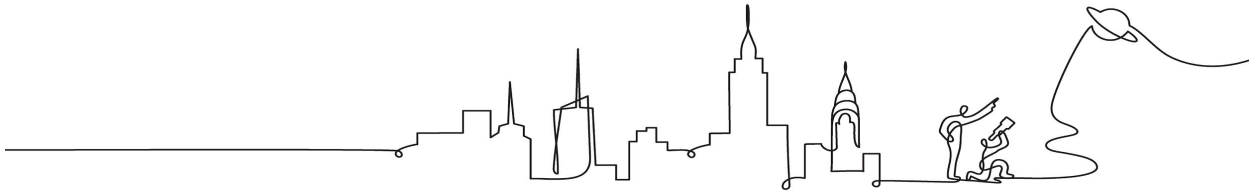
Welcome to Amplify Science!

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.

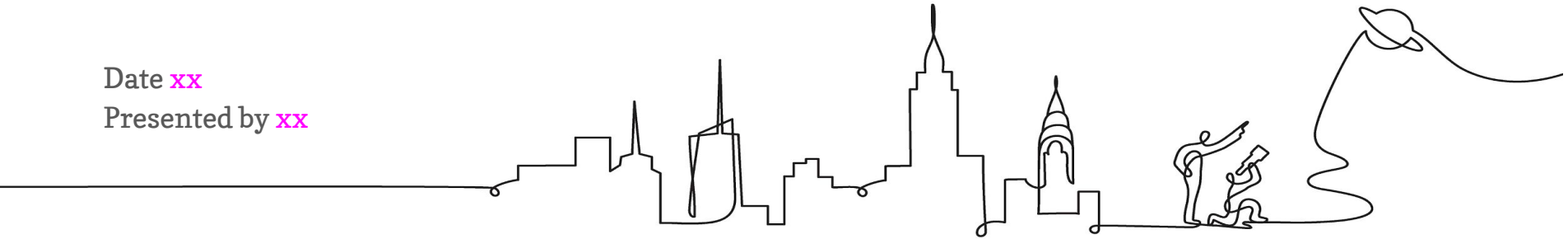
3. In the chat, share your name, grade level, and school you teach in.



Amplify Science
New York City

Supporting ELL's in the Amplify Science Classroom
Grade K

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?"*

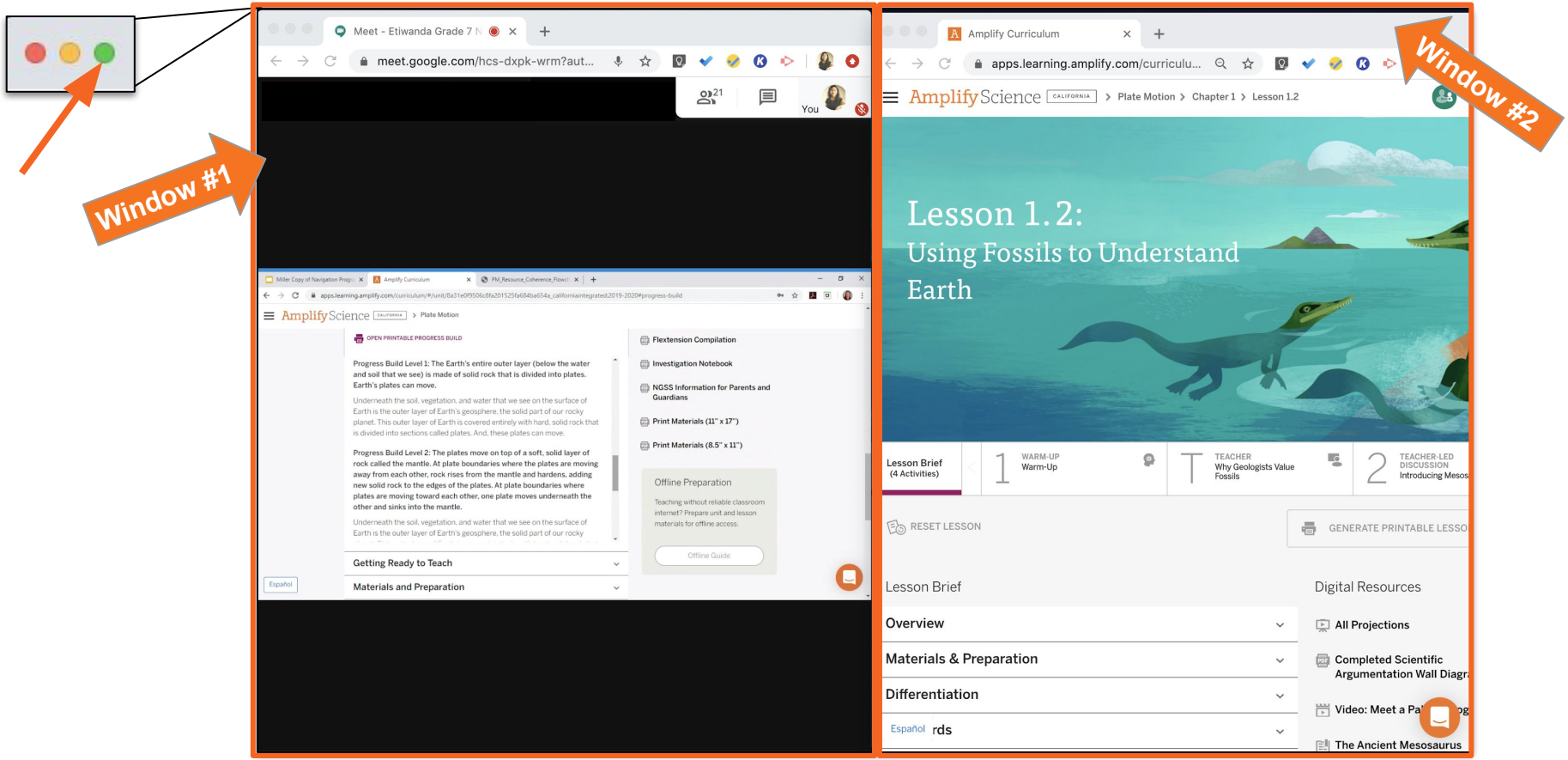
Mute your microphone to reduce background noise unless sharing with the group

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!

