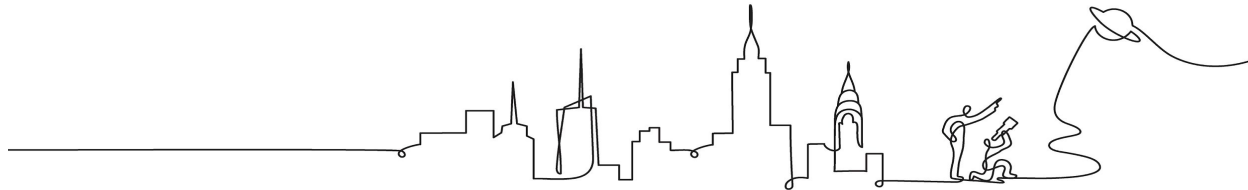


Welcome to Amplify Science!

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.



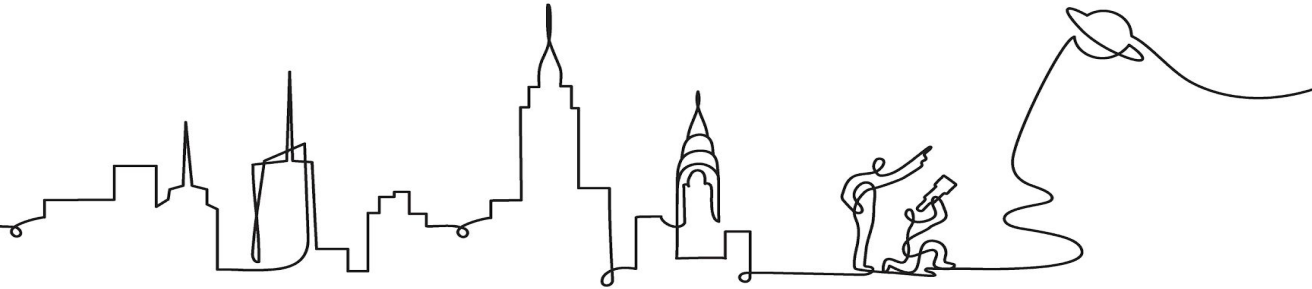
Amplify Science

New York City

Engaging English Learners in 3-D Learning Grade 7

Date xx

Presented by xx



Remote Professional Learning Norms



Take some time to orient yourself to the platform

- *“Where’s the chat box? What are these squares at the top of my screen?, where’s the mute button?”*



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



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



Make sure you have a note-catcher present



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

Use two windows for today's webinar

Window #1

Meet - Etiwanda Grade 7 N x +
meet.google.com/hcs-dxpk-wrm?aut...

Miller Copy of Navigation Prop... x Amplify Curriculum
apps.learning.amplify.com/curriculum/#unit/8a31e095506df8a2015256f88ab544_californiaintegrated2019-2020#progress-build

Amplify Science CALIFORNIA > Plate Motion

OPEN PRINTABLE PROGRESS BUILD

Progress Build Level 1: The Earth's entire outer layer (below the water and soil that we see) is made of solid rock that is divided into plates. Earth's plates can move.

Underneath the soil, vegetation, and water that we see on the surface of Earth is the outer layer of Earth's geosphere, the solid part of our rocky planet. This outer layer of Earth is covered entirely with hard, solid rock that is divided into sections called plates. And, these plates can move.

Progress Build Level 2: The plates move on top of a soft, solid layer of rock called the mantle. At plate boundaries where the plates are moving away from each other, rock rises from the mantle and hardens, adding new solid rock to the edges of the plates. At plate boundaries where plates are moving toward each other, one plate moves underneath the other and sinks into the mantle.

Underneath the soil, vegetation, and water that we see on the surface of Earth is the outer layer of Earth's geosphere, the solid part of our rocky

Getting Ready to Teach
Materials and Preparation

Flexension Compilation
Investigation Notebook
NGSS Information for Parents and Guardians
Print Materials (11" x 17")
Print Materials (8.5" x 11")
Offline Preparation
Teaching without reliable classroom internet? Prepare unit and lesson materials for offline access.
Offline Guide

Window #2

Amplify Curriculum
apps.learning.amplify.com/curriculu...
Amplify Science CALIFORNIA > Plate Motion > Chapter 1 > Lesson 1.2

Lesson 1.2:
Using Fossils to Understand Earth

Lesson Brief (4 Activities) 1 WARM-UP Warm-Up T TEACHER-LED DISCUSSION Why Geologists Value Fossils 2 TEACHER-LED DISCUSSION Introducing Mesos

RESET LESSON GENERATE PRINTABLE LESSON

Lesson Brief

Overview
Materials & Preparation
Differentiation
Español rds

Digital Resources
All Projections
Completed Scientific Argumentation Wall Diagram
Video: Meet a Paleontologist
The Ancient Mesosaurus

Overarching goals

By the end of this 3-hour workshop, you will be able to:

- Articulate the critical role that language and literacy play in developing scientific understanding.
- Identify strategies that support students' disciplinary literacy and language development.
- Recognize the embedded instructional design and identify additional supports for English learners in an Amplify Science instructional sequence.





Plan for the day

- **Framing the day**
 - Welcome and introductions
 - Anticipatory activity
- The role of language & literacy
 - Language, science, or both activity
 - Science & engineering practices
- Research-based principles
 - Expert groups
- Instructional sequence
 - *BREAK*
- Analyzing an instructional sequence
 - Embedded instructional design & additional supports
- Differentiation for an upcoming lesson
- Individual planning with @Home resources
 - Multimodal approach @Home
- Closing
 - Reflection & additional resources
 - Survey

Anticipatory activity

On the Jamboard “post”

- What current **strategies** do you have in place for supporting **English Learners** in your classroom?

What current strategies do you have in place for supporting English Learners in your classroom?

The image shows a Jamboard-style grid with a light gray background and a grid of small dots. At the top, the text "What current strategies do you have in place for supporting English Learners in your classroom?" is written. Below the text, there are five colored sticky notes arranged in two rows. The top row has three sticky notes: a yellow one on the left, a light green one in the middle, and a light blue one on the right. The bottom row has two sticky notes: a pink one on the left and an orange one on the right. Each sticky note has the word "Strategy" written on it in black text.



Questions?



Plan for the day

- Framing the day
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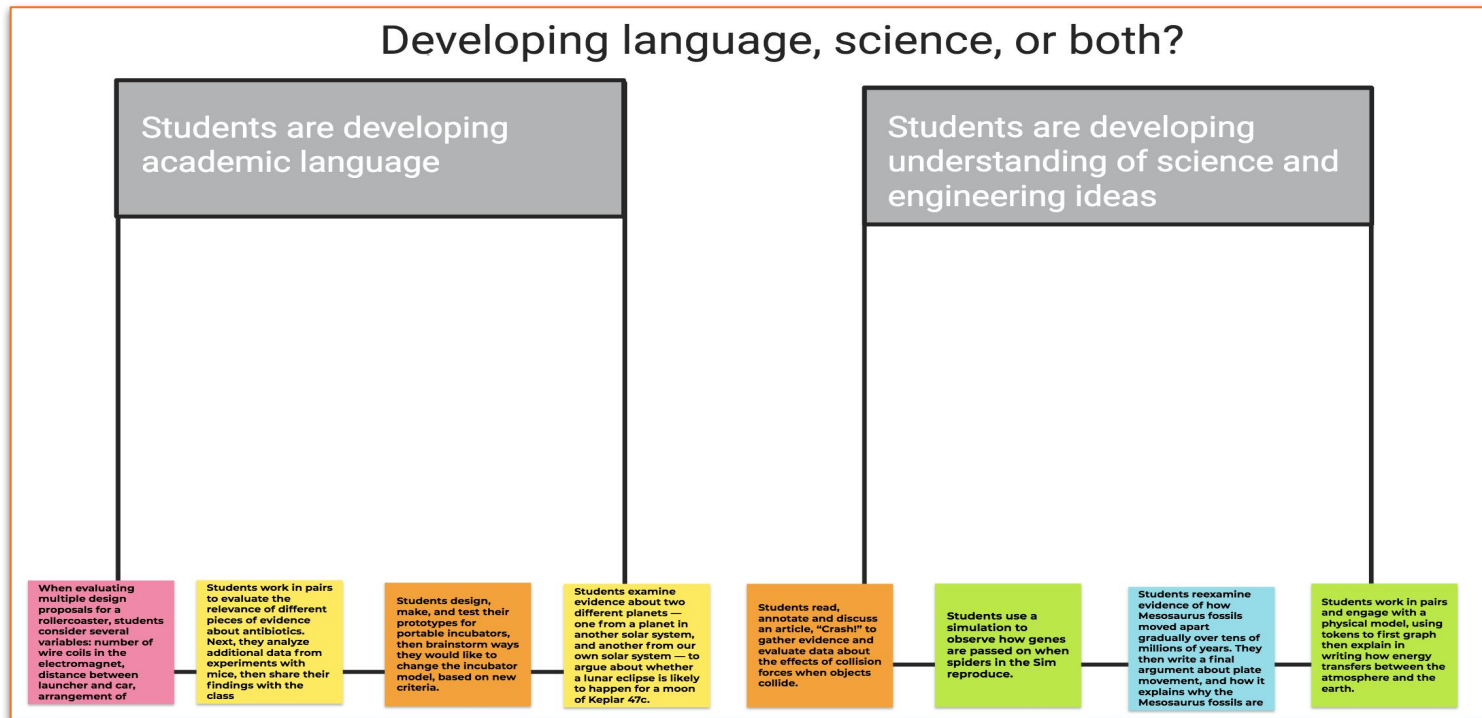
Language of the science classroom

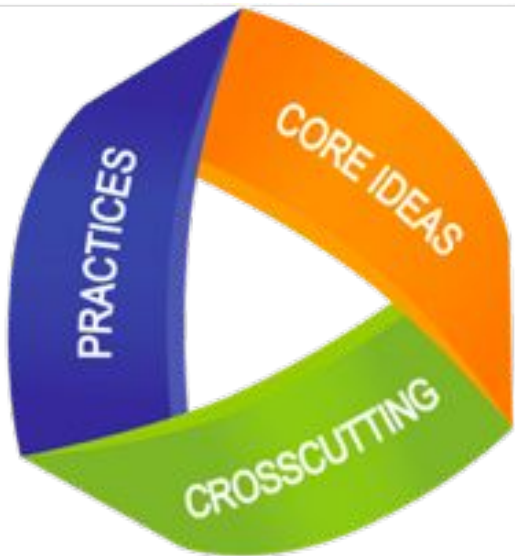
The ways that **students and teachers** use **oral** and **written** language to interact with each other, to **obtain information** from written materials, and to participate in **discourse** to construct understanding about science.

