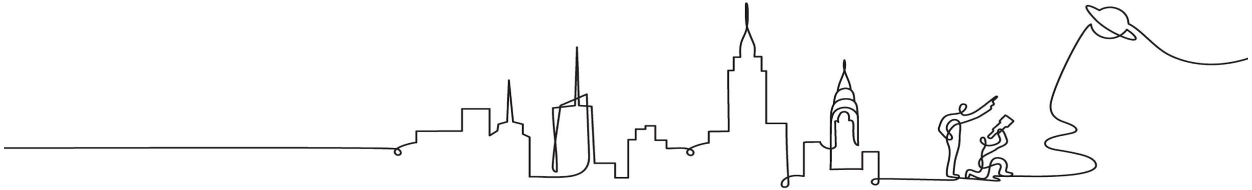
Welcome to Amplify Science!

Follow the directions below as we wait to begin.

1. Please log in to your Amplify Account.

2. Sign in using link dropped in chat.

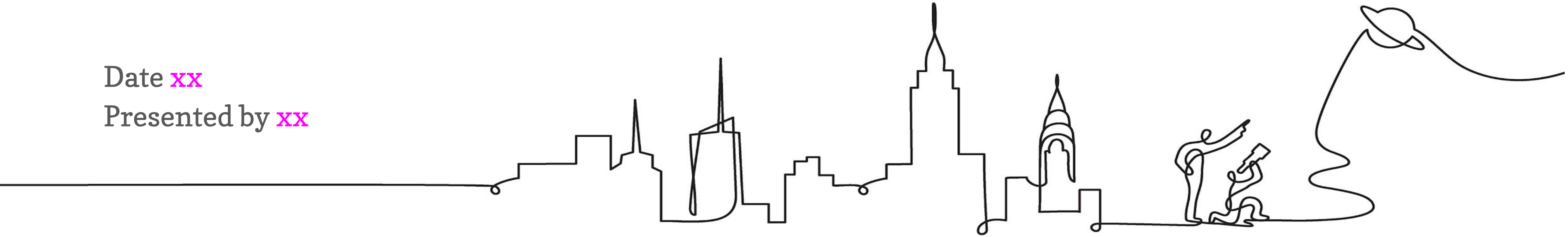
3. In the chat, share your school, your current instructional context (remote/hybrid/in-person), & how long you've been teaching Amplify Science.



Amplify Science
New York City

Accessing Complex Texts
Grade 6

Date xx
Presented by xx



Anticipatory Activity

On the Jamboard, please post your responses to:

- **Question 1:** How do scientists use text ?
- **Question 2:** How do students use text in your science classroom?

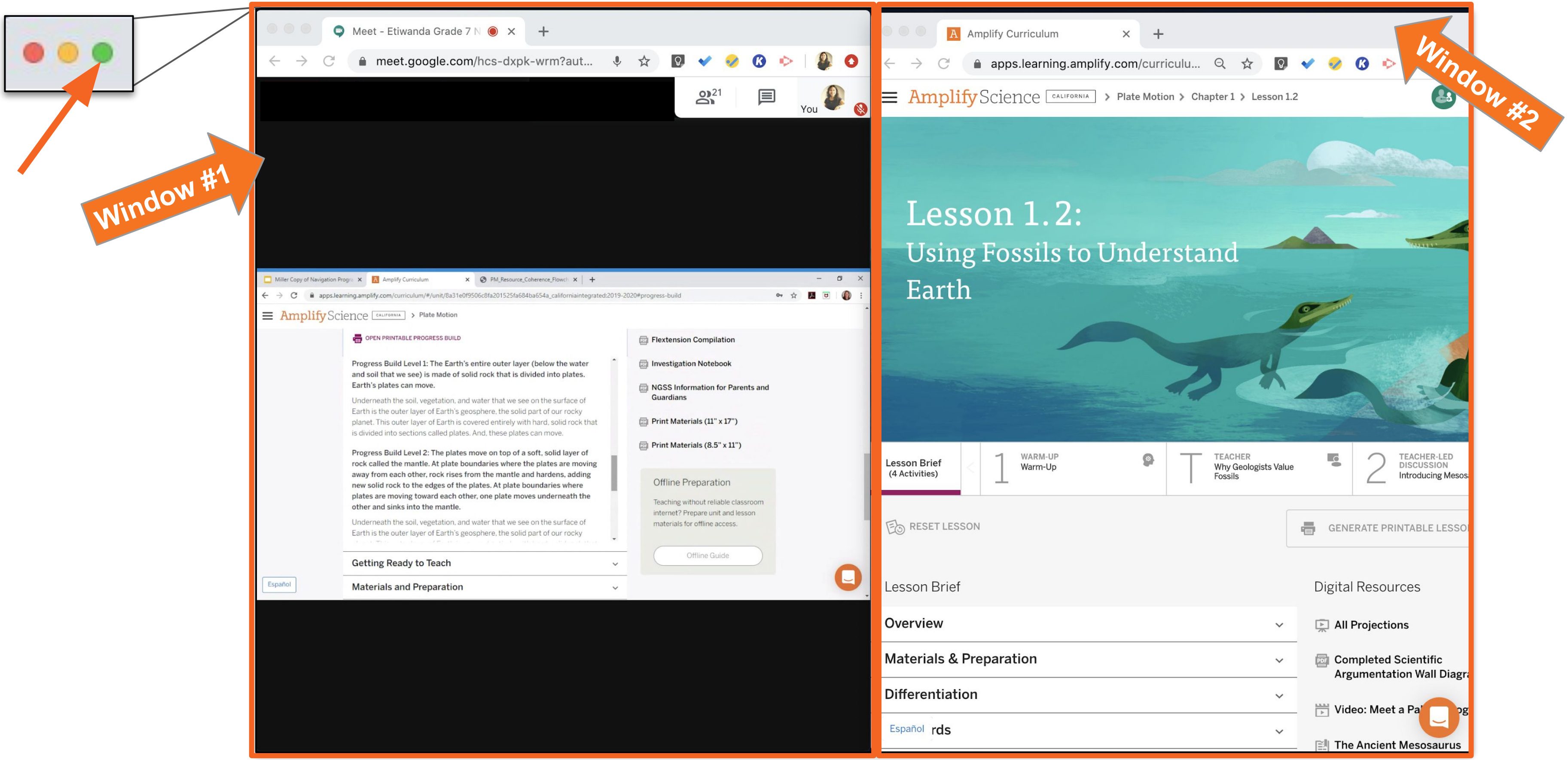
Overarching goals

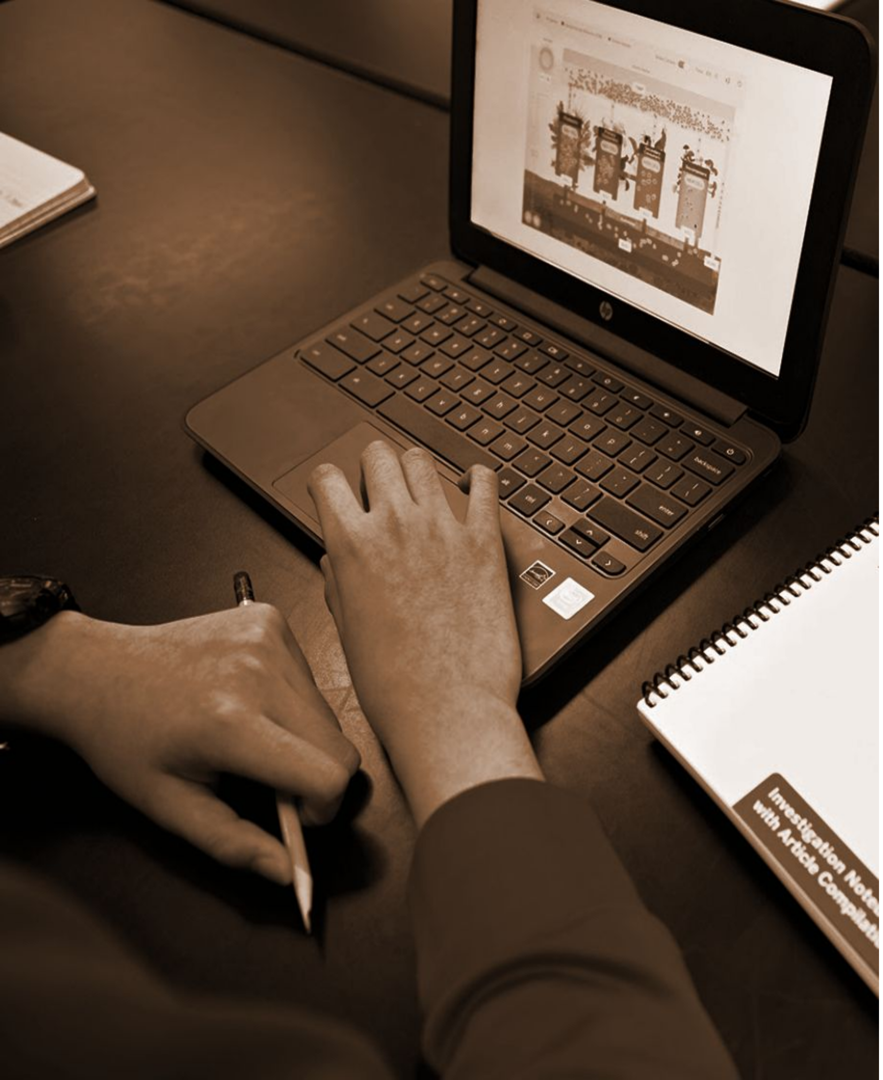
By the end of this workshop, you will be able to:

- Identify the different roles that text can play in figuring out science concepts.
- Describe how the Amplify Science approach to reading supports students in making sense of science ideas.
- Be ready to teach specific reading strategies for diverse learners.

Amplify.

Use two windows for today's webinar



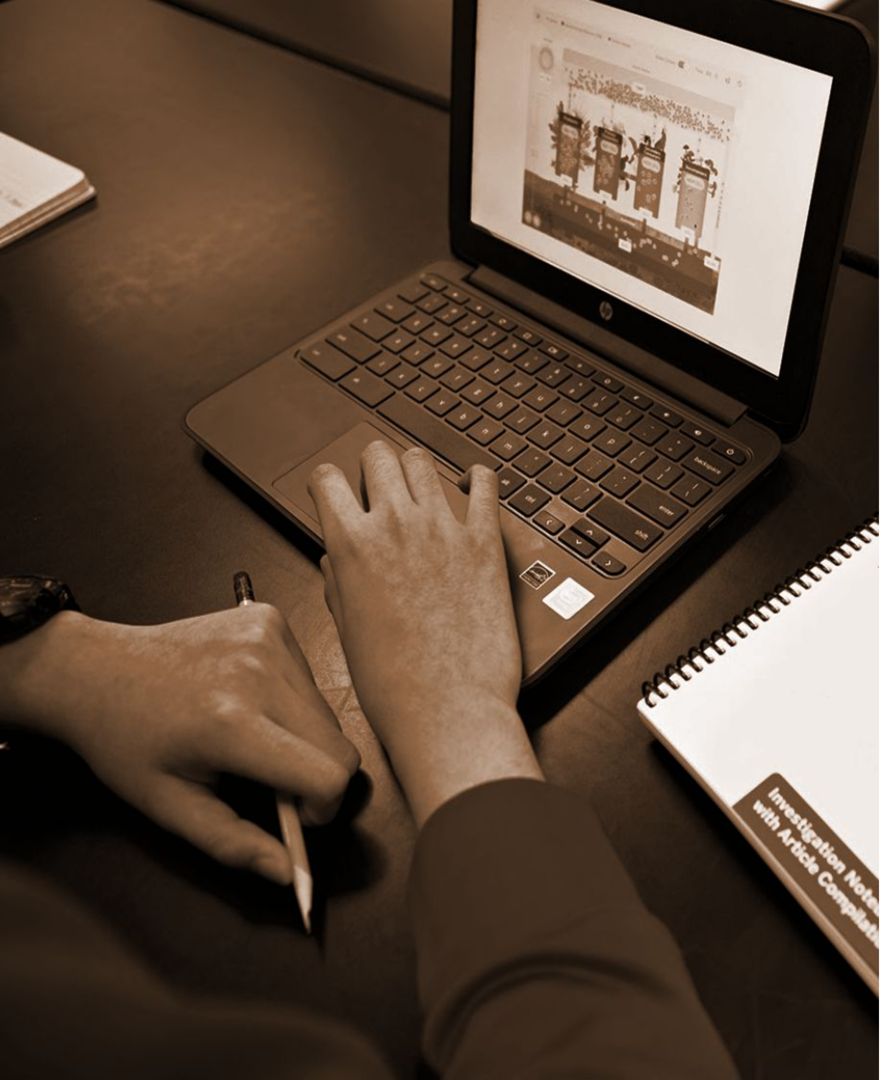


Plan for the day

- Introduction and overview of approach
- Embedded supports in an instructional sequence
- Differentiation for reading
- Closing

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 the day

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What is text complexity?

Pg. 1

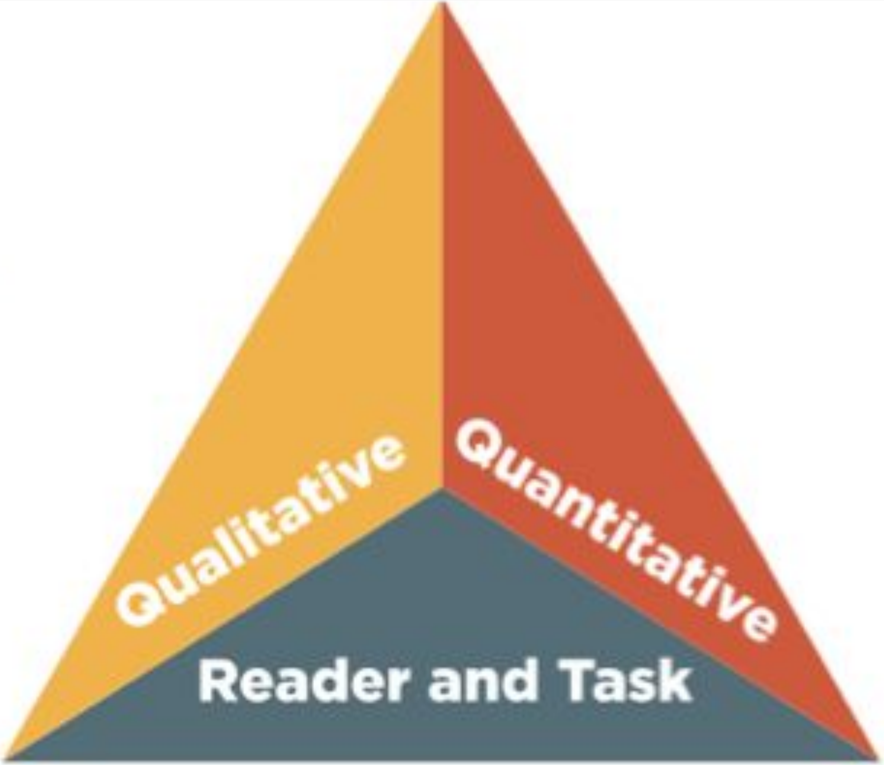

Figure 1: The Standards' Model of Text Complexity

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Qualitative Measures

- Knowledge demands
- Text structure (including visual representations)

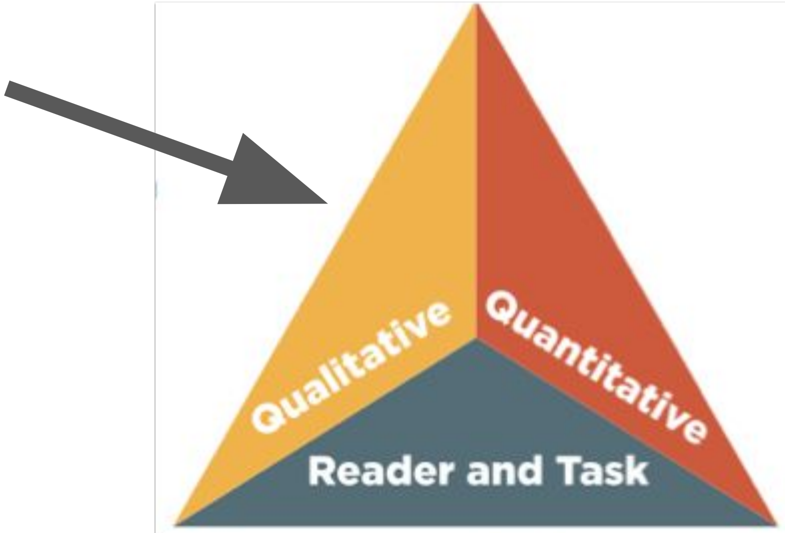


Figure 1: The Standards' Model of Text Complexity

Amplify.

Qualitative Measures

Knowledge demands

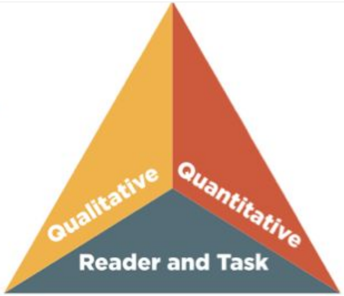


Figure 1: The Standards' Model of Text Complexity

Lipase-Catalyzed Production of Biodiesel[1]

Lloyd A. Nelson, Thomas A. Foglia*, and William N. Marmer

USDA, ARS, ERRC, Wyndmoor, Pennsylvania 19038

ABSTRACT: Lipases were screened for their ability to transesterify triglycerides with short-chain alcohols to alkyl esters. The lipase from *Mucor miehei* was most efficient for converting triglycerides to their alkyl esters with primary alcohols, whereas the lipase from *Candida antarctica* was most efficient for transesterifying triglycerides with secondary alcohols to give branched alkyl esters. Conditions were established for converting tallow to short-chain alkyl esters at more than 90% conversion. These same conditions also proved effective for transesterifying vegetable oils and high fatty acid-containing feedstocks to their respective alkyl ester derivatives.
JAOCS 73, 1191–1195 (1996).

KEY WORDS: Alcoholysis, alkyl esters, biodiesel, grease, lipase, rapeseed, soy oil, tallow.

There have been a considerable number of studies that report transesterification and interesterification reactions by using lipases with and without organic solvents (1–6). Recently, research has centered on the use of lipases to transesterify higher-molecular weight fatty acids to alkyl esters. Lipase-catalyzed alcoholyses of sunflower oil (7), rapeseed oil (8), soybean oil, and beef tallow (9) have been reported. The alcoholysis reactions generally involve primary alcohols with a few scattered reports on transesterifications with secondary alcoture properties. Another way of improving cold-temperature properties of tallow esters would be to substitute methanol with branched higher-molecular weight alcohols.

Though efficient in terms of reaction yield and time, the chemical approach to synthesizing alkyl esters (18–20) from triglycerides has drawbacks, such as difficulties in the recovery of glycerol, the need for removal of salt residue, and the energy-intensive nature of the process. On the other hand, biocatalysts allow for synthesis of specific alkyl esters, easy recovery of glycerol, and transesterification of glycerides with high free fatty acid (FFA) content. This technology could be extended to transesterification of greases, which are even less expensive than soybean oil and tallow. This process can further be used to synthesize other value-added products, including biodegradable lubricants and additives for fuel and lubricants. Lipase can also be used to introduce other functionalities into alkyl esters that may further improve the cold-temperature properties of the resulting biodiesel. In this paper, we report the lipase-catalyzed synthesis of normal and branched-chain alkyl esters of agriculturally derived triglycerides (TG): vegetable oils, tallow, and restaurant grease.

MATERIALS AND METHODS

Materials. Tallow was obtained from Chemol Corp. (Greens-

Qualitative Measures

Text structure (including visual representations)

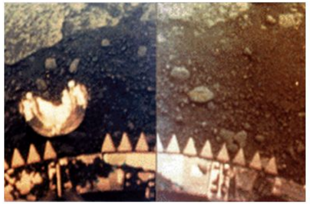
Investigating Landforms on Venus

Imagine traveling in a spaceship toward the surface of the planet Venus. At first, everything is hidden by thick clouds, but as you get closer, you can see the rocky surface below. As you fly over the surface, you notice strange landforms scattered around. They are raised domes with cracks reaching outward in all directions. These are called novae (NO-vay).

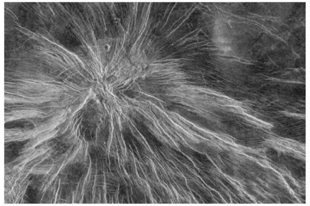
Why do we see novae on Venus but not on Earth? Planetary geologist Taras Gerya (TAR-as GARE-ya) wondered whether two important differences between the two planets might help answer that question. First, Venus's atmosphere is much thicker than Earth's. Its thick atmosphere traps heat from the sun, making Venus much hotter than Earth. The average surface temperature of Earth is a comfortable 14°C (57°F), while the average surface temperature of Venus is a scorching 462°C (864°F)! Second, Gerya thought that possible differences between the geospheres of Earth and Venus might affect how novae are formed. He didn't know for sure, but he thought that the top rock layer on Venus might ... the top layer of Earth's crust. ... might allow melted rock called ... e toward the surface more easily, ... face upward to form the novae.

... o test his ideas about how novae ... But how? Venus is millions of ... n Earth, and the novae there ... llions of years ago. To test his ... ade a computer model of Venus.

... o scientists like Gerya get evidence about things that are difficult or



This photo, taken by a spacecraft called *Venera*, shows the rocky surface of Venus. The triangles in the photo are part of the spacecraft.



Novae are dome-shaped landforms on Venus. They are easy to see from above because they have cracks reaching out from their centers in all directions. The word novae is the plural form of the word *nova*.

Geologist Taras Gerya built a comput... to test whether the high temperature... surface and the planet's thin crust ma... possible for novae to form there.

Pictures or diagrams that correspond with the text

Sections for different information. Does not need to be read from start to finish.

Paragraphs with informational text

Quantitative Measures

- Sentence length
- Vocabulary load

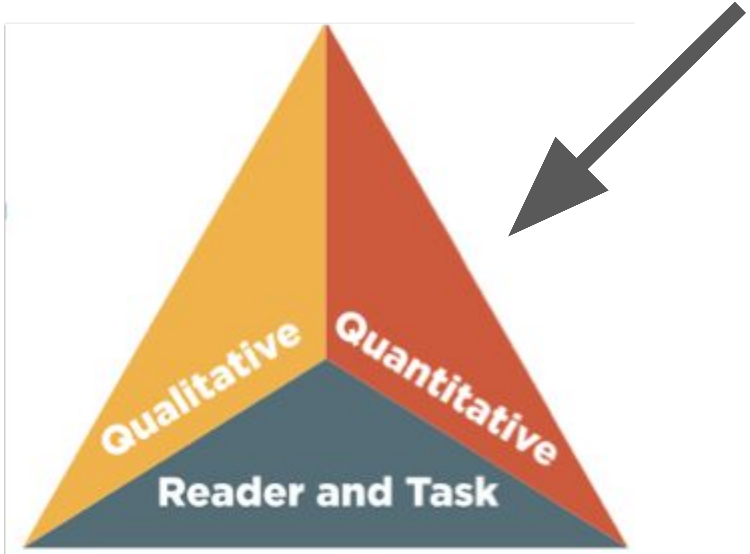


Figure 1: The Standards' Model of Text Complexity

Amplify.

