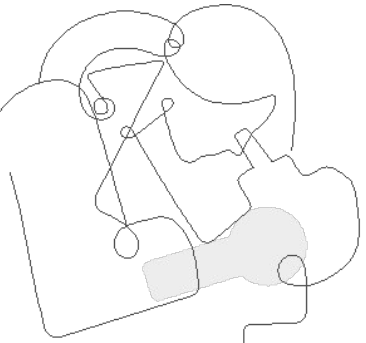
Amplify Science

Part 3: Supporting English Learners
Grade 1

Strengthen workshop



School/District: LAUSD
Saturday, October 15, 2022
Presented by James Kochi

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Amplify's purpose statement

Dear teachers,

You do a job that is nearly impossible and **utterly essential.**

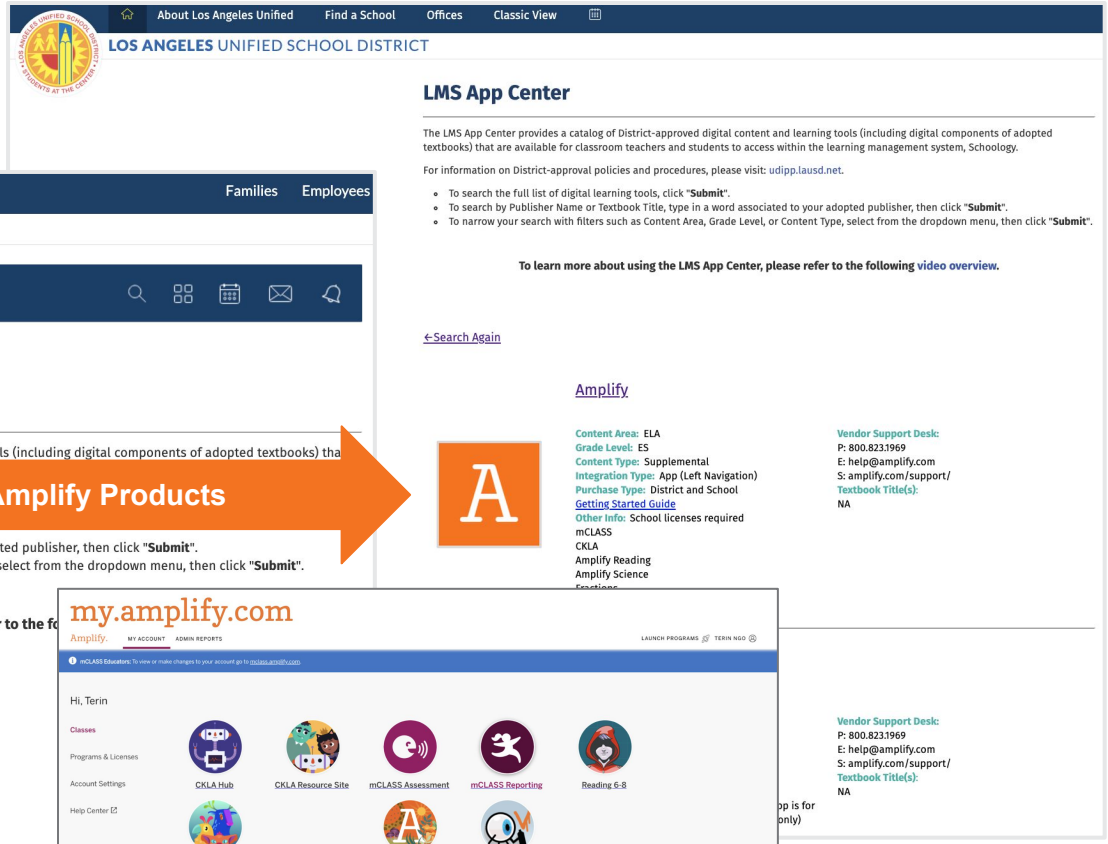
We are in your corner – extending your reach, saving you time, and enhancing your understanding of each student.

Thank you for working with us to craft rigorous and riveting learning experiences for your classroom.

We share your goal of **inspiring all students to think deeply, creatively, and for themselves.**

Sincerely,
Amplify

Schoology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Navigation Temperature Check

Rate yourself on your comfort level accessing Amplify Science materials and navigating a digital curriculum.

