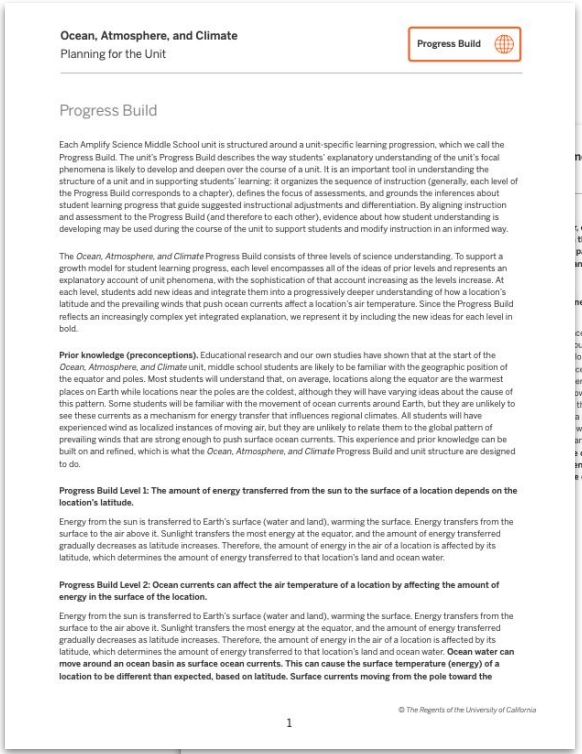
Progress Build

Pages 4-5





Ocean, Atmosphere, and Climate
Planning for the Unit

Progress Build

Progress Build

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

The *Ocean, Atmosphere, and Climate* Progress Build consists of three levels of science understanding. To support a growth model for student learning progress, each level encompasses all of the ideas of prior levels and represents an explanatory account of unit phenomena, with the sophistication of that account increasing as the levels increase. At each level, students add new ideas and integrate them into a progressively deeper understanding of how a location's latitude and the prevailing winds that push ocean currents affect a location's air temperature. Since the Progress Build reflects an increasingly complex yet integrated explanation, we represent it by including the new ideas for each level in bold.

Prior knowledge (preconceptions). Educational research and our own studies have shown that at the start of the *Ocean, Atmosphere, and Climate* unit, middle school students are likely to be familiar with the geographic position of the equator and poles. Most students will understand that, on average, locations along the equator are the warmest places on Earth while locations near the poles are the coldest, although they will have varying ideas about the cause of this pattern. Some students will be familiar with the movement of ocean currents around Earth, but they are unlikely to see these currents as a mechanism for energy transfer that influences regional climates. All students will have experienced wind as localized instances of moving air, but they are unlikely to relate them to the global pattern of prevailing winds that are strong enough to push surface ocean currents. This experience and prior knowledge can be built on and refined, which is what the *Ocean, Atmosphere, and Climate* Progress Build and unit structure are designed to do.

Progress Build Level 1: The amount of energy transferred from the sun to the surface of a location depends on the location's latitude.

Energy from the sun is transferred to Earth's surface (water and land), warming the surface. Energy transfers from the surface to the air above it. Sunlight transfers the most energy at the equator, and the amount of energy transferred gradually decreases as latitude increases. Therefore, the amount of energy in the air of a location is affected by its latitude, which determines the amount of energy transferred to that location's land and ocean water.

Progress Build Level 2: Ocean currents can affect the air temperature of a location by affecting the amount of energy in the surface of the location.

Energy from the sun is transferred to Earth's surface (water and land), warming the surface. Energy transfers from the surface to the air above it. Sunlight transfers the most energy at the equator, and the amount of energy transferred gradually decreases as latitude increases. Therefore, the amount of energy in the air of a location is affected by its latitude, which determines the amount of energy transferred to that location's land and ocean water. **Ocean water can move around an ocean basin as surface ocean currents. This can cause the surface temperature (energy) of a location to be different than expected, based on latitude. Surface currents moving from the pole toward the**

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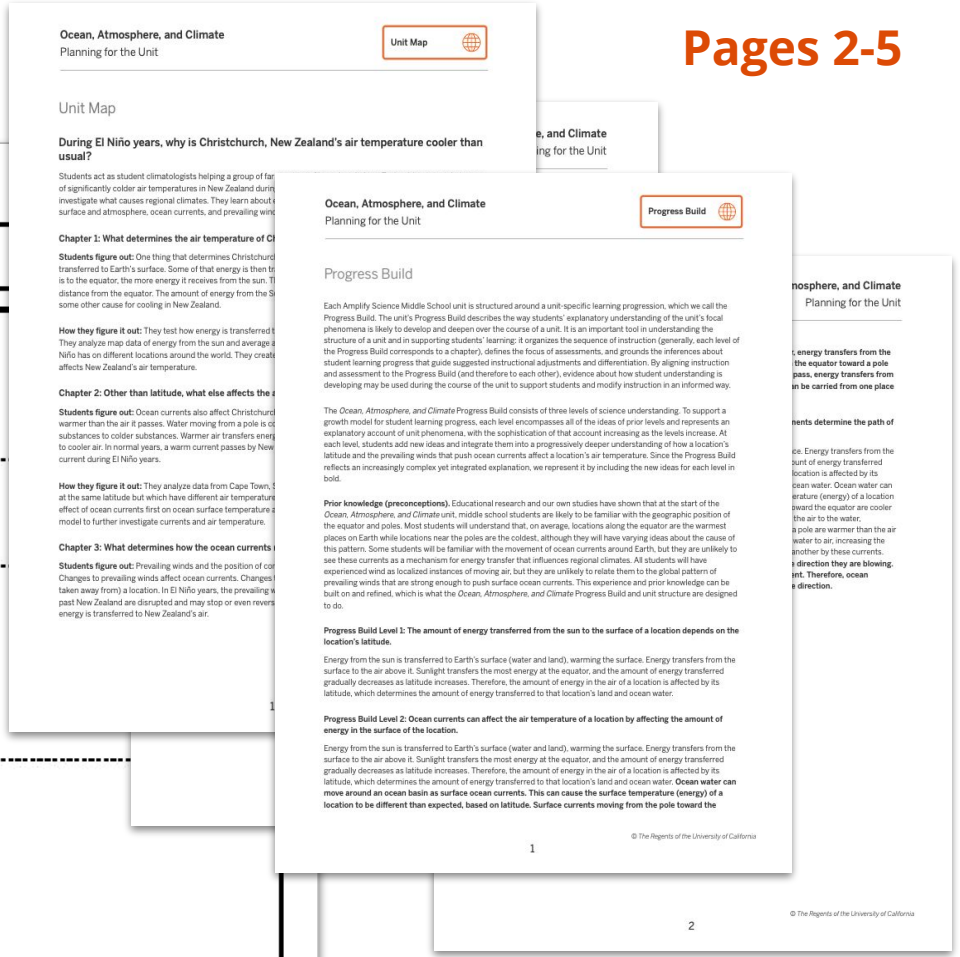
Unit Internalization Work Time

Pages 2-5



Guided Unit Internalization

Part 1: Unit-level internalization

Unit title:

What is the phenomenon students are investigating in your unit?

Unit Question:

Student role:

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

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

Page 6

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Unit Guide Document

Unit Map

Lesson Overview Compilation

Unit Map

Progress Buld

Guided Unit Internalization

Part 1: Unit-level internalization

Unit title: Ocean, Atmosphere, and Climate

What is the phenomenon students are investigating in your unit?

Students help a group of farmers near Christchurch, New Zealand figure out the cause of significantly colder air temperatures in New Zealand during the El Niño climate event.

Unit Question:

What determines the air temperature of a location Earth?

Student role:

Student climatologists

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

Location and ocean currents affect Christchurch's air temperature. The closer a location is to the equator, the more energy it receives from the sun. Also, water moving from the equator is warmer than the air it passes, and the warmer currents transfer energy to cooler air. n normal years, a warm current passes by New Zealand and warms its air. Changes to the prevailing winds affect ocean currents, which affect how much energy is brought to (or taken away from) a location. In El Niño years, the prevailing winds that normally drive a warm current from the Equator past New Zealand are disrupted and may stop or even reverse,, which means less energy is transferred to the air.

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

The amount of energy in the air of a location is affected by its latitude, which determines the amount of energy transferred to that location's land and ocean water. Ocean water can move around an ocean basin as surface ocean currents. This can cause the surface temperature (energy) of a location to be different than expected, based on latitude. Surface currents moving from the equator toward a pole are warmer than the air they pass. Since these currents are warmer than the air they pass, energy transfers from water to air, increasing the temperature of the air. Surface currents are set in motion by prevailing winds, which push the currents in the direction they are blowing. The direction of prevailing winds and the position of the continents determine the path of ocean currents.

Unit Guide Document

Unit Map

Lesson Overview Compilation

Unit Map

Progress Buld

Guided Unit Internalization

Part 1: Unit-level internalization

Unit title: Ocean, Atmosphere, and Climate

What is the phenomenon students are investigating in your unit?

Students help a group of farmers near Christchurch, New Zealand figure out the cause of significantly colder air temperatures in New Zealand during the El Niño climate event.

Unit Question:

What determines the air temperature of a location Earth?