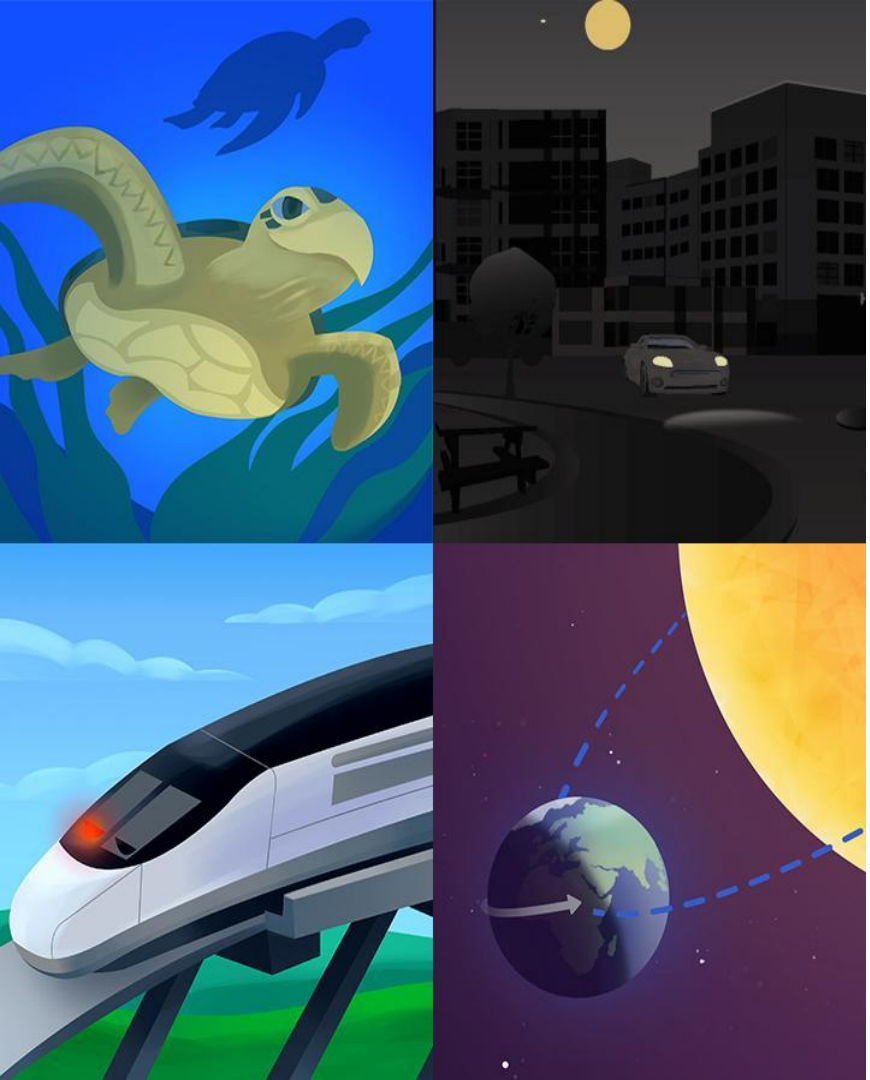
Use two windows for today's webinar



Objectives

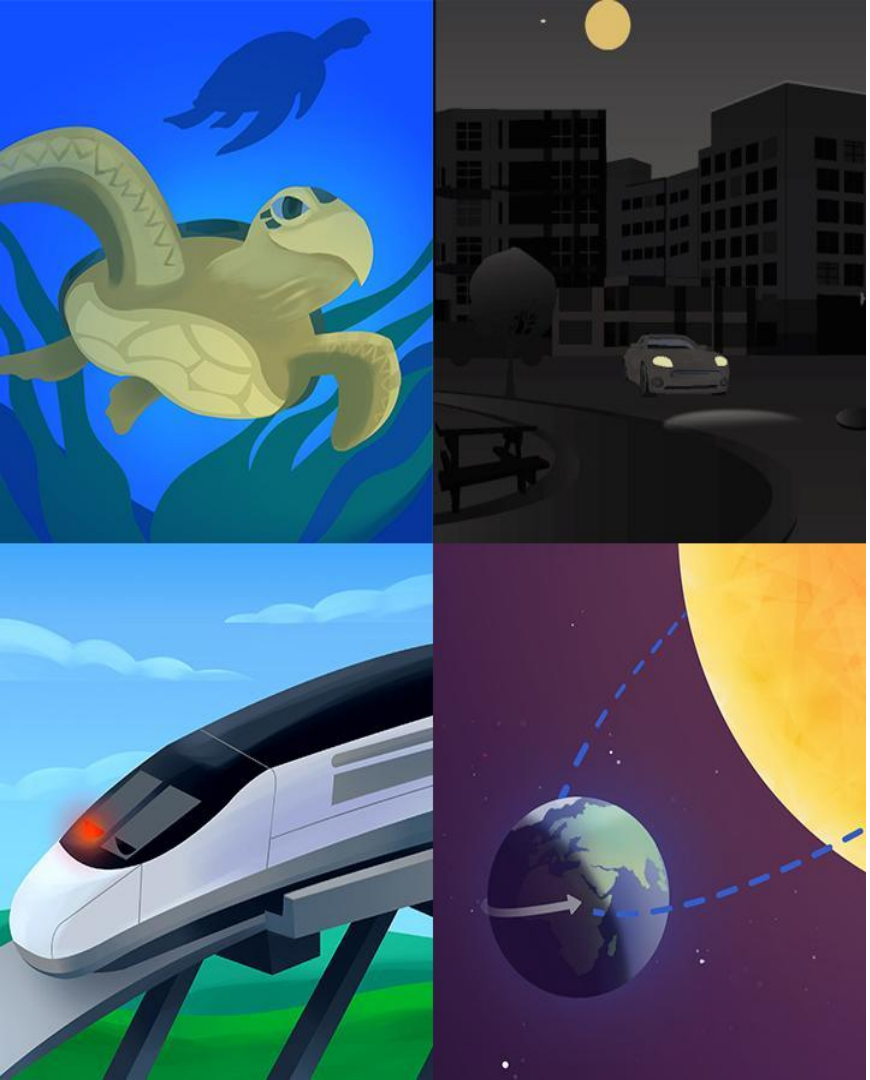
By the end of this 1-hour workshop, you will be able to…

- Explore strategies to support English learners ability to Do, Talk, Read, Write, Visualize, and argue like scientists.
- Analyze an instructional sequence through the lens of an English learner to deepen your knowledge of the critical role of language and literacy in developing scientific understanding.
- Become familiar with the research based principles which guide the creation of the supports and strategies in Amplify science that aid students development of disciplinary literacy in science.



Plan for the day

- **Framing the day**
  - Welcome and introductions
- **Amplify Science Approach**
  - Multimodal Instruction
  - Exploring strategies Do, Talk, Read, Write, and Visualize
- **Amplify Science Embedded Supports**
  - The role of language and literacy
  - Differentiation
  - Lesson instructional sequence
- **Amplify Science Discourse Routines**
  - Research based principles for creating supports
  - Strategies that supporting language & literacy development in science
- **Closing**
  - Reflection/Survey



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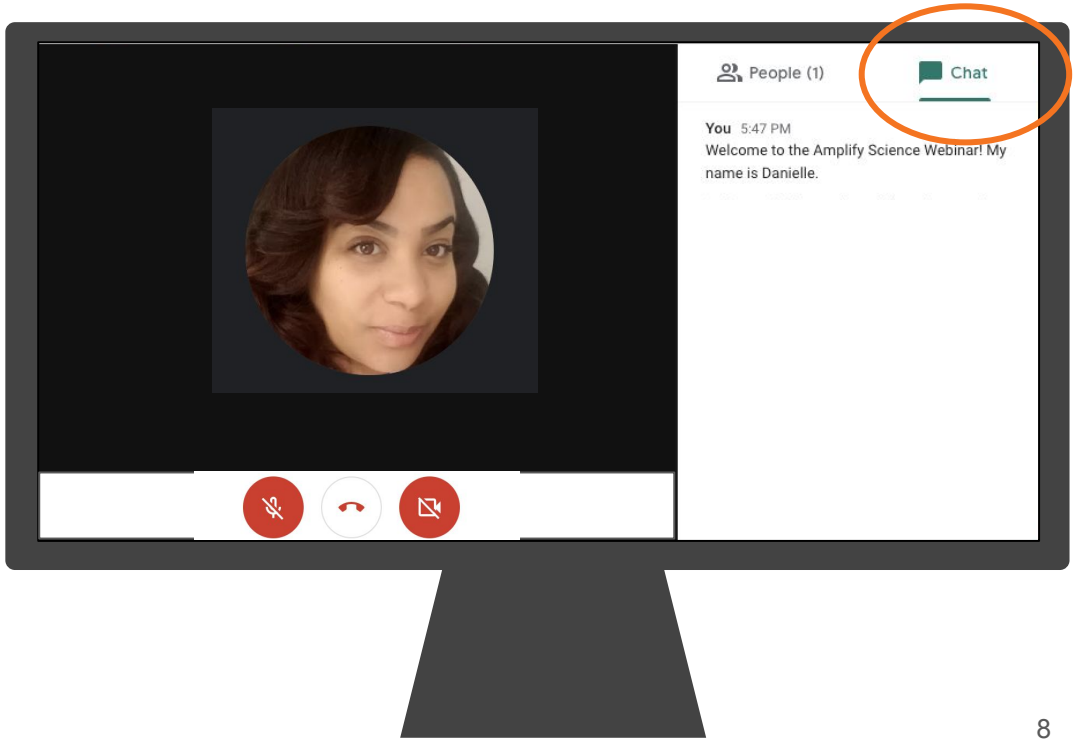
  - Strategies that support language development in science
- **Amplify Science Embedded Support**
  - Differentiation
  - Analyzing embedded supports for diverse learners
- **Closing**
  - Reflection/Survey

Introductions!

Who do we have in the room today?

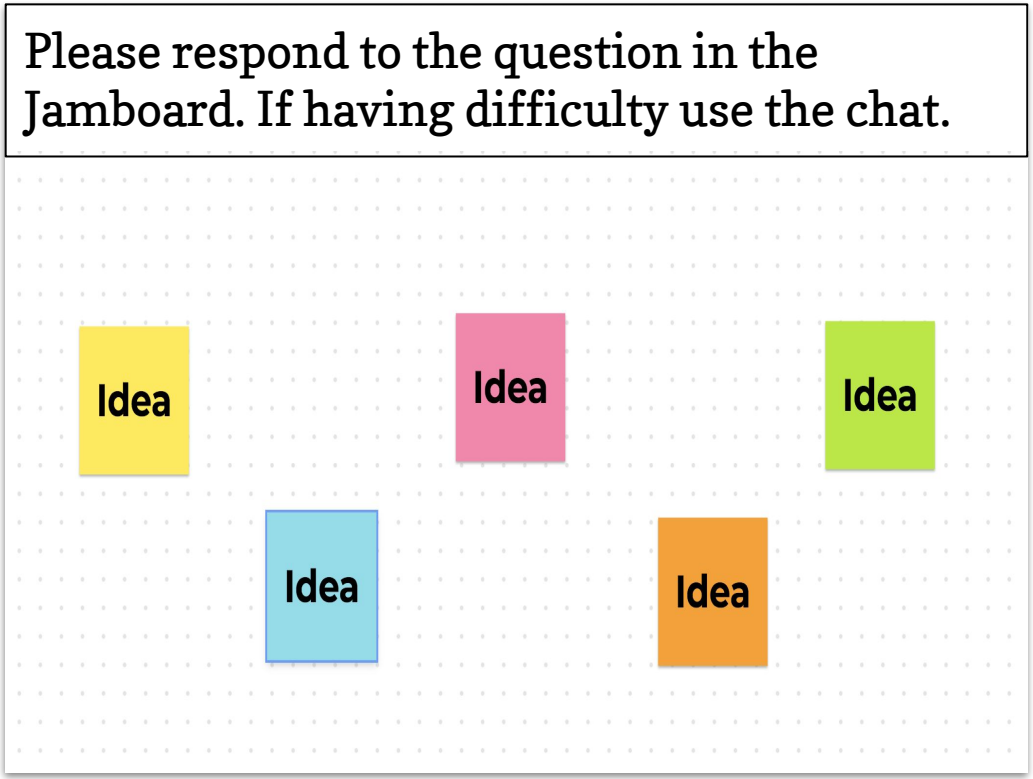
- **Introduce yourself (Name, School, Role)**
- **In the chat, share one word or phrase thats describes how you teaching Amplify.**