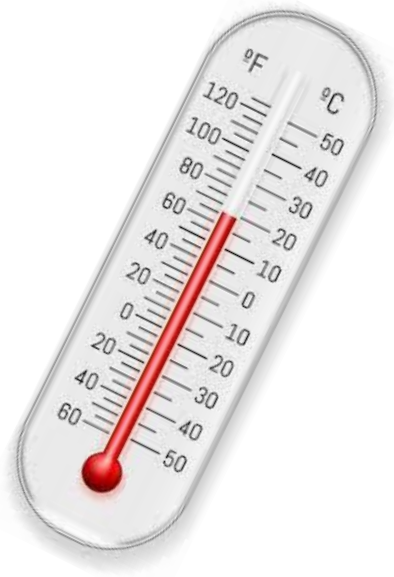
1 = Extremely Uncomfortable

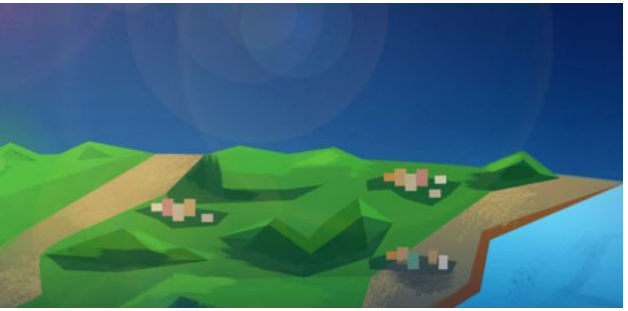
2 = Uncomfortable

3 = Mild

4 = Comfortable

5 = Extremely Comfortable





Plan for the day

- Introduction
- Language of the Science Classroom
- Embedded and Additional Supports
- Experiencing a Lesson
- Planning for Supports
- Closing

Overarching goals

- ❏ Describe the language and literacy demands in a lesson and their role in students developing science understanding
- ❏ Implement key strategies to promote English learners' academic language development and science understanding

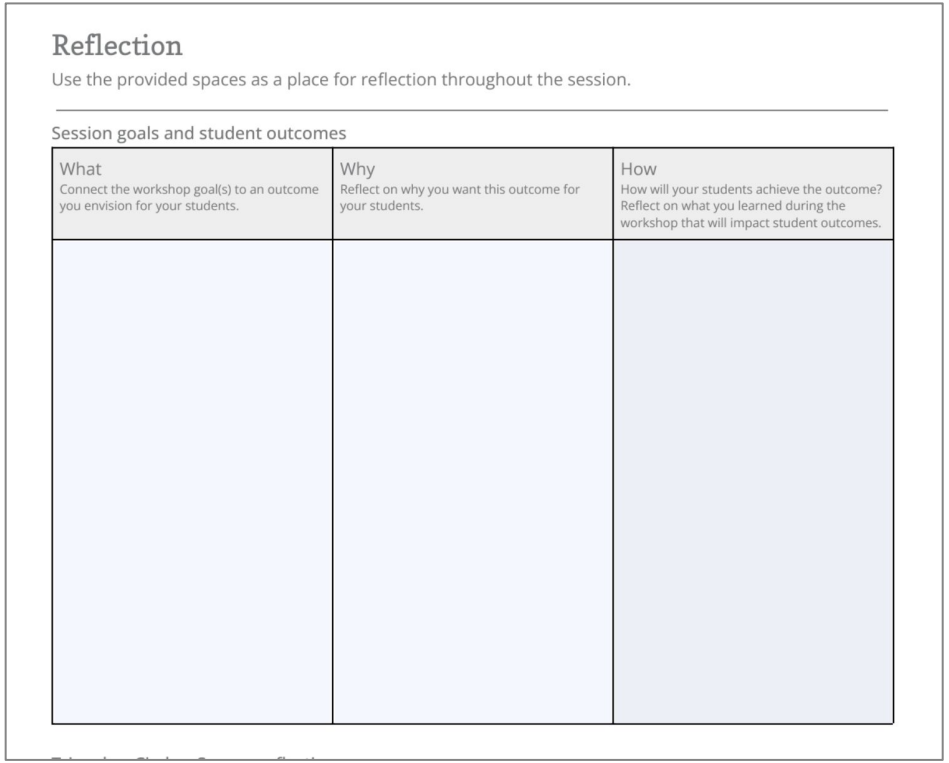
Opening Reflection

Pg. 2

What are your goals for student outcomes?