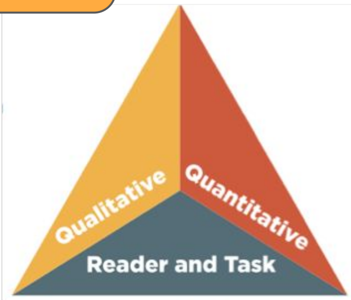
Quantitative Measures

- Sentence length
- Vocabulary load

A warming climate is resulting in a dramatic loss of habitat for many arctic organisms, but possibly none are affected quite as much as the polar bear. The shrinking ice in many regions of the Arctic Sea causes a contraction in the productive hunting territory for these carnivores, who subsist mainly on prey such as seals and fish that are found found here.

Pg. 3

It's easy to see how a warming climate trend would cause polar bears to lose their habitat. Warmer temperatures cause more ice to melt. Ice is an essential part of the polar bear habitat: the bears walk out onto ice that covers the Arctic Ocean in winter in order to reach the seals that they kill and eat. Less ice means less habitat for polar bears.



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Sentence lengths: 27, 36

Hard words and phrases: 11

A warming climate is resulting in a dramatic loss of habitat for many arctic organisms, but possibly none are affected quite as much as the polar bear. The shrinking ice in many regions of the Arctic Sea causes a contraction in the productive hunting territory for these carnivores, who subsist mainly on prey such as seals and fish that are found found here.

Sentence lengths: 17, 7, 34, and 8

Hard words and phrases: 5

It's easy to see how a warming climate trend would cause polar bears to lose their habitat. Warmer temperatures cause more ice to melt. Ice is an essential part of the polar bear habitat: the bears walk out onto ice that covers the Arctic Ocean in winter in order to reach the seals that they kill and eat. Less ice means less habitat for polar bears.

Questions?

Key Takeaway

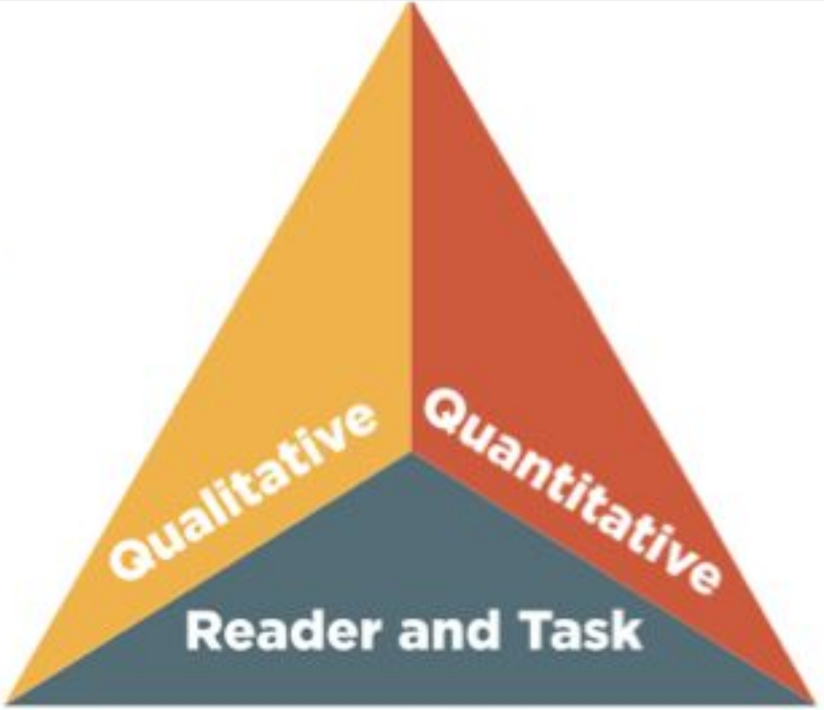


Figure 1: The Standards' Model of Text Complexity

Amplify.

Reader and Task Measures

- Background, experience
- Purpose, assignment
- Motivation

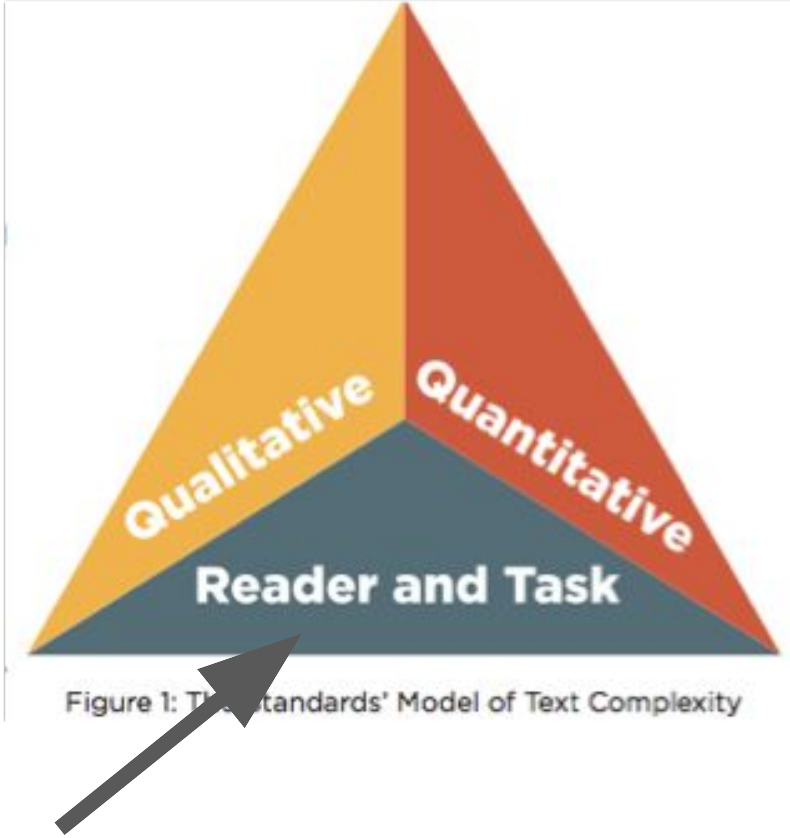


Figure 1: Th Standards' Model of Text Complexity

Amplify.

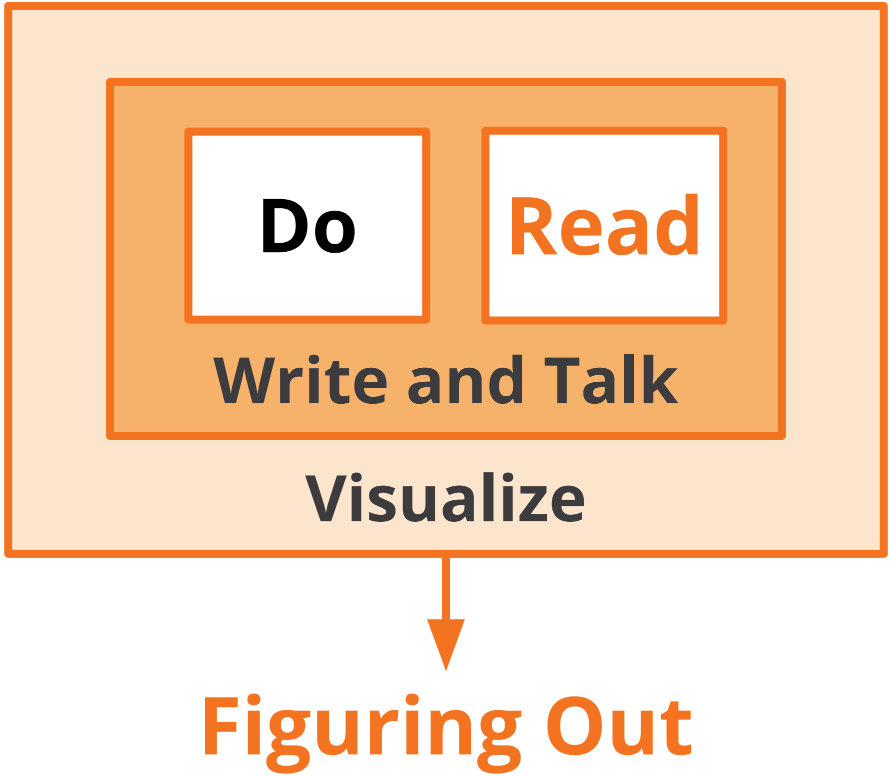
Introduce a **phenomenon** and a related problem

Collect **evidence** from multiple sources

Build increasingly complex **explanations**

Apply knowledge to a different context

Multimodal Instruction



Reading across Amplify Science units

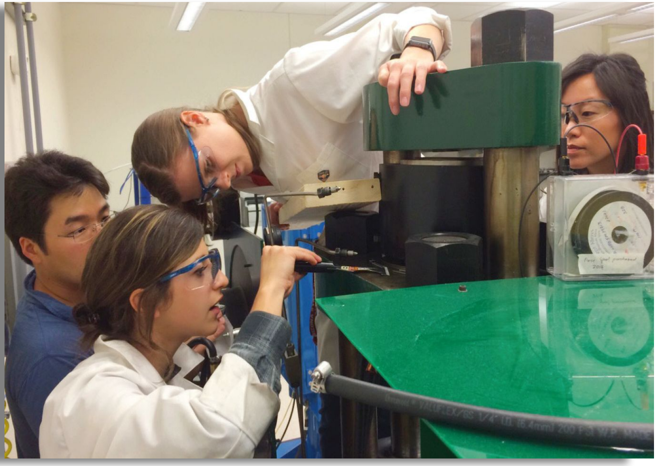
Students encounter between 1-10 different complex texts in each unit.





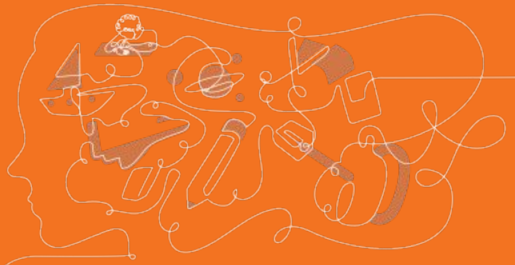


In a course: average 5 texts x 9 units = minimum 40 opportunities to engage with complex texts in one school year



Reading in Amplify Science

Students are apprenticed into reading like scientists—that is, reading actively, curiously, and critically, with a focus on making meaning and using the text as a source of evidence.



Science texts and data are often complex and research shows that annotation is an important way for a reader to stop and think carefully about what they are reading.

Let’s see how this is done in Amplify Science…

Sample annotation

Surprising things sometimes wash up on shore, and this can happen all over the world. During a powerful storm In 1990, containers packed with 61,000 shoes fell off a cargo ship travelling across the Pacific Ocean and eventually washed up on beaches in Oregon, Hawaii, and Japan. These locations are hundreds or thousands of miles away from the place where the shoes were spilled. How did the shoes make their way to these locations?

How did the shoes wash up at these different locations?

If you look at a photograph of Earth, most of what you see is the big, blue ocean—after all, the ocean covers 71% of our planet. In a photograph or on a map, it may not look like the ocean moves very much, but the opposite is actually true. The water in the ocean is always moving from place to place, carrying objects and organisms wherever it goes. Ocean water doesn't move randomly; it flows in consistent patterns. Scientists call ocean water flowing in a continuous path an ocean current. Currents carry all kinds of objects and organisms all over the world. The shoes made their way across the ocean with the help of ocean currents.

ocean water flowing in a continuous path [corriente oceánica: agua del océano que fluye en una ruta continua]

Currents must have carried the shoes!

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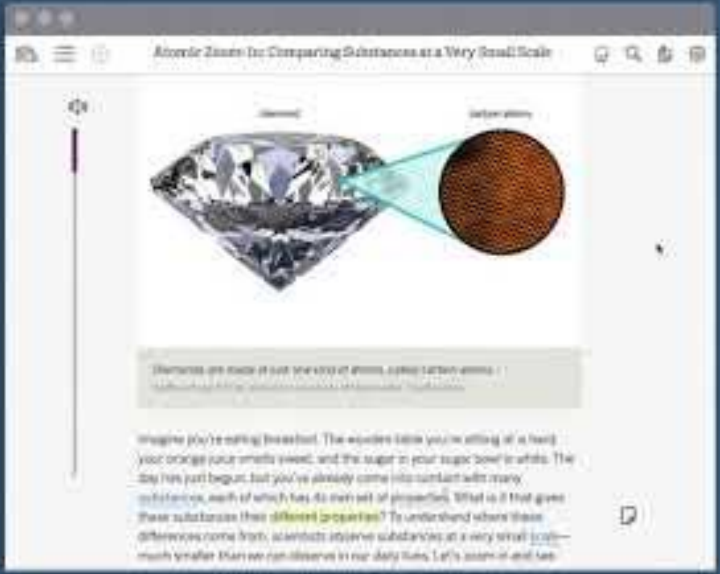
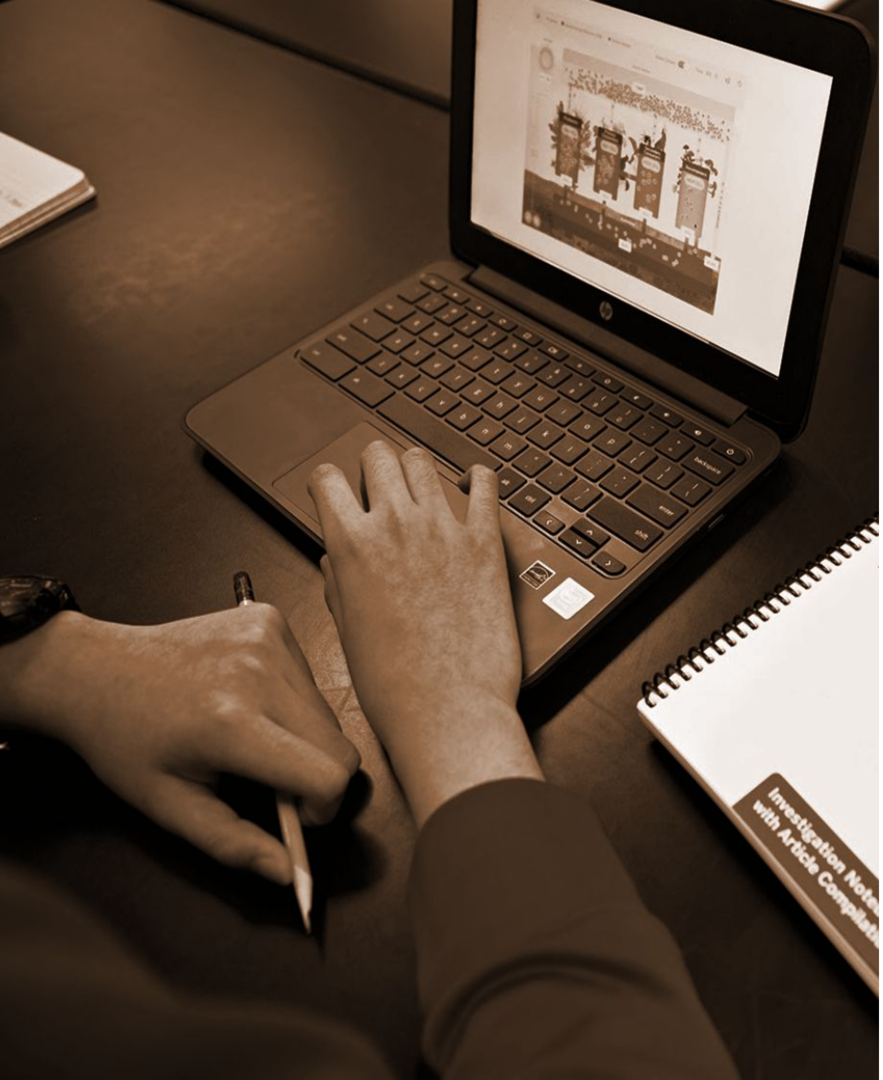
You can also **add an annotation** to an **image** by **pressing anywhere** on the image. You will then be prompted to **add a note**.



Questions?



Plan for the day

- Introduction and overview of approach
- Embedded supports in an instructional sequence
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- Closing

Thinking about the role of texts in your class

Reflect-Type-Chat

- Reflect on the purpose for reading and how reading helped your students develop understanding.

- Consider the surrounding activities/lessons that complemented the reading, and how.

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Exemplar instructional sequence

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.

Ocean, Atmosphere, and Climate

@Home Lesson 4

AmplifyScience

Claims

Christchurch, New Zealand's air temperature is cooler than usual during El Niño years because . . .

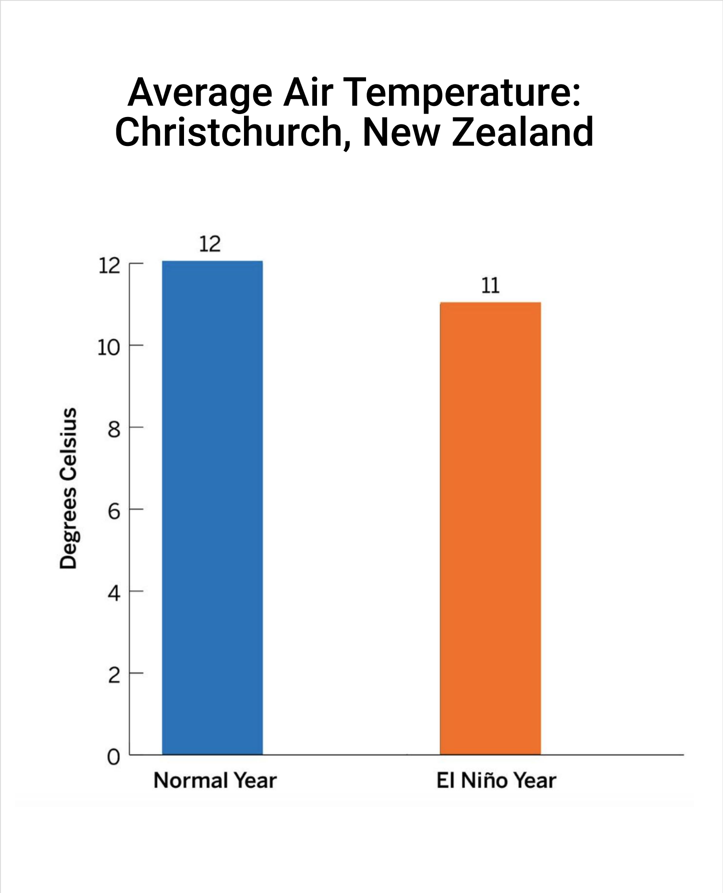
Claim 1: The amount of incoming energy from the sun changes.

Claim 2: Something about the surface changes.

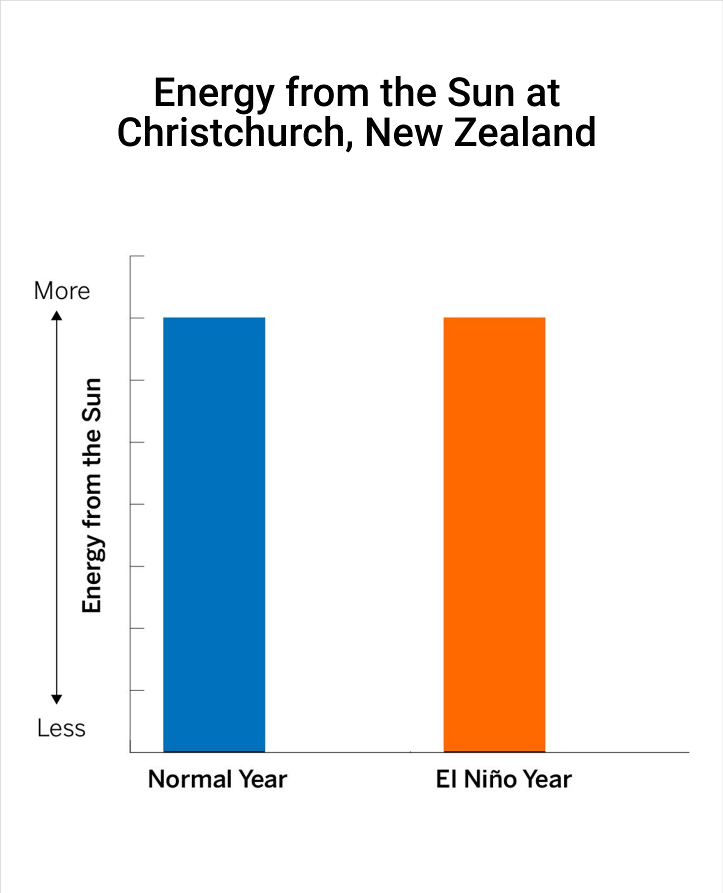
Claim 3: Something about the air changes.

Here are the three claims about why Christchurch's air temperature changes during an El Niño year.

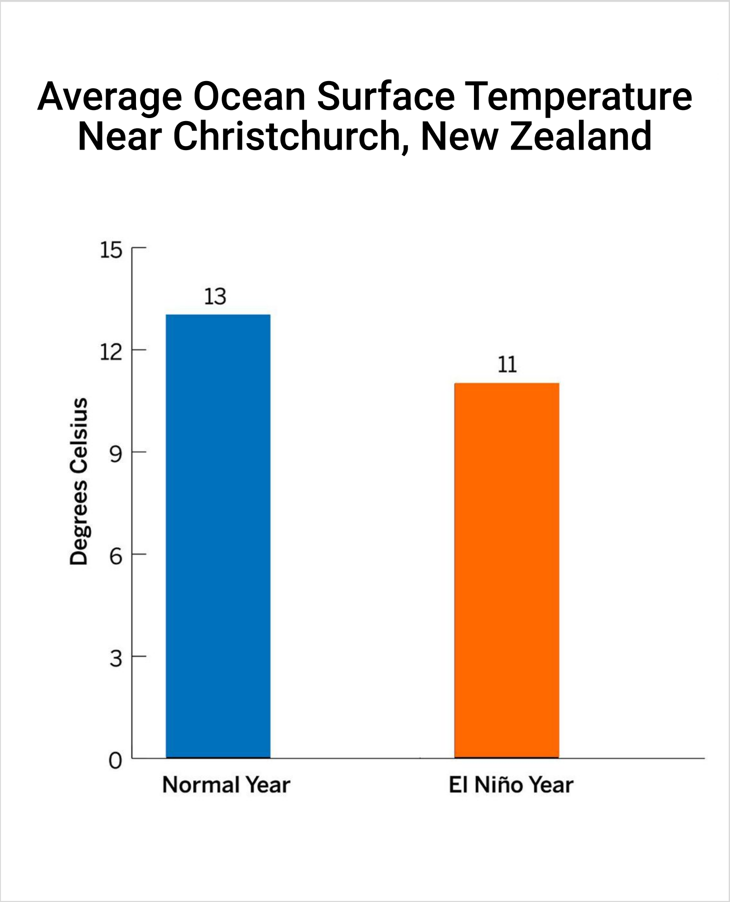
Let's look at some data and see if we can support or eliminate any of the claims.