Student role:

Student climatologists

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

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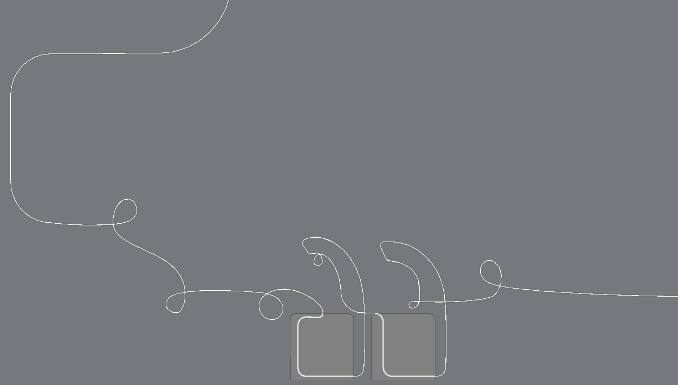
What science ideas do students need to figure out in order to explain the phenomenon?

The amount of energy in the air of a location is affected by its latitude, which determines the amount of energy transferred to that location's land and ocean water. Ocean water can move around an ocean basin as surface ocean currents. This can cause the surface temperature (energy) of a location to be different than expected, based on latitude. Surface currents moving from the equator toward a pole are warmer than the air they pass. Since these currents are warmer than the air they pass, energy transfers from water to air, increasing the temperature of the air. Surface currents are set in motion by prevailing winds, which push the currents in the direction they are blowing. The direction of prevailing winds and the position of the continents determine the path of ocean currents.



Questions?

Plan for the day

- Framing the day
  - Welcome
  - Instructional Materials
- Unit Internalization
- **Planning to teach**
  - **Collecting evidence of student learning to meet diverse learner needs**
- Reflection and closing

Unit Map

During El Niño years, why is Christchurch, New Zealand's air temperature cooler than usual?

Students act as student climatologists helping a group of farmers near Christchurch, New Zealand figure out the cause of significantly colder air temperatures in New Zealand during the El Niño climate event. To solve the puzzle, students investigate what causes regional climates. They learn about energy from the sun and energy transfer between Earth's surface and atmosphere, ocean currents, and prevailing winds.

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Chapter 1: Air Temperature

JUMP DOWN TO CHAPTER OVERVIEW

Lesson 1.1:
Pre-Unit Assessment

SETTINGS

Lesson 1.2:
What Determines the Air Temperature of a Location?

Lesson 1.3:
Energy Transferred to Air

Lesson 1.4:
Air Temperatures Around the World

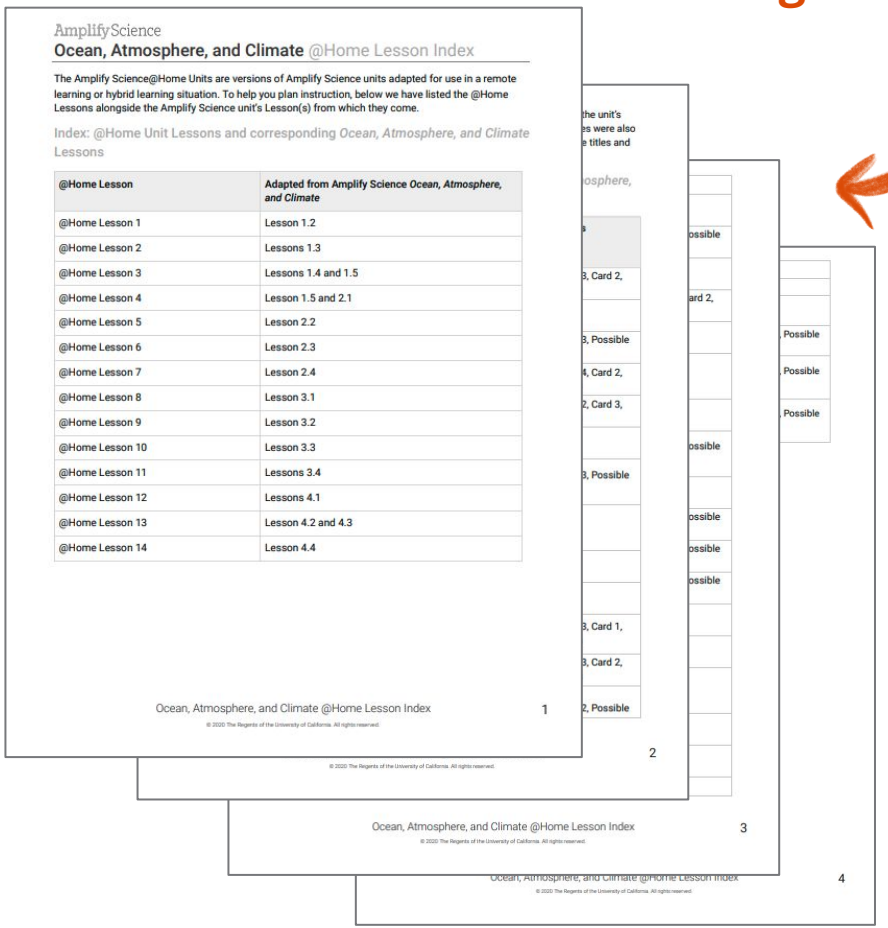
Lesson 1.5:
Air Temperature in Christchurch

@Home Unit Lesson Index

This resource correlates lessons from the Standard Curriculum with @Home Unit Lessons.

It also lists the @Home Unit Student Sheets with information about where they came from (i.e. Student Investigation Notebook, copymaster, or new for the @Home Unit)

Pages 8-11



AmplifyScience

Ocean, Atmosphere, and Climate @Home Lesson Index

The Amplify Science@Home Units are versions of Amplify Science units adapted for use in a remote learning or hybrid learning situation. To help you plan instruction, below we have listed the @Home Lessons alongside the Amplify Science unit's Lesson(s) from which they come.

Index: @Home Unit Lessons and corresponding *Ocean, Atmosphere, and Climate* Lessons

@Home Lesson	Adapted from Amplify Science *Ocean, Atmosphere, and Climate*
@Home Lesson 1	Lesson 1.2
@Home Lesson 2	Lessons 1.3
@Home Lesson 3	Lessons 1.4 and 1.5
@Home Lesson 4	Lesson 1.5 and 2.1
@Home Lesson 5	Lesson 2.2
@Home Lesson 6	Lesson 2.3
@Home Lesson 7	Lesson 2.4
@Home Lesson 8	Lesson 3.1
@Home Lesson 9	Lesson 3.2
@Home Lesson 10	Lesson 3.3
@Home Lesson 11	Lessons 3.4
@Home Lesson 12	Lessons 4.1
@Home Lesson 13	Lesson 4.2 and 4.3
@Home Lesson 14	Lesson 4.4

Ocean, Atmosphere, and Climate @Home Lesson Index 1

Ocean, Atmosphere, and Climate @Home Lesson Index 2

Ocean, Atmosphere, and Climate @Home Lesson Index 3

Ocean, Atmosphere, and Climate @Home Lesson Index 4

@Home Lesson 1

Adapted from: Amplify Science *Ocean, Atmosphere, and Climate* Lesson 1.2

Key activities

- **Introducing Christchurch, New Zealand and air temperature during El Niño years:** Students are introduced to the unit problem and their role as student climatologists.
- **Do:** Students are introduced to the *Ocean, Atmosphere, and Climate* Simulation, then use the Sim to determine what causes the air temperature of a place to change.

Ideas for synchronous or in-person instruction

While meeting, first introduce the unit, then have student pairs work together on the Sim Missions.

Ocean, Atmosphere, and Climate

@Home Lesson 1

AmplifyScience

Today, we will begin a new unit called ***Ocean, Atmosphere, and Climate.***

Read the Unit Question on the next slide. This is the question that will guide our work for the rest of the unit.

Unit Question

What determines the air temperature of a location on Earth?

You can probably think of a place on Earth that is usually **very warm** or a place that is usually **very cold**. Have you ever thought about what **determines the air temperature** of a place? This is what we will focus on in the ***Ocean, Atmosphere, and Climate*** unit.

Let’s watch a video about real-life scientists who are **researching air temperatures** in different places and what it is that can make the air temperature change.

Note: all videos in this @Home Unit can be viewed on a smartphone or any other connected device.