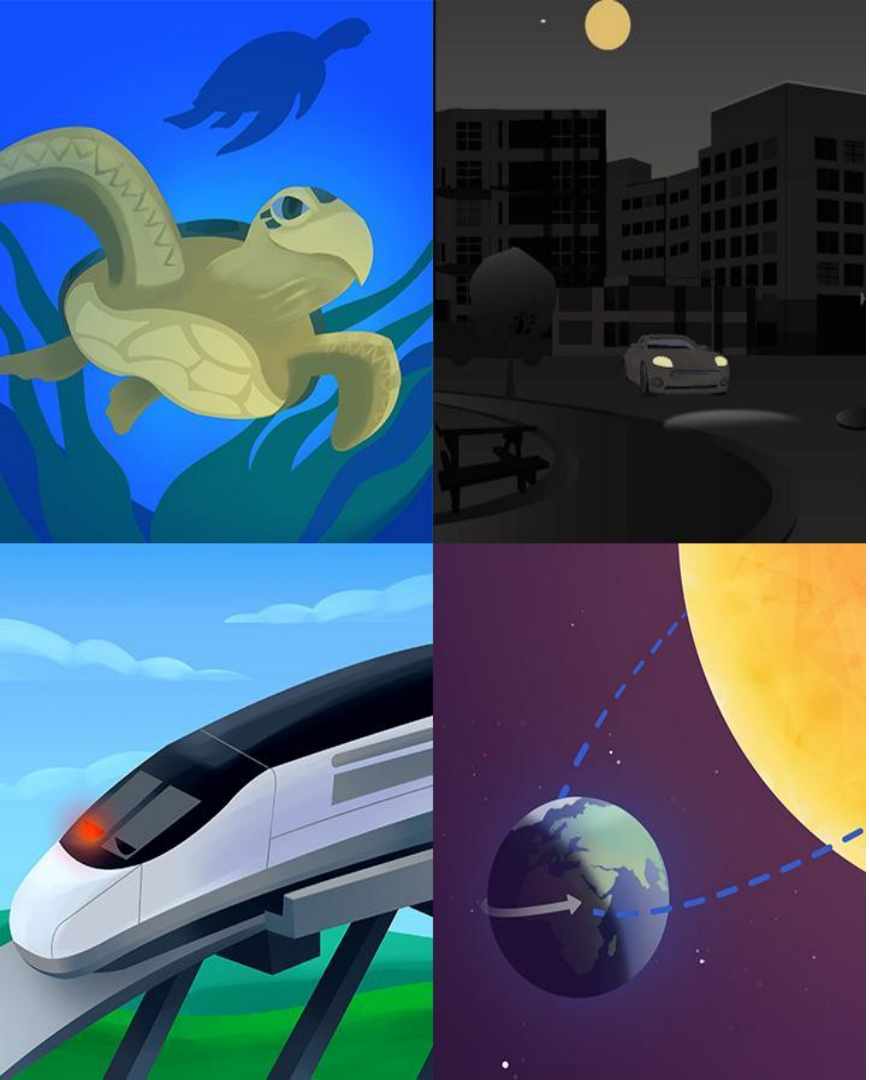


Anticipatory activity

On the Jamboard "post"….

- What strategies are you currently using to engage and support ELL learners in your classroom?





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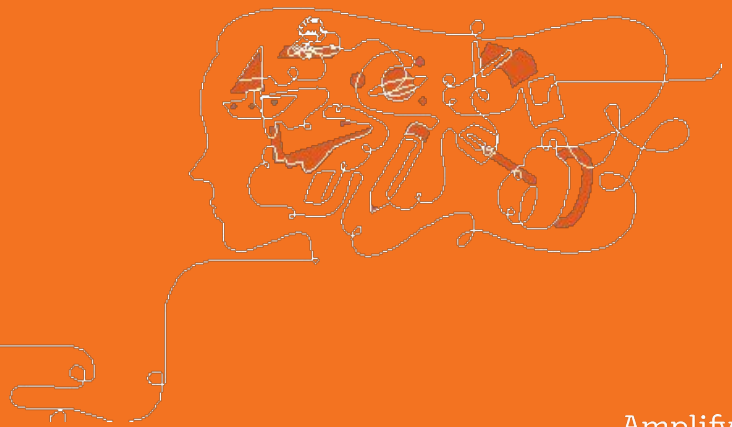
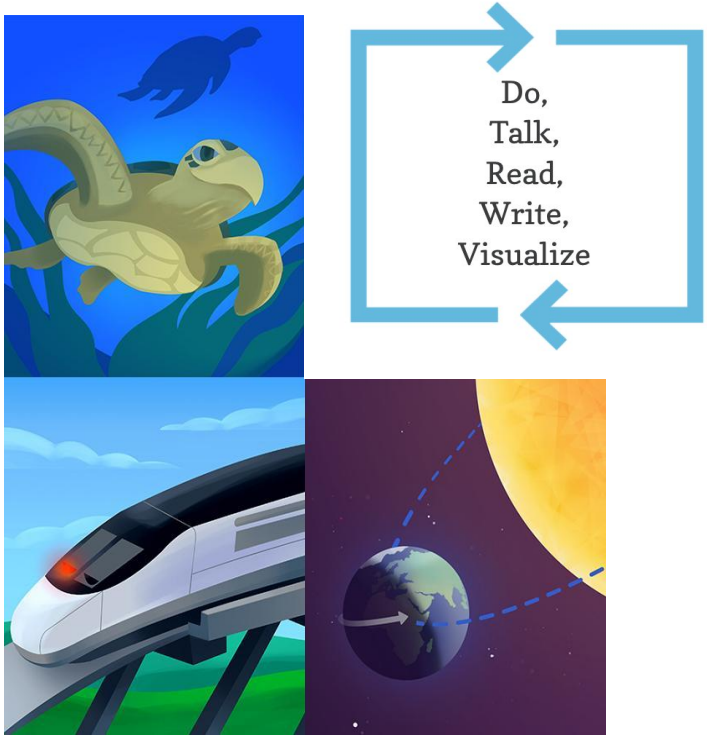
Multimodal Instruction & 3D Learning