We know that the air temperature in New Zealand is **cooler** during El Niño years.



This graphs show that energy from the sun stays the same during an El Niño year.



This graphs show that ocean surface temperature decreases during an El Niño year.

Claims

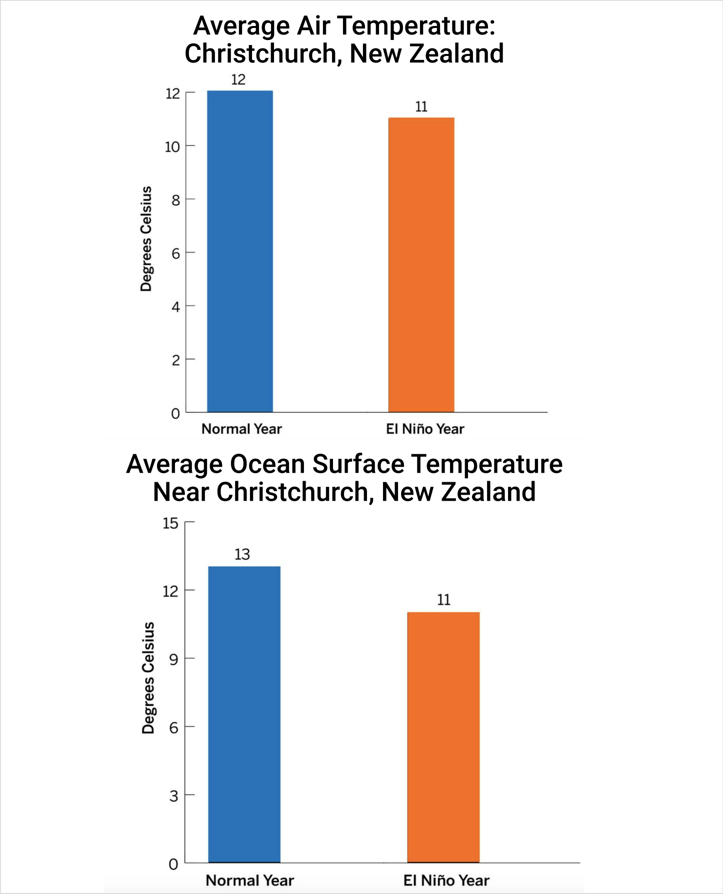
Christchurch, New Zealand's air temperature is cooler than usual during El Niño years because . . .

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

Claim 2: Something about the surface changes.

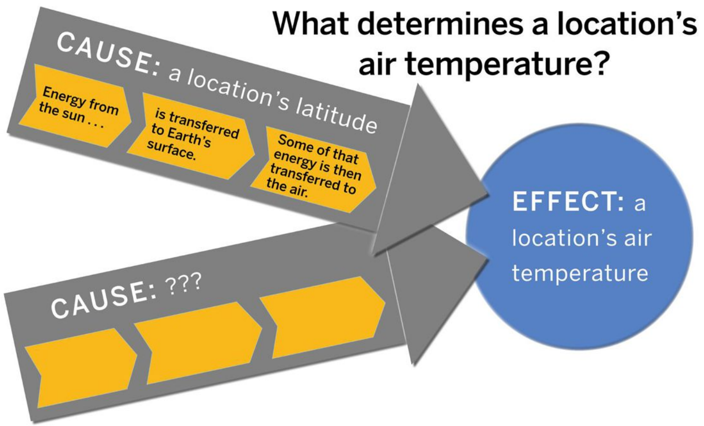
Claim 3: Something about the air changes.

The Energy from the Sun graph shows **no change** in incoming energy from the sun, so it goes against **Claim 1**. We can eliminate that claim.



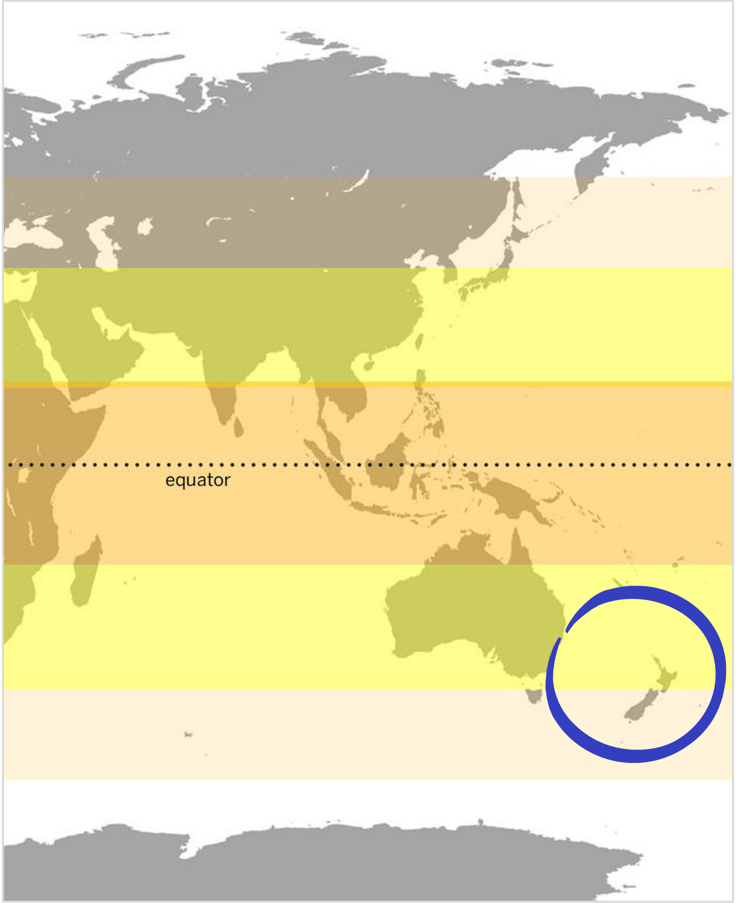
But, both the air temperature and ocean temperature in Christchurch are **cooler during El Niño years.**

Since the latitude does not change we need to consider factors other than latitude to explain this.



We can think of air temperature as an **effect.**

It is the result of some **cause,** or causes, and we are trying to find out what those are.



We know that **latitude** affects a location's air temperature, but this does not explain why Christchurch is cooler during El Niño years—there must be **some other cause.**

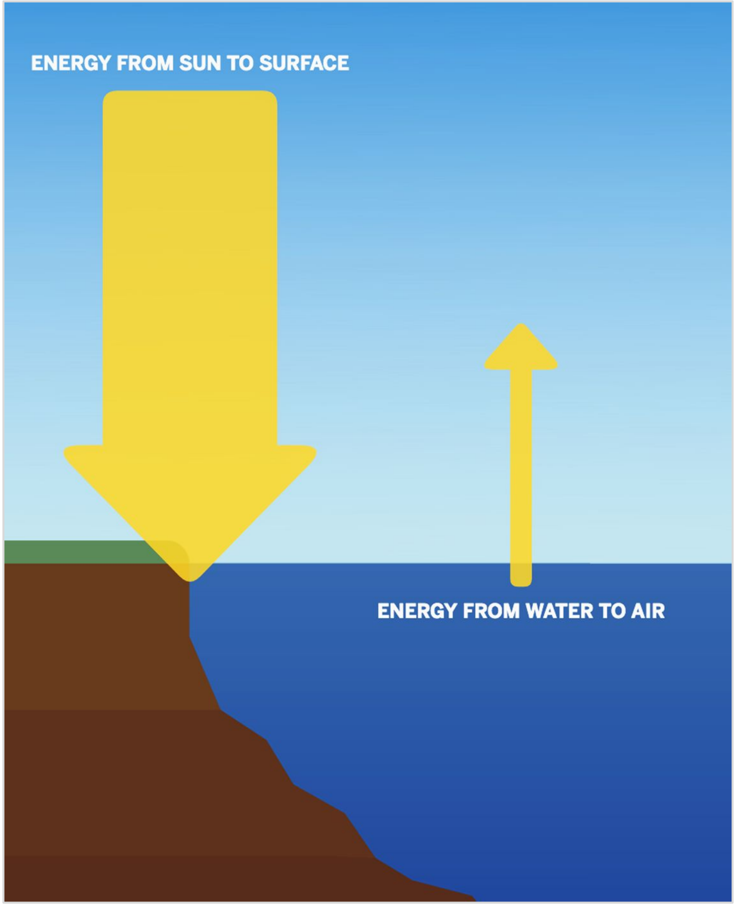
This **key concept** will help us figure out what is happening during El Niño years:

3. An effect may have more than one cause; these may be linked into a chain of causes and effects.

This is the next question we will investigate:

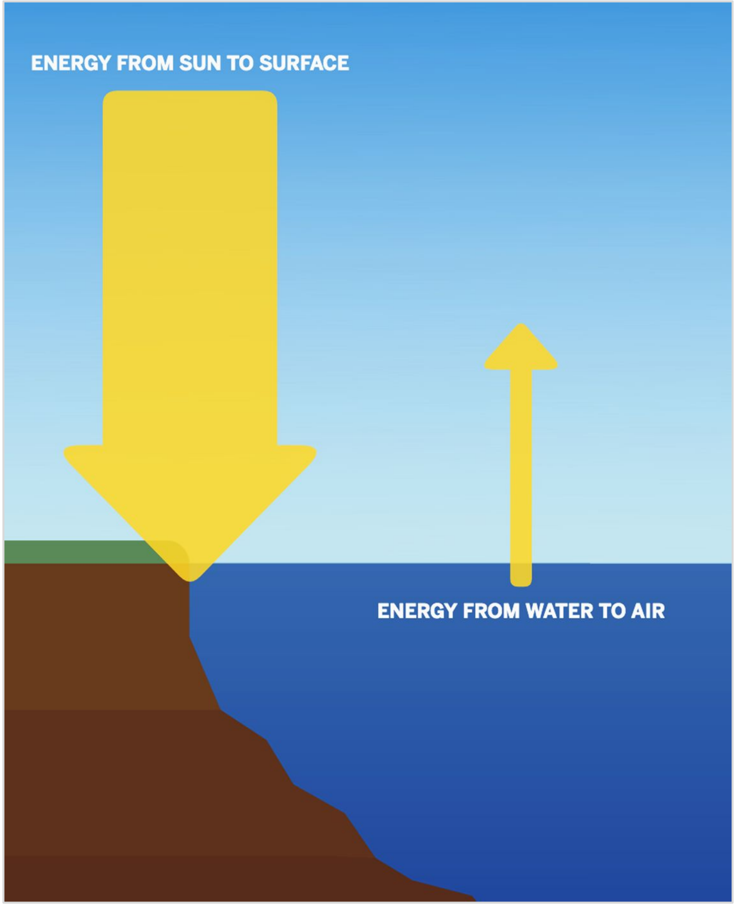
Chapter 2 Question

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

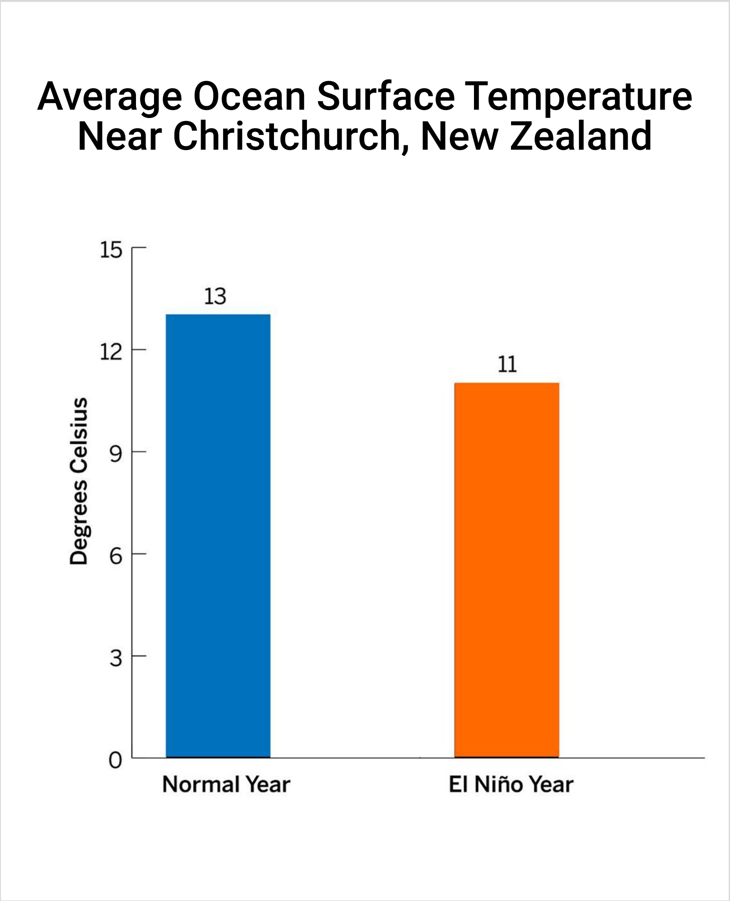


One way air gets energy is when energy is transferred from the ocean to the air.

Over the next few lessons, we will focus on **ocean temperature.**



We will work to figure out how **ocean temperature** might affect the **air temperature** of Christchurch during El Niño years.

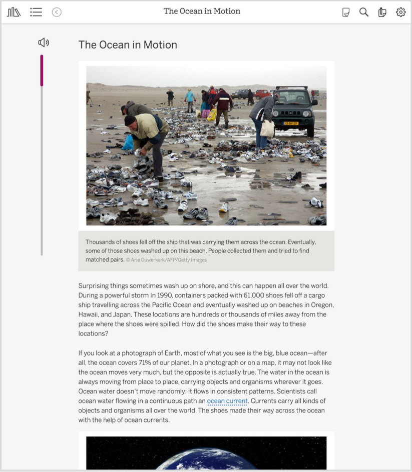


Remember, we saw that the ocean surface temperature near Christchurch is **cooler than normal** during El Niño years. So far, we don't have information about why that is.

Today, we will investigate this question:

Investigation Question:
Other than latitude, what else affects ocean surface temperature?

Next you will read an article called “The Ocean in Motion.” Check with your teacher about how you will access articles in this @Home Unit.



The Ocean in Motion

The Ocean in Motion

Thousands of shoes fell off the ship that was carrying them across the ocean. Eventually, some of those shoes washed up on this beach. People collected them and tried to find matched pairs. © Arie Ouwerkerk/AFP/Getty Images

Surprising things sometimes wash up on shore, and this can happen all over the world. During a powerful storm In 1990, containers packed with 61,000 shoes fell off a cargo ship travelling across the Pacific Ocean and eventually washed up on beaches in Oregon, Hawaii, and Japan. These locations are hundreds or thousands of miles away from the place where the shoes were spilled. How did the shoes make their way to these locations?

If you look at a photograph of Earth, most of what you see is the big, blue ocean—after all, the ocean covers 71% of our planet. In a photograph or on a map, it may not look like the ocean moves very much, but the opposite is actually true. The water in the ocean is always moving from place to place, carrying objects and organisms wherever it goes. Ocean water doesn’t move randomly; it flows in consistent patterns. Scientists call ocean water flowing in a continuous path an ocean current. Currents carry all kinds of objects and organisms all over the world. The shoes made their way across the ocean with the help of ocean currents.

Thousands of shoes fell off the ship that was carrying them across the ocean. Eventually, some of those shoes washed up on this beach. People collected them and tried to find matched pairs.

The Ocean in Motion

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The ocean covers 71% of Earth and is in constant motion. The movement of the ocean carries energy and objects wherever it goes.

The Ocean in Motion © 2018 The Regents of the University of California. All rights reserved. Image Credit: Arie Ouwerkerk/AFP/Getty Image.

Ocean, Atmosphere, and Climate @Home Lesson 4

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The Ocean in Motion

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The ocean covers 71% of Earth and is in constant motion. The movement of the ocean carries energy and objects wherever it goes.

Kiri Parata, the director of the New Zealand Farm Council, sent us the article, “The Ocean in Motion.” Reading this will help you determine what factors other than latitude might be affecting Christchurch’s air temperature.

Remember, in this class we use an **Active Reading** approach when we read. You will use this approach today when you read the article about the movement of the ocean.

Science reading can be especially complex. It is important to read science texts **actively**, so you really understand what you read. Active Reading helps you to pay attention and learn when you read.

The following slides show how a 6th grade student named **Reilly made annotations** on a digital version of the article, “The Ocean in Motion.”

You will see **what Reilly was thinking** about when reading. You will also see each **annotation** that they made. Making annotations is part of the Active Reading approach to reading science texts.

By looking at Reilly’s annotations you will learn more about:

- how to **annotate** to show your thinking.
- some strategies you can use, such as asking questions, making connections, and identifying challenging words.

Major Ocean Currents

moving from place to place, carrying objects
and organisms wherever it goes. Ocean water

Thousands of shoes fell off the ship that was carrying them across the ocean. Eventually, some of those shoes washed up on this beach. People collected them and tried to find matched pairs.

The Ocean in Motion

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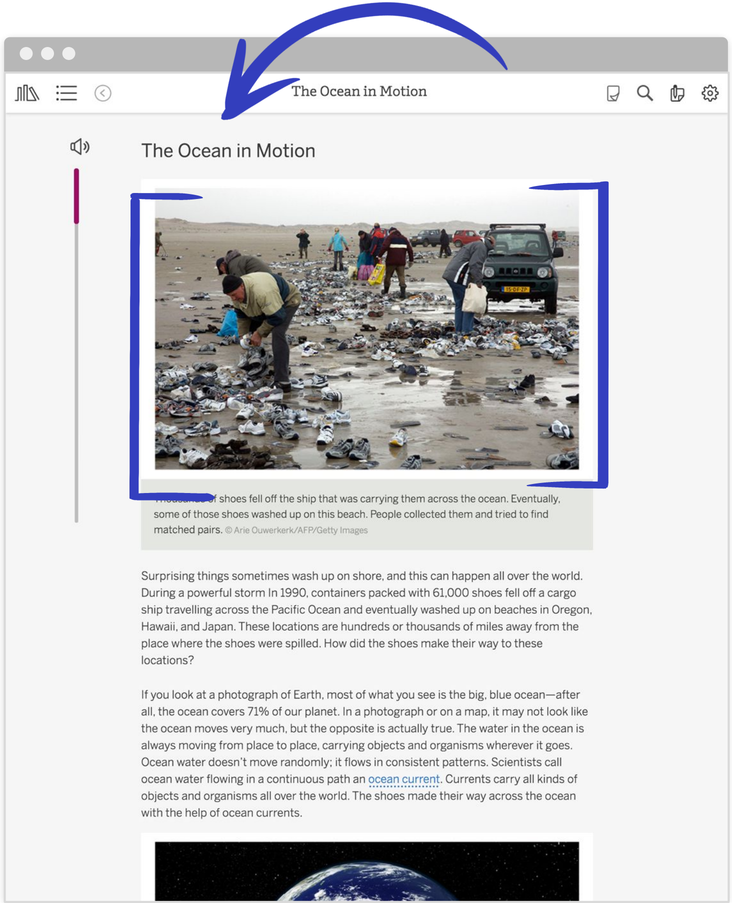
Ocean, Atmosphere, and Climate @Home Lesson 4

You can **follow along** in your article as you see what Reilly did with their annotations on the next slides. You can also add your own annotations.

"The Ocean in Motion" article or [Lesson 2.1, Activity 2]

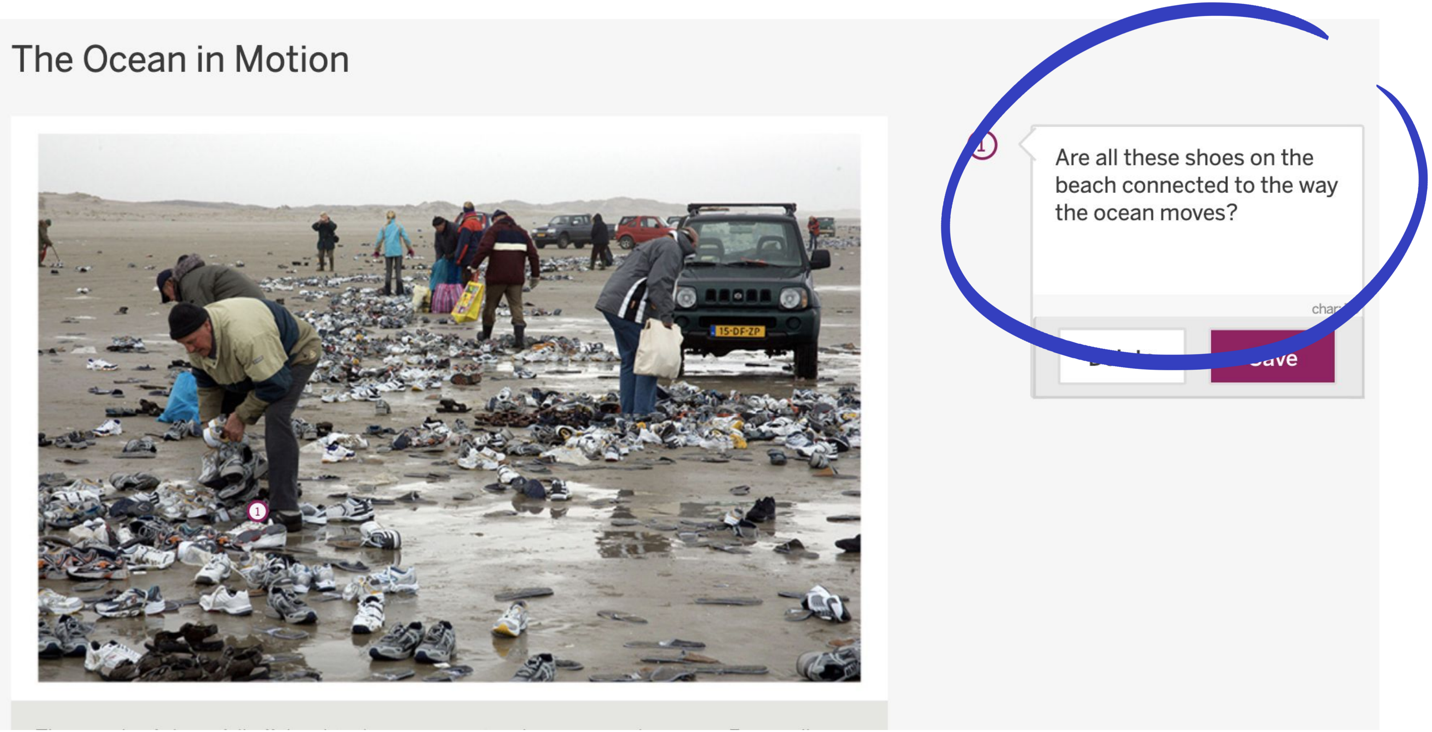


First, Reilly read the **title** of the article: "The Ocean in Motion."