From Lee, O.; Quinn, H.; Valdés, G. *Science and Language for English Language Learners in Relation to Next Generation Science Standards and with Implications for Common Core State Standards for English Language Arts and Mathematics*. EDUCATIONAL RESEARCHER April 2013

Language, science, or both?

Sort on **Jamboard**. What **trends** do you notice?





Standards as three-dimensional performance expectations that integrate **disciplinary core ideas**, **science and engineering practices**, and **crosscutting concepts**

Science and Engineering Practices

inquiry

1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations

math

4. Analyzing and interpreting data
5. Using mathematics and computational thinking

language

6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information



Questions?



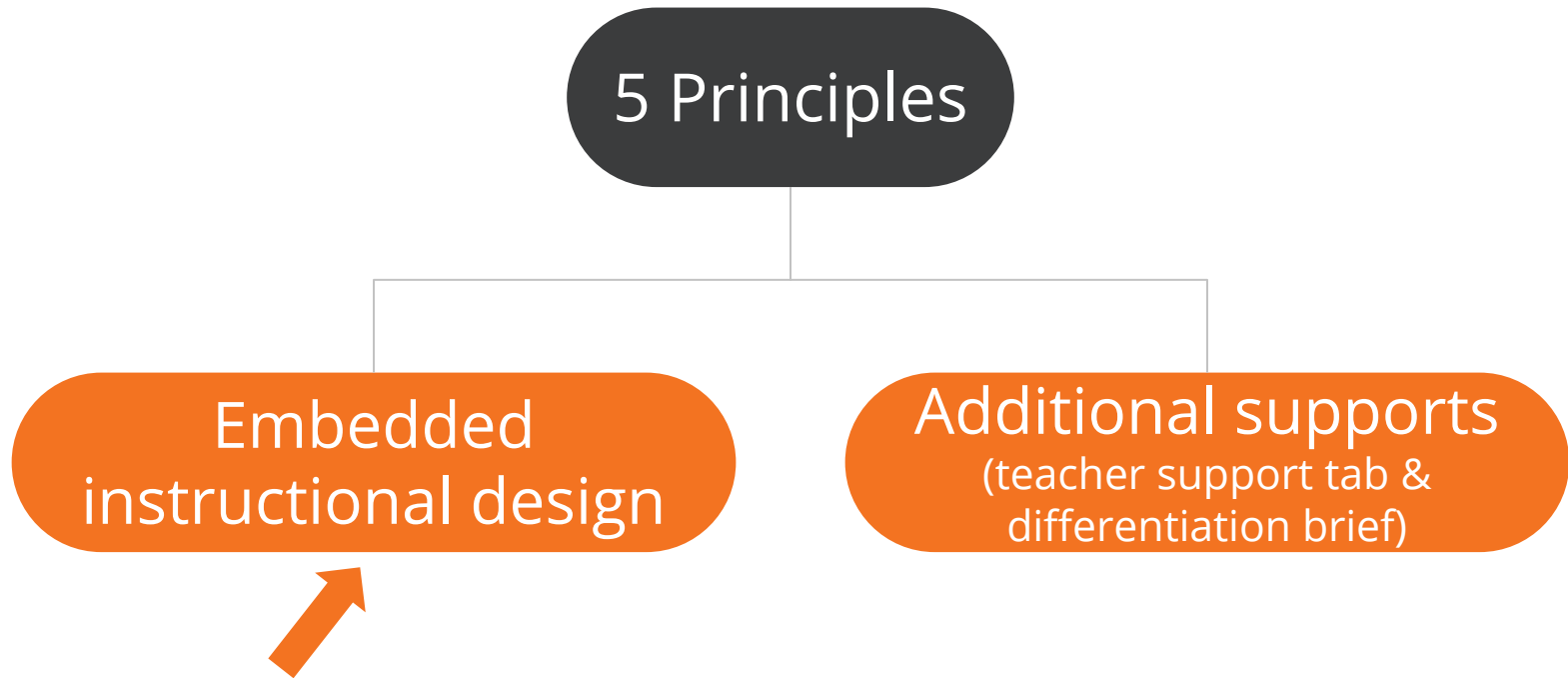
Plan for the day

- Framing the day
 - Welcome and introductions
 - Anticipatory activity
- The role of language & literacy
 - Language, science, or both activity
 - Science & engineering practices
- **Research-based principles**
 - **Expert groups**
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5 principles for supporting English learners

- Principle 1: Leverage and build students' informational background knowledge.
- Principle 2: Capitalize on students' knowledge of language.
- Principle 3: Provide explicit instruction about the language of science.
- Principle 4: Provide opportunities for scaffolded practice.
- Principle 5: Provide multimodal means of accessing science content and expressing language.

Supports for English learners



5 principles for supporting English learners

- Principle 1: Leverage and build students' informational background knowledge.
- Principle 2: Capitalize on students' knowledge of language.
- Principle 3: Provide explicit instruction about the language of science.
- Principle 4: Provide opportunities for scaffolded practice.
- Principle 5: Provide multimodal means of accessing science content and expressing language.

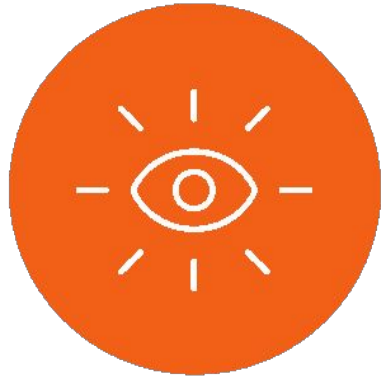
Multimodal, phenomenon-based learning

In each Amplify Science unit, students embody the role of a scientist or engineer to **figure out** phenomena.

Through problem based deep dives, they gather evidence from multiple sources, using multiple modalities.



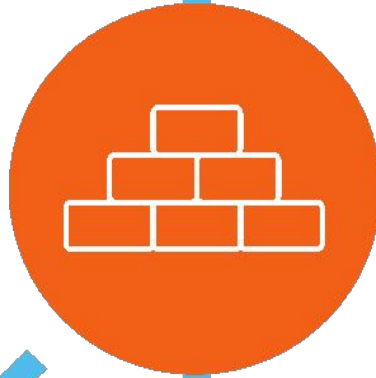
Amplify Science approach



Introduce a phenomenon
and a related problem



Collect evidence from
multiple sources



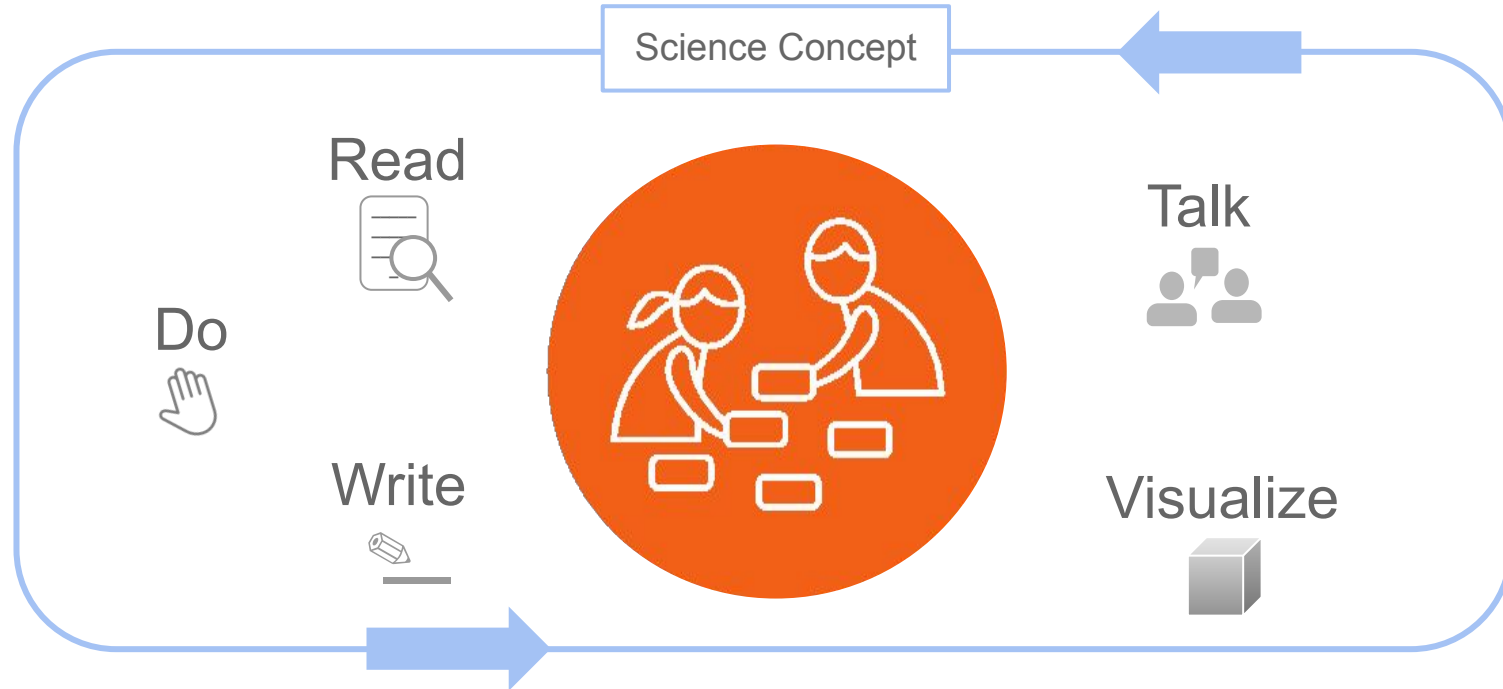
Build increasingly
complex explanations



Apply knowledge
to a different context

Multimodal learning

Gathering evidence from different sources



Expert groups collaborative work time

- Form **one group** for each principle (will have to be assigned randomly according to **breakout room**).
- Each group will **read about their principle**.
- Groups will discuss their principle, then create a **Google slide** to highlight key elements of their principle. Be **creative!**
- Each group will **share and discuss** their Google Slide “posters” with the group.