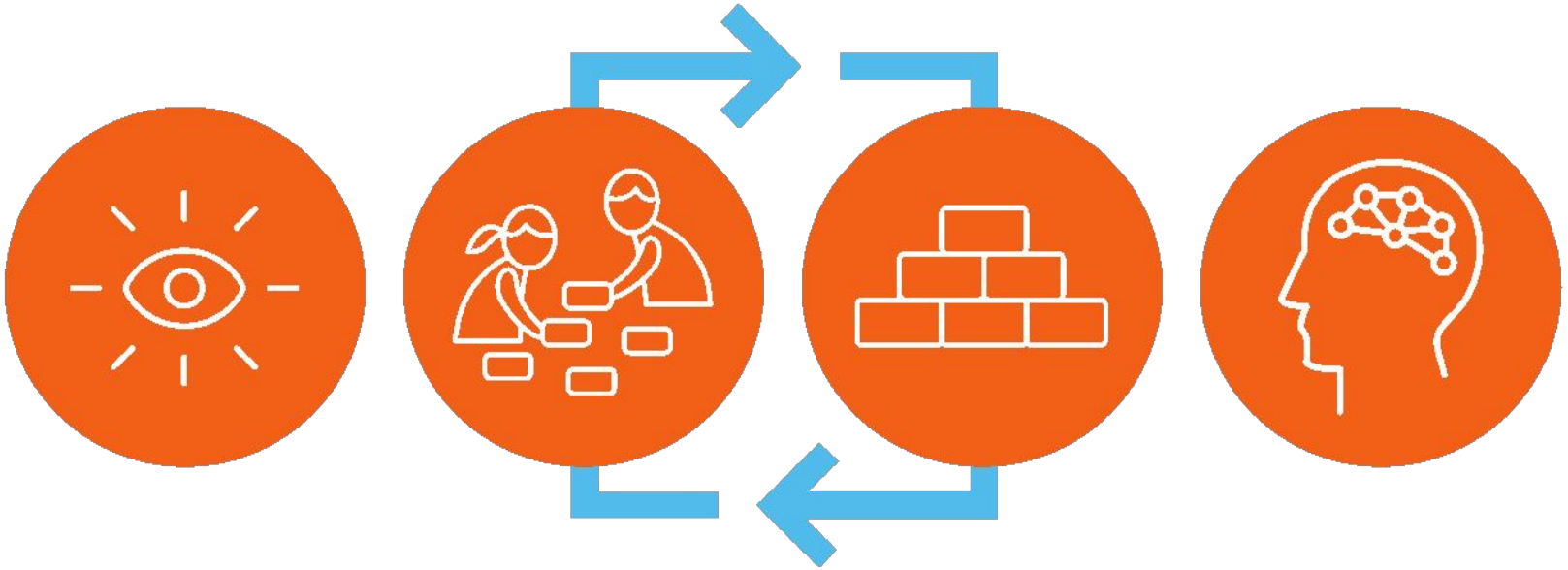
Multimodal, phenomenon-based learning

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

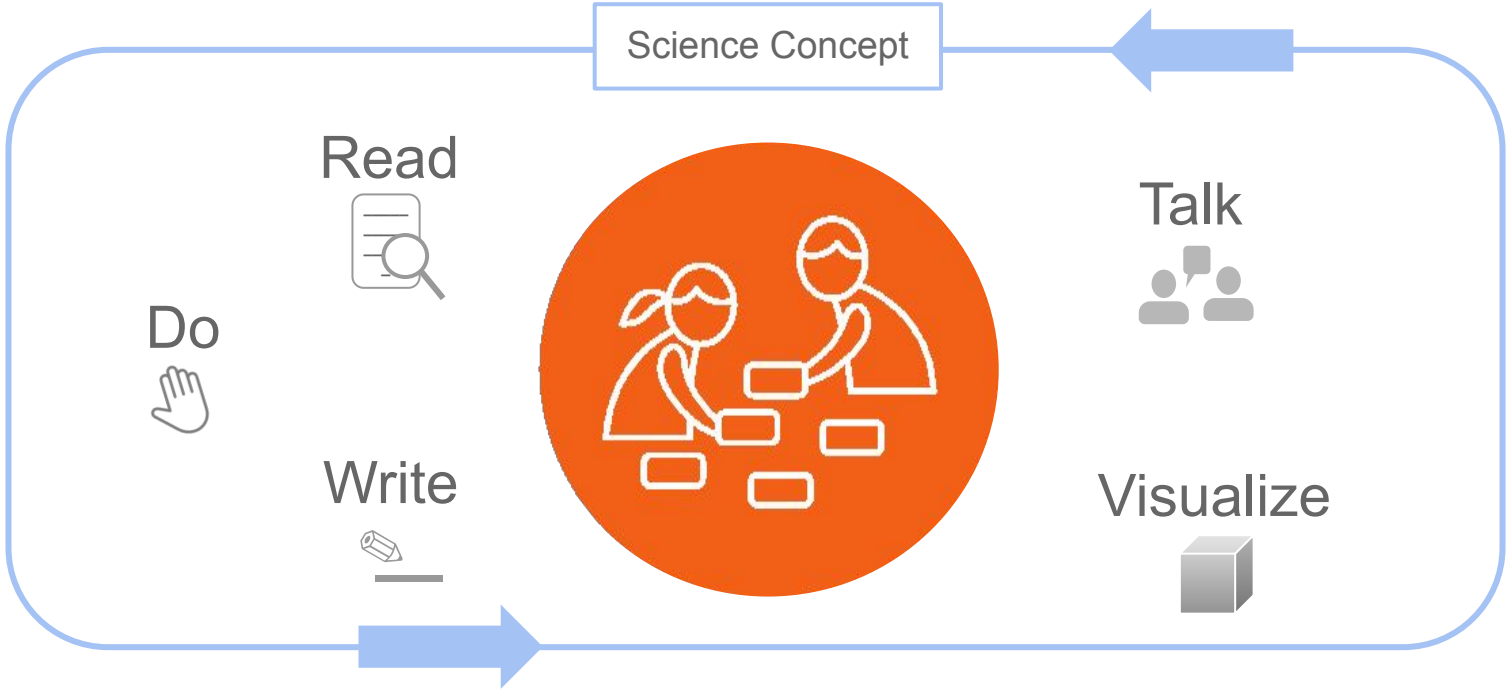
Collect evidence from multiple sources

Build increasingly complex explanations

Apply knowledge to a different context

Multimodal learning

Gathering evidence from different sources

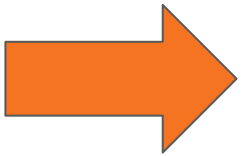


Topics vs. Phenomena

A shift in science instruction

from learning about

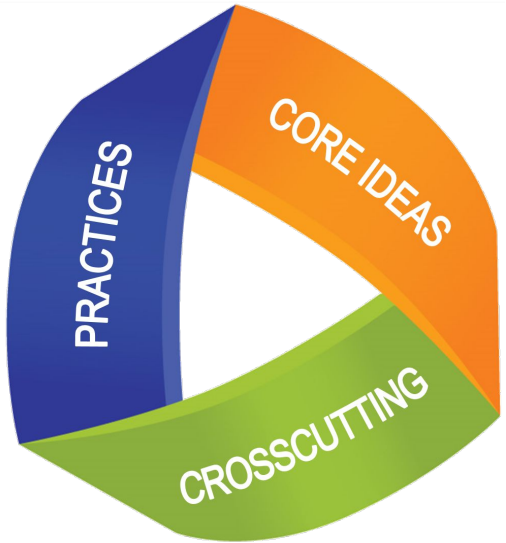
(like a student)



to figuring out

(like a scientist)

Three dimensions of NYSSLS



Disciplinary Core Ideas

- Describe core ideas in the science discipline (DCI)

Science and Engineering Practices

- Describe behaviors scientists and engineers engage in (SEP)

Crosscutting Concepts

- Describe concepts linking the different domains of science (CCC)

Science and Engineering Practices (SEP)

How students engage as scientists

1. Asking questions (for science) and defining problems (for engineering)
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 (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

Science and Engineering Practices (SEP)

How students engage as scientists

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

Disciplinary Core Ideas (DCI)

How students figure out what they want to know as scientist

LS1.C: Organization for Matter and Energy Flow in Organisms:

• All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1)

ESS2.E: Biogeology:

• Plants and animals can change their environment. (K-ESS2-1)

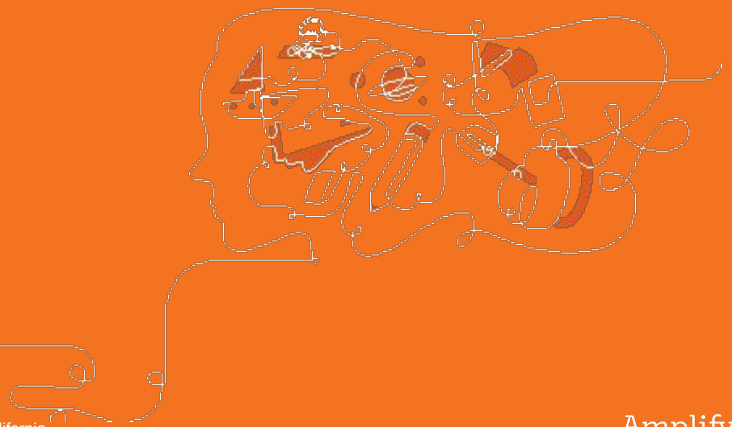
ESS3.A: Natural Resources:

• Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1)

ESS3.C: Human Impacts on Earth Systems:

• Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (K-ESS3-3)

Do, Talk, Read, Write, Visualize



Crosscutting Concepts (CCC)

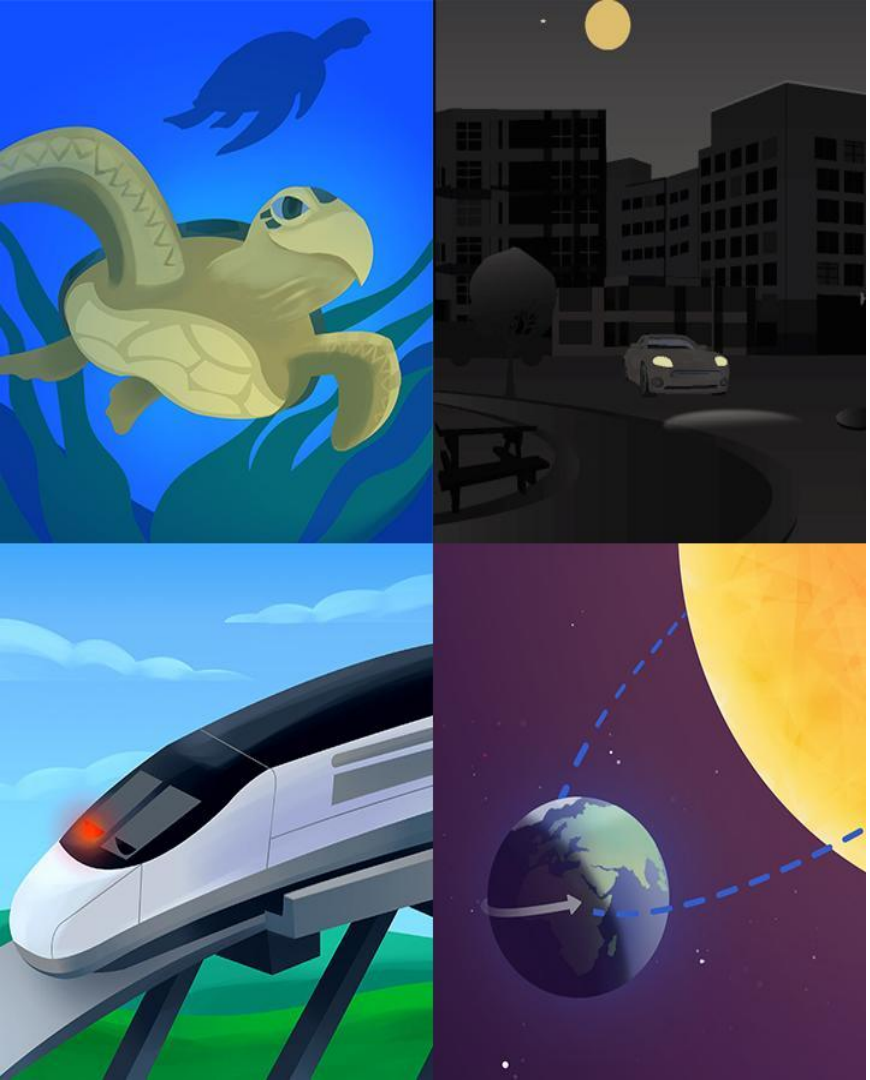
How students think like scientists

1. **Do.** Students observe different plant parts and consider how they work together as a system.
2. **Talk.** Students engage in student-to-student talk each time they gather evidence, either from hands-on investigations or text. Many of the prompts focus on providing time for students to discuss the relationship between plants and animals in their habitats, between plant parts and the whole plant, etc.
3. **Read.** In A Plant in the Desert, students read about how desert plants get the water they need. This helps students integrate the concept of dependencies that comprise a system of interacting parts—plant roots, water, the whole plant.
4. **Write.** Students connect causes and effects in oral and written explanations with the support of explanation language frames—sentence structures that support linking specific causes and mechanisms to effects by using the words so or because.
5. **Visualize.** The class watches time-lapse videos of plants growing and look through a reference book that shows many different plants and the different plant parts, including the shape of the roots. This is something that you can't ordinarily see.