Reilly also **examined the photo** of people picking up shoes on the beach.

Reilly thought, "The photo makes me think that the shoes were in the ocean and then **washed ashore.** But **why** would they be in the ocean in the first place, and **how** did they get to shore? The title of this article makes me think that the explanation for all these shoes on the beach must somehow be **connected to the ocean's movement.**"

Reilly wanted to remember this important **connection and question**, so they made this annotation:

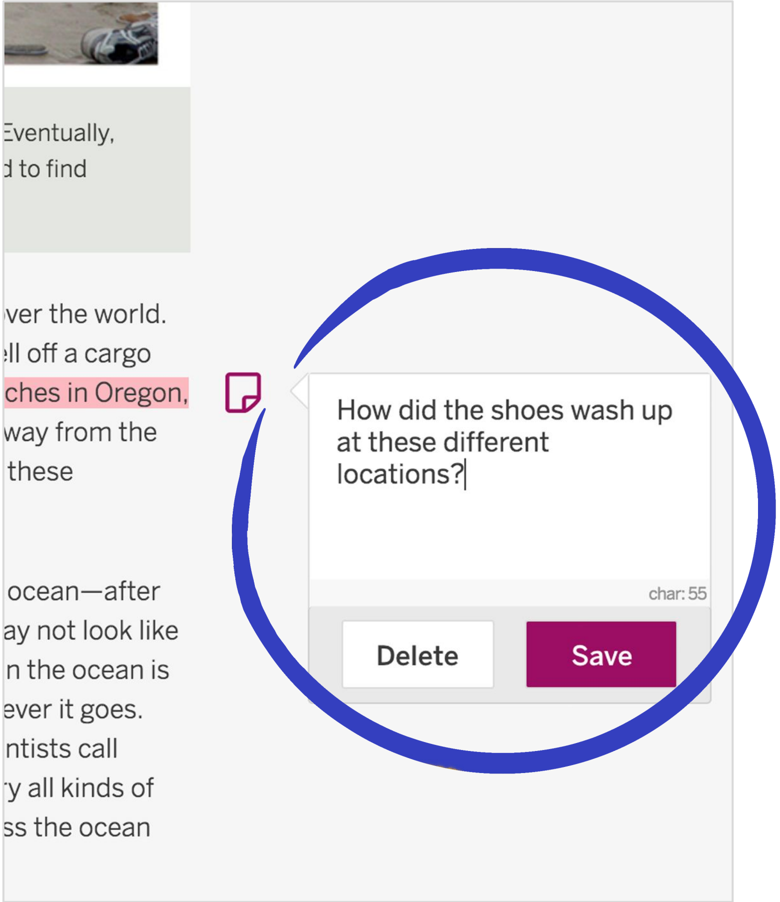


Next, Reilly read the **first paragraph,** then stopped to think about what they read.

Surprising things sometimes wash up on shore, and this can happen all over the world. During a powerful storm In 1990, containers packed with 61,000 shoes fell off a cargo ship travelling across the Pacific Ocean and eventually washed up on beaches in Oregon, Hawaii, and Japan. These locations are hundreds or thousands of miles away from the place where the shoes were spilled. How did the shoes make their way to these locations?

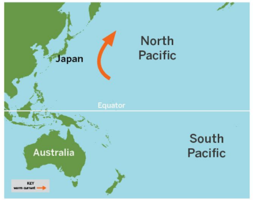
Reilly thought, "Thinking about this paragraph, I wonder how these shoes ended up in these places? I also find it interesting that these shoes washed up in three different places that are far apart."

"I'll write a question that will help me remember this and will remind me to come back here, if I find an answer later."



Reilly added this question near the first paragraph.

moving from place to place, carrying objects and organisms wherever it goes. Ocean water doesn't move randomly; it flows in consistent patterns. Scientists call ocean water flowing in a continuous path an ocean current. Currents carry all kinds of objects and organisms all over the world. The shoes made their way across the ocean with the help of ocean currents.



A warm current moving north from the equator keeps Japan warmer than other places at the same latitude.

In addition to objects and organisms, ocean currents carry energy from the sun all around Earth. In fact, the motion of water around Earth's ocean is one of the main ways energy moves around the planet. Energy from the sun is transferred to the ocean surface. As the currents move across Earth's surface, the energy moves with them.

The current shown on the map at the top of this page is moving away from the equator. At the equator, a large amount of energy is transferred from the sun to the ocean's surface. As the current moves north, it carries this energy with it. If you place your finger on the map anywhere where this current moves, the water there would be warmer than you would expect for a location at this latitude because of the current that moves through this area.

The current shown on the map at the bottom of this page is moving away from the South Pole. The farther away from the equator you are, the less energy is transferred from the sun to the ocean surface, with the least amount of energy transferred at the poles. This means the current traveling from the South Pole carries less energy with it than currents coming from the equator. If the ocean water weren't moving, then ocean surface temperatures in different locations would only depend on their latitudes. However, in locations where a cold current moves past, the ocean surface temperature is lower than you would expect.

A cold current traveling north from Antarctica keeps the western coast of Australia cooler than other locations at the same latitude.

In this article, the maps play a very important role in helping you understand the text.

As you read, make sure to **carefully examine** each map and **make annotations** to record your thinking.

Active Reading Guidelines

1. Think carefully about what you read. Pay attention to your own understanding.
2. As you read, annotate the text to make a record of your thinking. Highlight challenging words and add notes to record questions and make connections to your own experience.
3. Examine all visual representations carefully. Consider how they go together with the text.
4. After you read, discuss what you have read with others to help you better understand the text.

How will you use these guidelines when you read today?


Major Ocean Currents

moving from place to place, carrying objects and organisms wherever it goes. Ocean water

Thousands of shoes fell off the ship that was carrying them across the ocean. Eventually, some of those shoes washed up on this beach. People collected them and tried to find matched pairs.

The Ocean in Motion

Surprising things sometimes wash up on shore, and this can happen all over the world. During a powerful storm In 1990, containers packed with 61,000 shoes fell off a cargo ship travelling across the Pacific Ocean and eventually washed up on beaches in Oregon, Hawaii, and Japan. These locations are hundreds or thousands of miles away from the place where the shoes were spilled. How did the shoes make their way to these locations?

If you look at a photograph of Earth, most of what you see is the big, blue ocean—after all, the ocean covers 71% of our planet. In a photograph or on a map, it may not look like the ocean moves very much, but the opposite is actually true. The water in the ocean is always

The ocean covers 71% of Earth and is in constant motion. The movement of the ocean carries energy and objects wherever it goes.

The Ocean in Motion ©2018 The Regents of the University of California. All rights reserved. Image Credit: Arie Ouwerkerk/AFP/Getty Image.

Ocean, Atmosphere, and Climate @Home Lesson 4

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Go to the article, “The Ocean in Motion.”

Read and annotate the article.

“The Ocean in Motion” article or [Lesson 2.1, Activity 2]

Thousands of shoes fell off the ship that was carrying them across the ocean. Eventually, some of those shoes washed up on this beach. People collected them and tried to find matched pairs.

The Ocean in Motion

Surprising things sometimes wash up on shore, and this can happen all over the world. During a powerful storm In 1990, containers packed with 61,000 shoes fell off a cargo ship travelling across the Pacific Ocean and eventually washed up on beaches in Oregon, Hawaii, and Japan. These locations are hundreds or thousands of miles away from the place where the shoes were spilled. How did the shoes make their way to these locations?

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The ocean covers 71% of Earth and is in constant motion. The movement of the ocean carries energy and objects wherever it goes.

Annotations help you **keep track of**, and **remember,** your thinking.

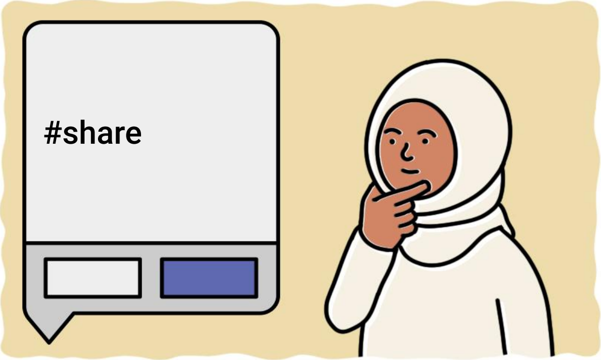
The next step in Active Reading is **discussing** your annotations. Check with your teacher about how to choose your partner for this activity.

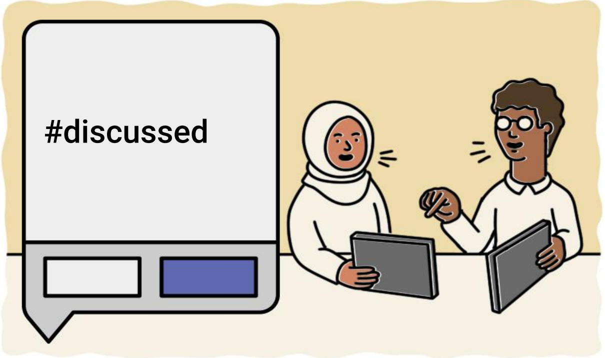
Before you discuss your annotations, review the instructions on the next slide, which explain how to discuss with your partner. Then, begin your discussion.

Discussing Annotations

1. **Choose** several interesting questions, connections, or ideas to share with a partner. Tag each one with **#share.**

2. **Talk about** your chosen annotations with a partner. Tag each annotation with **#discussed** if you were able to resolve your questions, or if you discussed a connection or idea.





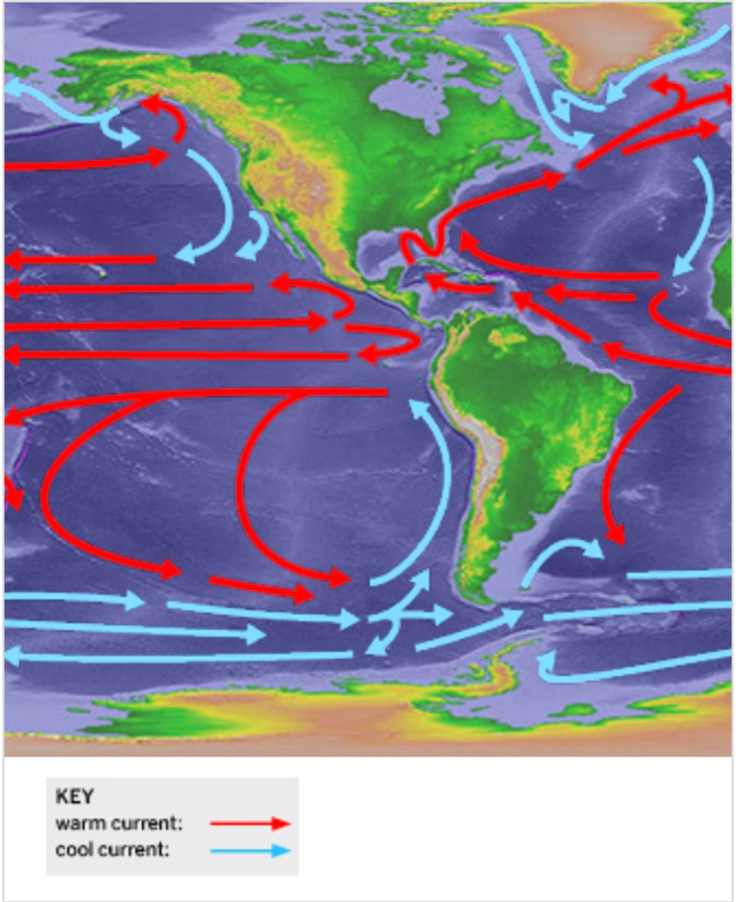
What **interesting** or **unanswered questions** do you still have about the article after talking about your annotations with a partner?

The habit of annotating does not develop overnight. It takes time. Sophisticated readers are always **practicing reading actively.**

The article introduced this term.

ocean current

ocean water flowing in a continuous path



In the article you read today, you saw this map that shows warm and cool ocean currents.

You will learn more about ocean currents in the next lesson.

End of @Home Lesson

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Ocean, Atmosphere, and Climate

@Home Lesson 5

AmplifyScience

Remember, we've been investigating this question:

Investigation Question:
Other than latitude, what else affects ocean surface temperature?

Thousands of shoes fell off the ship that was carrying them across the ocean. Eventually, some of those shoes washed up on this beach. People collected them and tried to find matched pairs.

The Ocean in Motion

Surprising things sometimes wash up on shore, and this can happen all over the world. During a powerful storm In 1990, containers packed with 61,000 shoes fell off a cargo ship travelling across the Pacific Ocean and eventually washed up on beaches in Oregon, Hawaii, and Japan. These locations are hundreds or thousands of miles away from the place where the shoes were spilled. How did the shoes make their way to these locations?

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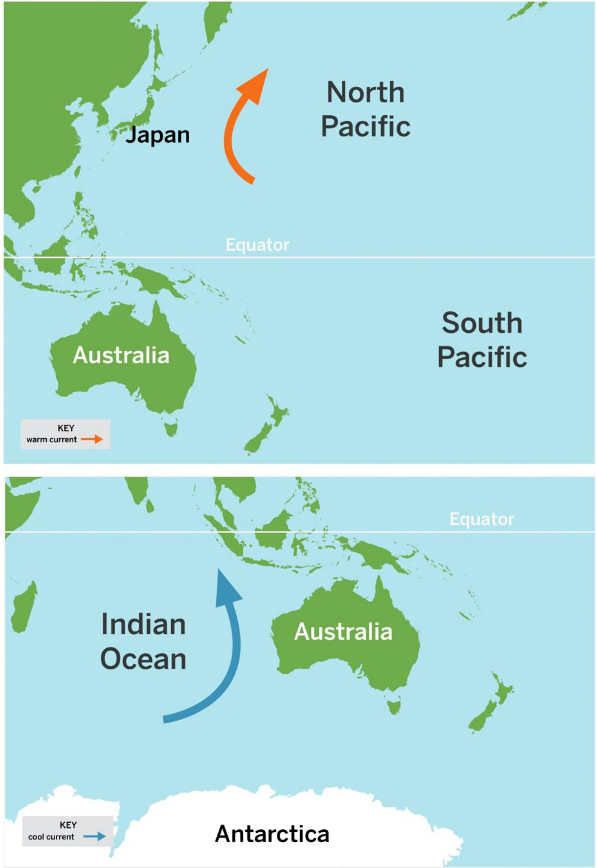
The ocean covers 71% of Earth and is in constant motion. The movement of the ocean carries energy and objects wherever it goes.

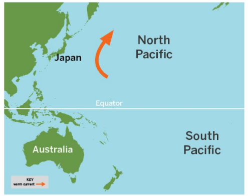
Today, we will return to this article with a **new purpose**—understanding factors other than latitude that can affect **ocean surface temperature**.



As you reread today, you'll focus on the **maps.**

You will look at each map closely and pay attention to how it works together with the text.

moving from place to place, carrying objects and organisms wherever it goes. Ocean water doesn't move randomly; it flows in consistent patterns. Scientists call ocean water flowing in a continuous path an ocean current. Currents carry all kinds of objects and organisms all over the world. The shoes made their way across the ocean with the help of ocean currents.



A warm current moving north from the equator keeps Japan warmer than other places at the same latitude.

In addition to objects and organisms, ocean currents carry energy from the sun all around Earth. In fact, the motion of water around Earth's ocean is one of the main ways energy moves around the planet. Energy from the sun is transferred to the ocean surface. As the currents move across Earth's surface, the energy moves with them.

The current shown on the map at the top of this page is moving away from the equator. At the equator, a large amount of energy is transferred from the sun to the ocean's surface. As the current moves north, it carries this energy with it. If you place your finger on the map anywhere where this current moves, the water there would be warmer than you would expect for a location at this latitude because of the current that moves through this area.

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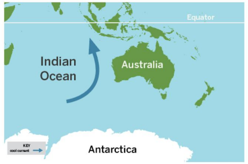


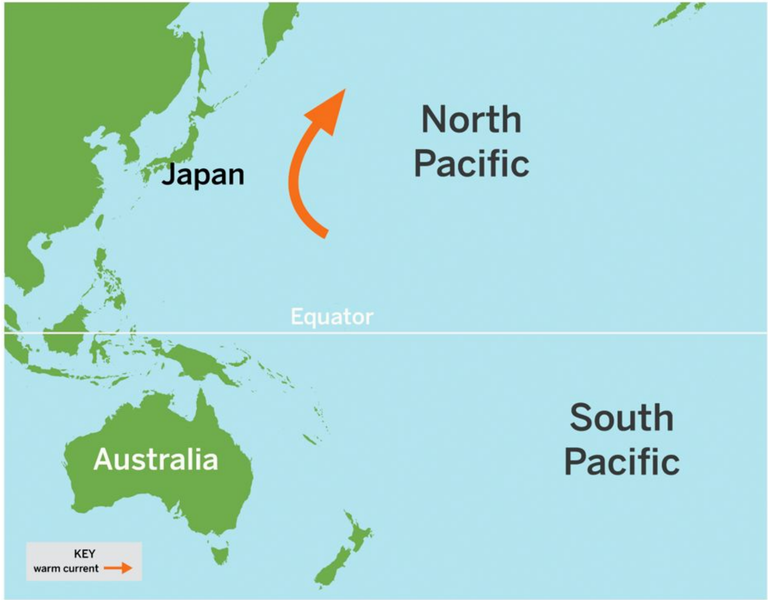
A cold current traveling north from Antarctica keeps the western coast of Australia cooler than other locations at the same latitude.

You'll begin reading with **paragraph 4** and continue through **paragraph 6**.

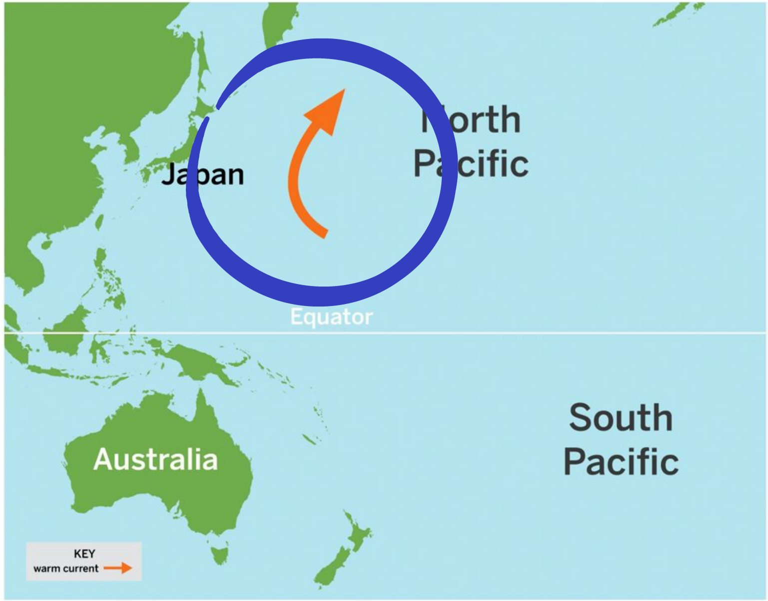
As you read, you will gather information to help answer our **Investigation Question:**

Other than latitude, what else affects ocean surface temperature?

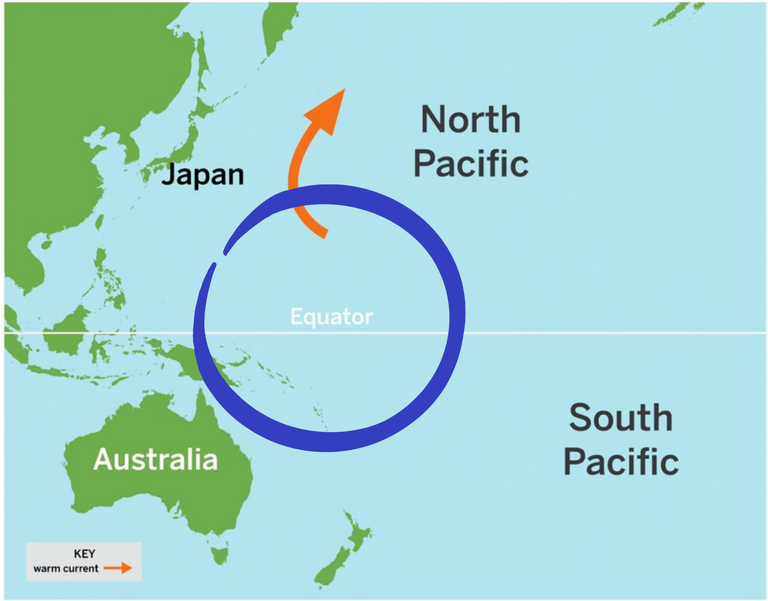
The next few slides show how Reilly annotated one of the **maps** in the article as they gathered information from the text.



Before rereading, Reilly thought, “I know we are trying to figure out what things **other than latitude** affect ocean surface temperature. I am going to use the map to help answer this question.”