Principle 5: Provide multimodal means of accessing science content and expressing language.

Science Concept

Read



Do



Write

Name _____ Date _____

Comparing Types of Sand

- Put the sand samples in order from smallest to largest grain size.
Which sand has the smallest grains? _____
Which sand has the largest grains? _____
- Put the sand samples in order from lightest color to darkest color.
Which sand is the lightest in color? _____
Which sand is the darkest in color? _____
- Put the sand samples in order from sharpest to roundest grain shape.
Which sand has the sharpest grains? _____
Which sand has the roundest grains? _____
- Are any of the types of sand similar to each other? Describe their similarities.



Talk



Work in groups to **compare** the sand samples. Each group member should **complete** their own notebook page.

Visualize

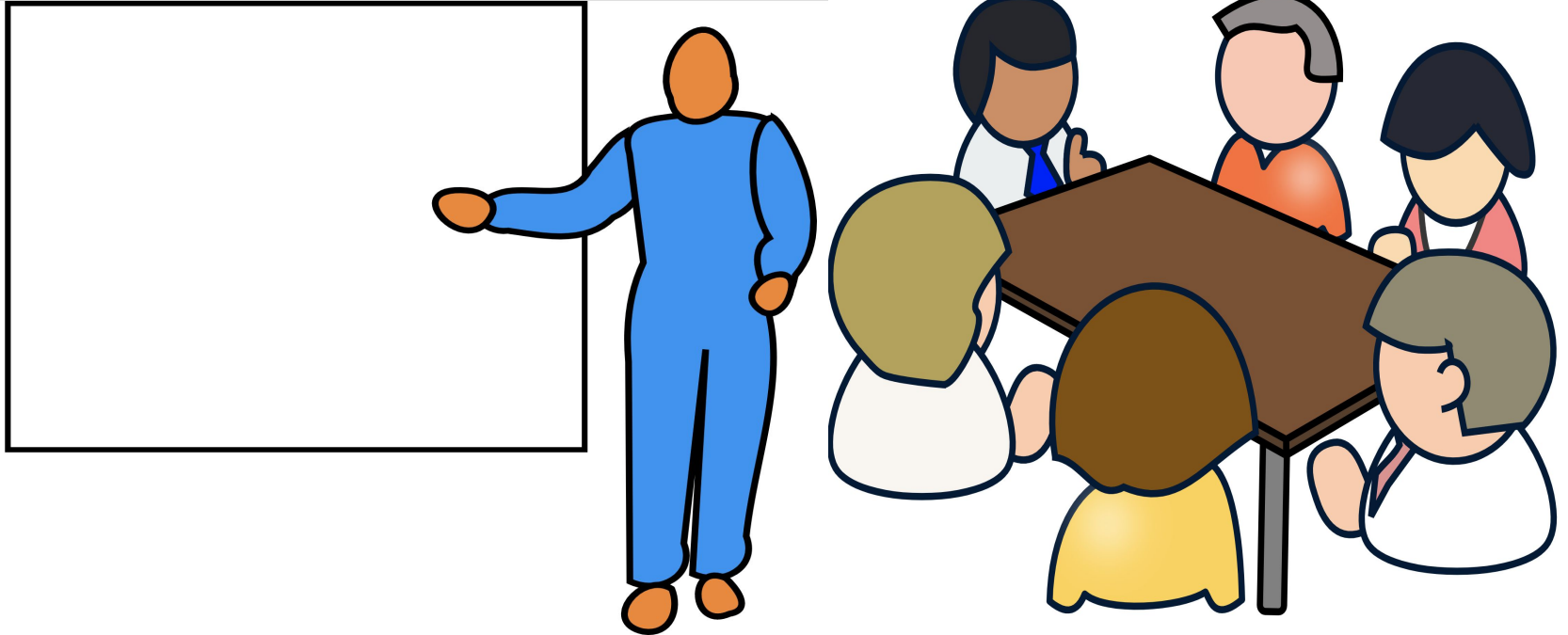
Let's use our observations of this sand to visualize where it comes from.



Where do you think this sand comes from?

Virtual group presentations **round 1**

Summarize the key elements of your principle.





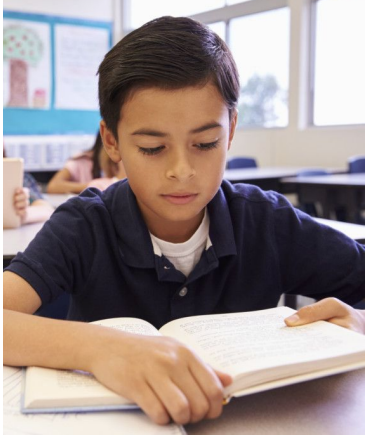
Questions?



Plan for the day

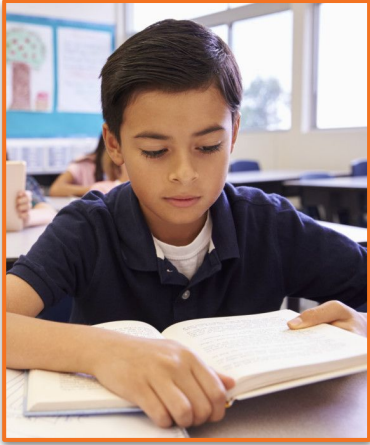
- Framing the day
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Who are our English learners?



- What language(s) do they speak?
- How long have they been at your school?
- What is their English Proficiency level?
- What are they like as a learner?
- What are they like socially?
- Do they have peers in school who speak their same home language?
- What are their areas of strength?
- Where do they need the most support?

Reflecting with students in mind



Choose **one student** who is an **English learner** who you **currently** teach.

During the **instructional sequence**, reflect on how your focal student is supported by the **embedded instructional design** & additional supports embodied by your **group's principle**.





Exemplar instructional sequence

An illustration of a Mesosaurus skeleton lying on a riverbank. The skeleton is shown in profile, facing left. The background features a river, green foliage, and a blue sky with a sun. The text '19 Lessons' is in the top left, and 'Plate Motion' is in the top center.

19 Lessons

Plate Motion

Why are fossils of *Mesosaurus* separated by thousands of kilometers of ocean when the species once lived all together?

Students play the role of geologists working for the fictional Museum of West Namibia to investigate *Mesosaurus* fossils found both in southern Africa and in South America. They learn that the surface of the Earth has changed dramatically over the Earth's history, with continents and ocean basins changing shape and arrangement due to the motion of tectonic plates. As the Earth's surface changes, fossils that formed together may be split apart.

A stylized illustration of a landscape. In the foreground, there are layers of brown and tan earth. To the right, a volcano with a grey cone and a dark red base is shown, with a plume of dark smoke rising from its peak. A small cluster of green coniferous trees stands at the base of the volcano. In the middle ground, a body of water with a dark green surface and a white, wavy horizon line is visible. The background features a light blue sky with several white, fluffy clouds. The overall style is flat and graphic.

Plate Motion @Home Lesson 4

Name: _____ Date: _____

A New Message from Dr. Moraga

To: Student Geologists
From: Dr. Bayard Moraga, Lead Curator, Museum of West Namibia
Subject: How Did the South American Plate and African Plate Move?



Thank you for your work to determine that today *Mesosaurus* fossils are found on two different plates and these plates have a plate boundary between them. These are important pieces of the story we need to tell in our museum exhibit! Now we are curious about how the *Mesosaurus* fossils got separated by such a great distance.

We would like you to investigate this question: *How did the South American Plate and African Plate move?*

Given what you know right now, how would you respond to the question from Dr. Moraga: *How did the South American Plate and African Plate move?*

Go to the **A New Message from Dr. Moraga** activity.



Begin today's lesson by reading and writing to complete the **A New Message from Dr. Moraga** activity.

Dr. Moraga's question is also our Chapter 2 Question:

Chapter 2 Question

How did the South American Plate and African Plate move?

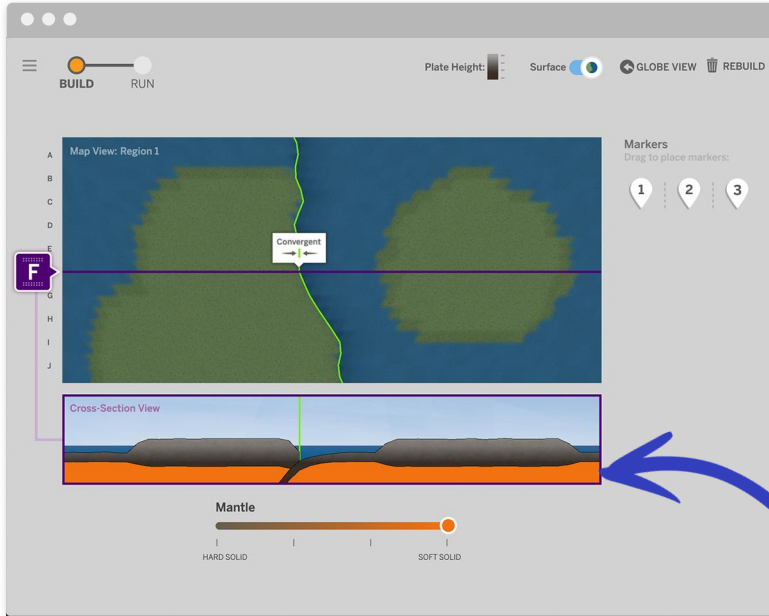
We know Earth's plates move because we can see a **pattern of earthquakes** along plate boundaries. Earthquakes provide evidence of plate motion.