Participant Notebook

https://bit.ly/3EpKmZH



Reflection

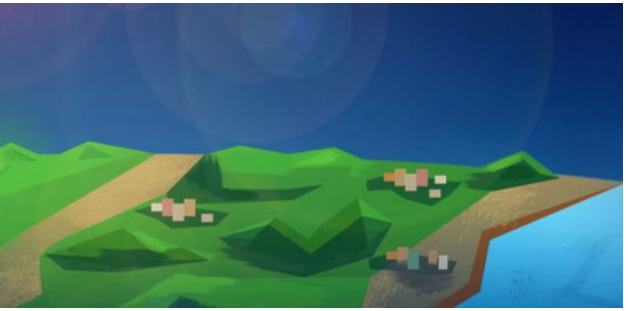
Use the provided spaces as a place for reflection throughout the session.

Session goals and student outcomes

What	Why	How
Connect the workshop goal(s) to an outcome you envision for your students.	Reflect on why you want this outcome for your students.	How will your students achieve the outcome? Reflect on what you learned during the workshop that will impact student outcomes.

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.



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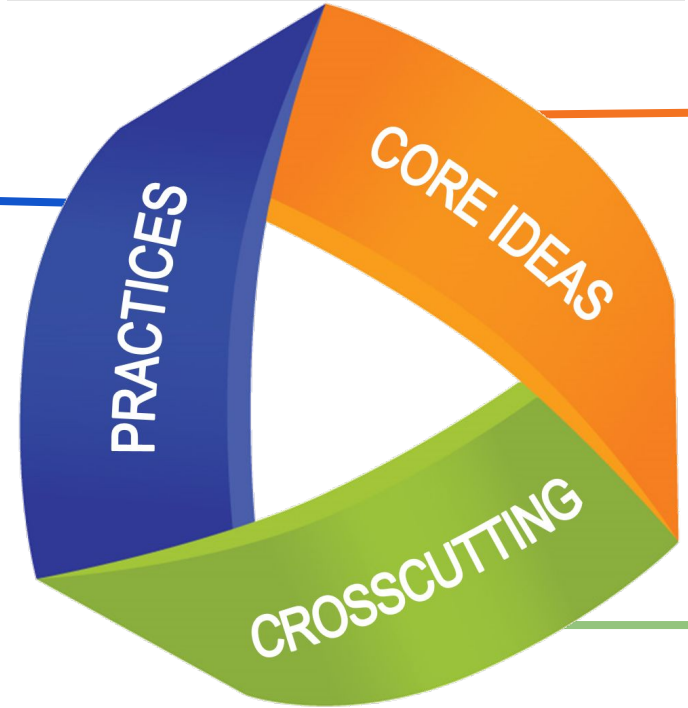
Language of the science classroom