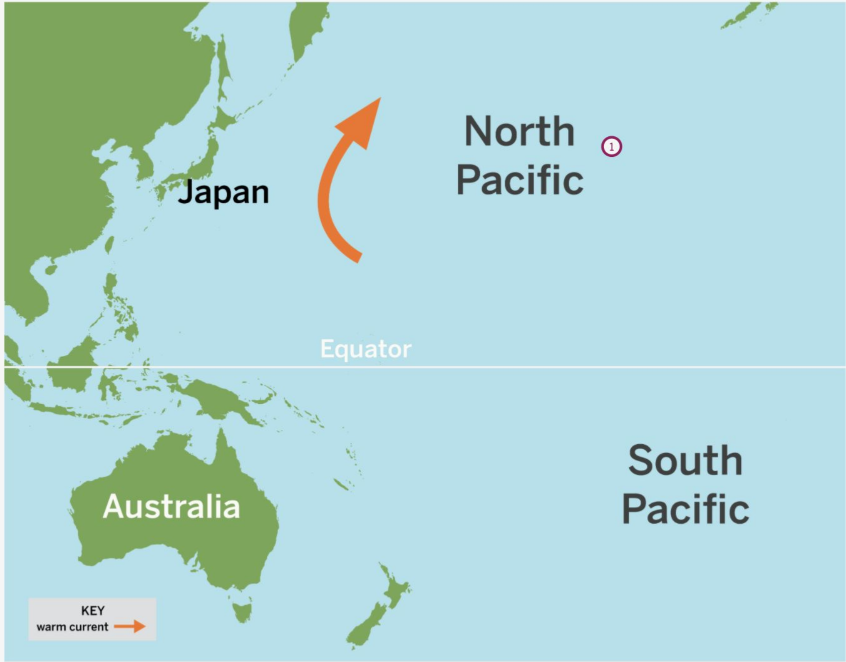


Reilly first looked at the **arrow** on the map of the North Pacific currents and thought, “I know that arrows represent the **direction of currents.** Currents are ocean water that flows in a continuous path.”

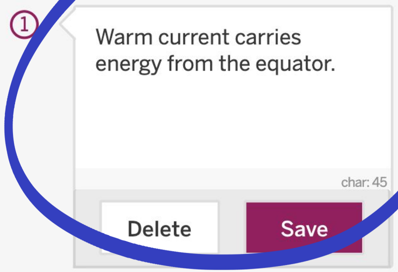


"I see that the current shown here starts close to the **equator**. Locations near the equator have the **most incoming energy** from the sun. I am going to make an annotation near this map to remind me that this current carries energy from the equator."

Reilly added this annotation:

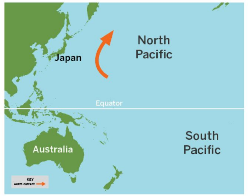


A warm current moving north from the equator keeps Japan warmer than other places at the same latitude.



moving from place to place, carrying objects and organisms wherever it goes. Ocean water doesn't move randomly; it flows in consistent patterns. Scientists call ocean water flowing in a continuous path an ocean current. Currents carry all kinds of objects and organisms all over the world. The shoes made their way across the ocean with the help of ocean currents.

In addition to objects and organisms, ocean currents carry energy from the sun all around Earth. In fact, the motion of water around Earth's ocean is one of the main ways energy moves around the planet. Energy from the sun is transferred to the ocean surface. As the currents move across Earth's surface, the energy moves with them.



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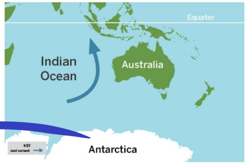
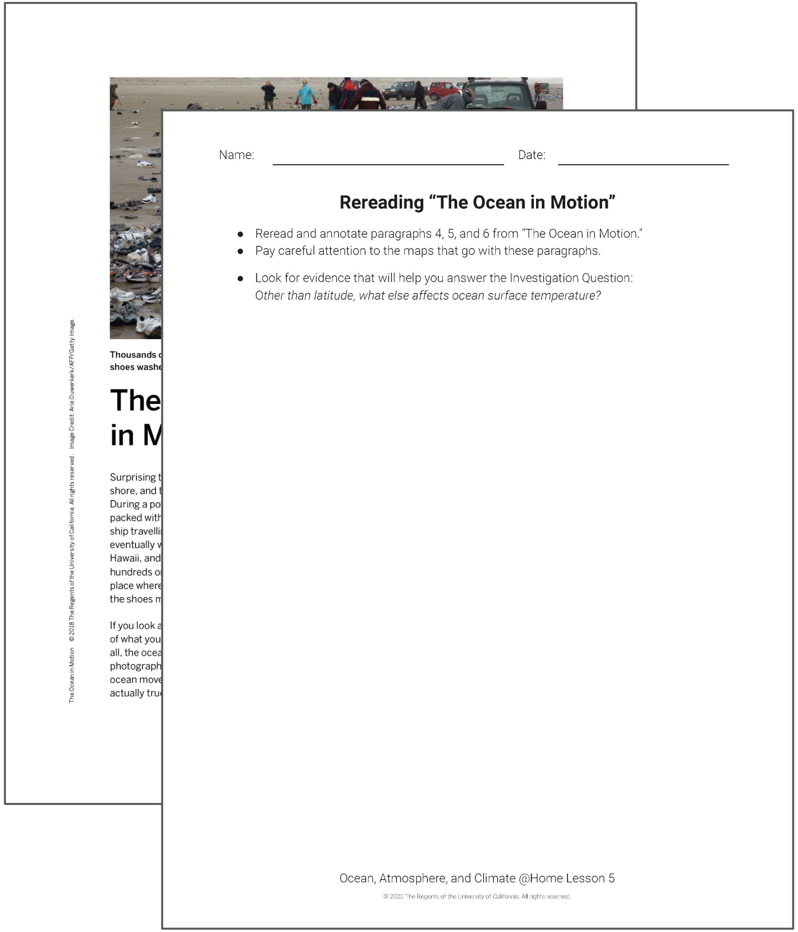


A cold current traveling north from Antarctica keeps the western coast of Australia cooler than other locations at the same latitude.

Next, you will reread part of the article yourself. As you read and annotate, don't forget to go **back and forth** between the maps and the paragraphs that go with them.



Find your copy of the "The Ocean in Motion" article from Lesson 4 and go to the Rereading of "The Ocean in Motion" activity.

Reread and **highlight** information that helps to answer the question, *Other than latitude, what else affects ocean surface temperature?*

"The Ocean in Motion" article, the **Rereading of "The Ocean in Motion"** page or Lesson 2.2, Activity 2

What evidence did you find in the article to help answer our question:

Investigation Question:
Other than latitude, what else affects ocean surface temperature?

The **key concept** on the next slide **summarizes important ideas** from “The Ocean in Motion” that help us to answer the question:

Other than latitude, what else affects ocean surface temperature?

Key Concept

4. When an ocean current comes from the equator, it brings warmer-than-expected water to the places it passes.

   When an ocean current comes from a pole, it brings colder-than-expected water to the places it passes.

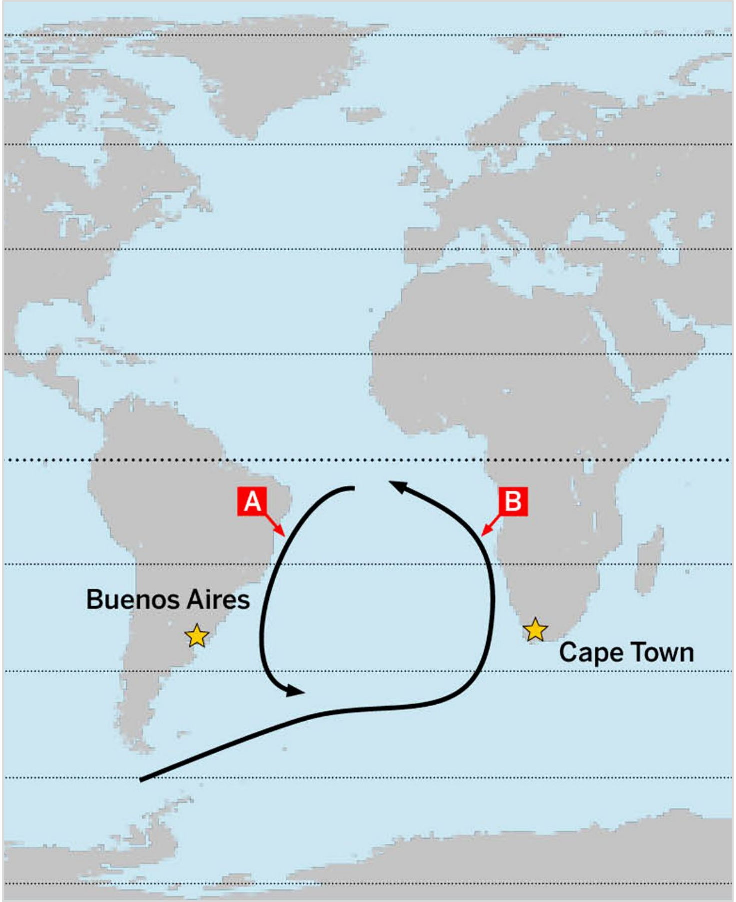
In the next activity, we will again examine maps to collect data. You will need a partner for this activity.

Your partner could be a classmate
on the phone or someone at home with you.

You will begin by looking carefully at the map on the next slide.

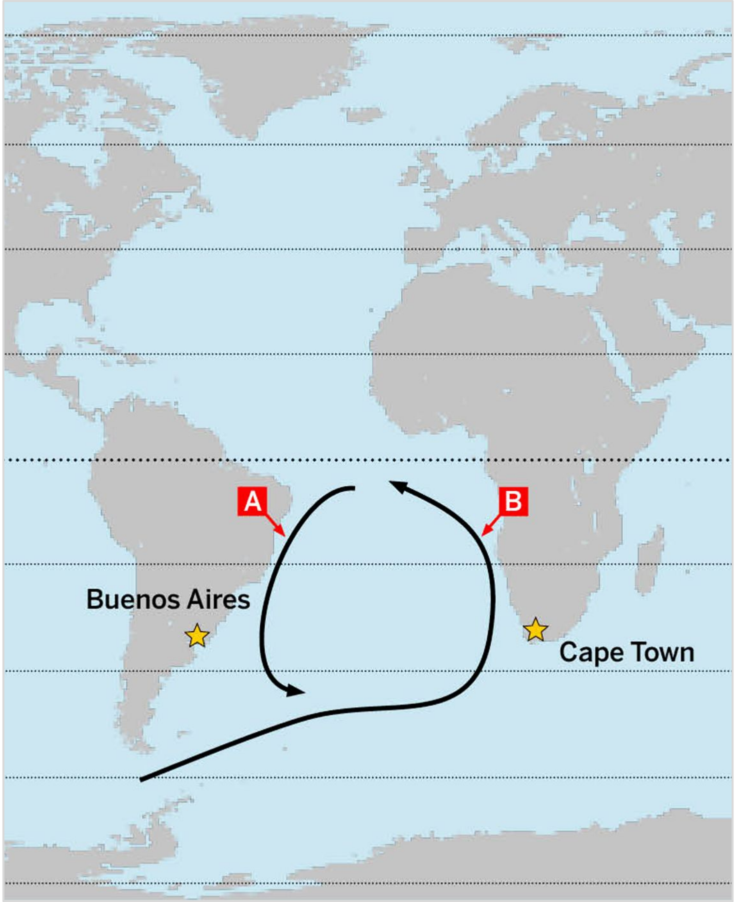
Do you think the ocean surface temperature near Buenos Aires is the same or different from the ocean surface temperature near Cape Town?


80º N
60º N
40º N
20º N
0º
equator
20º S
40º S
60º S
80º S
Buenos Aires
Cape Town



We've determined that **currents** affect ocean surface temperature.

Let's take a closer look at the currents that pass near Buenos Aires and Cape Town.

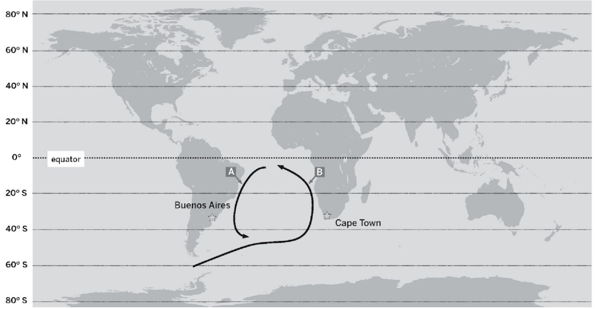


Comparing the currents will help us determine whether these currents cause the ocean surface temperature near Buenos Aires and Cape Town to be the same or different. Remember, the arrows show us the direction of the current.

Name: ______________________ Date: ________________

Investigating Ocean Surface Temperature: Part 1

Currents Near Buenos Aires and Cape Town



Compare the two ocean currents (A and B) shown on the map. Match the current with the phrase that best describes it.

Current A (near Buenos Aires) ______________. (circle one)

carries no energy **carries more energy** **carries the same energy** **carries less energy**

Current B (near Cape Town) ______________. (circle one)

carries no energy **carries more energy** **carries the same energy** **carries less energy**

Discuss the following questions with your partner:

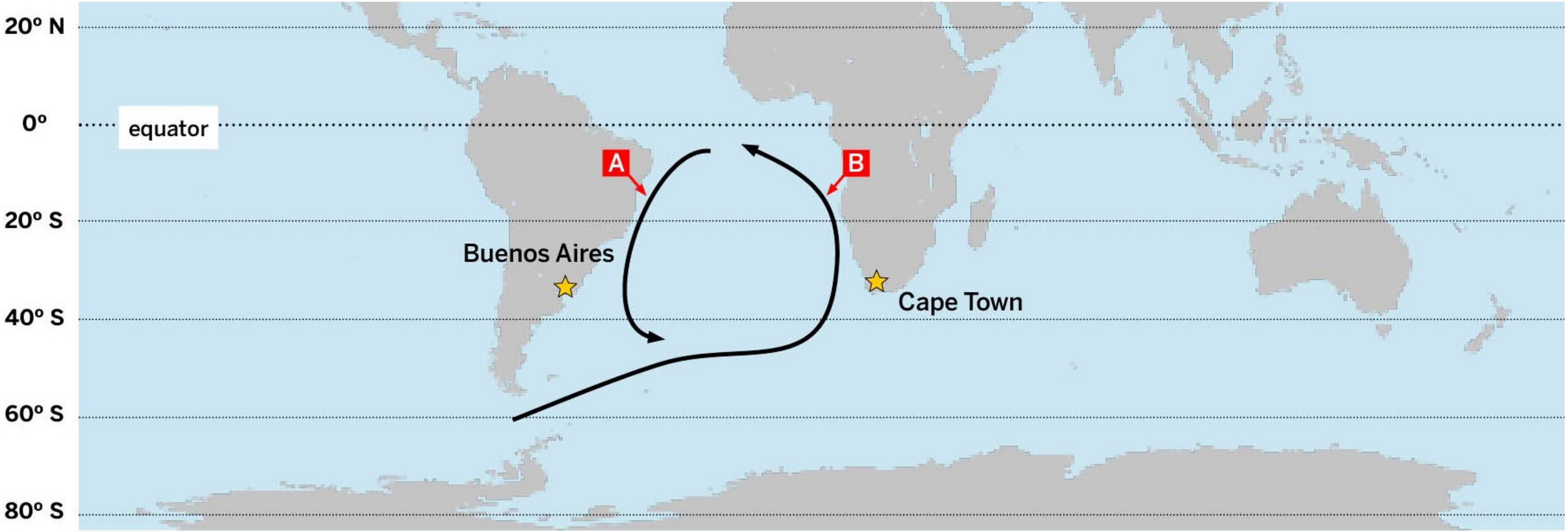
- What does the map show?
- Does the map provide evidence that the currents near Buenos Aires and Cape Town cause the ocean surface temperature at each location to be the same or different?

Go to the **Investigating Ocean Surface Temperature: Part 1** activity.

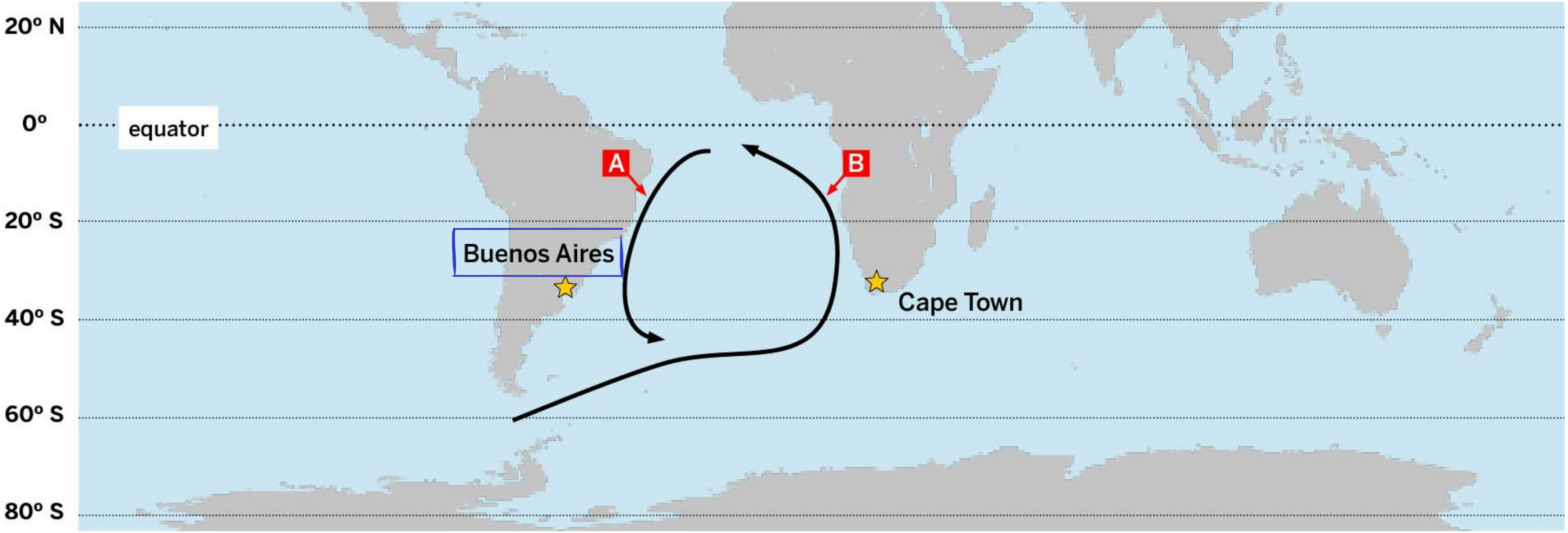
Discuss the map to answer the questions.

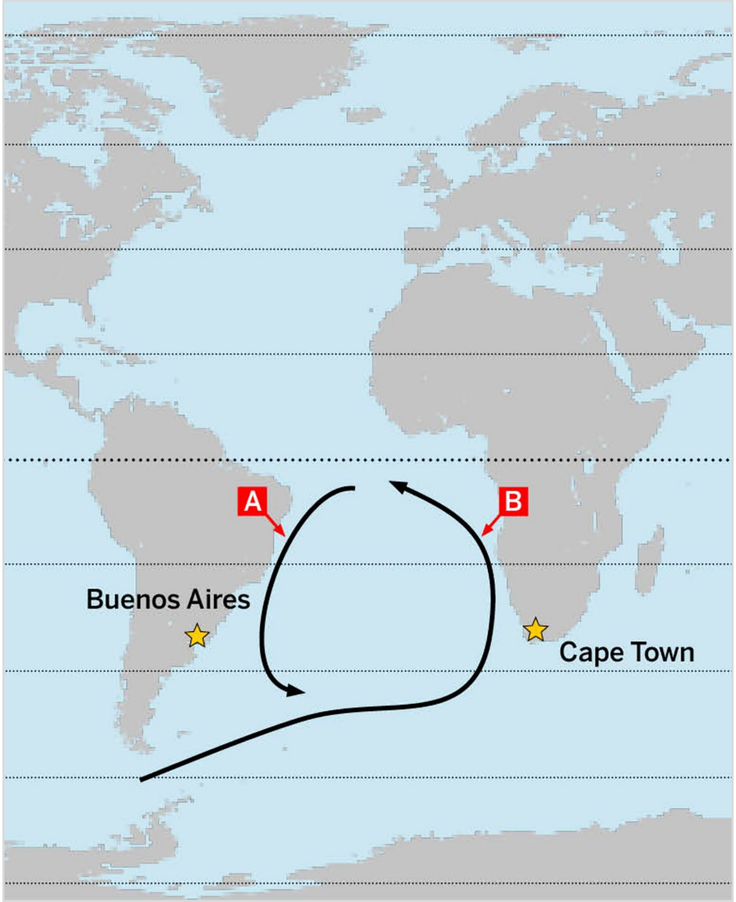
Investigating Ocean Surface Temperature: Part 1 page or [Lesson 2.2, Activity 3]

Let’s think about what the map shows.



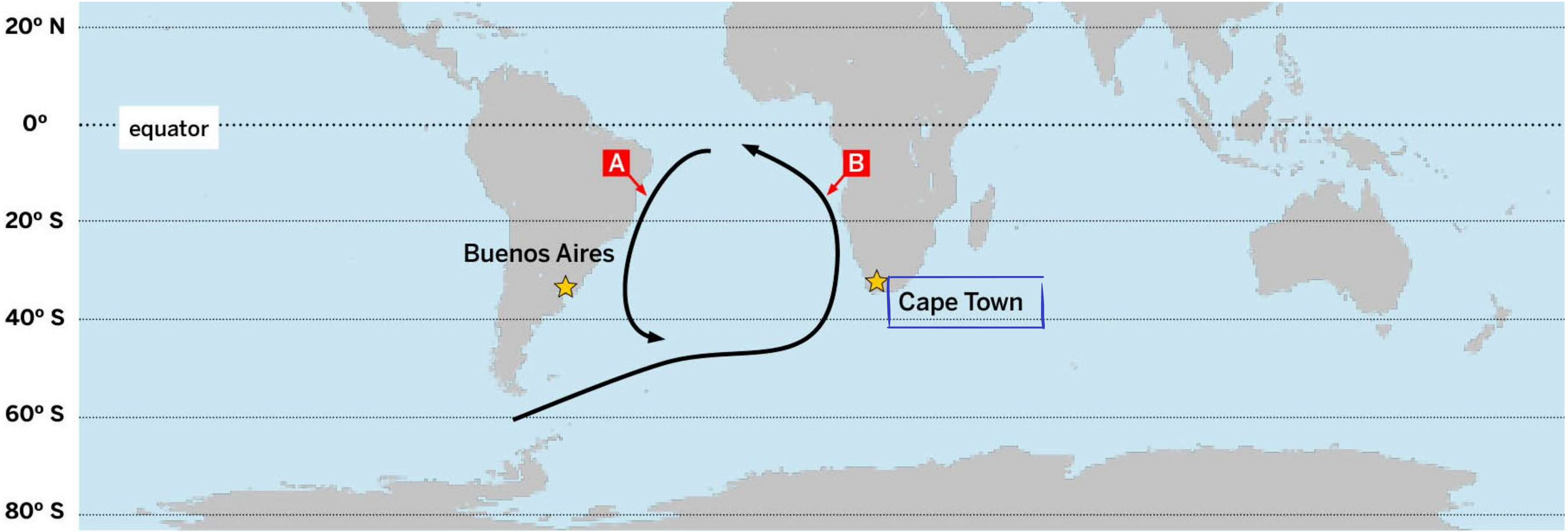
The ocean current that passes Buenos Aires (A) comes from the equator.