But we don't yet know **how** plates move.

Today, we will investigate this question:

Investigation Question:
How do Earth's plates move?

Today we will **gather evidence** that can tell us what **conditions** on Earth **allow plates to move**.

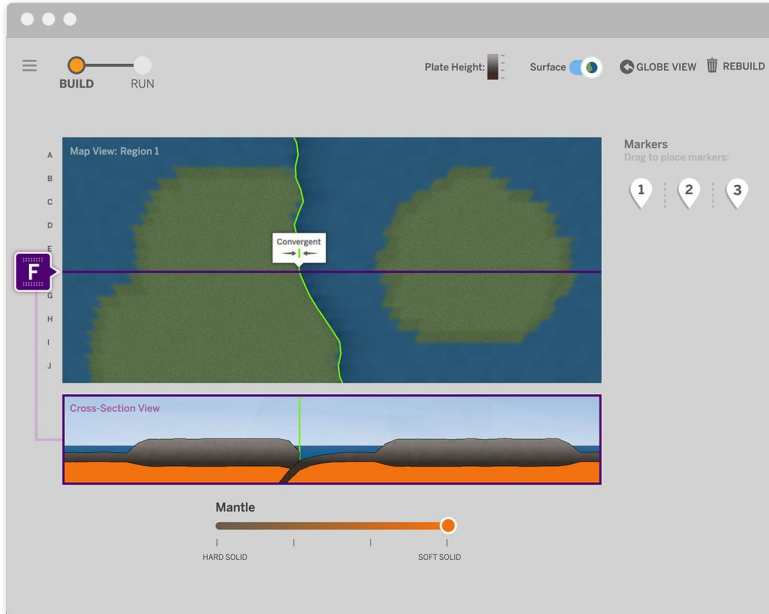


To figure out how plates move, we will need to learn more about the **layer just below the plates.**

This layer is called the **mantle.**

The layer called the **mantle starts somewhere between 65 and 100 kilometers below Earth's surface.**

Like the plates, the mantle is made of solid rock. You will use the **Sim** today to find out **more about the mantle.**

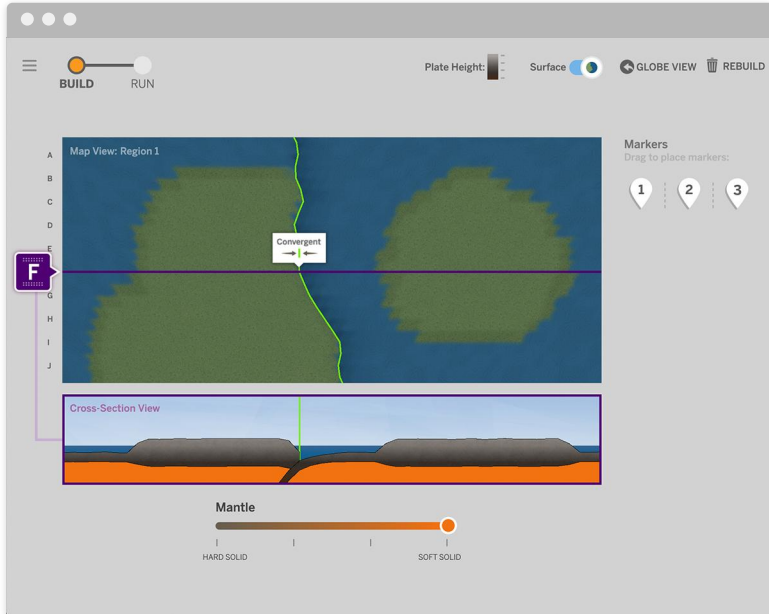


Solid substances can have different hardnesses.



What are some examples of **hard solids**?

What are some examples of **soft solids**?



Next you will work in the Sim to gather evidence about the mantle. You will make the mantle **softer** or **harder**, and observe **how the plates move** after you make the change.

Name: _____ Date: _____

Considering the Mantle

We know that Earth's outer layer is made of hard, solid rock divided into plates, and we know those plates move. But how? Below the outer layer is the mantle. In this activity, you will use the Sim to investigate how the composition of the mantle might allow the plates to move.

1. Open the Sim.
2. Select Region 1 from the Globe View.
3. Adjust the mantle setting to Hard Solid. Press RUN and observe the motion of the plates. Record your observations in the data table below.
4. Once the run has ended, press BUILD. Adjust the mantle setting to Soft Solid. Press RUN and observe the motion of the plates. Record your observations in the data table below.
5. After you complete the table, answer the question below.

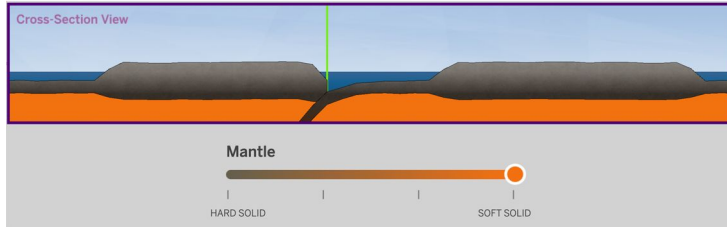
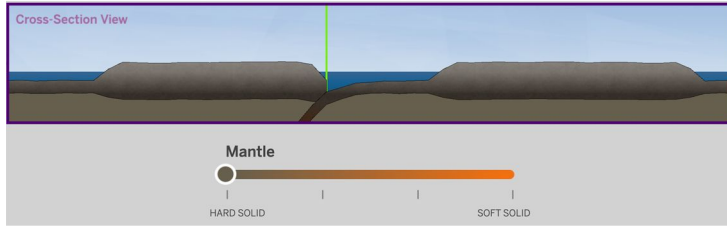
Mantle setting	Observations of plate motion
Hard Solid	
Soft Solid	

Based on your results, what do you think the rock in Earth's mantle is like? Is the mantle made of hard, solid rock or soft, solid rock? Explain your ideas.

Go to the Considering the Mantle activity.



Follow the directions and complete the Considering the Mantle Sim activity.



What did you **observe** when the mantle was set as **hard, solid rock**?

What about when it was set as **soft, solid rock**?

Name: _____ Date: _____

Considering the Mantle

We know that Earth's outer layer is made of hard, solid rock divided into plates, and we know those plates move. But how? Below the outer layer is the mantle. In this activity, you will use the Sim to investigate how the composition of the mantle might allow the plates to move.

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3. Adjust the mantle setting to Hard Solid. Press RUN and observe the motion of the plates. Record your observations in the data table below.
4. Once the run has ended, press BUILD. Adjust the mantle setting to Soft Solid. Press RUN and observe the motion of the plates. Record your observations in the data table below.
5. After you complete the table, answer the question below.

Mantle setting	Observations of plate motion
Hard Solid	
Soft Solid	

Based on your results, what do you think the rock in Earth's mantle is like? Is the mantle made of hard, solid rock or soft, solid rock? Explain your ideas.



How did changing the hardness of the mantle affect the **motion of the plates** in the Sim?

What can you **conclude about the mantle** from this?

The **Considering the Mantle** Sim activity provides evidence that a soft, solid mantle allows the plates to move.

This model shows us that the **mantle must be a soft solid**, not a hard, rigid solid.

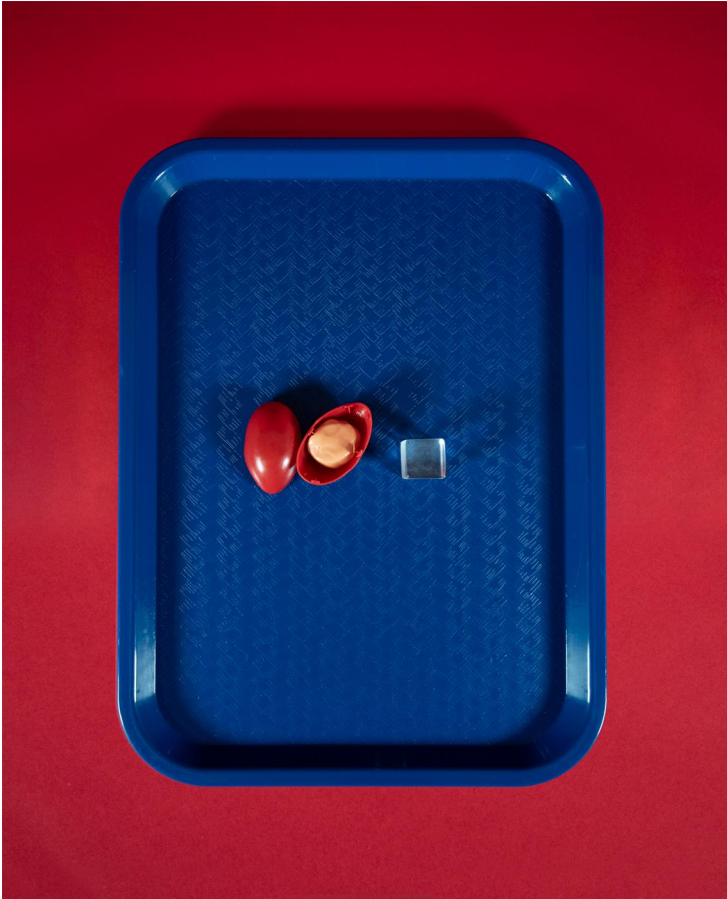
Here is a scientific definition of the word mantle:



the layer of soft, solid rock underneath Earth's plates

What does it mean to be **soft, solid rock**? How is that **different from hard, solid rock**?