Language and 3-D learning

What scientists do
Science and Engineering Practices



What scientists want to know
Disciplinary Core Ideas

How scientists think
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

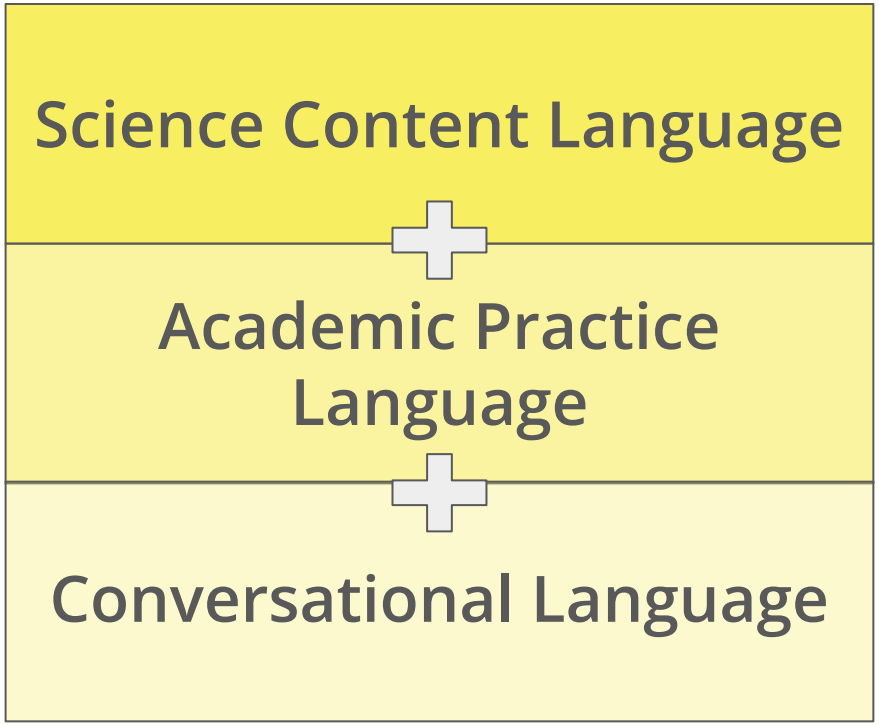
Academic language proficiency

The ability to successfully use language for reading and writing and for accessing information in disciplinary content areas.

Language acquisition

Language of Science

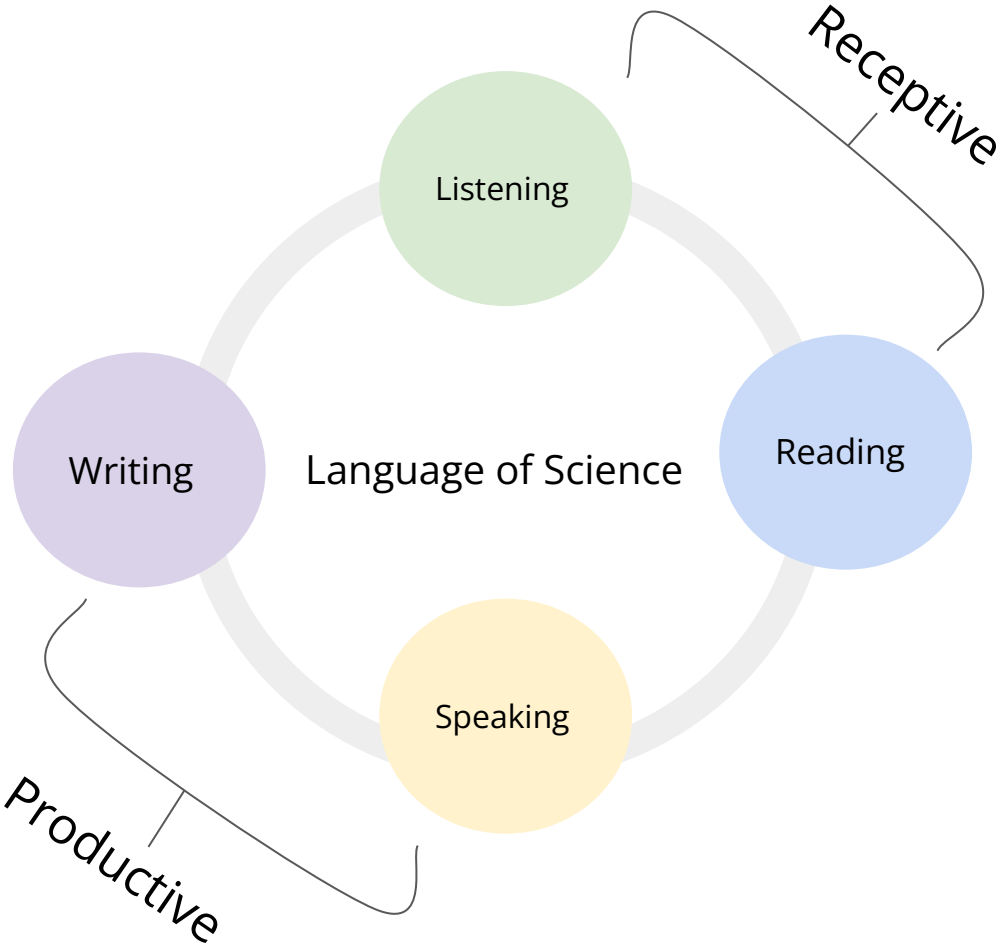
- Multimodal experiences with language
- Explicit instruction and practice