Do, Talk, Read, Write, Visualize (Multimodal Instruction)

Look at each modality, choose one, and drop a current support you would provide for your ELL students in the chat.

Do: Students observe different plants parts and decide how they work as a system.	**Talk:** Students use prompts to engage in student- student discussion as they collect evidence.	**Read:** Students read A Plant in the Desert to discover how plants in the desert use their parts to get the water they need.	**Write:** Students connect cause and effect orally and in writing through the use of sentence frames.	**Visualize:** The class watches a time lapse video of plants growing while using a reference book that shows different plants and their parts.
Support:	**Support:**	**Support:**	**Support:**	**Support:**



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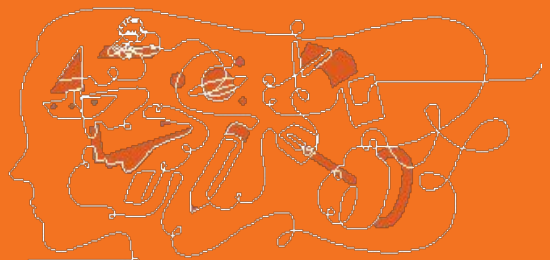
The role of language and literacy



Reflect and Share:

How does learning Science support language development?

“Science class is a language development opportunity if the discourse is managed to be inclusive and supportive. All students need support at some level or another.”

-Dr. Helen Quinn
Particle physicist and
National Academy of Sciences Chair

Language of the science classroom

The ways in which **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.

Language vs. Science

In the following activity you will read descriptions of Amplify Science activities students engage with as they figure out unit phenomena.

Language: Students are developing academic language

Science: Students are developing understanding of science and engineering ideas

You decide! Language, Science, or Both!

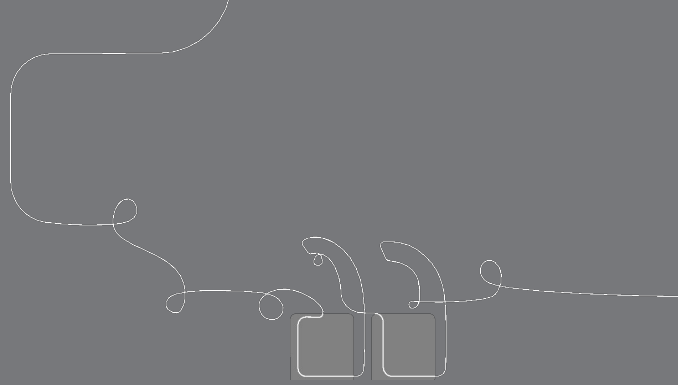
For each of the cards, indicate if students are developing language, science ideas, or both?

L	B	S
Students are developing **academic language**	Students are developing **both** academic language and understanding of science and engineering ideas	Students are developing **understanding of science and engineering ideas**

Students explain what type of force caused the ball in the pinball machine they designed to go in the direction it went	
A student looks at genetic information from two "parent" creatures and creates a model of an offspring's traits using clay	
Students explore magnetic forces using magnets and other materials, then generate and discuss questions and initial ideas about magnets.	
Partners read a book about how two sisters learn about magnets and record what they learn.	
After sorting a series of temperature graphs, the class figures out how temperature can vary differently over a year in different parts of the world.	
Students write up and share their ideas for the best way to solve Ergstown's rolling blackout problem.	
Students record observations of radish seeds; some are planted in soil with water and others are planted in soil with no water.	
Students use their bodies to make a kinesthetic line plot of orangutan heights.	

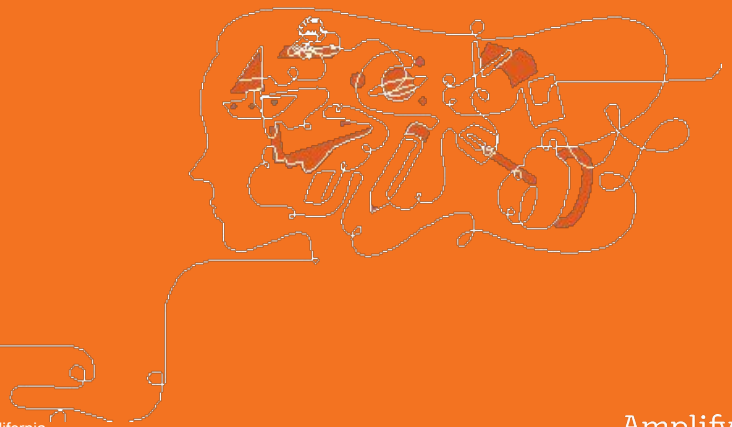
L	B	S
Students are developing **academic language**	Students are developing **both** academic language and understanding of science and engineering ideas	Students are developing **understanding of science and engineering ideas**

Reflect and Share:



What new insights were you able to gain about language ideas vs. science idea for ELL students in Amplify Science?

Differentiation



Multilingual Learners

ENACTING THE FIVE PRINCIPLES IN THE CURRICULUM

Science Program Guide

- **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 science knowledge.

Differentiation briefs

Categories of differentiation briefs

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

Lesson 1.2 Differentiation for ELL students

Embedded Supports for Diverse Learners

Reading prior to card sort. Before students engage in the Living and Nonliving Things card-sort activity, they reread the book *Science Walk* with a partner, and then have a guided whole-class discussion. This helps students first hear examples of the language they will use when they are working to sort their cards. By participating in the Partner Reading activity, students can explore their conceptual understanding of living and nonliving things. During the whole-class discussion, they rehearse and listen to language that can help them connect to new vocabulary and ideas that they will be working with more independently during the card-sort activity.

Book models making observations. *Science Walk* is written to model the science practice of observing. During Activity 2, students use the book to practice observing, reading to identify living things as opposed to nonliving. The modeling in the book should prepare students to be more successful when practicing observing during the Science Walk activity in the next lesson.

Gestures to support word learning. Gestures are a natural communicative and visual component of speech production. Gestures serve the speaker by providing a nonverbal way to communicate ideas, and they benefit the listener by providing a multimodal way of understanding the information a speaker is trying to convey. As you discuss the Our Science Tool Kit illustration in *Science Walk*, students are invited to use specific gestures to accompany each of the senses. This gives English learners and students unfamiliar with key vocabulary more opportunities to connect the new vocabulary to their primary languages or prior knowledge. Giving all students a nonverbal way to use science vocabulary also provides multiple opportunities for them to express their thinking and, ultimately, produce new spoken vocabulary.

Multimodal instruction. This lesson includes a Partner Reading of a book, a card-sort activity to help students gain an understanding of what is or is not a living thing, and another card-sort activity using two categories of living things—plants and animals. This multimodal instruction provides students with many opportunities to make sense of concepts and provides access points for different type of learners.

Potential Challenges in This Lesson

Partner work. Students work with a partner to look through the illustrations in *Science Walk* to find examples of living things and to sort cards into categories. Kindergartners are beginning to learn how to work together with just one set of materials. While partner work is a helpful support for many students, it may be distracting for some students to work with a partner. It may be challenging for students to share materials and take turns during these two activities. In addition, students may find other things in the book or on the cards that they are drawn to discuss instead of the topic on hand.

Specific Differentiation Strategies for English Learners

Vocabulary support. In this lesson, students will learn a movement routine that supports learning the following important words: *sight*, *hearing*, *smell*, *touch*, *eyes*, *ears*, *hands*, *noses*, and *observe*. If you have students who need additional support with language, it could be helpful for them to learn and practice this routine before the lesson. This may give them greater confidence using the language in the first two activities, and they will be better prepared to participate when the whole class learns the routine in Activity 3.

Vocabulary support. In this lesson, students explore and learn about living and nonliving things. Before these activities, make sure English learners are familiar with the meaning of the words *living* and *nonliving*. Using familiar, everyday examples will be helpful for understanding these two categories. However, we recommend choosing examples that are not found in *Science Walk*. Students who need extra support with language and vocabulary should still be able to learn through exploration with the rest of the class.

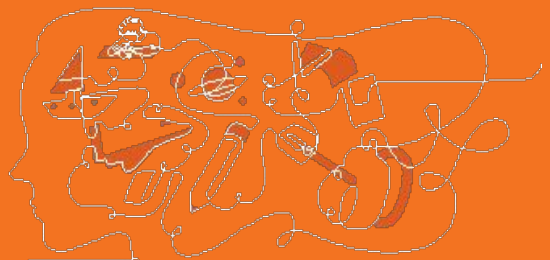
Specific Differentiation Strategies for Students Who Need More Support

More time for exploration. You may decide to allow students to start by sorting the cards any way they would like. Encourage them to talk about the choices they made during their sort. By doing this before the card-sort activities in the lesson, students should be better able to focus on the task at hand.