In this activity, you will watch a video of an exploration of **two physical materials**, one soft solid and one hard solid, to help you better understand how the characteristics of the mantle and the plates are different.



These are the materials you will see in the video demonstration:

a soft solid (Silly Putty), and
a hard solid (a plastic cube)

You'll observe how these materials behave differently.

Name: _____ Date: _____

Exploring Characteristics of the Mantle

How is a soft, solid material different from a hard, solid material?

Watch this video of someone investigating the Sim (Note: you can watch the video on a smartphone or any other connected device): tinyurl.com/AMPPM-07

Make observations during the video and **record your observations in the data table below.**

Think about these questions:

- What observations can you make about the soft, solid material that is represented by Silly Putty?
- What observations can you make about the hard solid material?
- What can the soft, solid material do that the hard, solid material can't? What happens

Material	Observations
Soft, solid material: Silly Putty	
Hard, solid material: plastic cube	

Go to the Exploring Characteristics of the Mantle activity.

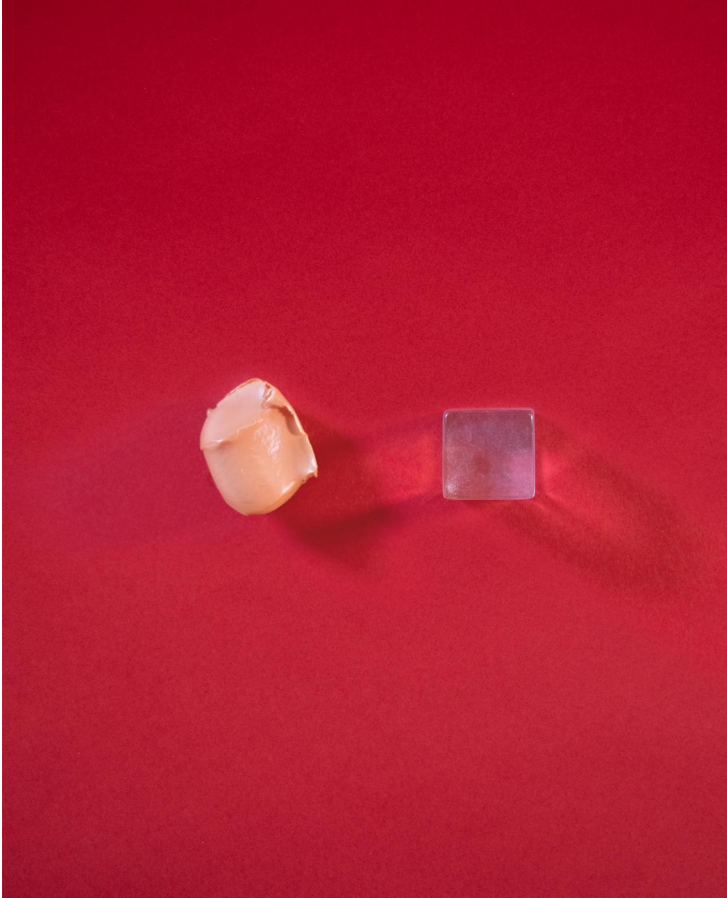


As you watch the video, record your observations. You may need to watch the video a few times to make your observations.



Now, you'll talk about what **you observed**.
You'll need a **partner** for this activity.

Remember, your partner could be a classmate on the phone or someone at home with you.



Using the notes you took during the video, discuss this question with your partner:

How is a **soft, solid material** different from a **hard, solid material**?

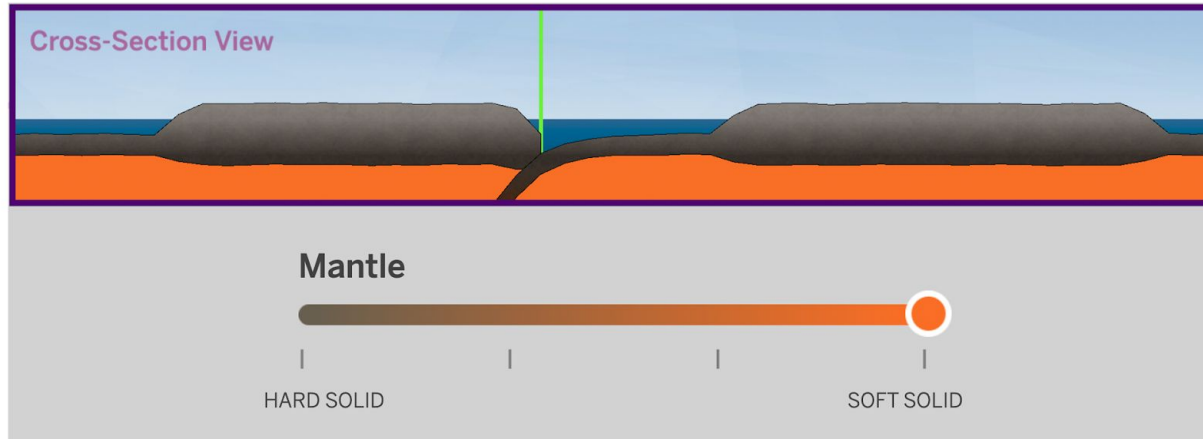
Silly Putty is a unique material. Scientists use it to model the characteristics of the soft, solid rock that makes up Earth's mantle.



Based on your observation of the Silly Putty, how would you describe the **soft, solid rock** that makes up the mantle?



How do you think the soft, solid mantle **allows** the plates above it to move?





Next, you will use a routine called **Word Relationships** to help you to reflect on the work you did in the Sim and the observations you made of the Silly Putty and the plastic cube, using scientific language.



You will use **these words** to create **sentences** that answer questions about **how these parts of Earth work together**, in order to explain this to visitors at the Museum of West Namibia.

The purpose of the Word Relationships routine is to help you **use scientific language** to explain what you have been learning.

You will again need a **partner** for this activity.

Word Relationships Routine

You will follow these steps to complete the Word Relationships Routine:

Make Sentences

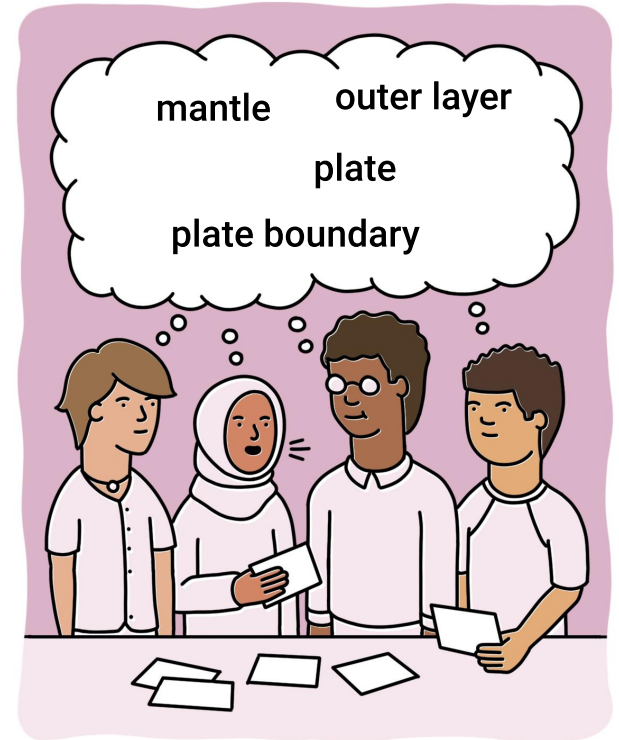
Use at least **two** of the words in the Word Bank to create **sentences that answer both questions and explain how these parts of Earth work together**. You do not have to use all the words, and can use words more than once.

Take Turns

With your partner take turns as both the speaker and listener.

Create More Than One Sentence

There are many ways to answer the questions, and you will need to create more than one sentence.



plate

Plate Motion—Word Relationships Cards: Set 1—Lesson 2.1—AMP616501.06-PM
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mantle

Plate Motion—Word Relationships Cards: Set 1—Lesson 2.1—AMP616501.06-PM
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You'll use **at least two words** to create each sentence.

plate

Plate Motion—Word Relationships Cards: Set 1—Lesson 2.1—AMP616501.06-PM
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mantle

Plate Motion—Word Relationships Cards: Set 1—Lesson 2.1—AMP616501.06-PM
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For example, you might use these two words to say, “The **plates** on Earth sit on top of the soft solid material of the **mantle**.”

Name: _____ Date: _____

Word Relationships

Some visitors at the Museum of West Namibia have never learned anything about Earth's plates, plate boundaries, or mantle. Use the Word Relationships Cards to create sentences that help explain to these visitors how these parts of Earth work together. Create sentences that answer both of these questions:

1. How can Silly Putty and a hard, plastic cube be used to model different layers of Earth?
2. How are Earth's plates able to move?
 - Use at least two different Word Relationships Words in each sentence you create with your partner.
 - You and your partner may use the same word more than once. You do not need to use all the vocabulary words.
 - There are many different ways to answer these questions, and you will need to create more than one sentence in order to express your ideas completely.

Word Bank

mantle	outer layer	plate	plate boundary
--------	-------------	-------	----------------

Go to the **Word Relationships** activity.



Complete the Word Relationships Routine to create sentences that help explain how Earth's plates, plate boundaries, and mantle work together.

Remember, we are investigating this question.

How do Earth's plates move?

This **key concept** is something we learned with the two investigations we did today. It helps us to answer the Investigation Question.

5. Earth's plates move on top of a soft, solid layer of rock called the mantle.

We will learn more about **how plates move** and how **scientists study** different kinds of **plate movement** in the next lessons.