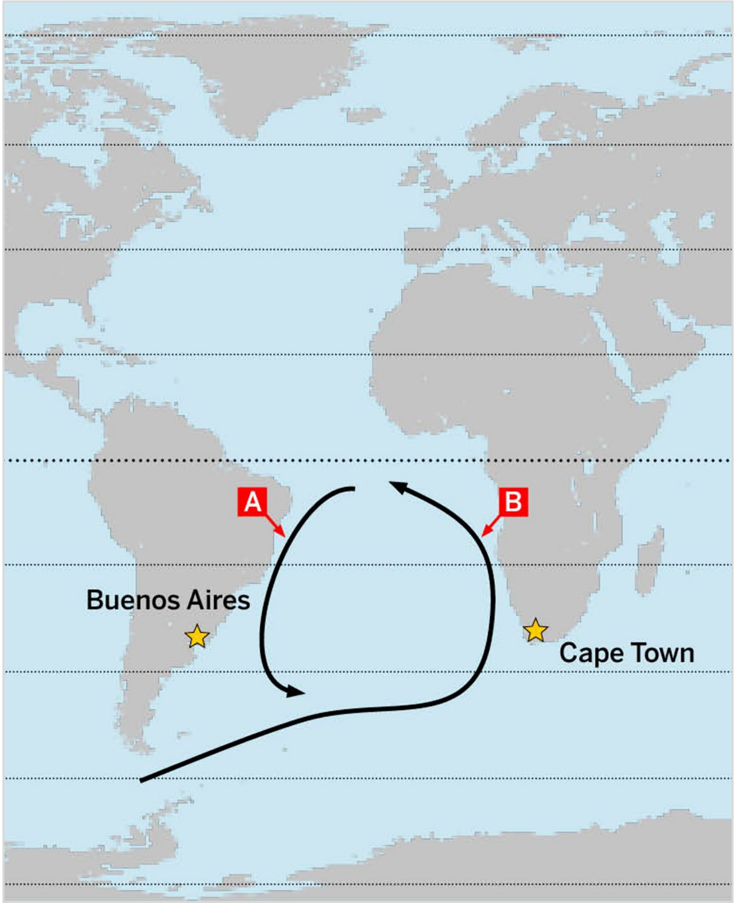




The closer a location is to the equator, the **more energy** it receives from the sun. Therefore, this current carries more energy and **moves warm water** from the equator to this area, near Buenos Aires.

The ocean current that passes Cape Town (B) comes from a polar region.





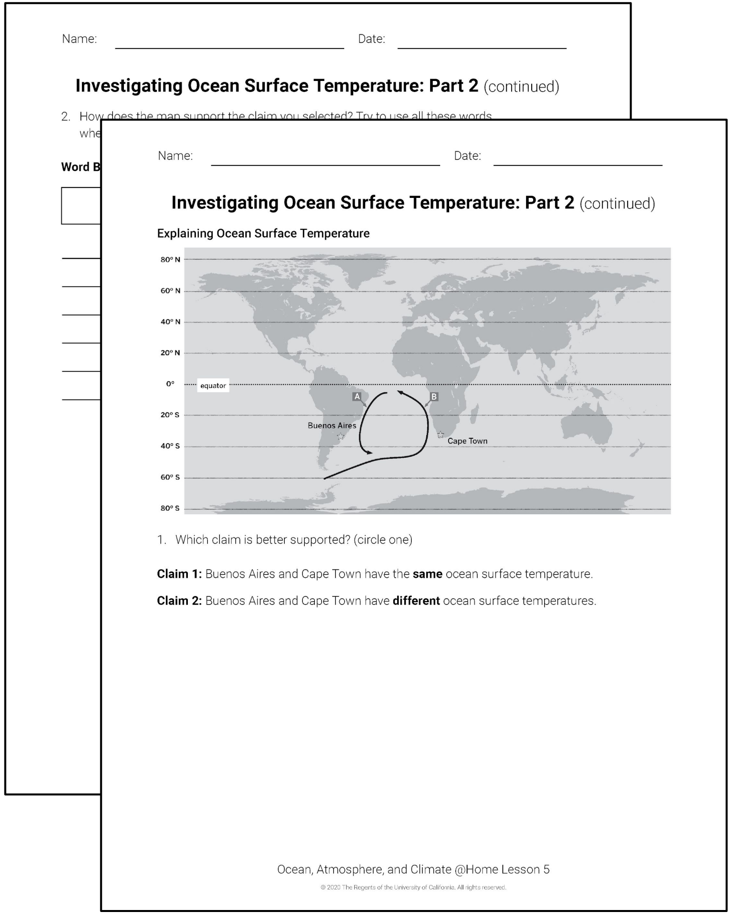
Current B carries **less energy** and moves **cooler water** from the pole to the area near Cape Town.

This is the end of the partner work in this lesson.

Claim 1: Buenos Aires and Cape Town have the **same** ocean surface temperature.

Claim 2: Buenos Aires and Cape Town have **different** ocean surface temperatures.

Next, you will examine the map again and think about these **two claims.**


Name: ______________ Date: ______________

Investigating Ocean Surface Temperature: Part 2 (continued)

Explaining Ocean Surface Temperature

1. Which claim is better supported? (circle one)

Claim 1: Buenos Aires and Cape Town have the **same** ocean surface temperature.

Claim 2: Buenos Aires and Cape Town have **different** ocean surface temperatures.

Ocean, Atmosphere, and Climate @Home Lesson 5

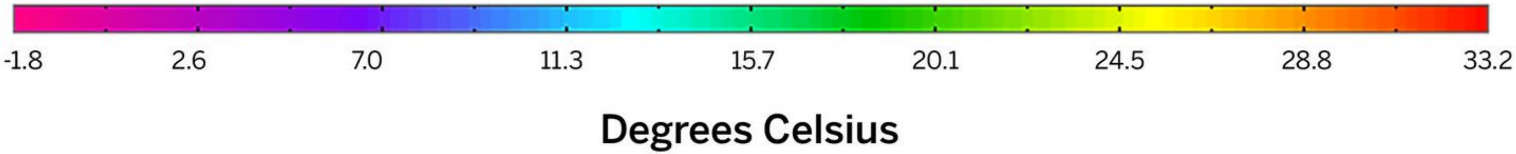
Go to the **Investigating Ocean Surface Temperature: Part 2** activity.

Choose a claim and then **write** about how the map supports the claim you selected.

Investigating Ocean Surface Temperature: Part 2 page or [Lesson 2.2, Activity 3]

To gather more evidence about the two locations, we'll look at a map showing the **average temperature** of the water at the surface of the ocean over a one-year time period.

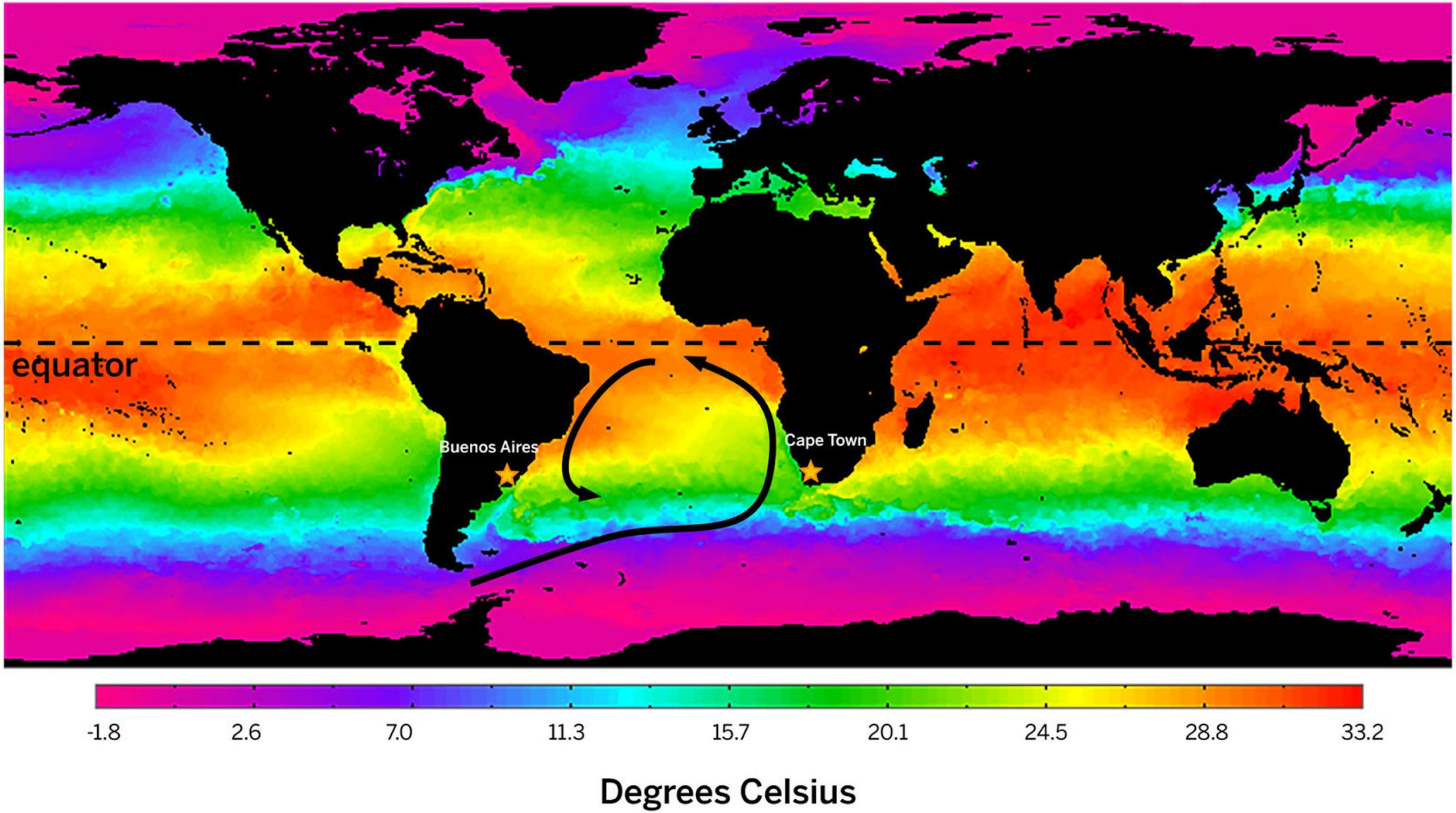
The map uses pink and purple for the lowest temperatures and red for the highest.



Look at the map on the next slide and think about the question.

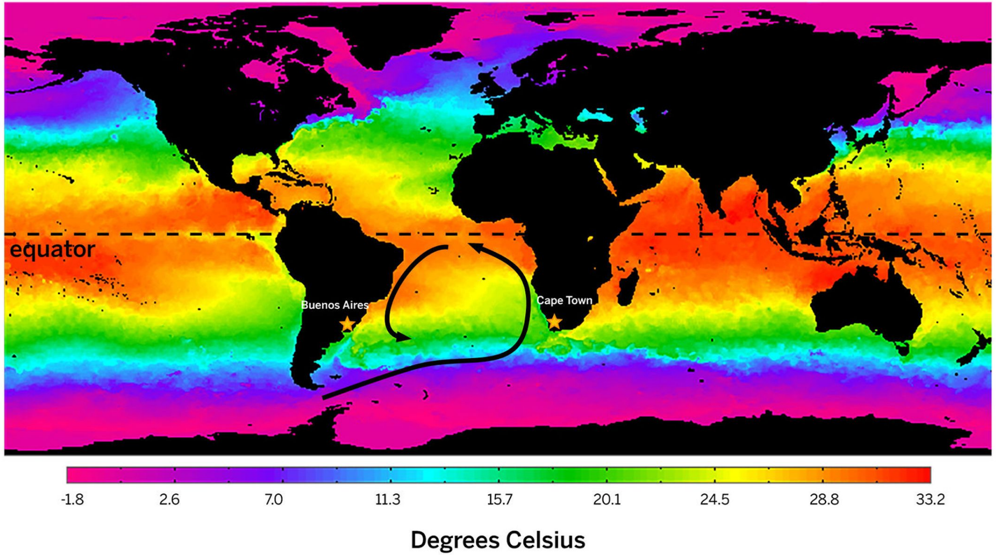
What does the map show about the ocean surface temperature near the two locations (Buenos Aires and Cape Town)?

Average Ocean Surface Temperature



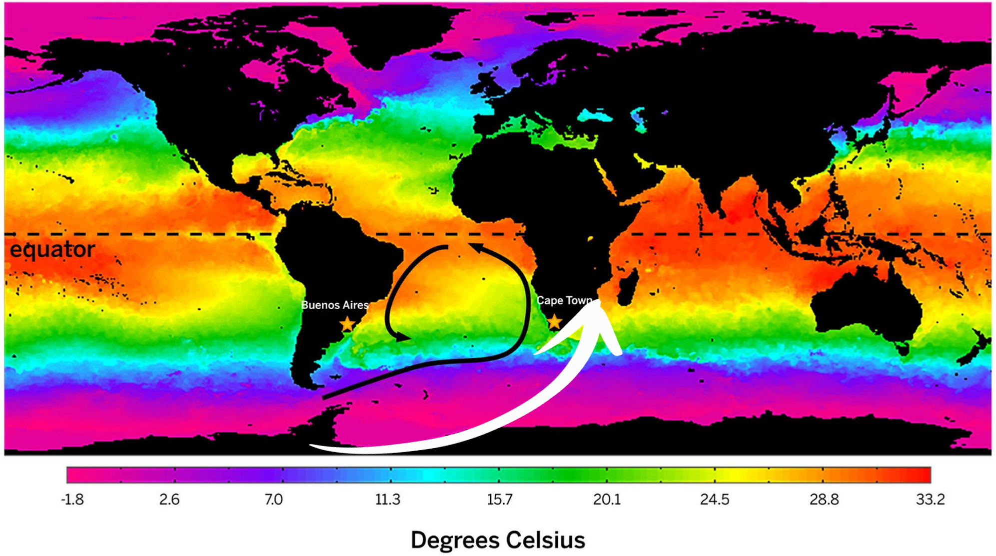
The ocean surface temperature near Buenos Aires is **higher** (yellow to orange) than the ocean surface temperature near Cape Town (green).

Average Ocean Surface Temperature



The current next to Cape Town comes from an area of **cold water** near Antarctica, so it **carries cooler water** when it passes Cape Town.

Average Ocean Surface Temperature



Read the key concept on the next slide and think about this question:

How does this key concept support the claim that the ocean surface near Buenos Aires is warmer than the ocean surface near Cape Town?

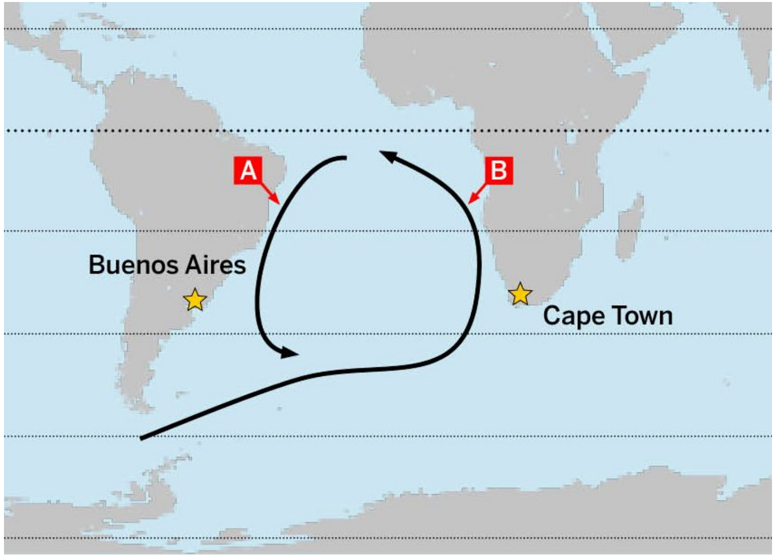
Key Concept

4. When an ocean current comes from the equator, it brings warmer-than-expected water to the places it passes.

   When an ocean current comes from a pole, it brings colder-than-expected water to the places it passes.

Because currents that come from the equator carry a lot of energy, they bring **warmer-than-expected water** (a higher ocean surface temperature) **to the places they pass.**

Because currents that come from the poles carry less energy, they bring **colder-than-expected water** (a lower ocean surface temperature) **to the places they pass.**



We will think more about **surface temperature** and **currents** in upcoming lessons.

End of @Home Lesson

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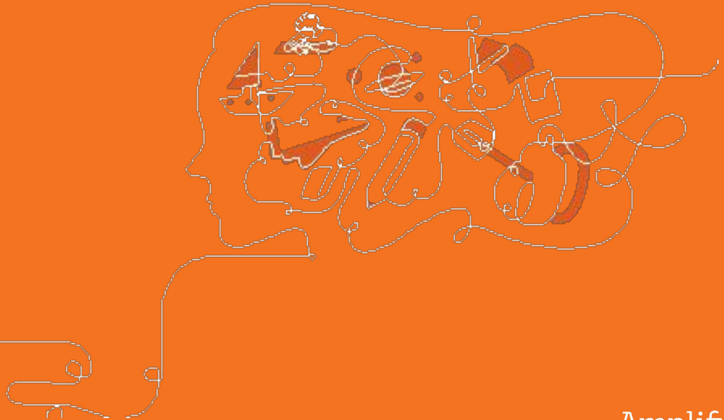
BREAK (15 minutes)

Reflecting on exemplar lesson



Think-Type-Chat:

- What was complex about the text that was utilized during the instructional sequence?

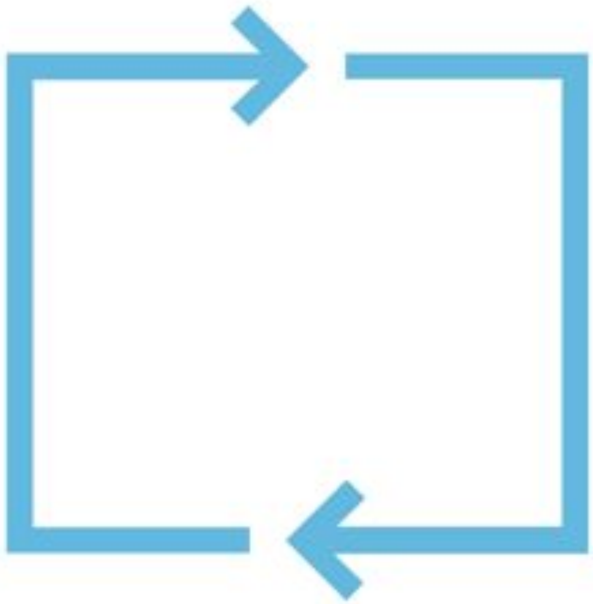
- How were students supported in accessing the text?

Figure 1: The Standards' Model of Text Complexity

Multimodal learning as an embedded support

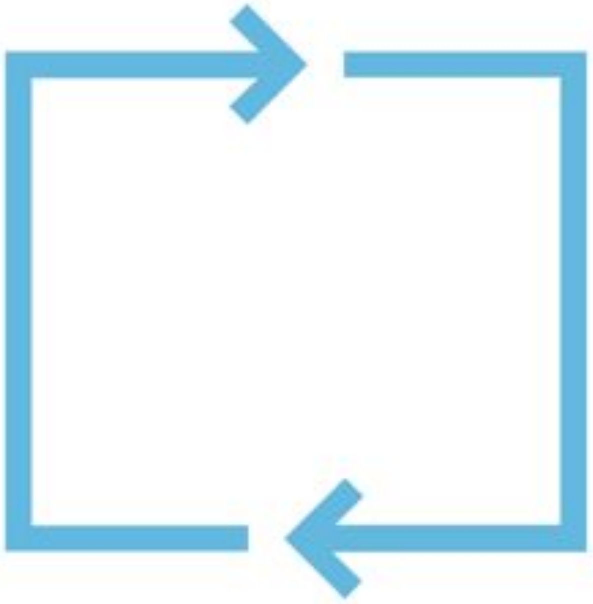
Multimodal learning

Gathering evidence over multiple lessons



Do,
Talk,
Read,
Write,
Visualize

Evidence sources work together to support developing scientific understandings



Teaching tip

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

Text roles & active reading as embedded supports

Text Roles/Functions for Inquiry-Based Investigations

Provide context for inquiry-based investigations	**Scientists read and interpret others' data and findings**
Deliver content	**Illustrate phenomenon that would otherwise be unobservable; opportunities to apply what students are learning**
Model scientific processes	**Model inquiry processes; Modeling scientific dispositions; Depicting scientists and their work**
Support secondhand investigations (collection of textual data)	**Provides data for interpretation represented with graphs, pictures, tables; communicating visuals information based in data**
Support first-hand investigations (collection of empirical data)	**Providing students information to supplement their empirical (first-hand) studies; Support the design and implementation of investigations.**

From Cervetti, G. N. & Barber, J. (2009). Text in hands-on science. In Hiebert, E. H. & Sailors, M. (Eds.) *Finding the Right Texts: What Works for Beginning and Struggling Readers.* New York: The Guilford Press.

Embedded supports

Active Reading

- Consistent routine across units
- First read and second read
- Partner discussion of annotations
- Digital reading supports

Thousands of shoes fell off the ship that was carrying them across the ocean. Eventually, some of those shoes washed up on this beach. People collected them and tried to find matched pairs.

The Ocean in Motion

Surprising things sometimes wash up on shore, and this can happen all over the world. During a powerful storm In 1990, containers packed with 61,000 shoes fell off a cargo ship travelling across the Pacific Ocean and eventually washed up on beaches in Oregon, Hawaii, and Japan. These locations are hundreds or thousands of miles away from the place where the shoes were spilled. How did the shoes make their way to these locations?

If you look at a photograph of Earth, most of what you see is the big, blue ocean—after all, the ocean covers 71% of our planet. In a photograph or on a map, it may not look like the ocean moves very much, but the opposite is actually true. The water in the ocean is always

The ocean covers 71% of Earth and is in constant motion. The movement of the ocean carries energy and objects wherever it goes.