Using the print version? Watch the video at tinyurl.com/AMPOAC-01

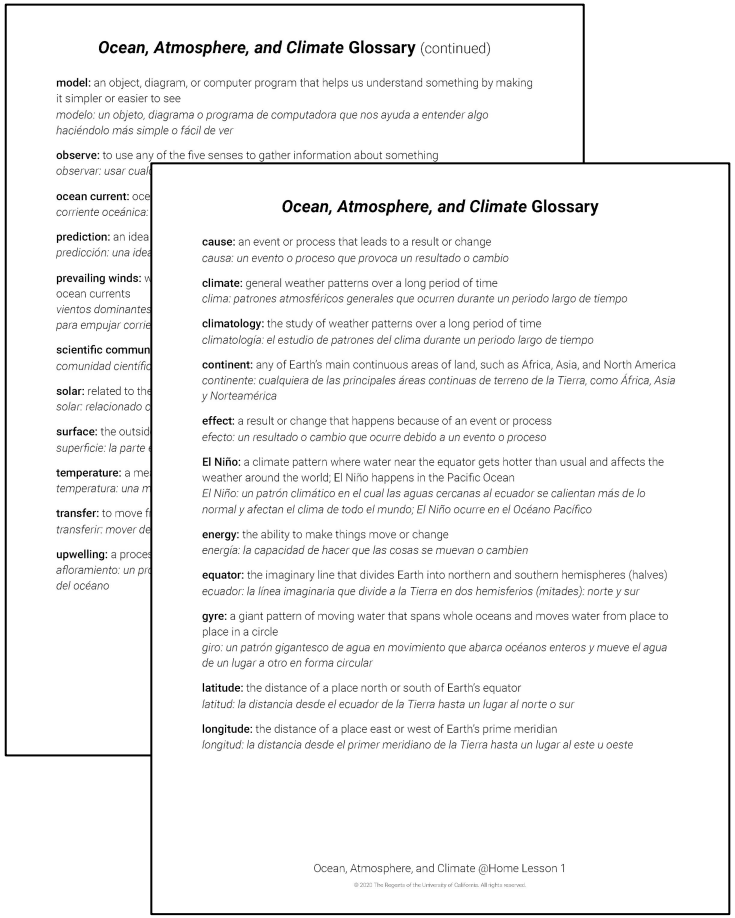
What are your **reactions** to the video?

Do you have any **questions** about it?

Here is an important word you just heard in the video:

climate

general weather patterns over a long period of time



***Ocean, Atmosphere, and Climate* Glossary** (continued)

model: an object, diagram, or computer program that helps us understand something by making it simpler or easier to see
modelo: un objeto, diagrama o programa de computadora que nos ayuda a entender algo haciéndolo más simple o fácil de ver

observe: to use any of the five senses to gather information about something
observar: usar cual

ocean current: oce
corriente oceánica:

prediction: an idea
predicción: una idea

prevailing winds: w
ocean currents
vientos dominantes
para empujar corrie

scientific commun
comunidad científic

solar: related to the
solar: relacionado c

surface: the outsid
superficie: la parte

temperature: a me
temperatura: una m

transfer: to move fi
transferir: mover de

upwelling: a proces
afloramiento: un pr
del océano

***Ocean, Atmosphere, and Climate* Glossary**

cause: an event or process that leads to a result or change
causa: un evento o proceso que provoca un resultado o cambio

climate: general weather patterns over a long period of time
clima: patrones atmosféricos generales que ocurren durante un periodo largo de tiempo

climatology: the study of weather patterns over a long period of time
climatología: el estudio de patrones del clima durante un periodo largo de tiempo

continent: any of Earth's main continuous areas of land, such as Africa, Asia, and North America
continente: cualquiera de las principales áreas continuas de terreno de la Tierra, como África, Asia y Norteamérica

effect: a result or change that happens because of an event or process
efecto: un resultado o cambio que ocurre debido a un evento o proceso

El Niño: a climate pattern where water near the equator gets hotter than usual and affects the weather around the world; El Niño happens in the Pacific Ocean
El Niño: un patrón climático en el cual las aguas cercanas al ecuador se calientan más de lo normal y afectan el clima de todo el mundo; El Niño ocurre en el Océano Pacífico

energy: the ability to make things move or change
energía: la capacidad de hacer que las cosas se muevan o cambien

equator: the imaginary line that divides Earth into northern and southern hemispheres (halves)
ecuador: la línea imaginaria que divide a la Tierra en dos hemisferios (mitades): norte y sur

gyre: a giant pattern of moving water that spans whole oceans and moves water from place to place in a circle
giro: un patrón gigantesco de agua en movimiento que abarca océanos enteros y mueve el agua de un lugar a otro en forma circular

latitude: the distance of a place north or south of Earth's equator
latitud: la distancia desde el ecuador de la Tierra hasta un lugar al norte o sur

longitude: the distance of a place east or west of Earth's prime meridian
longitud: la distancia desde el primer meridiano de la Tierra hasta un lugar al este u oeste

Ocean, Atmosphere, and Climate @Home Lesson 1

Throughout the year, you can look up vocabulary words in the **glossary** to help you understand what they mean. You can find this in your student pages or in the Amplify Library.

***Ocean, Atmosphere, and Climate* Glossary** pages or Amplify Library

Climate scientists, or climatologists, study weather patterns over time, for example, a location's average temperature over a long time, not the temperature on one particular day.

On the next slide you will read a **message** from Kiri Parata, the Director of the New Zealand Farm Council to learn more about what you will be doing in this unit.

Kiri Parata
To: Student Climatologists
Re: Influences on Christchurch, New Zealand's Air Temperature

New Zealand Farm Council

I am the director of the New Zealand Farm Council. Our organization represents farmers in the area surrounding Christchurch. Every few years, we notice climate changes that affect the crops. During El Niño years, the air temperature is much cooler than usual, and we would like to learn why.

So the farmers are better prepared for these temperature changes, we are asking you—our student climatologists—to conduct some research on what determines Christchurch's air temperature, especially why it decreases during El Niño.

Looking forward to working with you and hearing what you find out!

Kiri

Kiri Parata, Director
New Zealand Farm Council

Climatologists expect a particular location's climate to **stay mostly the same**.

When they get data outside of the expected pattern, it often leads them to investigate the cause of the unusual data.

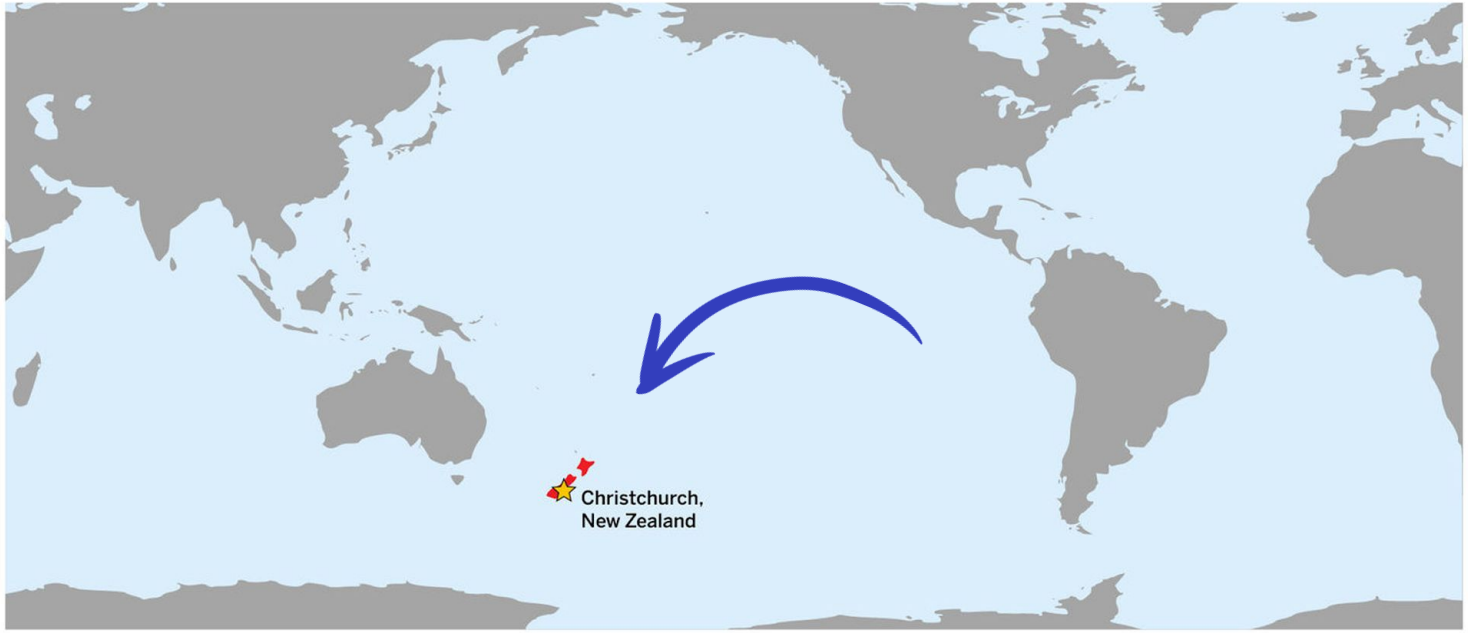
In this unit, you will work as **student climatologists** to investigate why Christchurch, New Zealand's air temperature is cooler than usual during El Niño years.

Like the scientists you saw in the video, you will work with **real climate data** to conduct research about El Niño—this is similar in many ways to the work done by professional scientists.

Examine the map of the world on the next slide. New Zealand is a country located in the Southwestern Pacific, near Australia. There are two main islands that make up the country of New Zealand. Christchurch is on South Island.

There is a **yellow star** on the map to show where Christchurch, New Zealand is.

During El Niño years, why is Christchurch, New Zealand's air temperature cooler than usual?



In your role as **student climatologists**, you will begin by researching this question:

Research Question:
During El Niño years, why is Christchurch, New Zealand's air temperature cooler than usual?

Climatologists use the term *atmosphere* to describe the mixture of gases or air that surround a planet.

We will be investigating the air **right above the surface,** not the air higher up in the atmosphere.