End of @Home Lesson



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HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

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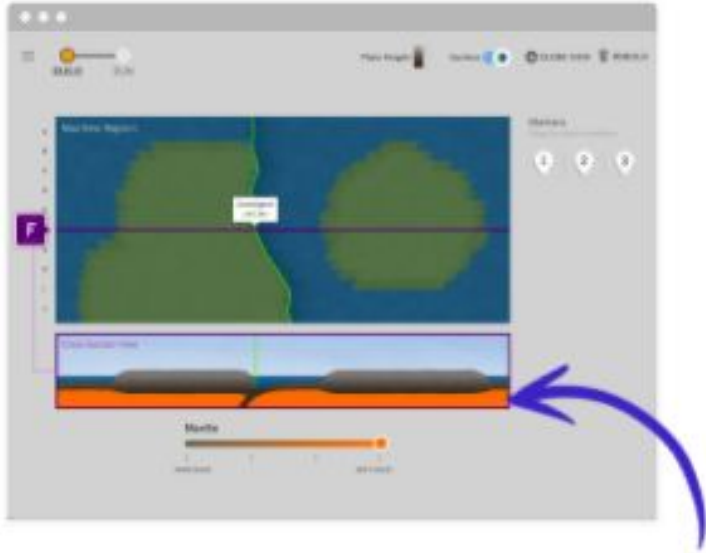
Plate Motion

@Home Lesson 5

Today, we will investigate this question:

Investigation Question:

What happens to the plates and the mantle at plate boundaries?



In previous lessons, we learned that the **plates can move** because they are on top of the **soft, solid mantle**.

Investigation Question:
What happens to the
plates and the mantle at
plate boundaries?

This Investigation
Question is still about
plates and the mantle,
but we are going to focus
more specifically on what
happens to the mantle
and the plates at plate
boundaries.



Once you have a better understanding of this, it will bring you closer to assisting the **Museum of West Namibia** in determining **what type of plate movement** got the *Mesosaurus* fossils where they are today.

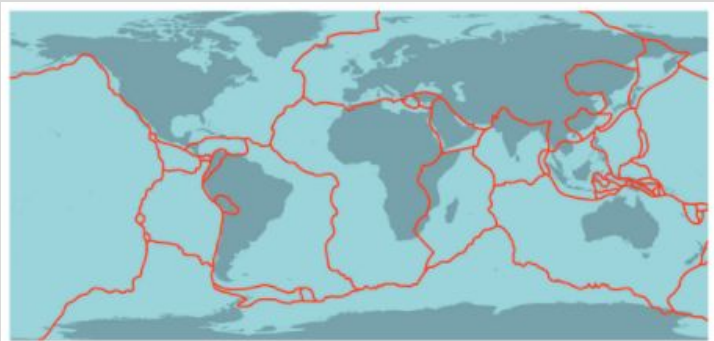



plate boundaries on Earth

Dr. Moraga from the Museum of West Namibia sent us an article that will help us understand what happens to the plates and mantle **at plate boundaries.**


For the next activity you will complete written work, either on paper or online. Check with your teacher about how you will complete and submit work in this @Home Unit.

Listening to Earth




Bob Dziak is a scientist who studies sound in the ocean. [Robert Dziak](#)

Bob Dziak (see-AY) studies [plate boundaries](#) in a surprising way: he listens to them. Dziak is a scientist who works for the National Oceanic and Atmospheric Administration (NOAA), a government department that studies the ocean and the atmosphere. Dziak and his team wanted to know more about what happens on the ocean floor, especially at plate boundaries. Sending people to the bottom of the ocean is difficult, so Dziak and his team used hydrophones—powerful microphones that are built to travel deep under water. The team sent hydrophones 10,999 kilometers (6,831 miles) down into the deepest place in the ocean, an area known as Challenger Deep. Challenger Deep is an underwater canyon, part of a larger [trench](#) called the Mariana Trench. Dziak and his team didn't expect to hear very much noise so deep below the ocean's surface. What they actually found surprised them—their hydrophones picked up sounds from many different sources!



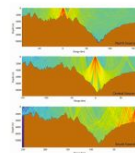
Listening to Earth

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One type of sound collected by Dziak and his team was the sound of plate motion in the form of earthquakes. Earthquakes happen at plate boundaries all over the world—they are caused by the motion of plates. Dziak travels all over the world studying plate boundaries under the ocean and using hydrophones to collect data about the earthquakes that happen there. By recording earthquakes at different plate boundaries, Dziak and his team are using sound to study the ways the plates move on Earth.

This diagram shows how sound travels around deep trenches like the Mariana Trench. Here, sound is represented by red and yellow lines. If the source of sound is directly over the trench, like it is in the middle panel, sound will easily travel into the deepest parts of the trench. However, if the source of the sound is not directly over the trench, most of the sound does not make it to the bottom of the trench.

Listening to Earth 1

Remember, in this class we use an **Active Reading** approach when we read. You will use this approach today when you read the article Dr. Moraga sent.

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 7th grade student named **Zora made annotations** on a digital version of the “Listening to Earth” article.

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

By looking at Zora's annotations you will learn more about:

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

Listening to Earth

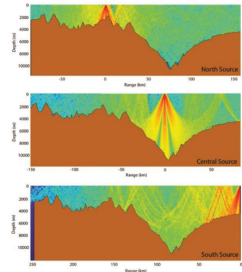
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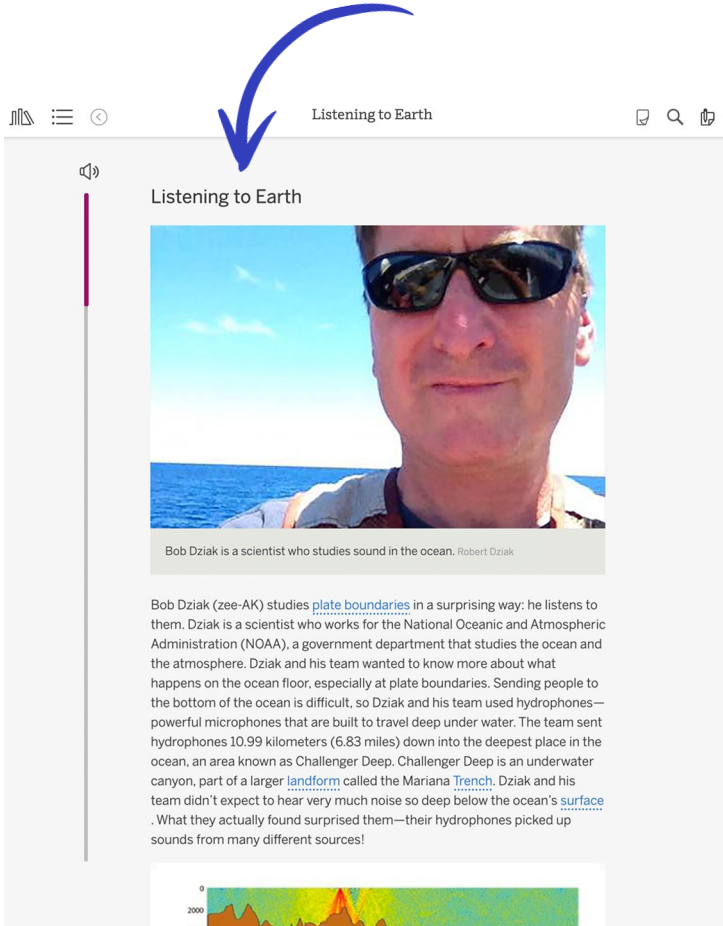
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You can **follow along** in your article as you see what Zora did with her annotations on the next slides. You can also add your own annotations.

Listening to Earth. © 2020 The Regents of the University of California. All rights reserved. Permission granted to purchase to photocopy for classroom use.
Image Credit: Robert Dziak. B. Utah/NOAA and C. Captain Australia/Western Washington University



The screenshot shows a digital article interface. At the top, there are navigation icons (back, home, search) and the title "Listening to Earth". A blue arrow points from the top left towards the article title. Below the title is a photograph of a man wearing sunglasses, identified as Bob Dziak. Underneath the photo is a caption: "Bob Dziak is a scientist who studies sound in the ocean. Robert Dziak". The main text of the article begins with "Bob Dziak (zee-AK) studies [plate boundaries](#) in a surprising way: he listens to them. Dziak is a scientist who works for the National Oceanic and Atmospheric Administration (NOAA), a government department that studies the ocean and the atmosphere. Dziak and his team wanted to know more about what happens on the ocean floor, especially at plate boundaries. Sending people to the bottom of the ocean is difficult, so Dziak and his team used hydrophones—powerful microphones that are built to travel deep under water. The team sent hydrophones 10.99 kilometers (6.83 miles) down into the deepest place in the ocean, an area known as Challenger Deep. Challenger Deep is an underwater canyon, part of a larger [landform](#) called the Mariana [Trench](#). Dziak and his team didn't expect to hear very much noise so deep below the ocean's [surface](#). What they actually found surprised them—their hydrophones picked up sounds from many different sources!" Below the text is a small graph showing a cross-section of the ocean floor with depth markers at 0 and 2000 meters.

Zora began by reading the **title** of the article.