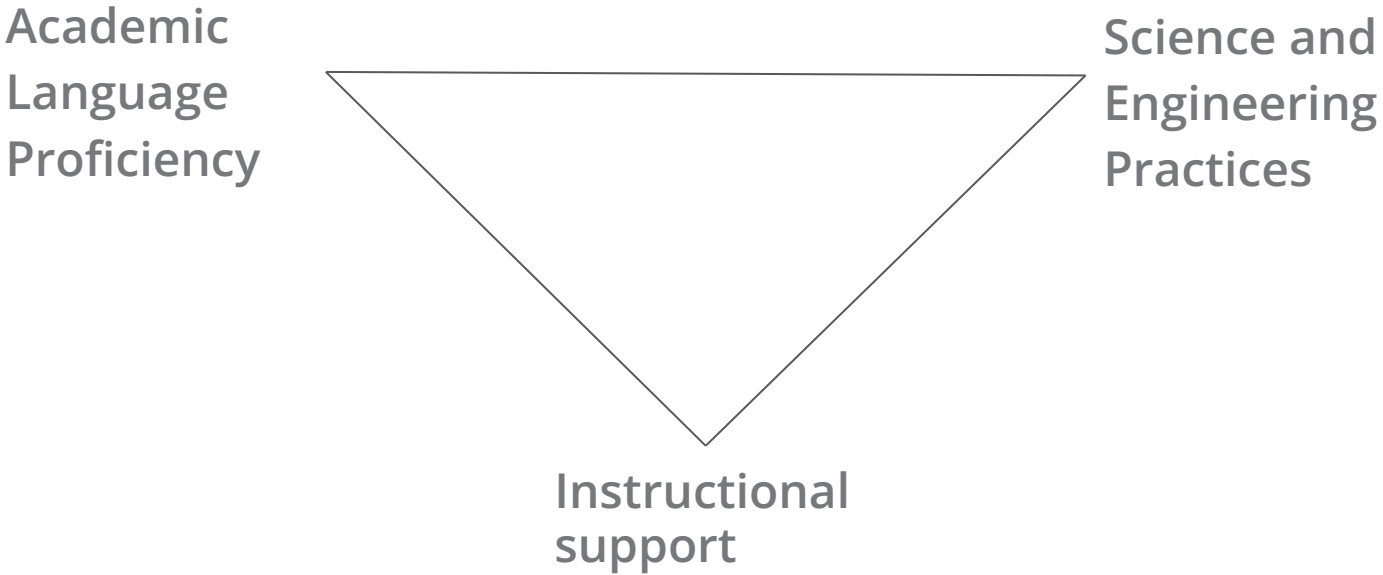
Language acquisition

Language of Science

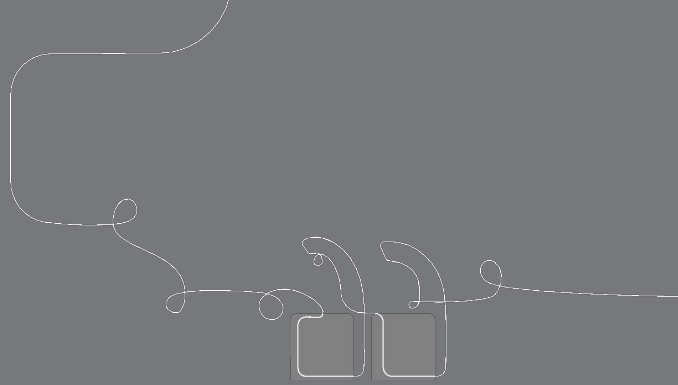
- Learning activities to support productive and receptive language

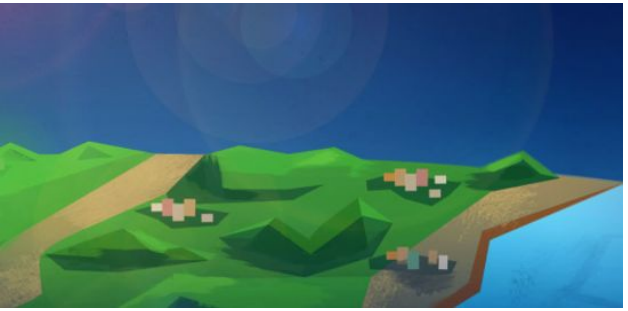


Establishing connections among concepts



Questions?