When we talk about Christchurch's air temperature, we are talking about the temperature of the air **directly above** Christchurch.

Let's think about some of your ideas about the Research Question.

During El Niño years, why is Christchurch, New Zealand's air temperature cooler than usual?

During El Niño years, why is Christchurch, New Zealand's air temperature cooler than usual?

Claim 1: The amount of incoming energy from the sun changes.

Claim 2: Something about Earth's surface (land or water) changes.

Claim 3: Something about the air changes.

Here are **three claims** that represent possible answers to our Research Question.

When we refer to **Earth's surface**, we're talking about **land and water.**

Next, you will use the *Ocean, Atmosphere, and Climate* Simulation or watch a video of a Sim investigation.

Check with your teacher about how you will access Sims and other digital tools in this @Home Unit.

@Home Lesson 1

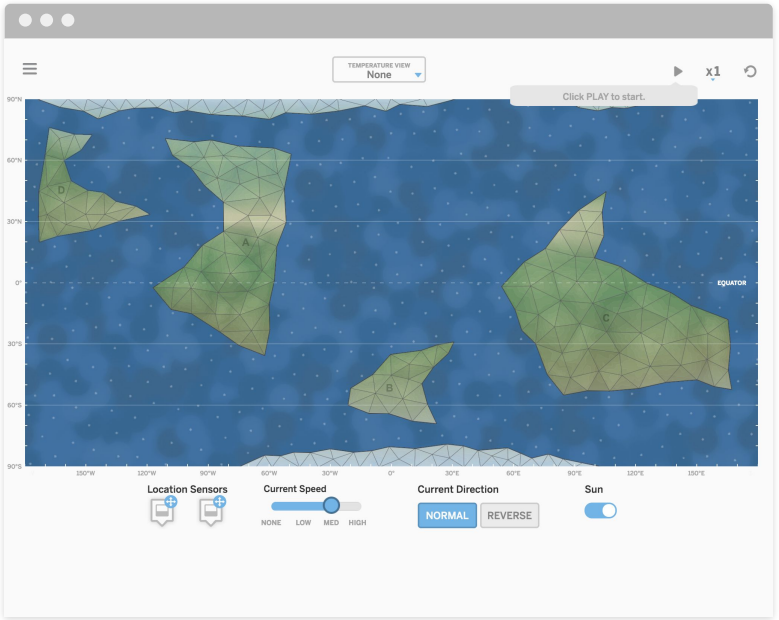
Adapted from: Amplify Science *Ocean, Atmosphere, and Climate* Lesson 1.2

Key activities

- **Introducing Christchurch, New Zealand and air temperature during El Niño years:** Students are introduced to the unit problem and their role as student climatologists.
- **Do:** Students are introduced to the *Ocean, Atmosphere, and Climate* Simulation, then use the Sim to determine what causes the air temperature of a place to change.

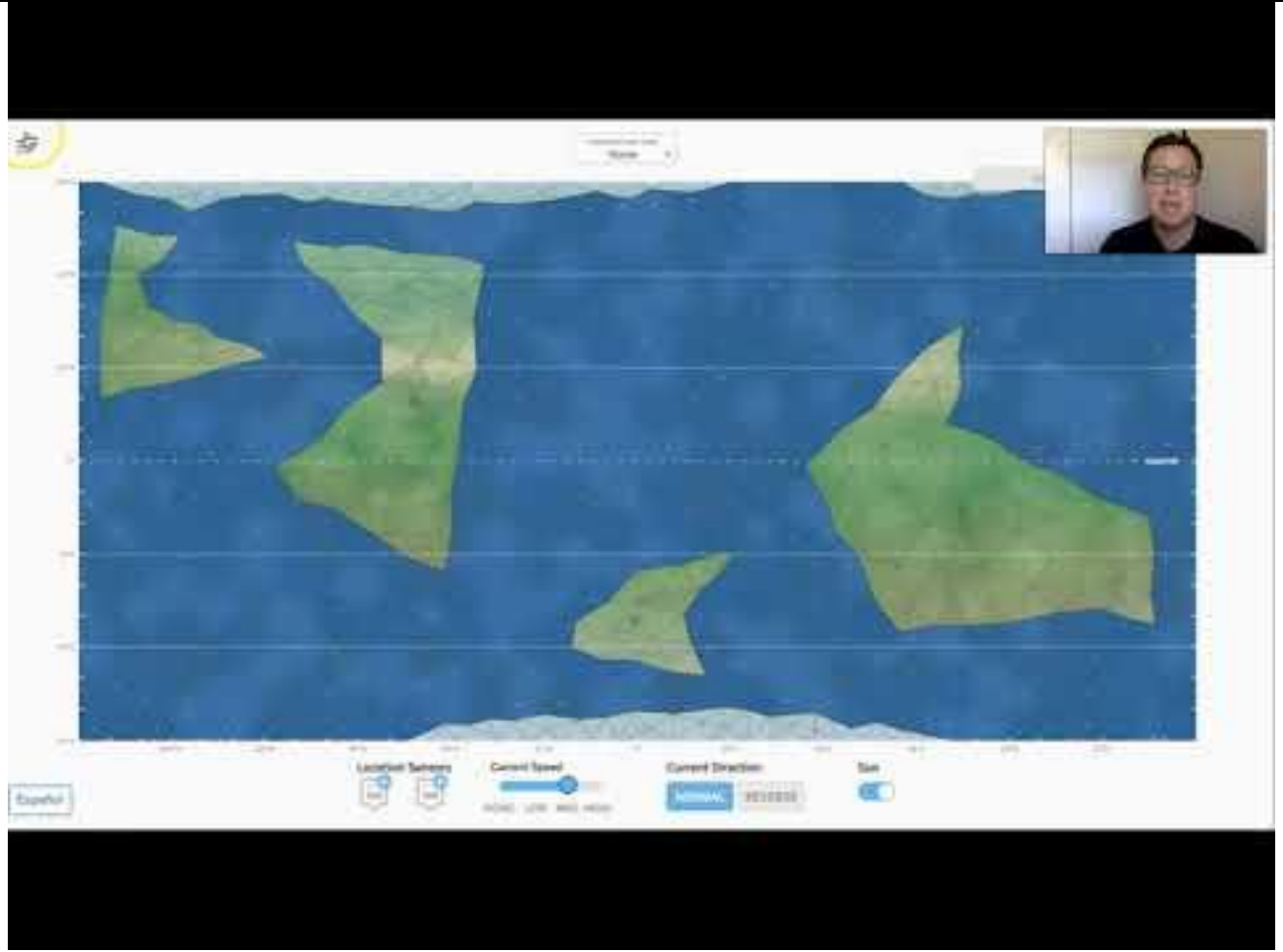
Ideas for synchronous or in-person instruction

While meeting, first introduce the unit, then have student pairs work together on the Sim Missions.



The ***Ocean, Atmosphere, and Climate*** **Simulation** is a scientific model that will help us investigate climate.

Let’s watch a video to learn about some of the features of this Sim.



Using the print version? Watch the video at tinyurl.com/AMPOAC-02

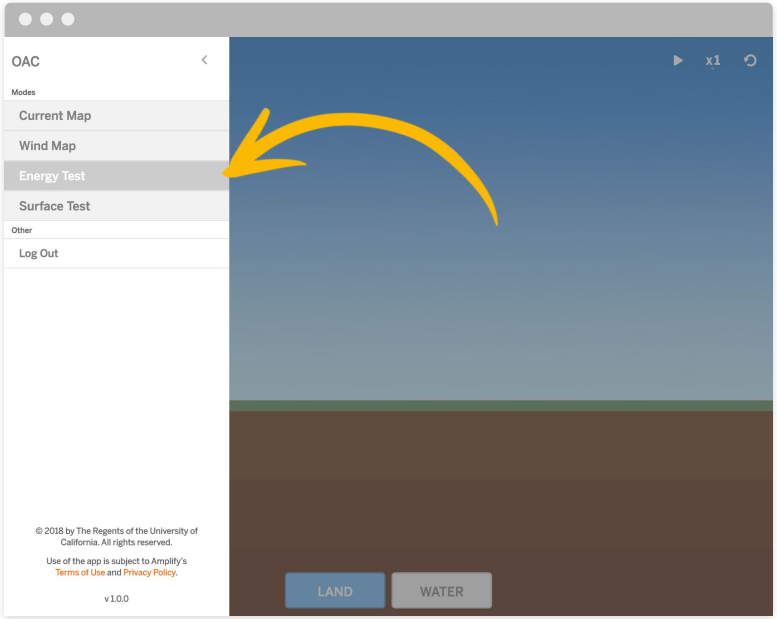
The Sim and other sources of evidence can help us answer our first Chapter Question:

Chapter 1 Question

What determines the air temperature of Christchurch, New Zealand?