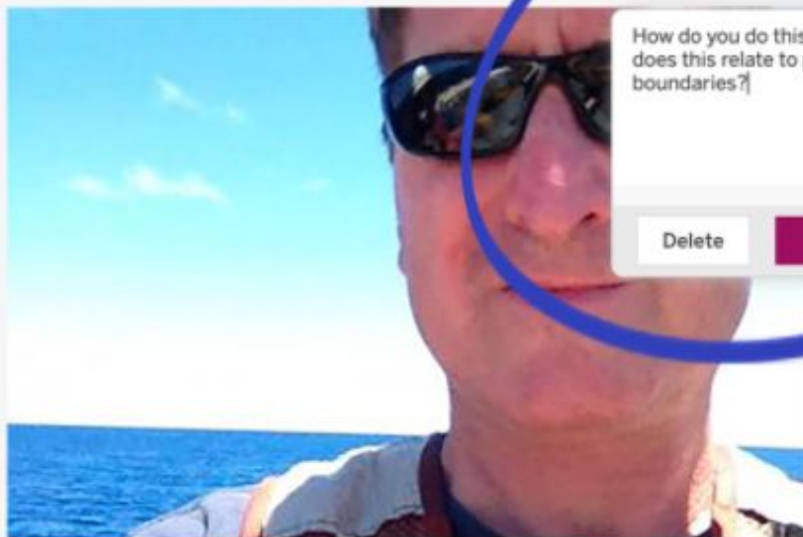
After reading the title Zora thought:

“That is a strange idea -- ‘Listening to Earth’
...especially when you think about how listening to
Earth might be related to plate boundaries! I’m
going to ask some questions about that right
away.”

The next slide shows the annotations she made.



Listening to Earth



How do you do this? How does this relate to plate boundaries?

char: 62

Delete

Save

Bob Dziak is a scientist who studies sound in the ocean. *Robert Dziak*

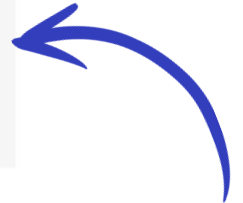
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After adding her questions about the title in an annotation, Zora **kept reading**.

Zora read the entire first paragraph of the article before stopping. When she was reading she realized that the word '**hydrophones**' was an **unfamiliar word**.

Zora thought: “Since the word *hydrophones* is **unfamiliar**, I am going to read the sentence again, to see if it can help me understand what this word means”

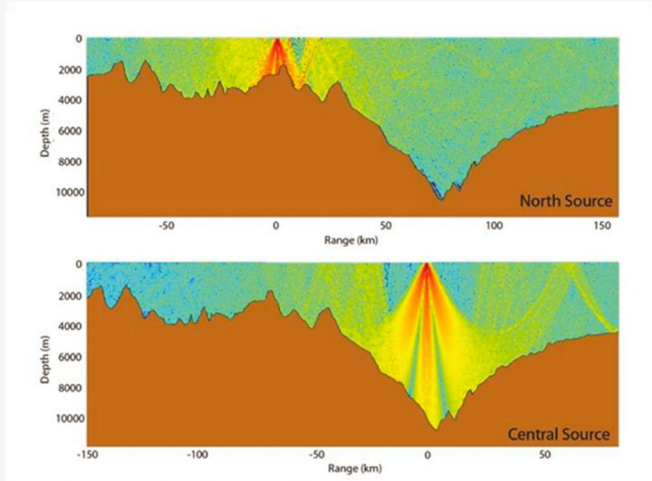
Bob Dziak (zee-AK) studies [plate boundaries](#) in a surprising way: he listens to them. Dziak is a scientist who works for the National Oceanic and Atmospheric Administration (NOAA), a government department that studies the ocean and the atmosphere. Dziak and his team wanted to know more about what happens on the ocean floor, especially at plate boundaries. Sending people to the bottom of the ocean is difficult, so Dziak and his team used **hydrophones—powerful microphones that are built to travel deep under water**. The team sent hydrophones 10.99 kilometers (6.83 miles) down into the deepest place in the



After rereading, Zora saw that the sentence explained that a **hydrophone is a microphone that can travel underwater.**

Bob Dziak (zee-AK) studies [plate boundaries](#) in a surprising way: he listens to them. Dziak is a scientist who works for the National Oceanic and Atmospheric Administration (NOAA), a government department that studies the ocean and the atmosphere. Dziak and his team wanted to know more about what happens on the ocean floor, especially at plate boundaries. Sending people to the bottom of the ocean is difficult, so Dziak and his team used **hydrophones—powerful microphones that are built to travel deep under water.** The team sent hydrophones 10.99 kilometers (6.83 miles) down into the deepest place in the

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Zora decided that she should **highlight** this **challenging word**. She knew that doing this would help her remember to come back to it later, so she could learn even more about it.

Zora knew that she still had **questions** about the first paragraph. She decided to make an annotation to record them.

studies the ocean and the atmosphere. Dziak and his team wanted to know more about what happens on the ocean floor, especially at tectonic boundaries. Sending people to the bottom of the ocean is difficult, and his team used **hydrophones**—powerful microphones that can travel deep under water. The team sent hydrophones 10,916 feet (6.83 miles) down into the deepest place in the ocean, Challenger Deep. Challenger Deep is an underwater canyon, a **landform** called the Mariana **Trench**. Dziak and his team wanted to hear very much noise so deep below the ocean's **surface**. what they actually found surprised them—their hydrophones picked up sounds from many different sources!

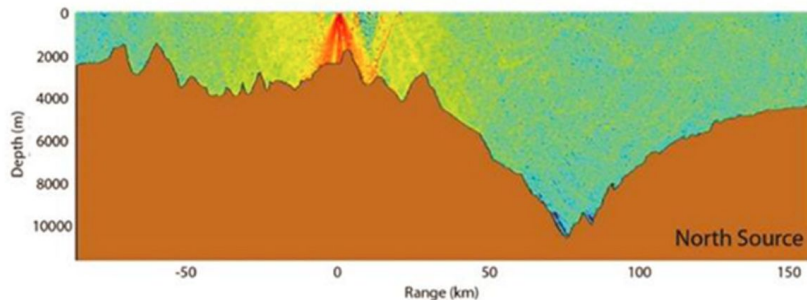
What makes these noises?
Why listen in this canyon?

Delete



Zora also decided she had a **connection** she wanted to record. She read that Dr. Dziak **wanted to learn more about plate boundaries -- and she did too!** Zora added an annotation with this connection.

Bob Dziak (zee-AK) studies [plate boundaries](#) in a surprising way: he listens to them. Dziak is a scientist who works for the National Oceanic and Atmospheric Administration (NOAA), a government department that studies the ocean and the atmosphere. Dziak and his team **wanted to learn more about what happens on the ocean floor, especially at [plate boundaries](#)**. Sending people to the bottom of the ocean is difficult, so Dziak and his team used hydrophones—powerful microphones that are built to travel deep under water. The team sent hydrophones 10.99 kilometers (6.83 miles) down into the deepest place in the ocean, an area known as Challenger Deep. Challenger Deep is an underwater canyon, part of a larger [landform](#) called the Mariana [Trench](#). Dziak and his team didn't expect to hear very much noise so deep below the ocean's [surface](#). What they actually found surprised them—their hydrophones picked up sounds from many different sources!



I want to learn more about plate boundaries, too!

Delete

Save

Active Reading Guidelines

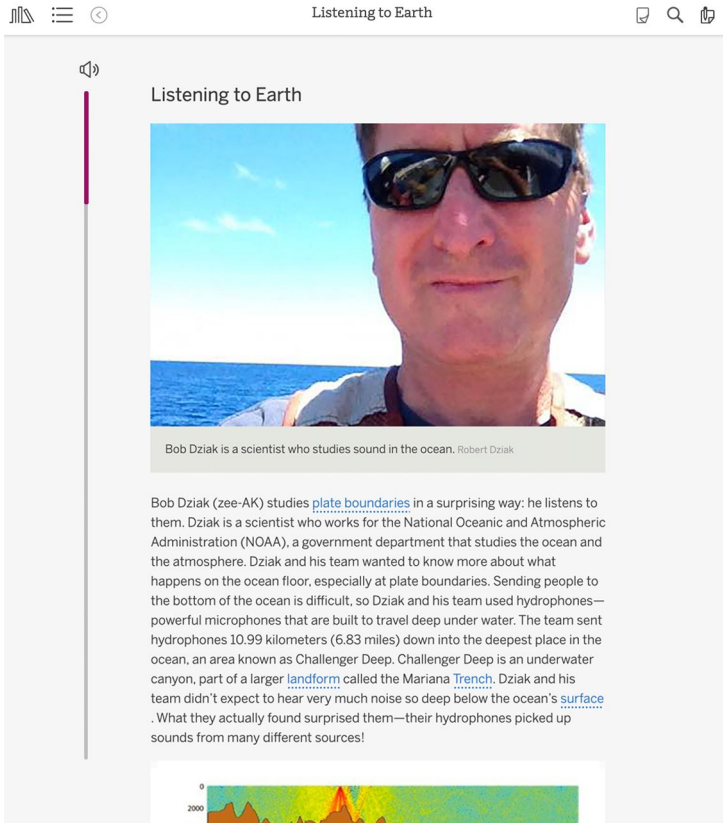
1. Think carefully about what you read. Pay attention to your own understanding.
2. As you read, annotate the text to make a record of your thinking. Highlight challenging words and add notes to record questions and make connections to your own experience.
3. Examine all visual representations carefully. 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.

Next, you will read and annotate “Listening to Earth” yourself. The Active Reading Guidelines can help you read actively.



How will you use these guidelines when you read today?


Listening to Earth



Listening to Earth

Bob Dziak is a scientist who studies sound in the ocean. Robert Dziak

Bob Dziak (zee-AK) studies [plate boundaries](#) in a surprising way: he listens to them. Dziak is a scientist who works for the National Oceanic and Atmospheric Administration (NOAA), a government department that studies the ocean and the atmosphere. Dziak and his team wanted to know more about what happens on the ocean floor, especially at plate boundaries. Sending people to the bottom of the ocean is difficult, so Dziak and his team used hydrophones—powerful microphones that are built to travel deep under water. The team sent hydrophones 10.99 kilometers (6.83 miles) down into the deepest place in the ocean, an area known as Challenger Deep. Challenger Deep is an underwater canyon, part of a larger [landform](#) called the Mariana [Trench](#). Dziak and his team didn't expect to hear very much noise so deep below the ocean's [surface](#). What they actually found surprised them—their hydrophones picked up sounds from many different sources!



Read and annotate “Listening to Earth.”