Plan for the day

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Embedded supports

5 Principles for Supporting English Learners

Principle 1: Leverage and build students' informational background knowledge.

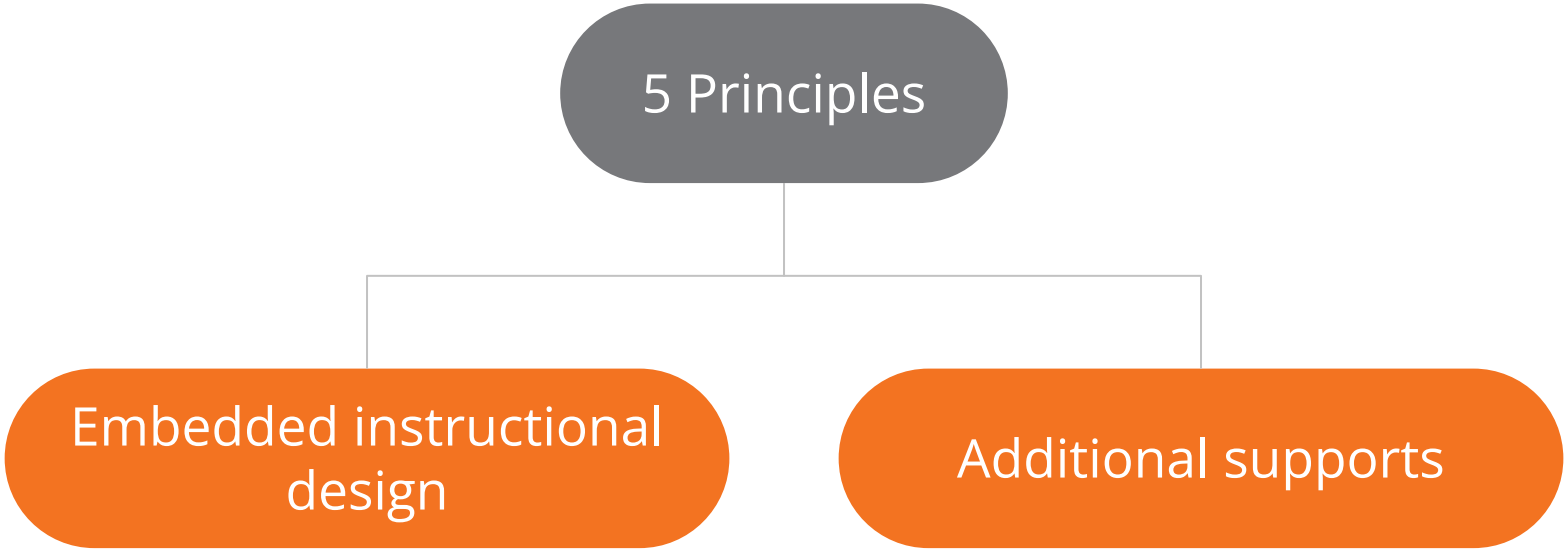
Principle 2: Capitalize on students' knowledge of language.

Principle 3: Provide explicit instruction about the language of science.