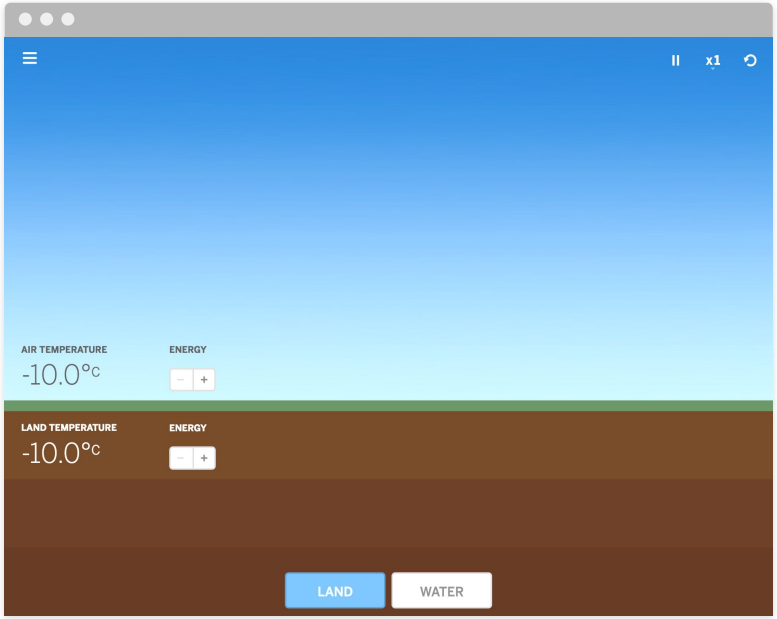
As Kiri Parata explained, we know the temperature in Christchurch changes during El Niño years.

To understand **why,** we'll need to figure out what can **cause a temperature change.**



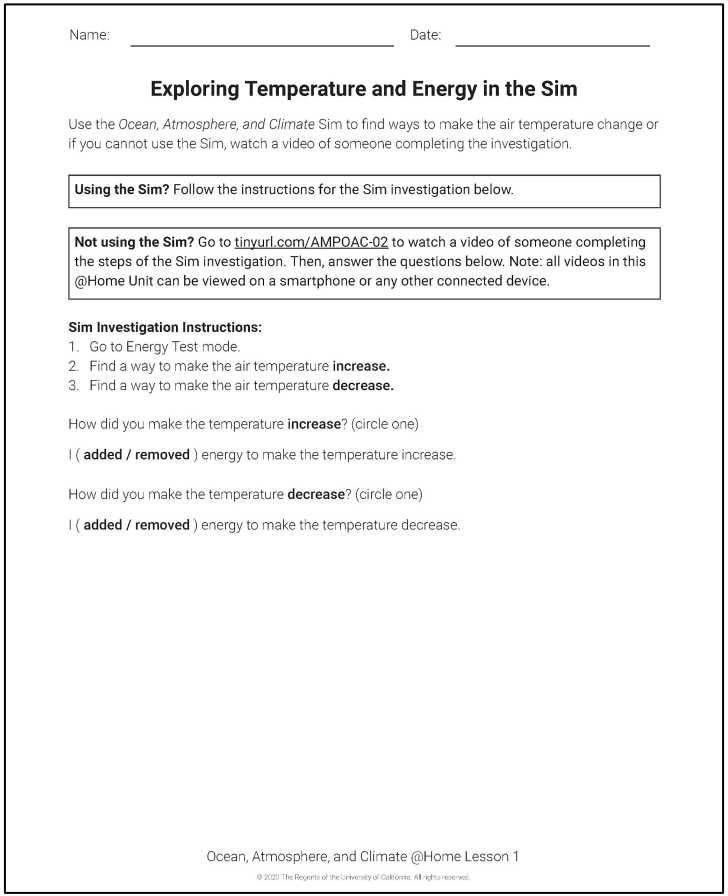
Let's go to the Sim with a **mission** to determine how to change air temperature.

For this mission, we will use **Energy Test** mode.



In the Sim, we will find a way to make the air temperature **increase** and **decrease.**

Then, you will answer the questions.



Name: _____ Date: _____

Exploring Temperature and Energy in the Sim

Use the *Ocean, Atmosphere, and Climate* Sim to find ways to make the air temperature change or if you cannot use the Sim, watch a video of someone completing the investigation.

Using the Sim? Follow the instructions for the Sim investigation below.

Not using the Sim? Go to tinyurl.com/AMPOAC-02 to watch a video of someone completing the steps of the Sim investigation. Then, answer the questions below. Note: all videos in this @Home Unit can be viewed on a smartphone or any other connected device.

Sim Investigation Instructions:

1. Go to Energy Test mode.
2. Find a way to make the air temperature **increase.**
3. Find a way to make the air temperature **decrease.**

How did you make the temperature **increase**? (circle one)

I (**added / removed**) energy to make the temperature increase.

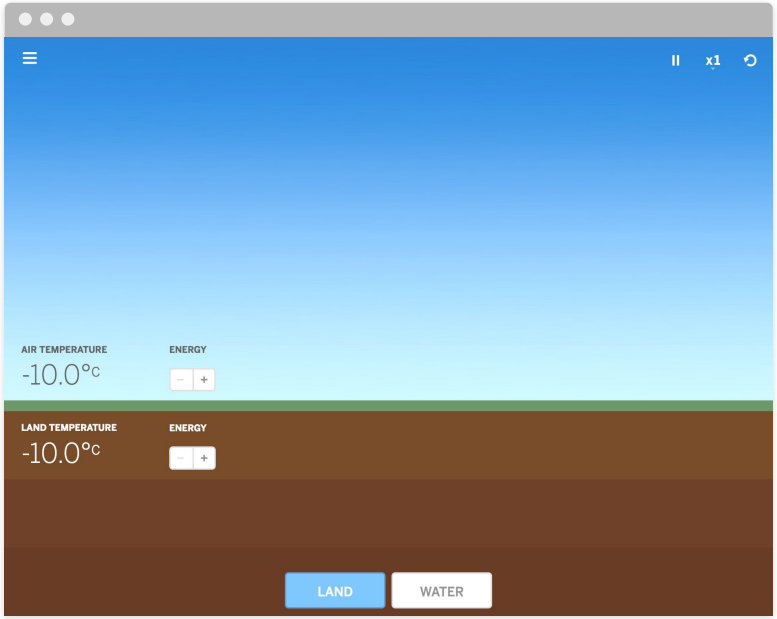
How did you make the temperature **decrease**? (circle one)

I (**added / removed**) energy to make the temperature decrease.

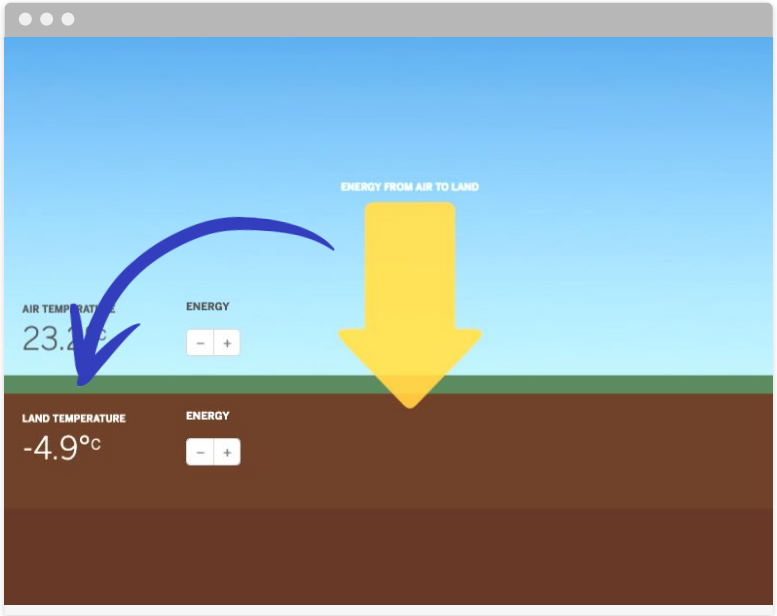
Ocean, Atmosphere, and Climate @Home Lesson 1

Find the Exploring Temperature and Energy in the Sim page. Use the Sim or watch a video of this Sim investigation.

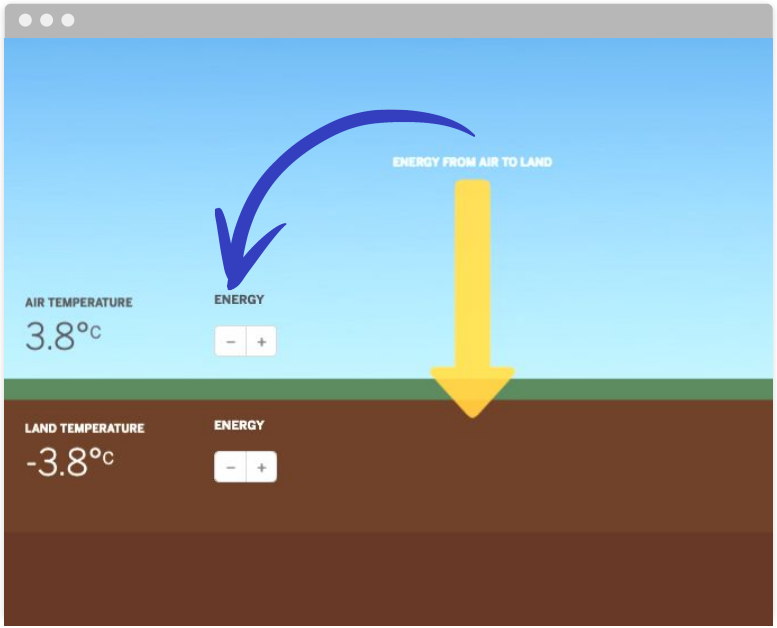
Complete the Sim mission by causing the **air temperature to change.**



Let’s think about what you noticed about **temperature and energy**.