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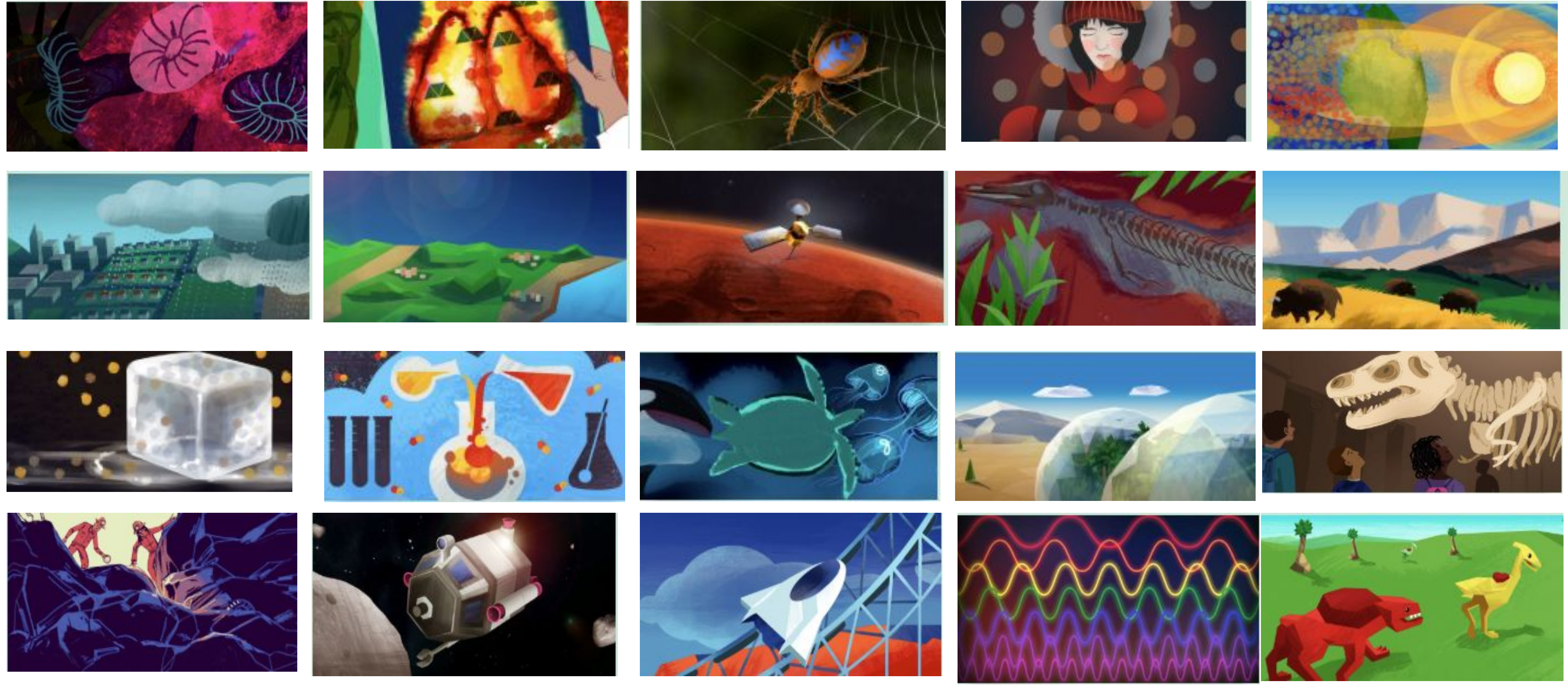


Explicit instruction in reading 56 times in each course x 3 years = at least 170 opportunities to practice Active Reading in middle school science

A typical Active Reading sequence

First Read	Second Read	Third Read
Independent, followed by paired and whole class discussion	Reading for a teacher-directed purpose, followed by a paired, complementary activity	Diving into the text for other, content-related purposes

Active Reading

Students read each article twice
The first read is always to annotate
(questions, connections, comments, etc.

Science and Engineering Practices

8. Obtaining, Evaluating, and Communicating Information

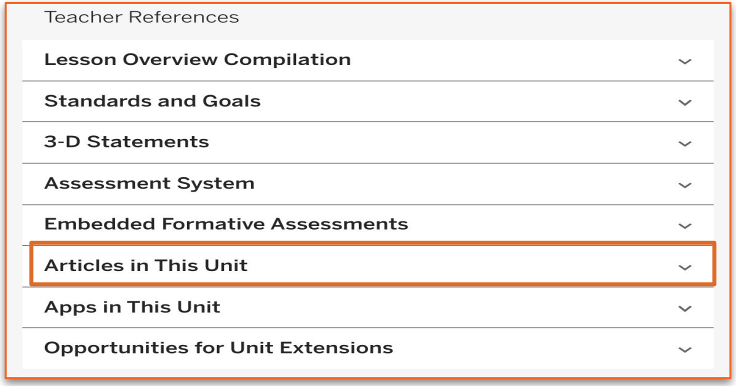
Subsequent reads are for a particular purpose

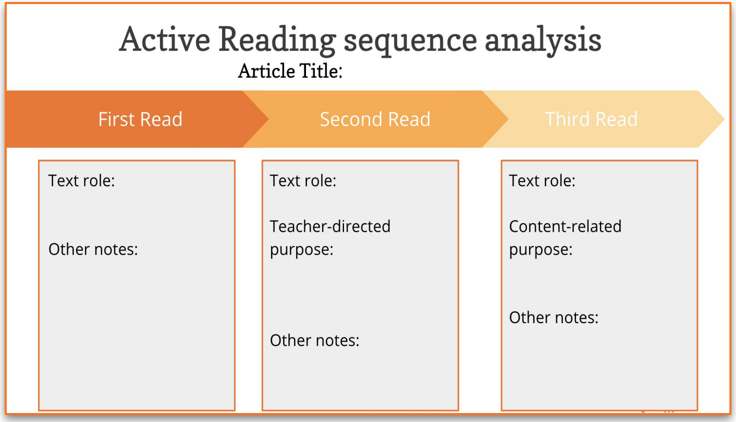
- To examine a specific visual representation
- To answer a question
- To find evidence to support a claim, or
- To draw conclusions across texts, etc.

Analyzing an Active Reading Sequence

Directions:

- Join **breakout** room
- Navigate to the **current unit**
- Scroll down to the **Unit Guide**
- Click **Articles in This Unit**
- Choose an article & **read summary**
- Locate lessons & **analyze** active reading sequence using prompts on **collaborative slides** in groups





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Active Reading sequence analysis

Article Title:

First Read	Second Read	Third Read
Text role: Other notes:	Text role: Teacher-directed purpose: Other notes:	Text role: Content-related purpose: Other notes:

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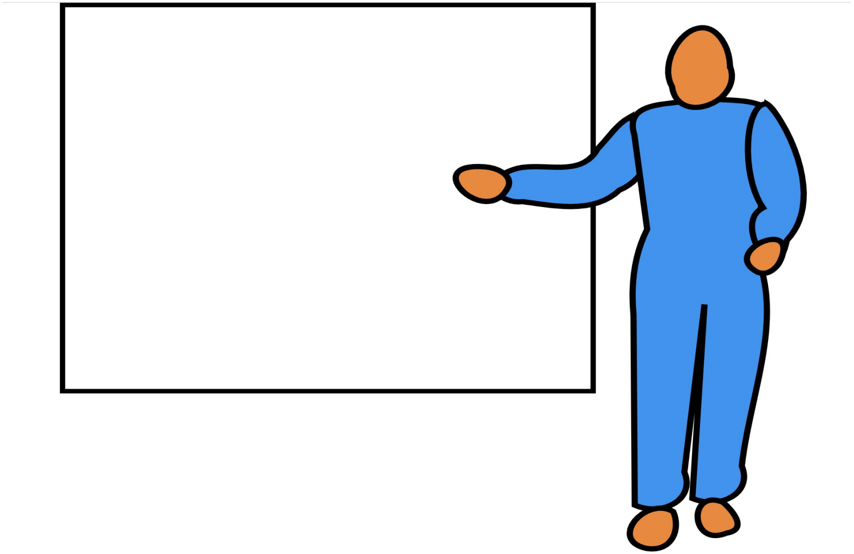
Virtual group presentations

Summarize the key points related to the analysis of your chosen article.



Support for reading complex text

During various reading experiences

- Variety of reading experiences:
  - Short articles, homework, evidence cards, student notebook / digital platform
- Students are expected to continue using the basic components of Active Reading during these alternate reading experiences;
  - encouraged to annotate and are
  - often provided with guiding questions

Questions?

Attention to reader & task measures as an embedded support

Reader and Task Measures:

- Background, experience
- Purpose, assignment
- Motivation

Figure 1: ... ndards' Model of Text Complexity

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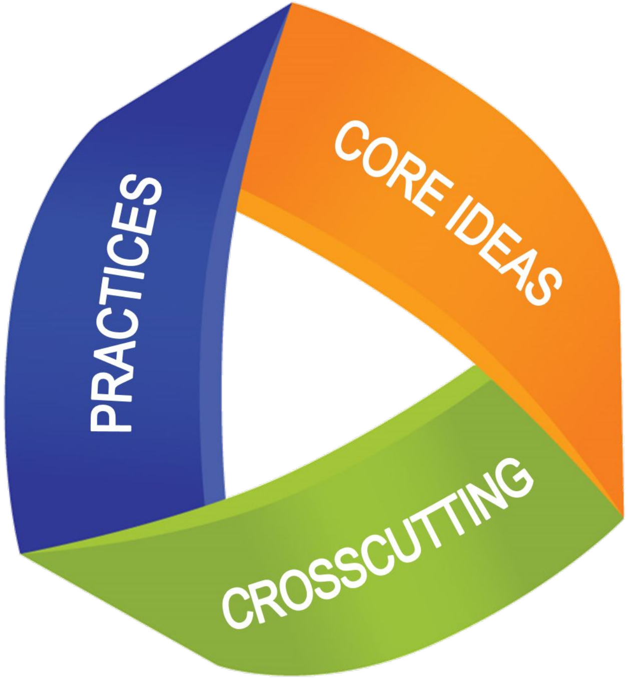
Our approach: Infuse disciplinary literacy practices into each unit

How?

- by paying explicit attention to the domain in which the literacy is taking place — not just science but geology or microbiology.
- by engaging students in literacy activities in each unit that are authentic to the practices of science

New York State Science Learning Standards (NYSSLS)



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NYSSLS: Science Practices

1. Asking questions and defining problems
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations and designing solutions
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

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NYSSLS: Science Practices

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6. **Constructing explanations** and designing solutions
7. Engaging in argument **from evidence**
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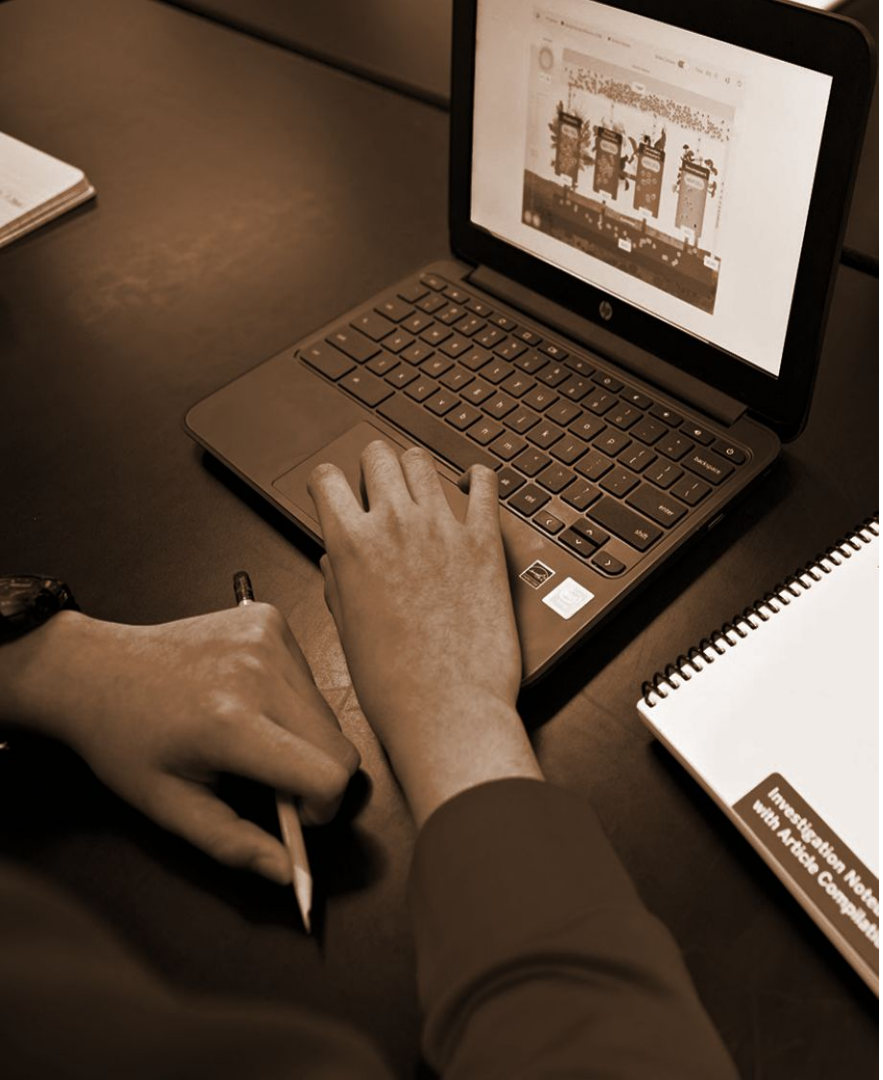
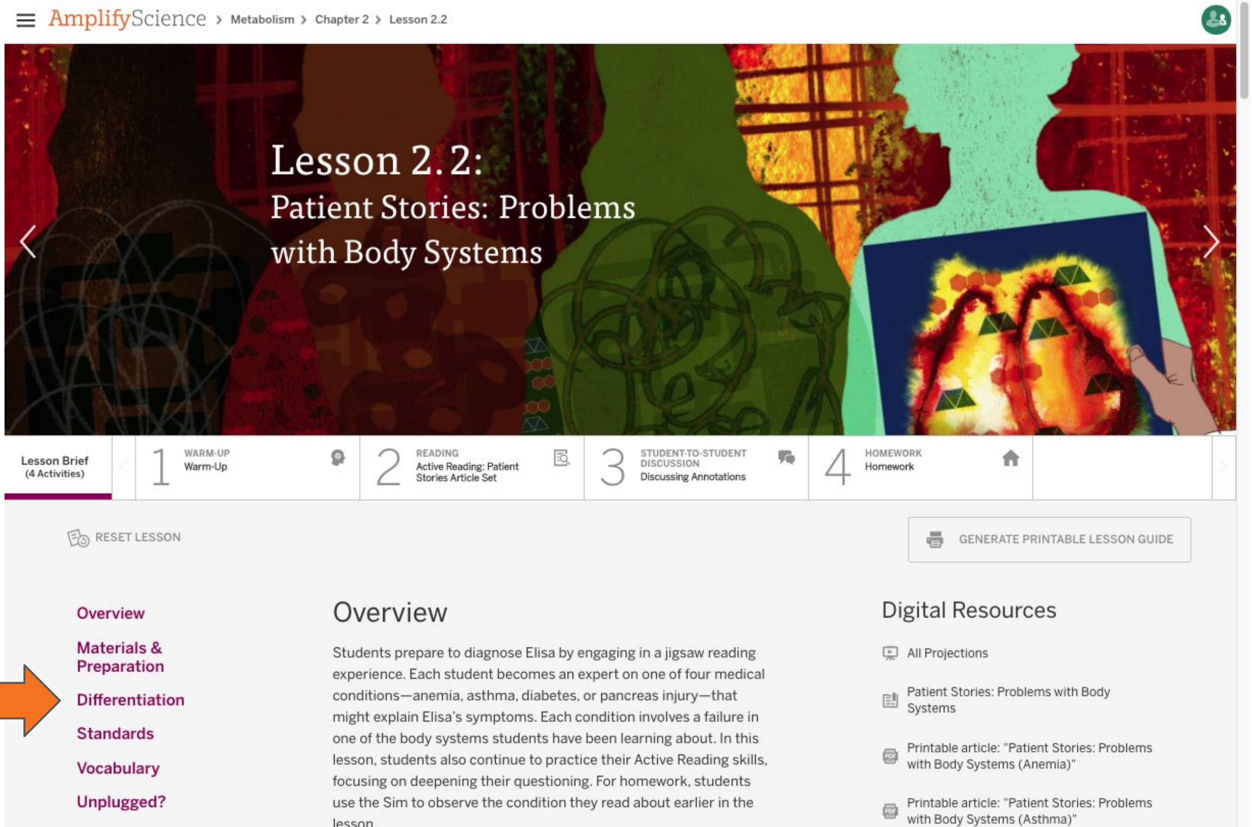
Questions?



Plan for the day

- Introduction and overview of approach
- Embedded supports in an instructional sequence
- Differentiation for reading
- Closing

Differentiation and Other Supports for Reading in Amplify Science



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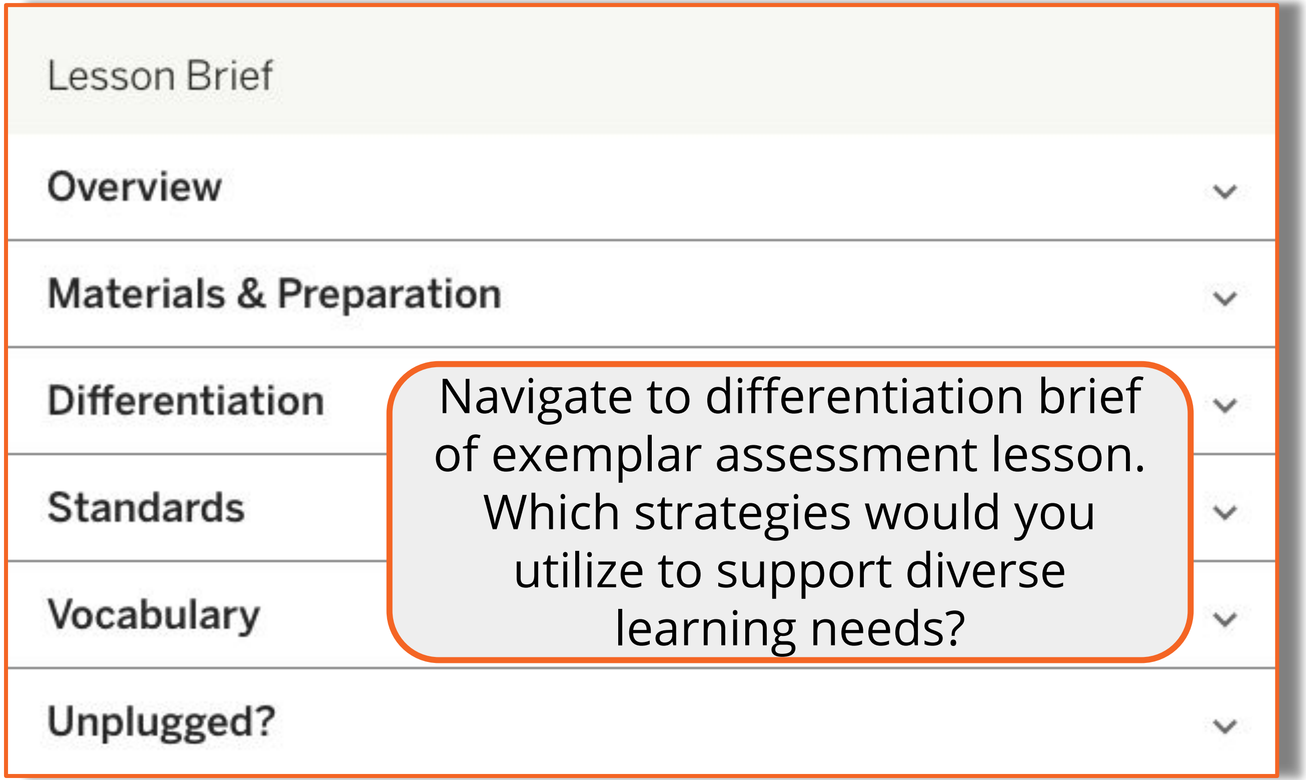
Differentiation Briefs

Categories of differentiation briefs

- Embedded supports for diverse learners
- Potential challenges in this lesson
- Specific differentiation strategies for:
  - English learners
  - students who need more support
  - students who need more challenge

Differentiation in Amplify Science



Navigate to differentiation brief of exemplar assessment lesson. Which strategies would you utilize to support diverse learning needs?

Planning for Differentiation

Lesson #	Type of support	Instructional suggestion (summary)
Which of your students might need support? When could you provide it?		
How would you use or modify the suggestion?		

Analyzing Differentiation Opportunities

Overview

Materials & Preparation

Differentiation

Standards

Vocabulary

Unplugged?

Differentiation

Embedded Supports for Diverse Learners

Teacher modeling to support deeper reading practices. The oral teacher modeling (think aloud) of Active Reading offers support for students, as it conveys both ways of thinking about text and specific strategies for reading and annotating. This modeling also alerts students to the genre of the text (in this case, descriptive case studies of young people with various conditions).

Student-to-student discussion for making sense of the reading. The partner sharing and discussion following the independent reading provides students with an opportunity to deepen their own understanding through a purposeful conversation with their peers. Today's discussion is especially important, since students are paired with someone who read a similar article (those who read about oxygen-related conditions discuss with each other, and those who read about glucose-related conditions discuss with each other). Students have a chance to both share and expand their own understanding.

Potential Challenges in This Lesson

Reading-centered. Reading science texts is challenging, and

How is this lesson supportive of all students? What challenges do you anticipate?

Analyzing Differentiation Opportunities

Specific Differentiation Strategies for English Learners

Extra discussion time. Providing extended time for discussion during and after reading these articles gives English learners and other students who might need more reading support a chance to practice using new science vocabulary words and to process what they read. Having students stop part way through their reading to discuss may help some students process what they are reading more thoroughly.

***Metabolism* glossary.** Throughout this unit, you will find resources for supporting English learners in science, including a glossary in the Amplify Library that includes Spanish definitions for primary Spanish speakers. If you have English learners in your class whose primary language is Spanish, make sure to point out the glossary to them in the Digital Resources.

Specific Differentiation Strategies for Students Who Need More Support

Reveal Tool. Articles in the Amplify Library are equipped with the Reveal Tool, which allows students to click on difficult conceptual

Would the suggested additional supports in this lesson work for my remote/hybrid classroom? How can I adapt them?