Additional practice. If there are students who need more support with the idea of what is a plant and what is an animal, consider giving them additional experiences with the Living/Nonliving Things Cards set. Conduct a small group activity. Support students by modeling how to categorize several cards, thinking aloud as you do so, and then ask students to select a card and think aloud as they decide in which group it belongs.

Work with a small group. It is often an option to have students who need more support with a concept, or more support with staying on task, work in a small, teacher-directed group. In this lesson, instead of having all students work with a partner during the card-sort activity, you may decide to have a small group work with you. In this small group, you can support student discussion and model thinking aloud about your own procedure for deciding the group in which to put the cards.

Instructional Sequence



Grade K | Needs of Plants and Animals

Lesson 1.2: Science Walk

AmplifyScience

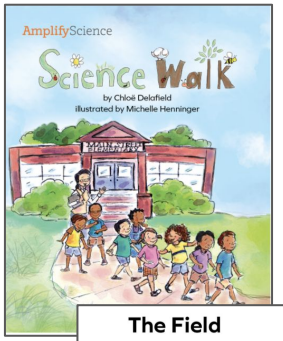
Activity 1: Introduction to Observing

Modality: Teacher Led Discussion

Students are formally **introduced to the word *observe*** and practice using their Science Tool Kits. They revisit the problem of Mariposa Grove (the lack of Monarch caterpillars) and reference the Chapter 1 question and picture supports. Additionally, **students reflect on the science walk book** and the different ways students learned about the place by their school.

Chapter 1 Question

Why are there no monarch caterpillars since the Field was made into the Garden?



Vocabulary

observe

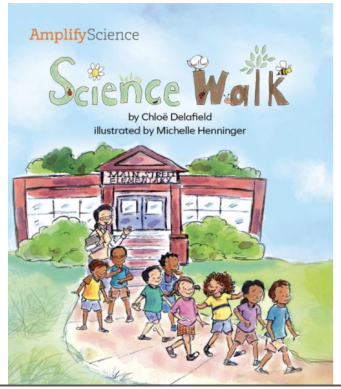
to use any of the five senses to learn more about sor

Amplify.

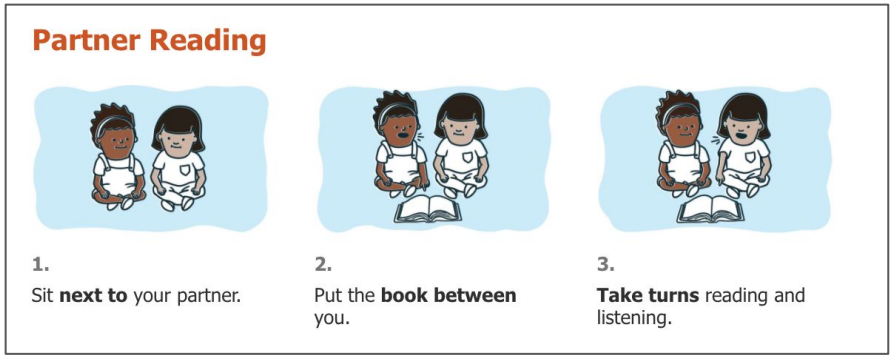
Activity 2: Partner Reading: Science Walk

Modality: Reading

Partners find living things in the illustrations in the *Science Walk* book. The teachers then sets a purpose for reading, models partner reading, introduces the partner reading guidelines, and **assigns partners.** Afterwards, there is a **debrief of the reading** and the student findings are summarized.



Our purpose for reading is to look for **living things**.



One thing scientists do is **sort things into groups**.

Activity 3: Comparing Living and Non Living Things

Modality: Teacher-Led Discussion

The class **sorts cards into living and nonliving things**. The teacher introduces the living/non living things cards and identifies the blue and yellow stripes on the card as an additional method for categorizing. The class **reflects on the classifications and points out patterns**.

Does anything surprise you about the way these things are grouped?

We will work as a class to sort these cards into **living and nonliving** things.

Activity 4: Discuss Plants and Animals

Modality: Student to Student Discussion

Students sort the blue Living Things Cards into different groups of plants and animals, first with a **partner** and then as a class. Teacher reviews the grouping, discuss as a class and the conclude the lesson.

Let's focus on **living things**. We will sort the blue living things cards in a different way.

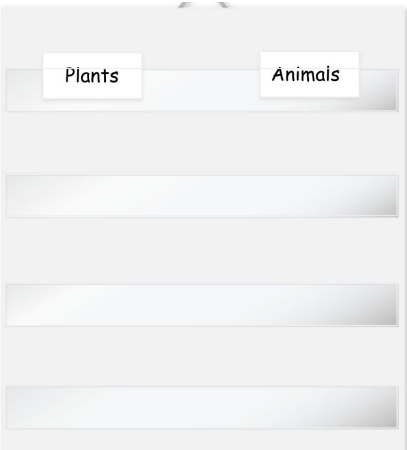
Sorting Living Things

1. **Spread out** the cards.
2. **Make groups** of cards.
3. **Take turns.**

In the next lesson, we will **go on a walk** and observe the things near our school!

What do you notice about the things in the **plant** group?

What do you notice about the things in the **animal** group?



One thing scientists do is **sort things into groups**.

End of Lesson

THE LAWRENCE HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

Amplify.

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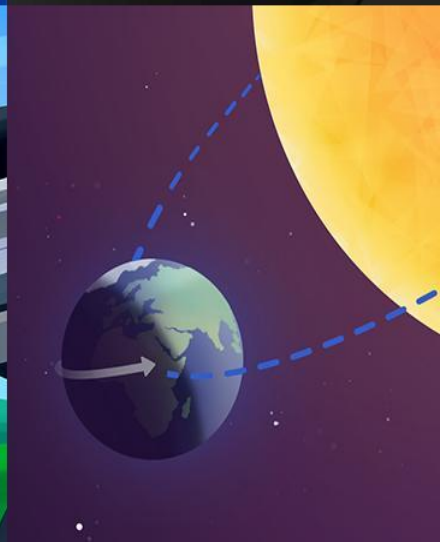

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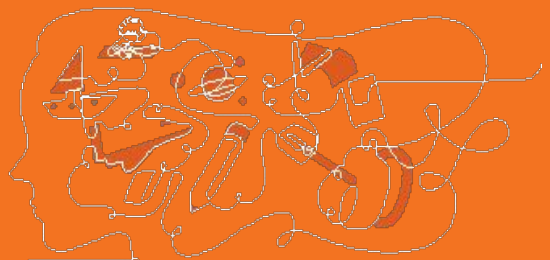
Research Based Principles



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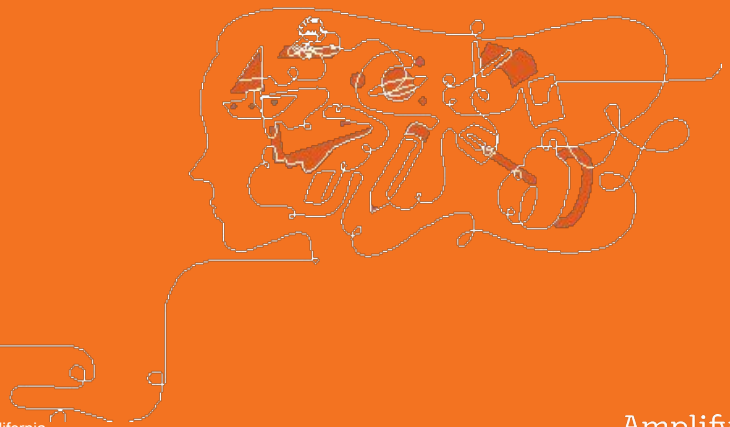
Science Program Guide

- **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 science knowledge.

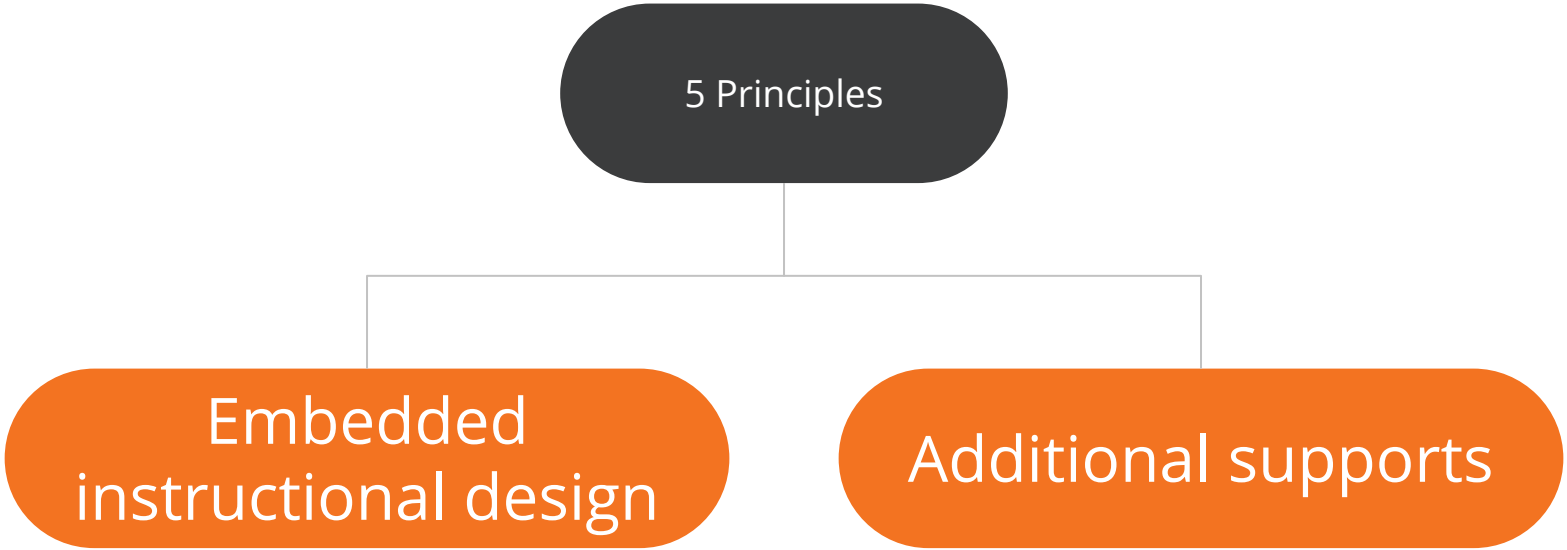
Think & Share

Choose one principle, how could you or how have you implemented this principle to support ELL students in your classroom?