You probably observed that when you **added energy** to the land or the air it made the **air temperature increase**?



And, when you **removed energy** from the air or land in the Sim it made the **temperature decrease?**

Think about the question:

Where does the **energy** in air and water come from?

You will learn more about where energy on Earth comes from in the next lesson.

Energy can take different forms, for example, light energy (such as sunlight) or thermal energy (the energy measured by temperature).

energy

the ability to make things move or change

As we saw in the Sim, for air temperature the higher the temperature, the more energy the air has.

temperature

a measure of how hot or cold something is

End of @Home Lesson

THE LAWRENCE HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

Amplify.

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@Home Lesson 1

Adapted from: Amplify Science *Ocean, Atmosphere, and Climate* Lesson 1.2

Key activities

- **Introducing Christchurch, New Zealand and air temperature during El Niño years:** Students are introduced to the unit problem and their role as student climatologists.
- **Do:** Students are introduced to the *Ocean, Atmosphere, and Climate* Simulation, then use the Sim to determine what causes the air temperature of a place to change.

Ideas for synchronous or in-person instruction

While meeting, first introduce the unit, then have student pairs work together on the Sim Missions.

Suggestions for Online Synchronous Time

Online synchronous time
Online discussions: It's worthwhile to establish norms and routines for online discussions in science to ensure equity of voice, turn-taking, etc.
Digital tool demonstrations: You can share your screen and demonstrate, or invite your students to share their screen and think-aloud as they use a Simulation or other digital tool.
Interactive read-alouds: Screen share a digital book or article, and pause to ask questions and invite discussion as you would in the classroom.
Shared Writing: This is a great opportunity for a collaborative document that all your students can contribute to.
Co-constructed class charts: You can create digital charts, or create physical charts in your home with student input.

page 16

Reflection: Teaching @Home Lesson 1

How would you teach this lesson?

Multi-day planning, including planning for differentiation and evidence of student work

Day @Home Lesson 1

Minutes for science: 15 min.

Instructional format:
- [x] Asynchronous
- [ ] Synchronous

Lesson or part of lesson:
Introducing the unit (slides 1-9)

Mode of instruction:
- [x] Preview
- [ ] Review
- [ ] Teach full lesson live
- [ ] Teach using synchronous suggestions
- [x] Students work independently using:
  - [ ] Printed @Home Slides
  - [x] Digital @Home Slides
  - [ ] @Home Videos

Students will...	Teacher will...
View the video that introduces students to climatologists and El Niño. Jot down initial ideas about their reactions to the video.	Assign slides 1-9 in Schoology and provide direction for students to jot down their ideas about the unit problem to share when the class meets together.

Minutes for science: _____

Instructional format:
- [ ] Asynchronous
- [x] Synchronous

Lesson or part of lesson:

Mode of instruction:
- [ ] Preview
- [ ] Review
- [ ] Teach full lesson live
- [ ] Teach using synchronous suggestions
- [ ] Students work independently using:
  - [ ] Printed @Home Slides
  - [ ] Digital @Home Slides
  - [ ] @Home Videos

Students will...	Teacher will...

Multi-day planning, including planning for differentiation and evidence of student work

Day @Home Lesson 1

Minutes for science: 15 min.

Instructional format:
- [x] Asynchronous
- [ ] Synchronous

Lesson or part of lesson:
Introducing the unit (slides 1-9)

Mode of instruction:
- [x] Preview
- [ ] Review
- [ ] Teach full lesson live
- [ ] Teach using synchronous suggestions
- [x] Students work independently using:
  - [ ] Printed @Home Slides
  - [x] Digital @Home Slides
  - [ ] @Home Videos

Students will...	Teacher will...
View the video that introduces students to climatologists and El Niño. Jot down initial ideas about their reactions to the video.	Assign slides 1-9 in Schoology and provide direction for students to jot down their ideas about the unit problem to share when the class meets together.

Minutes for science: 30 min

Instructional format:
- [ ] Asynchronous
- [x] Synchronous

Lesson or part of lesson:
Observe and Do activities (slides 10-37)

Mode of instruction:
- [ ] Preview
- [ ] Review
- [ ] Teach full lesson live
- [x] Teach using synchronous suggestions
- [ ] Students work independently using:
  - [ ] Printed @Home Slides
  - [ ] Digital @Home Slides
  - [ ] @Home Videos

Students will...	Teacher will...
Pause for pair discussion prompts on slides 20 and 33., Watch Sim model, assign students partners to complete Sim Mission and Student Sheet (slide 29).	Lead students through the lesson activities using slides 10-37., pausing for partner discussion. Model Sim, assign partners, and lead class discussion about the relationship energy and air temperature.

Breakout groups

page 13

Discussion prompts

Planning:

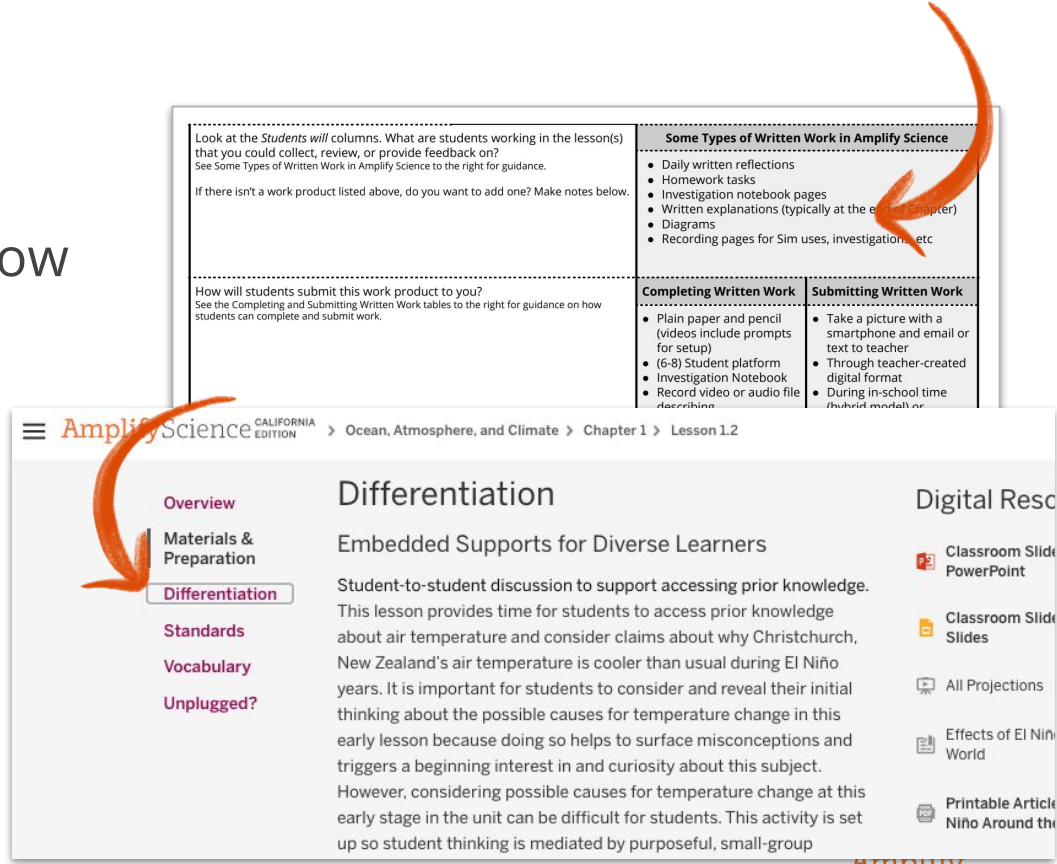
- Share additional ideas for how you plan to lead Lesson 1

Student work:

- Discuss how you can collect evidence of student work

Differentiation:

- Consider how you might differentiate this lesson



Look at the *Students will* columns. What are students working in the lesson(s) that you could collect, review, or provide feedback on?
See Some Types of Written Work in Amplify Science to the right for guidance.

If there isn't a work product listed above, do you want to add one? Make notes below.