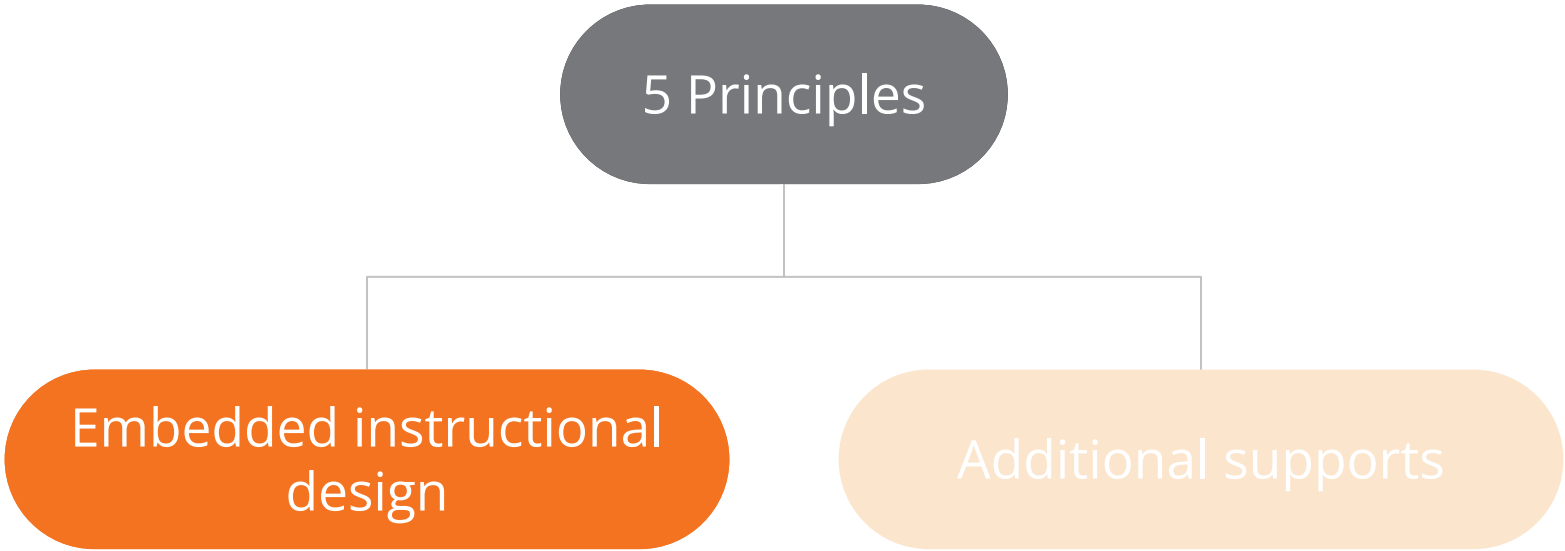
Principle 4: Provide opportunities for scaffolded practice.