Strategies that support language and literacy development



Supports for English learners

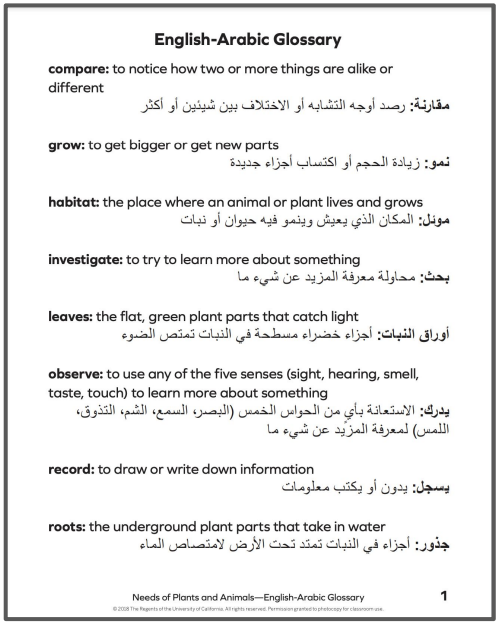


Embedded instructional design

- Modeling Active Reading/ Active Reading
- Anticipation Guides
- Science/ Everyday Word Chart
- Word Relationships Activities
- Graphic Organizers
- Reflective writing with language frames/ sentence starters
- Practice Tools
- Physical and digital models

Additional supports

- Cognates
- Multilingual Glossary
- Word Banks
- Multiple-Meaning Words
- Extended Modeling
- Additional Visual Representations
- Optional Graphic Organizers
- Response Option



English-Arabic Glossary

compare: to notice how two or more things are alike or different
مقارنة: رصد أوجه التشابه أو الاختلاف بين شيئين أو أكثر

grow: to get bigger or get new parts
نمو: زيادة الحجم أو اكتساب أجزاء جديدة

habitat: the place where an animal or plant lives and grows
موئل: المكان الذي يعيش وينمو فيه حيوان أو نبات

investigate: to try to learn more about something
بحث: محاولة معرفة المزيد عن شيء ما

leaves: the flat, green plant parts that catch light
أوراق النبات: أجزاء خضراء مسطحة في النبات تمتص الضوء

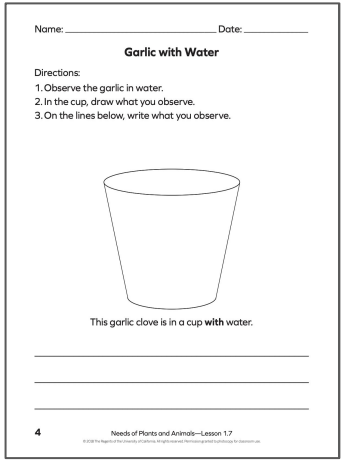
observe: to use any of the five senses (sight, hearing, smell, taste, touch) to learn more about something
يدرك: الاستعانة بأي من الحواس الخمس (البصر، السمع، الشم، التذوق، اللمس) لمعرفة المزيد عن شيء ما

record: to draw or write down information
يسجل: يدون أو يكتب معلومات

roots: the underground plant parts that take in water
جذور: أجزاء في النبات تمتد تحت الأرض لامتصاص الماء

Needs of Plants and Animals—English-Arabic Glossary 1

This year in the Garden, the kids observed and recorded . . .



Name: _____ Date: _____

Garlic with Water

Directions:
1. Observe the garlic in water.
2. In the cup, draw what you observe.
3. On the lines below, write what you observe.

This garlic clove is in a cup **with** water.

4 Needs of Plants and Animals—Lesson 1.7

Resources for Supporting Multilingual 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)

Language vs. Discourse

Academic language

Academic discourse

- Identify…
- What is…?
- List…
- Students use tier 1 and 2 vocabulary

- Prove/disprove with evidence…
- What would happen if….how do you know?
- Explain how this connects to…
- Students use tier 2 & 3 vocabulary

Amplify Science discourse routines

- Oral Composition and/or Drawings as teacher captures words (K-1)
- Explanation Language Frames
- Shared Listening
- Partner Reading
- Thought Swap
- Think-Pair-Share
- Word Relationships
- Questioning Strategies [K-8]
    - Do you agree/disagree?

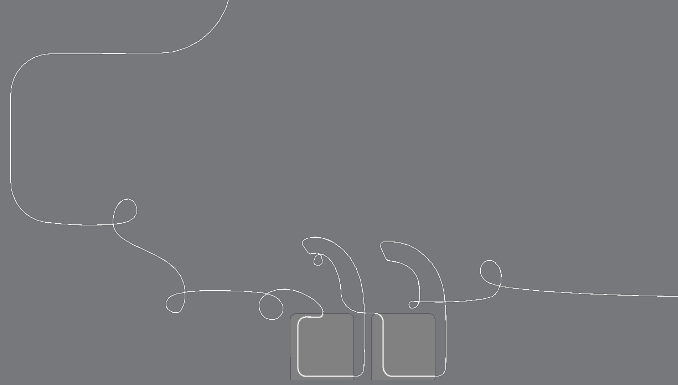
	Kindergarten - Grade 1	Grades 2-5
Discourse routines	Students engage in informal partner, small group, and full class talk as well as with Shared Listening, a structured discourse routine. To work towards answering each Chapter question, students first compose responses orally with a Language Frame activity using sentence frames written on sentence strips, completed with cards. They use this practiced sentence structure to write explanations together as a class (Shared Writing) or in their investigation notebooks.	Students engage in informal partner, small group, and full class talk as well as with a variety of structured discourse routines. Each unit includes 2-3 different routines such as: • Shared listening • Think-pair-share • Think-draw (or write) -pair-share • Thought swap • Concept mapping • Word relationships • Building on ideas • Evidence circles

Additional support considerations

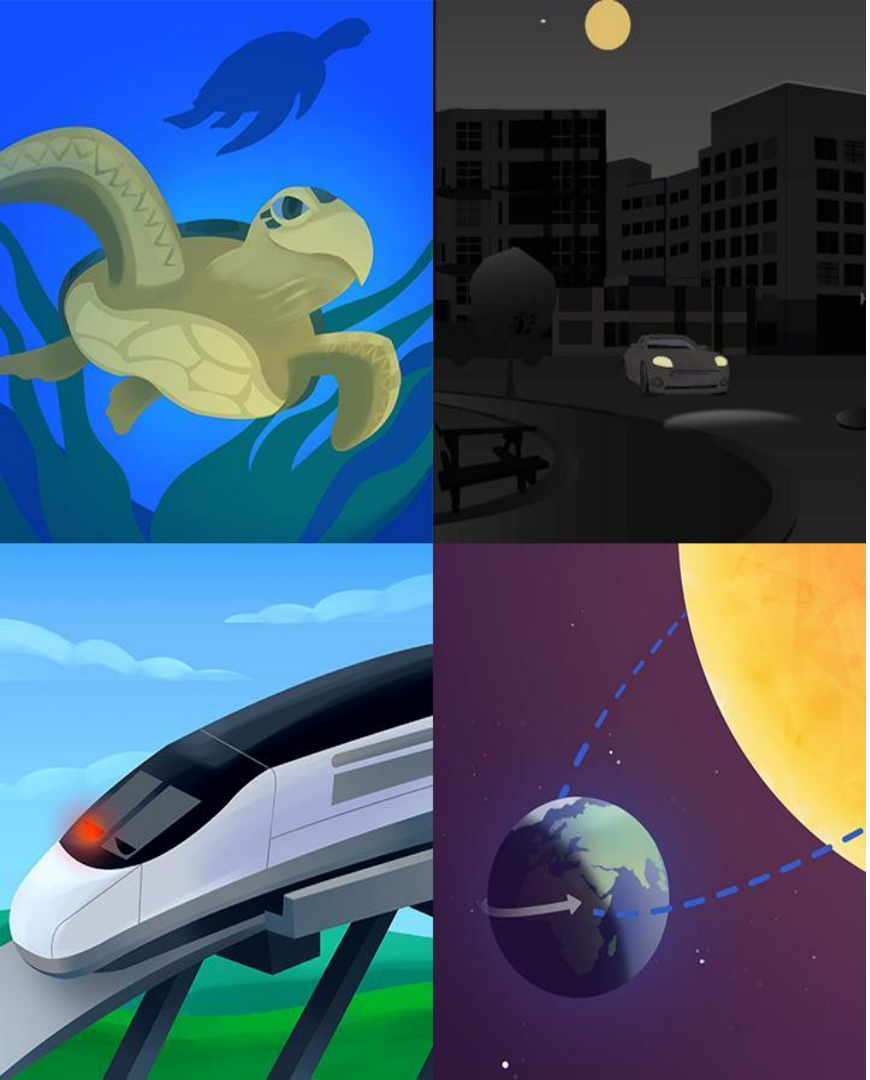
Modifying the instructional suggestions for my students

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

Reflect and Share



What Amplify Science strategies can you use to aid ELL students in accessing academic language and move toward achieving discourse?