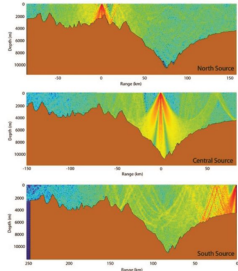
“Listening to Earth” [article](#) or [Lesson 2.2, Activity 2](#)

Listening to Earth

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

The next step in Active Reading is **discussing** your annotations. You'll need a partner for this activity.

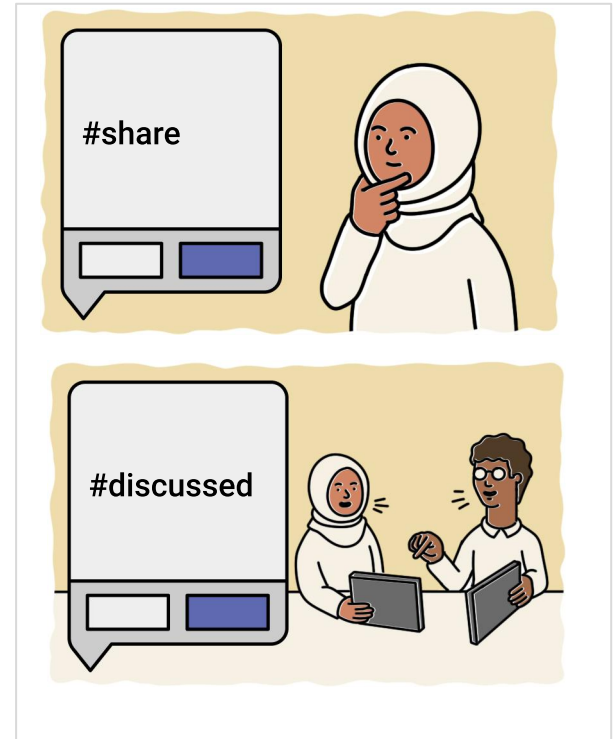
Your partner could be a classmate on the phone or someone at home with you.

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.**

We just read about a scientist who is **studying two types** of plate boundaries: **convergent boundaries and divergent boundaries**.

The next two slides provide definitions for these important words.



convergent

moving toward the same place



divergent

moving apart in different directions

To **converge** means to **come together**.
Convergent plate boundaries are the boundaries where **two plates are moving toward each other**.

To **diverge** means to **move apart**. Divergent plate boundaries are the boundaries where **two plates are moving away from each other**.

Remember, we are investigating this question:

Investigation Question:

What happens to the plates and the mantle at plate boundaries?



What did you learn from the article about what happens to the plates and the mantle at **plate boundaries**?

End of @Home Lesson



THE LAWRENCE
HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

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Questions?



Plan for the day

- Framing the day
 - Welcome and introductions
 - Anticipatory activity
- The role of language & literacy
 - Language, science, or both activity
 - Science & engineering practices
- Research-based principles
 - Expert groups
- Instructional sequence
 - ***BREAK***
- Analyzing an instructional sequence
 - Embedded instructional design & additional supports
- Differentiation for an upcoming lesson
- Individual planning with @Home resources
 - Multimodal approach @Home
- Closing
 - Reflection & additional resources
 - Survey

BREAK (15 minutes)





Questions?



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(Your group's principle)

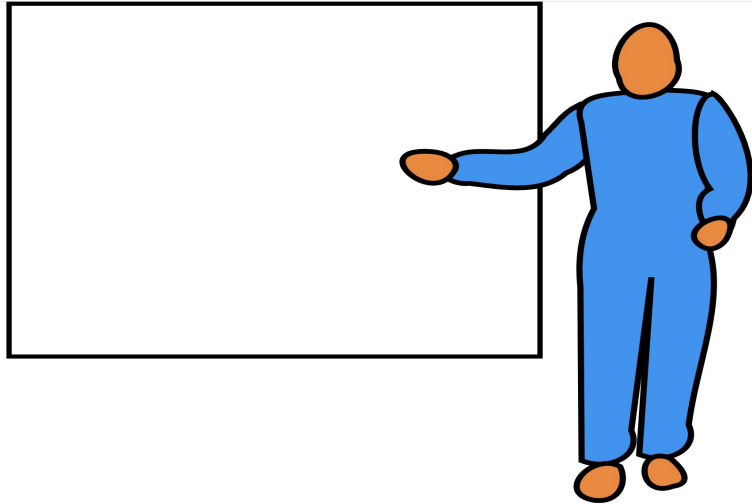
How is this principle embedded into the instructional design?

What additional supports are available (from either your own educator's toolkit or the Amplify Science differentiation brief & teacher support tab) to implement this principle?

Navigate to the **exemplar lesson's differentiation brief & teacher support tabs** for further insights.

Virtual group presentations round 2

Summarize how your principal's embedded instructional design elements & additional supports aided your focal English learner's developing scientific understanding.





Questions?



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Planning for differentiated supports

Lesson #	Type of support	Instructional suggestion	For whom? When?
1.3	Paired work: model	Strategic partnering	Pairs working on the token model (if possible: share with the whole group afterwards)

How would you use or modify the suggestion?

- Make sure Aamina is paired with someone who speaks either Somali or Arabic and who speaks English at a higher proficiency level than Aamina (3 or above); also consider someone she is comfortable with;
- Make sure Josue is paired with someone he is comfortable with; try to find someone he can support with the math involved during the activity so he gains confidence and feels like he can share thinking (in pair and whole group)

Planning for differentiated supports

- Navigate to a lesson you'll teach in the **upcoming week**.
- **Skim the lesson** to get a sense of the activities.
- Navigate to the **Differentiation section** of the Lesson Brief, and read the "Specific differentiation strategies for English learners" section.
- Use the "Planning for differentiated supports" **graphic organizer** to record your plan.

Planning for differentiated supports

Additional support considerations

- Additional practice time
- Strategic grouping
- Additional resources (multilingual glossary, word banks, other environmental print)
- Increased support for gradual release of responsibility
- Alternative response options



Questions?



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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
 Log Out
 Go To My Account

Classroom Language Settings

ELA Resources
 LA Science Program Guide
 Science Program Guide
 Help

1st Grade ▾ **Step 1**

22 Lessons
Animal and Plant Defenses

22 Lessons
Light and Sound

22 Lessons
Spinning Earth

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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 TEACHER SINHA

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 TEACHER SINHA

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

Multimodal Instruction @ Home

After reading each modality's description, provide a current support you would provide for your ELL students during remote & hybrid instruction in the doc.

Do: In Chapter 1, students use physical materials to observe the patterns of earthquakes at plate boundaries.

Talk: There are multiple opportunities for students to discuss their observations of patterns on Earth's surface and what these patterns reveal about geologic processes. These include patterns of earthquakes, volcanoes, and geologic landforms (mid-ocean ridges and trenches).

Read: Students read an informational text about plate boundaries. Divergent and convergent boundaries have characteristic patterns of geologic activities and landforms that are called out in the text.

Write: During the course of the unit, students write to explain their observations of patterns on Earth's surface and how these patterns are indicative of geologic history and activity.

Visualize: Students use the *Plate Motion Simulation* to observe patterns of geologic activity, such as volcanoes and earthquakes, that occur along plate boundaries. Students represent their ideas about patterns of plate motion by creating visual models of plates and plate boundaries in cross sections, using the *Plate Motion Modeling Tool*.

Support:

Support:

Support:

Support:

Support:

Remote resources for Supporting English Learners

- Optional investigation notebook pages
- Digital copy of vocabulary words
- Access to lesson level powerpoints (editable)
- Remote learning access for students (via Program Hub)
 - Student readers (English/Spanish)
 - Modeling tools/Sims/Practice tools
 - Videos with calls to action (English/Spanish)
 - Student slides, packets, and sheets (editable)





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3-2-1 Reflection

3	Strategies to take away
---	-------------------------

2	Things I learned
---	------------------

1	Question I still have
---	-----------------------

Revisiting our objectives

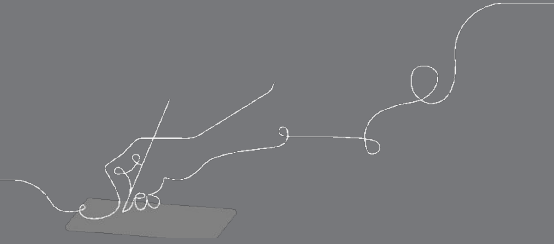
Do you feel ready to...

- Articulate the critical role that language and literacy play in developing scientific understanding.
- Identify strategies that support students' disciplinary literacy and language development.
- Recognize the embedded instructional design and identify additional supports for English learners in an Amplify Science instructional sequence.

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!



New York City Resources Site

<https://amplify.com/amplify-science-nyc-doe-resources/>



Amplify.

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 Science! We have access to the many updates and upgrades in our curriculum until late August/early September when we will update our 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

The screenshot shows the Amplify Science Program Hub website. The browser address bar displays the URL: apps.learning.amplify.com/curriculum/#/yearoverview?subject=Science&programKey=6a0daafb-c356-4e50-841a-558d9bb5181.... The page header includes the AmplifyScience logo and the subject "Life Science" with a dropdown arrow. A user profile for "Molly Teacher Lambertsen" is visible, with options for "Log Out" and "Go To My Account". A "Classroom Language Settings" button is also present. The main content area is titled "Additional Resources" and features a grid of icons for "Benchmark Assessments", "ELA Resources", "Interim Assessments", "LA Science Program Guide", and "Science Program Guide". A "Help" icon is also visible. The page displays two lesson cards: "Home" (19 Lessons) and "Metabolism" (19 Lessons). The footer includes the copyright notice: "© 2020 Amplify Education, Inc."

Additional Amplify resources



Program Guide

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

<https://my.amplify.com/programguide/content/national/welcome/science/>

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.



Final Questions?

Please provide us feedback!

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

Presenter name: XXX