Some Types of Written Work in Amplify Science

- Daily written reflections
- Homework tasks
- Investigation notebook pages
- Written explanations (typically at the end of Chapter)
- Diagrams
- Recording pages for Sim uses, investigations, etc

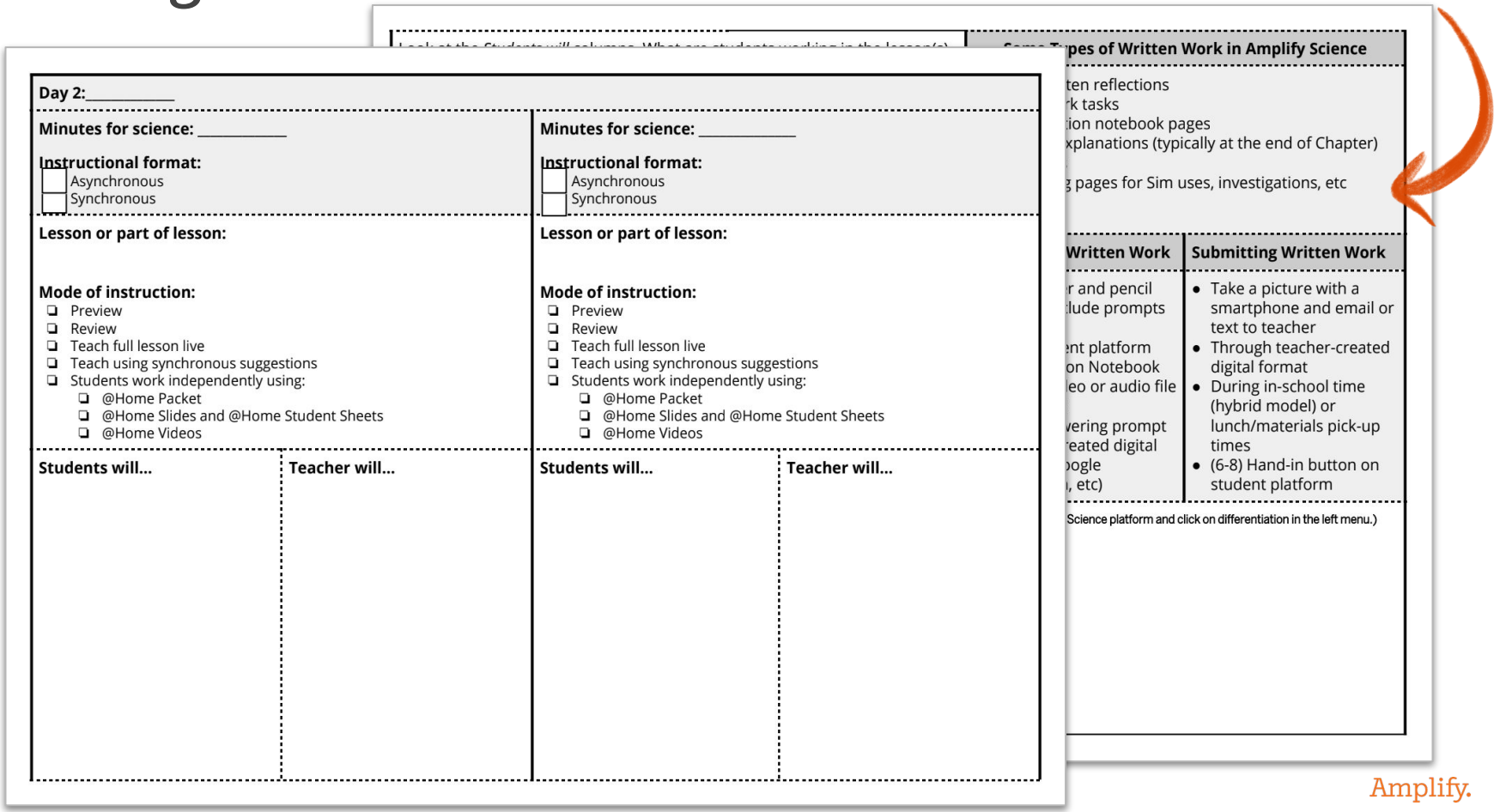
How will students submit this work product to you?
See the Completing and Submitting Written Work tables to the right for guidance on how students can complete and submit work.

Completing Written Work	Submitting Written Work
• Plain paper and pencil (videos include prompts for setup) • (6-8) Student platform • Investigation Notebook • Record video or audio file describing work/answering prompt • Teacher-created digital format (Google Classroom, etc)	• Take a picture with a smartphone and email or text to teacher • Through teacher-created digital format • During in-school time (hybrid model) or lunch/materials pick-up times • (6-8) Hand-in button on student platform

How will you differentiate this lesson for diverse learners? (Navigate to the lesson level on the standard Amplify Science platform and click on differentiation in the left menu.)

Planning Resource

pages 14-15



Day 2:_____

Minutes for science: _____ **Instructional format:** ☐ Asynchronous ☐ Synchronous	**Minutes for science:** _____ **Instructional format:** ☐ Asynchronous ☐ Synchronous
Lesson or part of lesson: **Mode of instruction:** ❑ Preview ❑ Review ❑ Teach full lesson live ❑ Teach using synchronous suggestions ❑ Students work independently using: ❑ @Home Packet ❑ @Home Slides and @Home Student Sheets ❑ @Home Videos	**Lesson or part of lesson:** **Mode of instruction:** ❑ Preview ❑ Review ❑ Teach full lesson live ❑ Teach using synchronous suggestions ❑ Students work independently using: ❑ @Home Packet ❑ @Home Slides and @Home Student Sheets ❑ @Home Videos

Students will...	Teacher will...	Students will...	Teacher will...

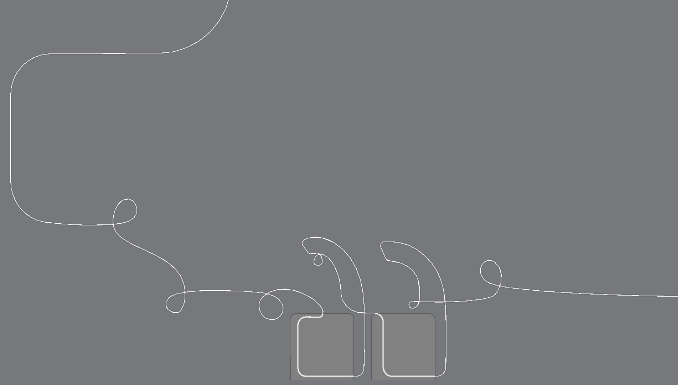
pes of Written Work in Amplify Science

ten reflections
k tasks
ion notebook pages
xplanations (typically at the end of Chapter)

g pages for Sim uses, investigations, etc

Written Work	Submitting Written Work
r and pencil lude prompts nt platform on Notebook eo or audio file vering prompt eated digital oogle , etc)	• Take a picture with a smartphone and email or text to teacher • Through teacher-created digital format • During in-school time (hybrid model) or lunch/materials pick-up times • (6-8) Hand-in button on student platform

Science platform and click on differentiation in the left menu.)



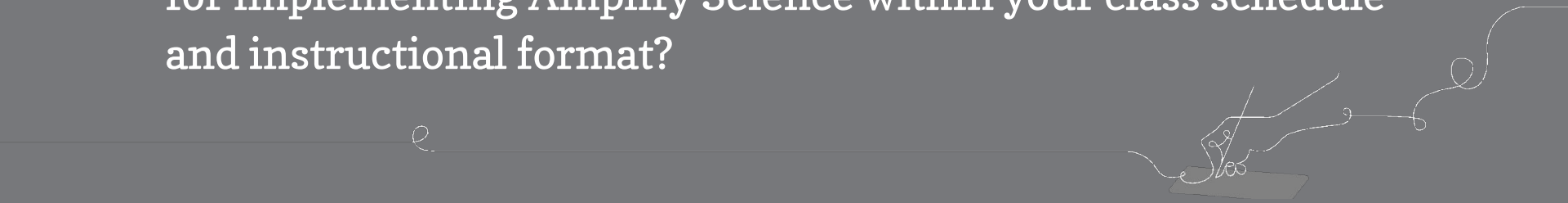
Questions?

Plan for the day

- Framing the day
  - Welcome
  - Instructional Materials
- Unit Internalization
- Planning to teach
  - Collecting evidence of student learning to meet diverse learner needs
- **Reflection and closing**

During this workshop did we meet our objectives?

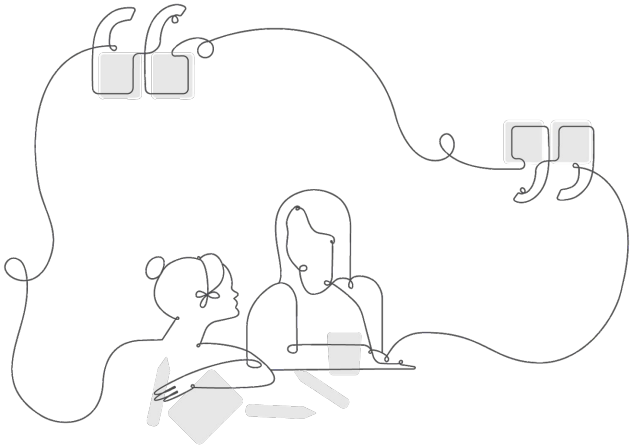
- Were you able to internalize your upcoming unit?
- Do you know how to plan for **collecting evidence of student learning** in order to make instructional decisions to **support diverse learner needs**?
- Do you have the resources you need to develop a multi-day plan for implementing Amplify Science within your class schedule and instructional format?