Plan for the day

- **Framing the day**
  - Welcome and introductions
- **Amplify Science Approach**
  - Multimodal Instruction
  - Exploring strategies Do, Talk, Read, Write, and Visualize
- **Amplify Science Embedded Supports**
  - The role of language and literacy
  - Differentiation
  - Lesson instructional sequence
- **Amplify Science Discourse Routines**
  - Research based principles for creating supports
  - Strategies that supporting language & literacy development in science
- **Closing**
  - Reflection/Survey

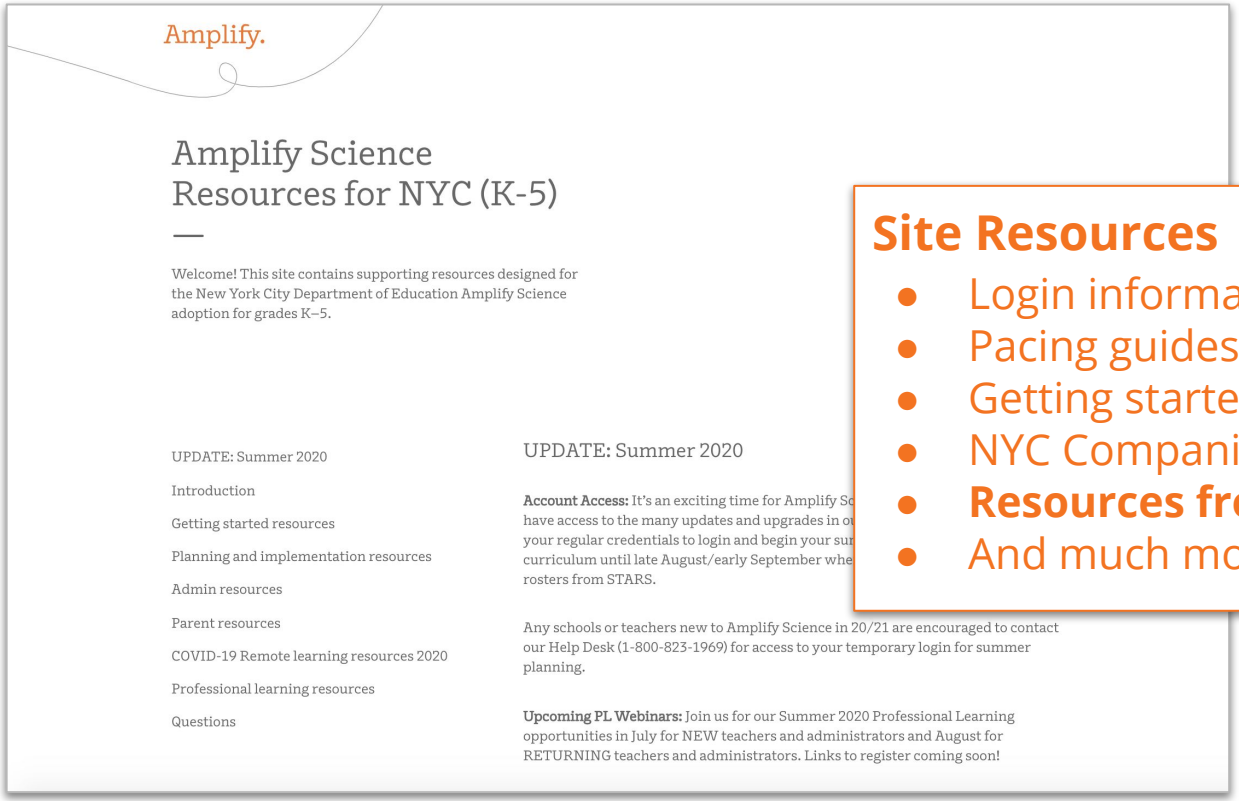
Revisiting Session Objectives:

By the end of this 1-hour workshop, you will be able to…

- Explore strategies to support English learners ability to Do, Talk, Read, Write, Visualize, and argue like scientists.
- Analyze an instructional sequence through the lens of an English learner to deepen your knowledge of the critical role of language and literacy in developing scientific understanding.
- Become familiar with the research based principles which guide the creation of the supports and strategies in Amplify science that aid students development of disciplinary literacy in science.

New York City Resources Site

https://amplify.com/resources-page-for-nyc-k-5/



Site Resources

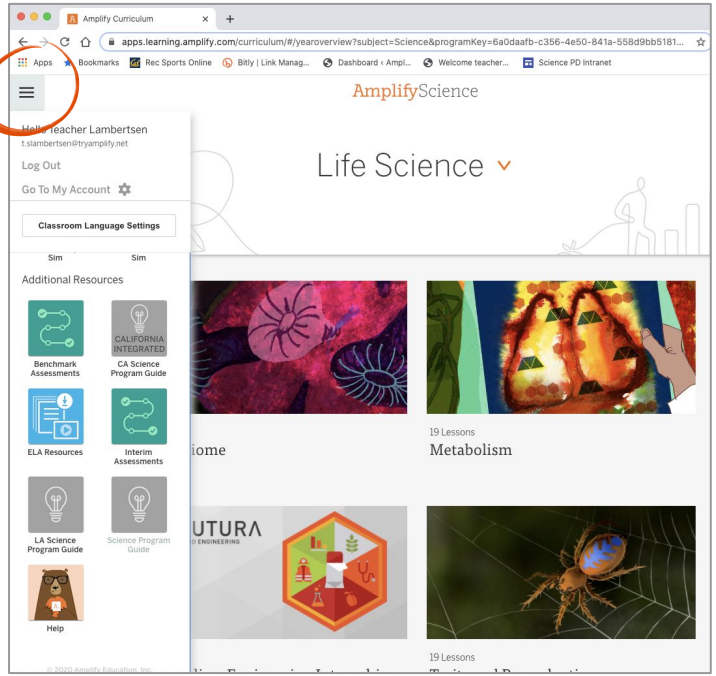
- Login information
- Pacing guides
- Getting started guide
- NYC Companion Lessons
- **Resources from PD sessions**
- And much more!

Amplify Science Program Hub

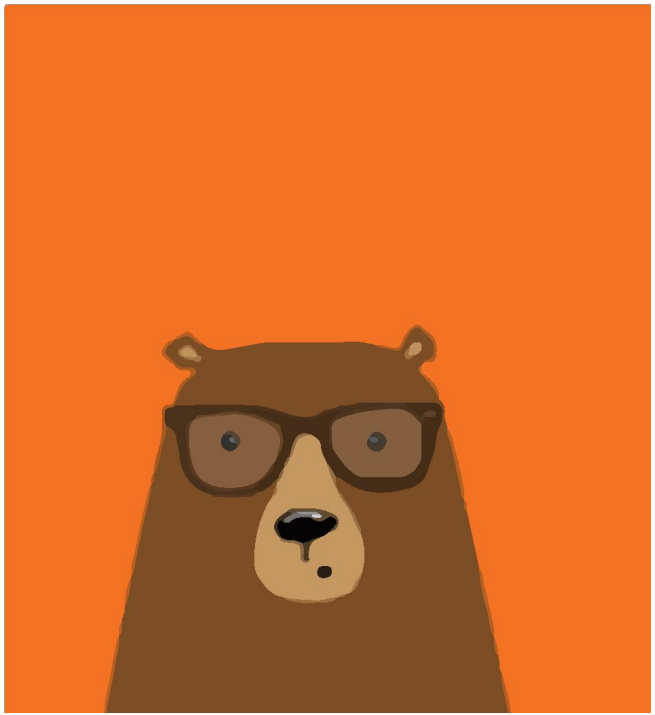
A new hub for Amplify Science resources

- **Videos and resources to prepare for instruction**
- **Amplify@Home resources**
- **Self study resource and much more!**

***Check back often to stay update to date with Amplify Science ***



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.

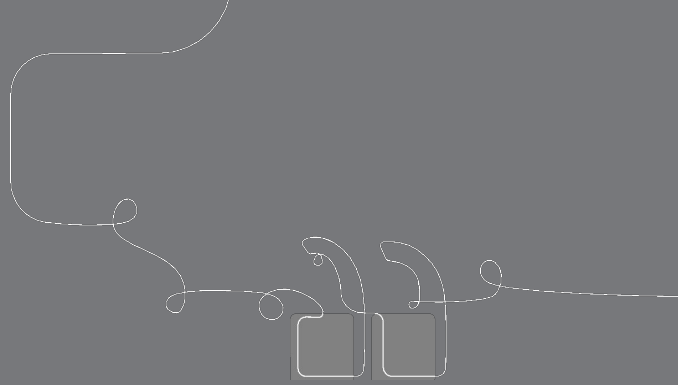
scihelp@amplify.com

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