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Planning for Differentiation

Specific Differentiation Strategies for English Learners

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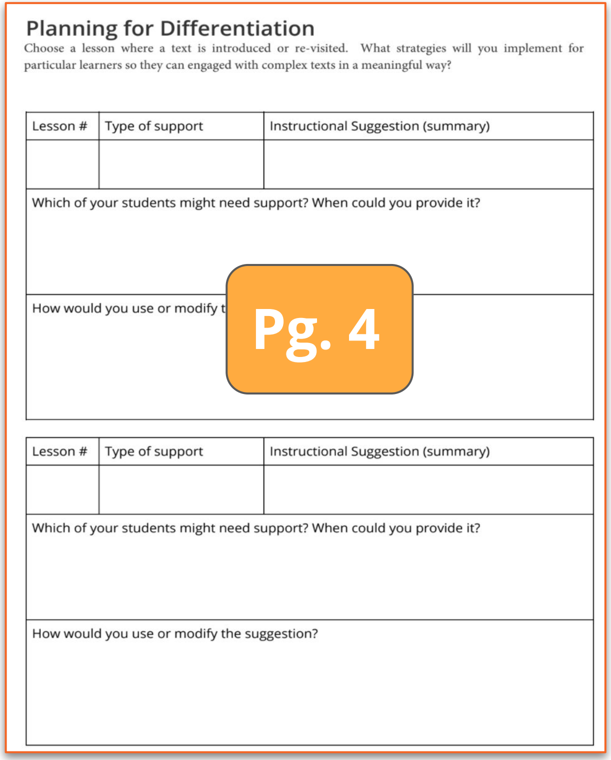
Planning for Differentiation

Lesson #	Type of support	Instructional suggestion (summary)
2.2	Support for ELs	Review key vocabulary from Metabolism Multilingual glossary
Which of your students might need support? When could you provide it?		
7 students-- have them join at a back table (5 min) as others are reading independently or with a partner		
How would you use or modify the suggestion?		
• Highlight key vocabulary from the multilingual glossary that is used in the article together • Model how to use the glossary as a reference by reading and thinking aloud with the first paragraph		

Planning for differentiation in your unit

- Navigate to **2 reading lessons** you will be teaching in the next few weeks
- Navigate to and read the **Differentiation section** of the Lesson Brief(s)
- Complete the **Planning for Differentiation** for the these lessons



Planning for Differentiation

Choose a lesson where a text is introduced or re-visited. What strategies will you implement for particular learners so they can engaged with complex texts in a meaningful way?

Lesson #	Type of support	Instructional Suggestion (summary)

Which of your students might need support? When could you provide it?

How would you use or modify t

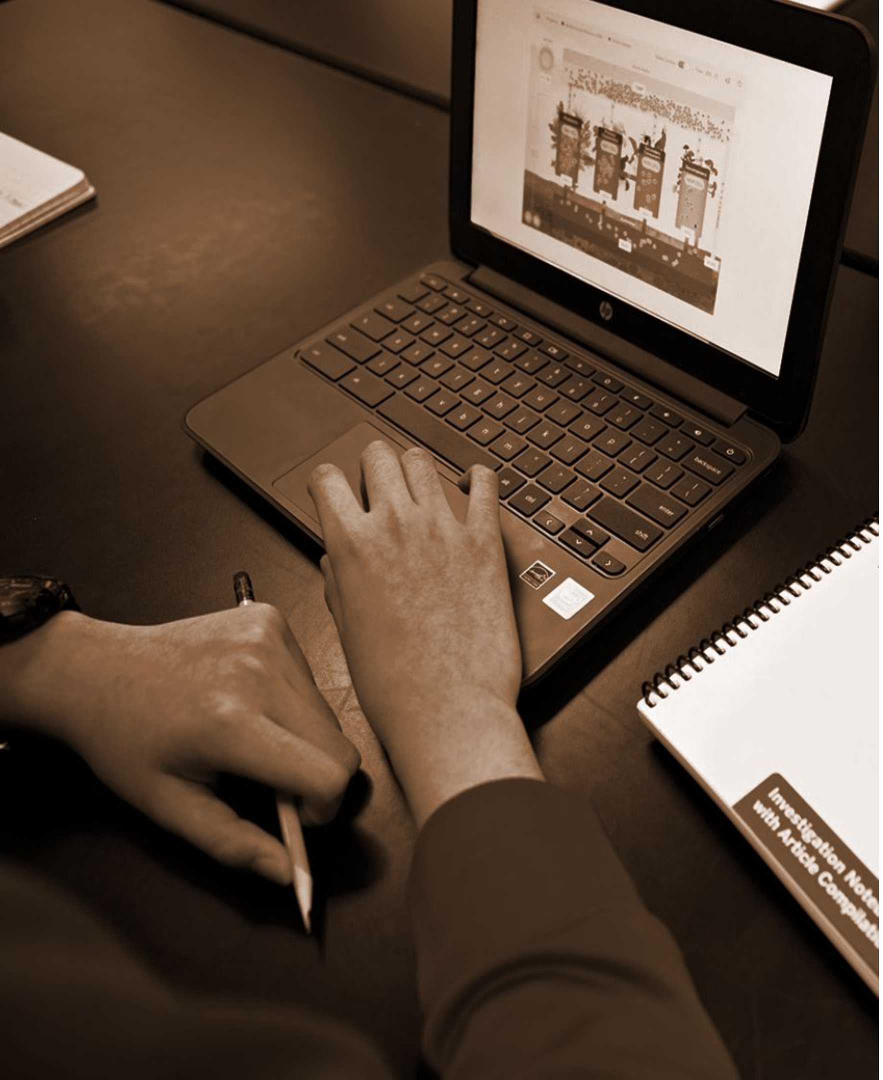
Pg. 4

Lesson #	Type of support	Instructional Suggestion (summary)

Which of your students might need support? When could you provide it?

How would you use or modify the suggestion?

Questions?



Plan for the day

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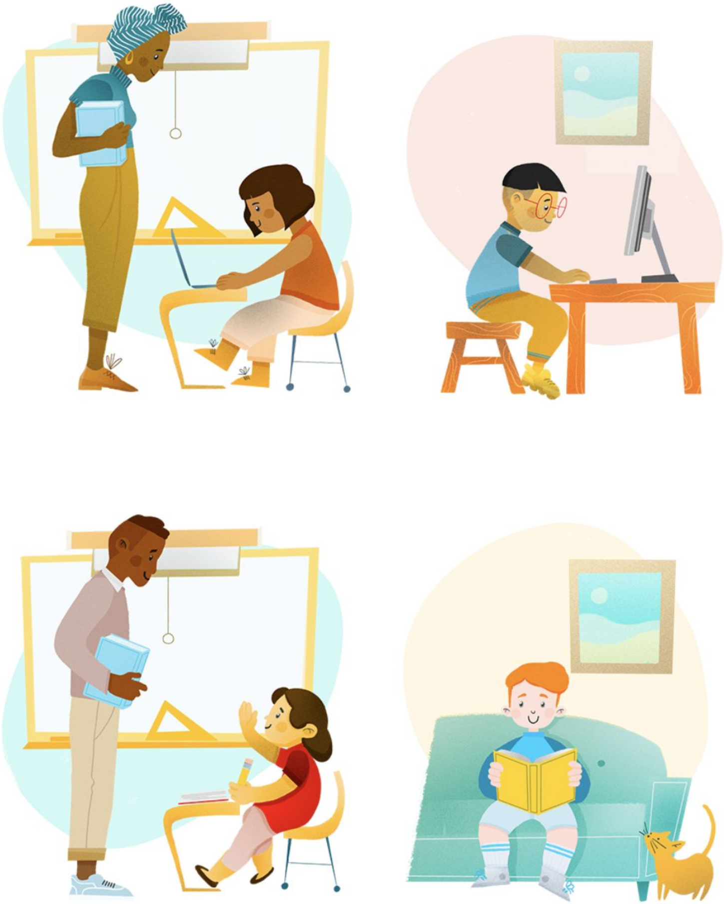
- Closing

AmplifyScience@Home

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



Temperature Check

Rate your comfort level accessing and navigating the Amplify Science @Home resources

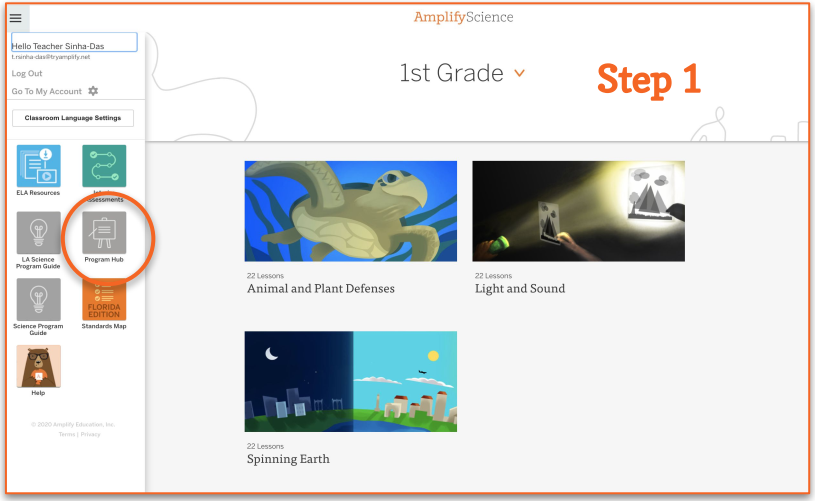
1 = Extremely Uncomfortable

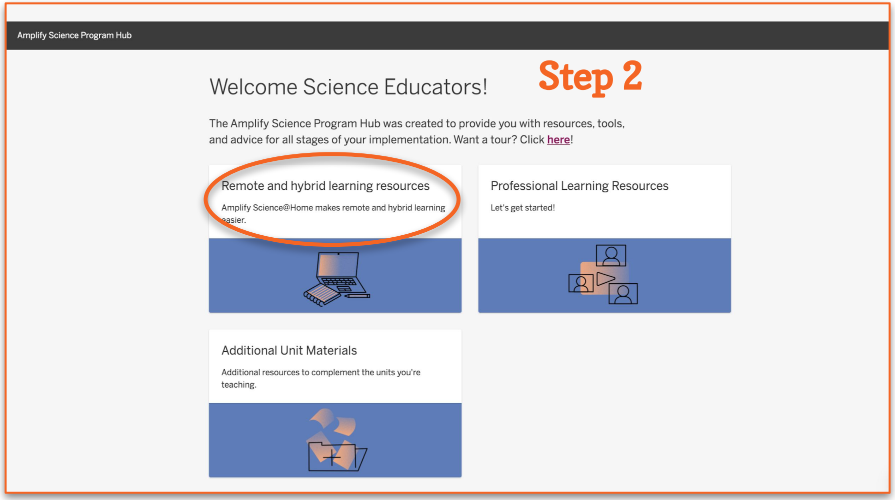
2 = Uncomfortable

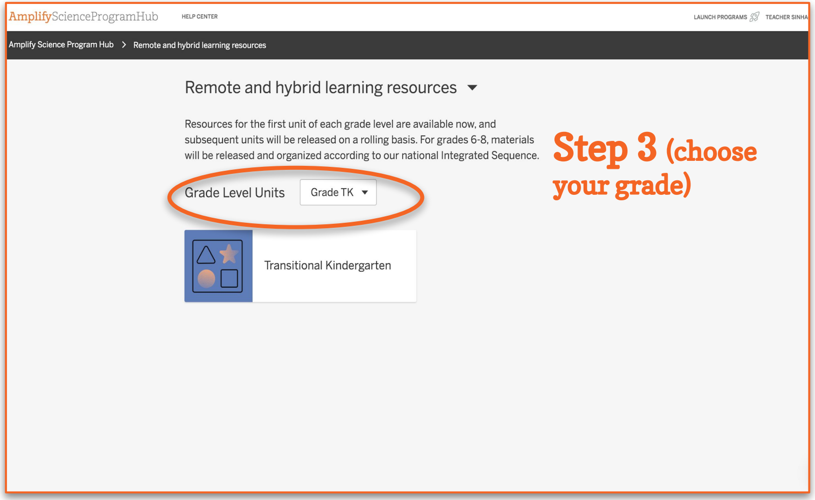
3 = Mild

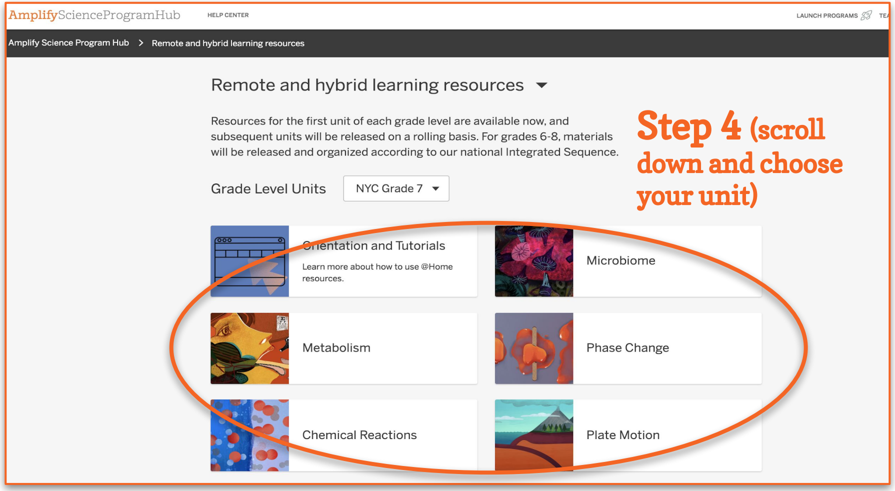
4 = Comfortable

5 = Extremely Comfortable


AmplifyScience
Hello Teacher Sinha-Das
t.rsinha-das@tryamplify.net
Log Out
Go To My Account
Classroom Language Settings
ELA Resources
LA Science Program Guide
Program Hub
Science Program Guide
Standards Map
Help
1st Grade
Step 1
22 Lessons
Animal and Plant Defenses
22 Lessons
Light and Sound
22 Lessons
Spinning Earth


Amplify Science Program Hub
Welcome Science Educators!
Step 2
The Amplify Science Program Hub was created to provide you with resources, tools, and advice for all stages of your implementation. Want a tour? Click here!
Remote and hybrid learning resources
Amplify Science@Home makes remote and hybrid learning easier.
Professional Learning Resources
Let's get started!
Additional Unit Materials
Additional resources to complement the units you're teaching.


AmplifyScienceProgramHub
HELP CENTER
LAUNCH PROGRAMS
Amplify Science Program Hub > Remote and hybrid learning resources
Remote and hybrid learning resources
Resources for the first unit of each grade level are available now, and subsequent units will be released on a rolling basis. For grades 6-8, materials will be released and organized according to our national Integrated Sequence.
Step 3 (choose your grade)
Grade Level Units
Grade TK
Transitional Kindergarten


AmplifyScienceProgramHub
HELP CENTER
LAUNCH PROGRAMS
Amplify Science Program Hub > Remote and hybrid learning resources
Remote and hybrid learning resources
Resources for the first unit of each grade level are available now, and subsequent units will be released on a rolling basis. For grades 6-8, materials will be released and organized according to our national Integrated Sequence.
Step 4 (scroll down and choose your unit)
Grade Level Units
NYC Grade 7
Orientation and Tutorials
Learn more about how to use @Home resources.
Microbiome
Metabolism
Phase Change
Chemical Reactions
Plate Motion

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

Remote Active Reading best practices share-out

On Jamboard, please share:

- **Strategies** you've utilized to support students' **active reading** remotely

Questions?

3-2-1 Reflection

3	Strategies to take away

2	Things I learned

1	Question I still have

Revisiting our objectives

Do you feel ready to…

- Identify the different roles that text can play in figuring out science concepts.
- Describe how the Amplify Science approach to reading supports students in making sense of science ideas.
- Be ready to teach specific reading strategies for diverse learners.

1- I’m not sure how I’m going to do this!

3- I have some good ideas but still have some questions.

5- I have a solid plan for how to make this work!

Additional Amplify resources

Program Guide

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

my.amplify.com/programguide

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

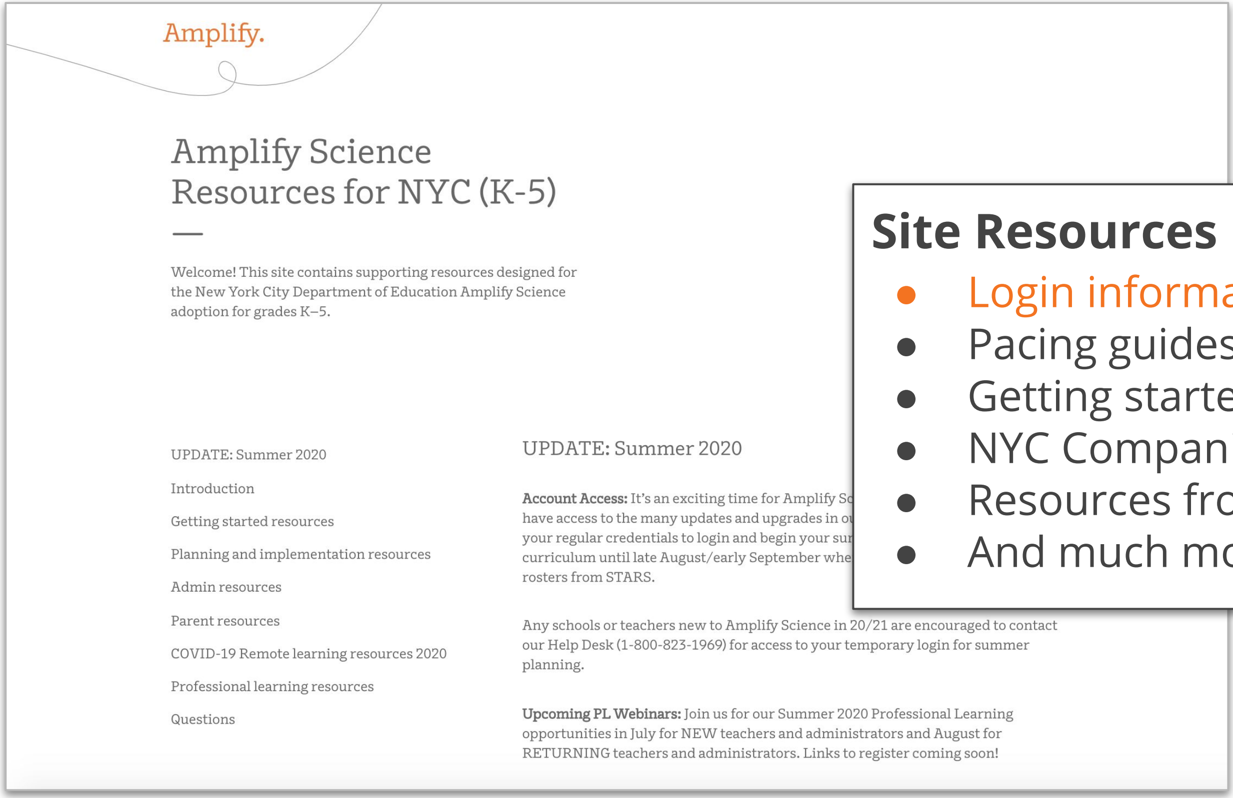
Amplify Chat

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.

New York City Resources Site

https://amplify.com/amplify-science-nyc-doe-resources/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Amplify Science
Resources for NYC (K-5)

Welcome! This site contains supporting resources designed for the New York City Department of Education Amplify Science adoption for grades K–5.

UPDATE: Summer 2020

Introduction

Getting started resources

Planning and implementation resources

Admin resources

Parent resources

COVID-19 Remote learning resources 2020

Professional learning resources

Questions

UPDATE: Summer 2020

Account Access: It's an exciting time for Amplify Sc
have access to the many updates and upgrades in ou
your regular credentials to login and begin your sur
curriculum until late August/early September whe
rosters from STARS.

Any schools or teachers new to Amplify Science in 20/21 are encouraged to contact our Help Desk (1-800-823-1969) for access to your temporary login for summer planning.

Upcoming PL Webinars: Join us for our Summer 2020 Professional Learning opportunities in July for NEW teachers and administrators and August for RETURNING teachers and administrators. Links to register coming soon!

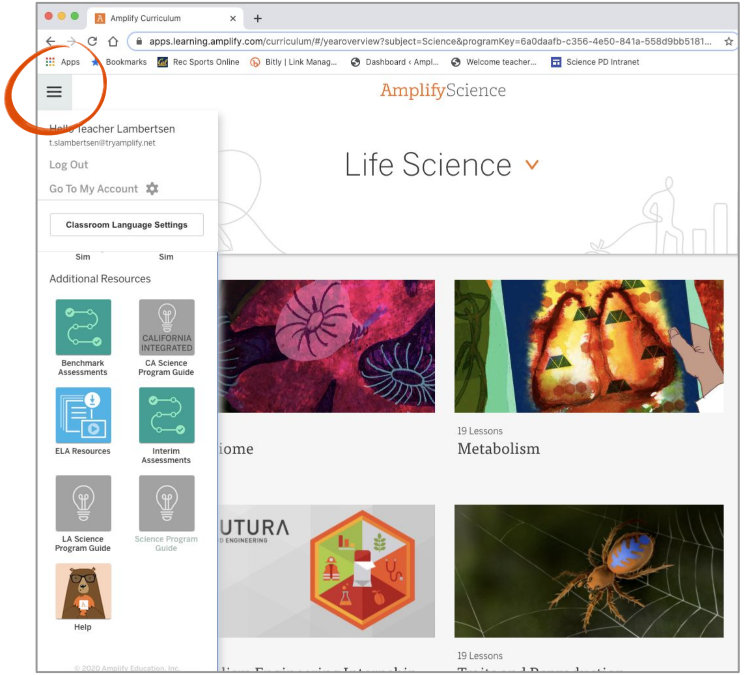
Site Resources

- Login information
- Pacing guides
- Getting started guide
- NYC Companion Lessons
- Resources from PD sessions
- And much more!

Amplify Science Program Hub

A hub for Amplify Science resources

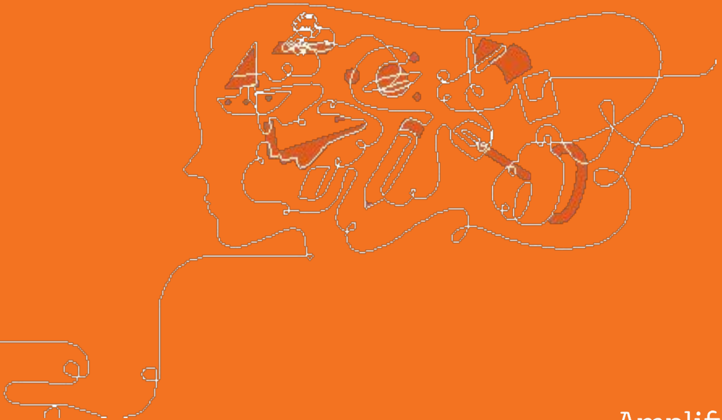
- **Videos and resources to continue getting ready to teach**
- Amplify@Home resources
- Keep checking back for updates



Please provide us feedback!

URL: https://www.surveymonkey.com/r/BY56SBR

Presenter name: XXX



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