Upcoming LAUSD Office Hours

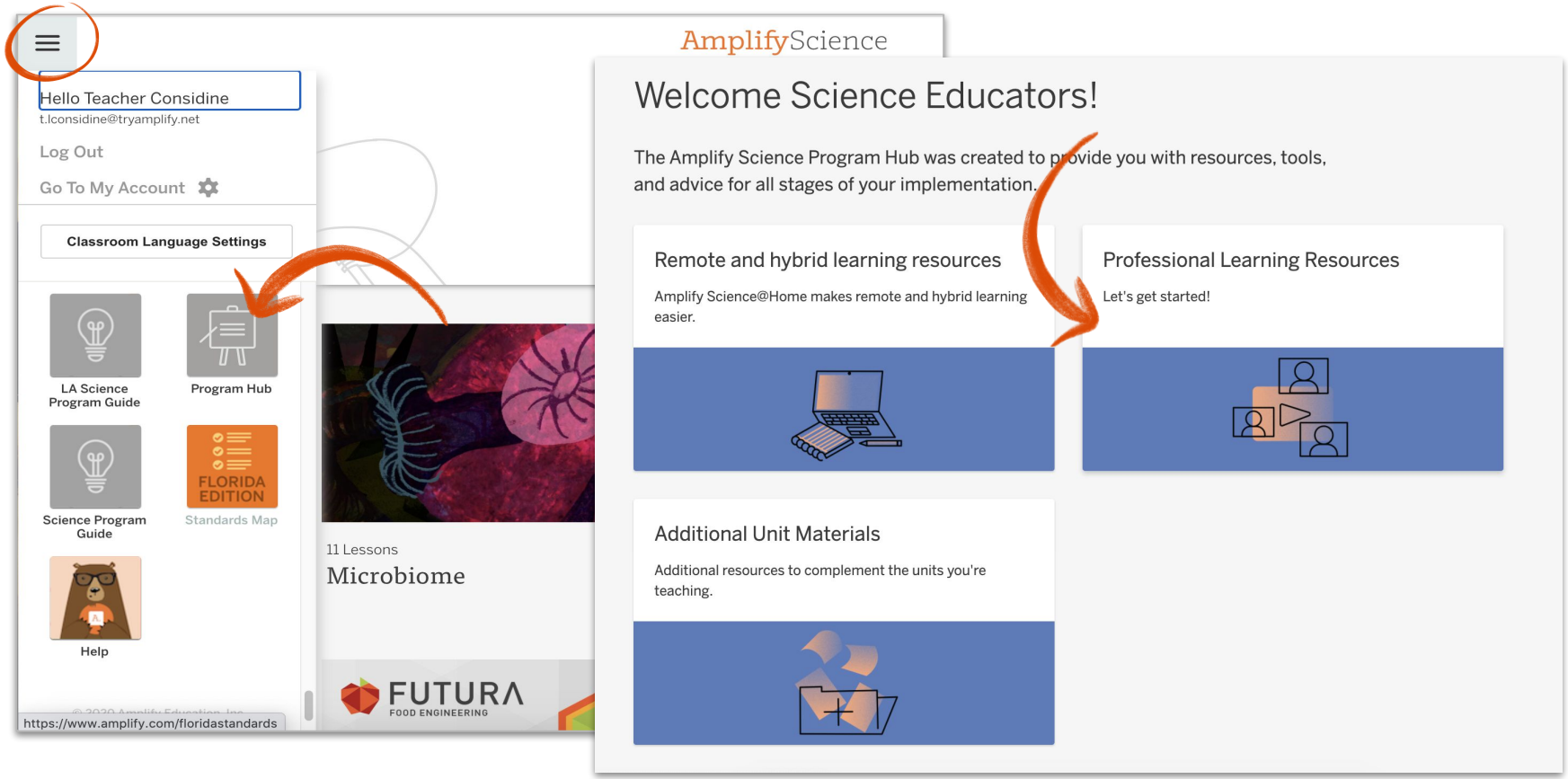
Twice Monthly

- Thursday, 2/11 (3-4pm)
- Thursday, 2/25 (3-4pm)
- Thursday, 3/11 (3-4pm)
- Thursday, 3/25 (3-4pm)

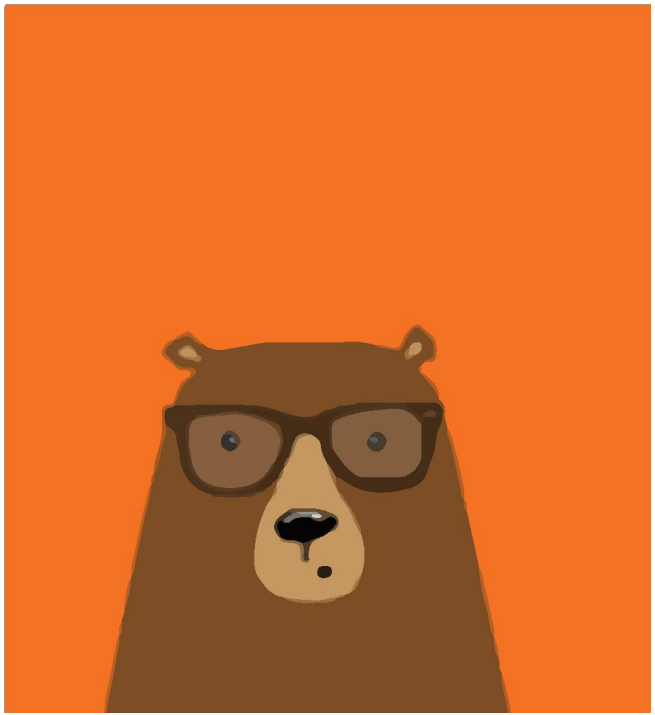


http://bit.ly/LAUSDMSOfficeHours

Program Hub: Self Study Resources



Back to school national webinar series

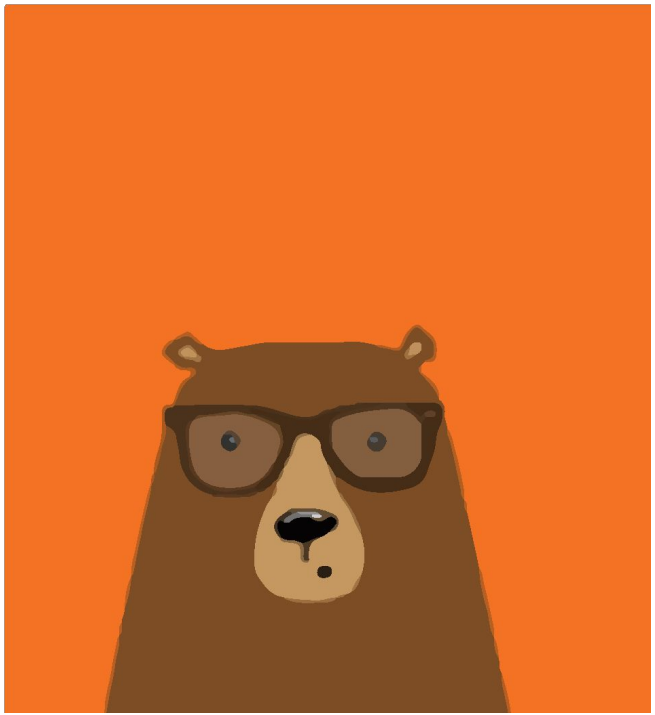


Topics included:

- Remote and hybrid learning support
- Navigation support
- What's new for 2020-2021
- Planning support
- Curriculum overview

bit.ly/BTSwebinars

Additional Amplify resources

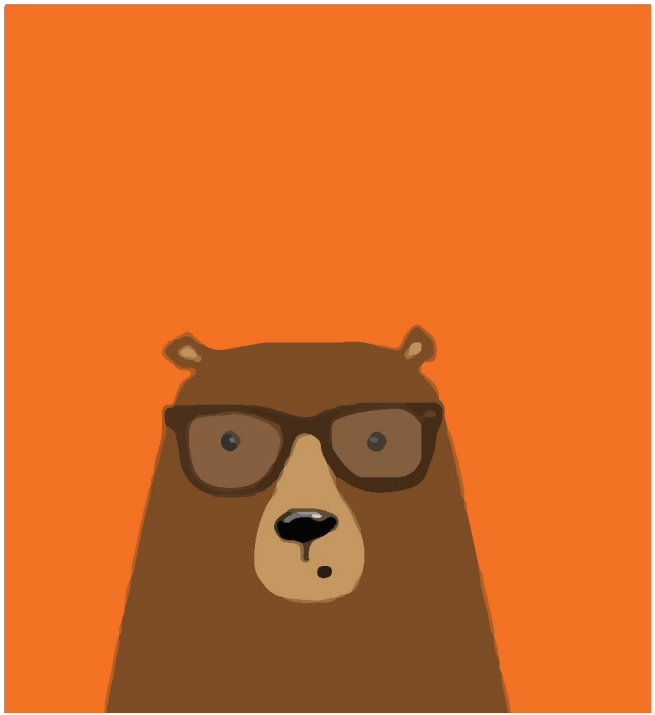


Caregivers site

Provide your students' families information about Amplify Science and what students are learning

amplify.com/amplify-science-family-resource-intro/

Additional Amplify resources



Program Guide

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

http://amplify.com/science/california/review

Amplify Help

Find lots of advice and answers from the Amplify team.

my.amplify.com/help

Additional Amplify Support

Customer Care

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

scihelp@amplify.com

800-823-1969

Amplify Chat

When contacting the customer care team:

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

Please provide us feedback!

URL: https://www.surveymonkey.com/r/AmplifyLAUSDMS

Presenter names:

Date: xx