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

Supports for English learners



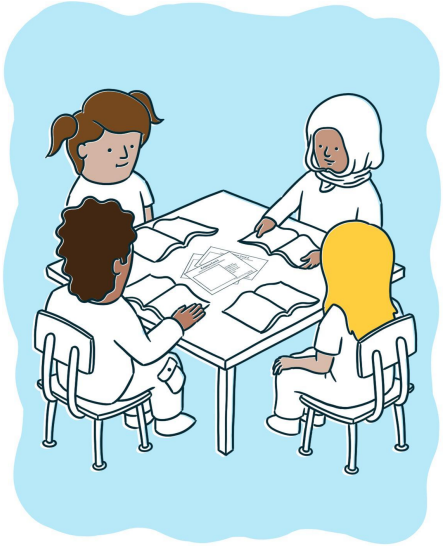
Supports for English learners

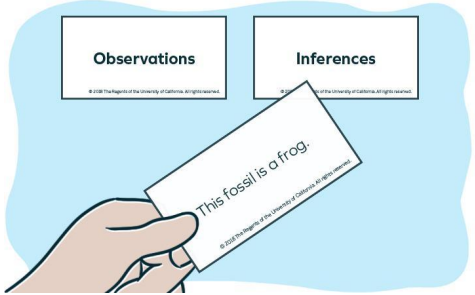


Embedded supports

Examples

- Discourse and sensemaking Routines

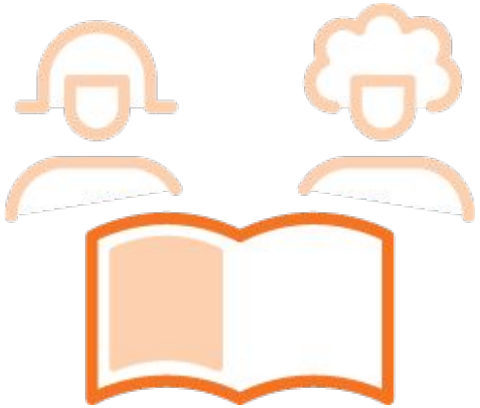




Embedded supports

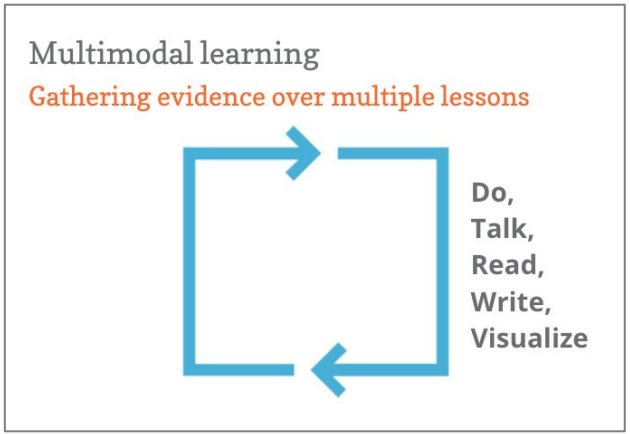
Examples

- Reading routines
- Multimodal Instruction



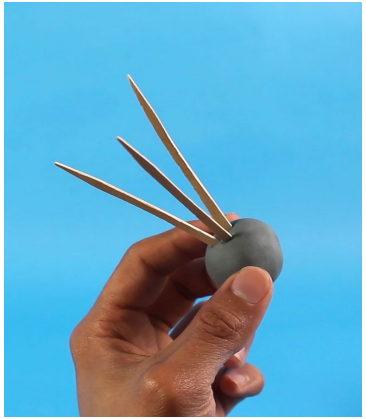
Partner Reading Guidelines

1. Sit next to your partner and place the book between you.
2. Take turns reading.
3. Read in a quiet voice.
4. Be respectful and polite to your partner.
5. Ask your partner for help if you need it. Work together to make sure you both understand what you read.

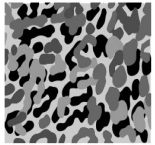


Embedded supports
Examples

- Visual models
- Visual Representations



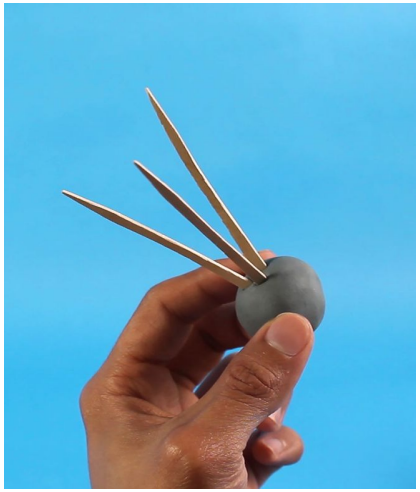
Models of Animal and Plant Defenses

Model We Used (2.3)	What the Model Shows Us (2.3)
2.3 	• Animals have sharp parts. (2.3) • Animals and plants get broken into smaller pieces when animals eat them. (2.3)
2.4 	• Shells are hard. • Shells and armor make animals and plants hard to bite, chew, or swallow. (2.4)
2.5 	• Spikes are sharp. (2.5) • Spikes hurt animals' mouths when they try to eat animals or plants with spikes, (2.5)
2.6 	• Living things' color and shape matches the background. • Camouflage makes animals and plants hard to find and eat. (2.6)

Embedded supports

Examples

- Discourse and sensemaking Routines
- Reading routines
- Multimodal Instruction
- Visual Representations
- Visual models



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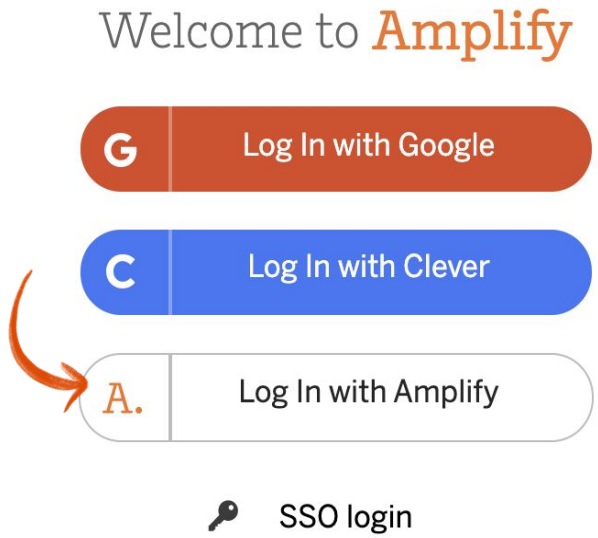
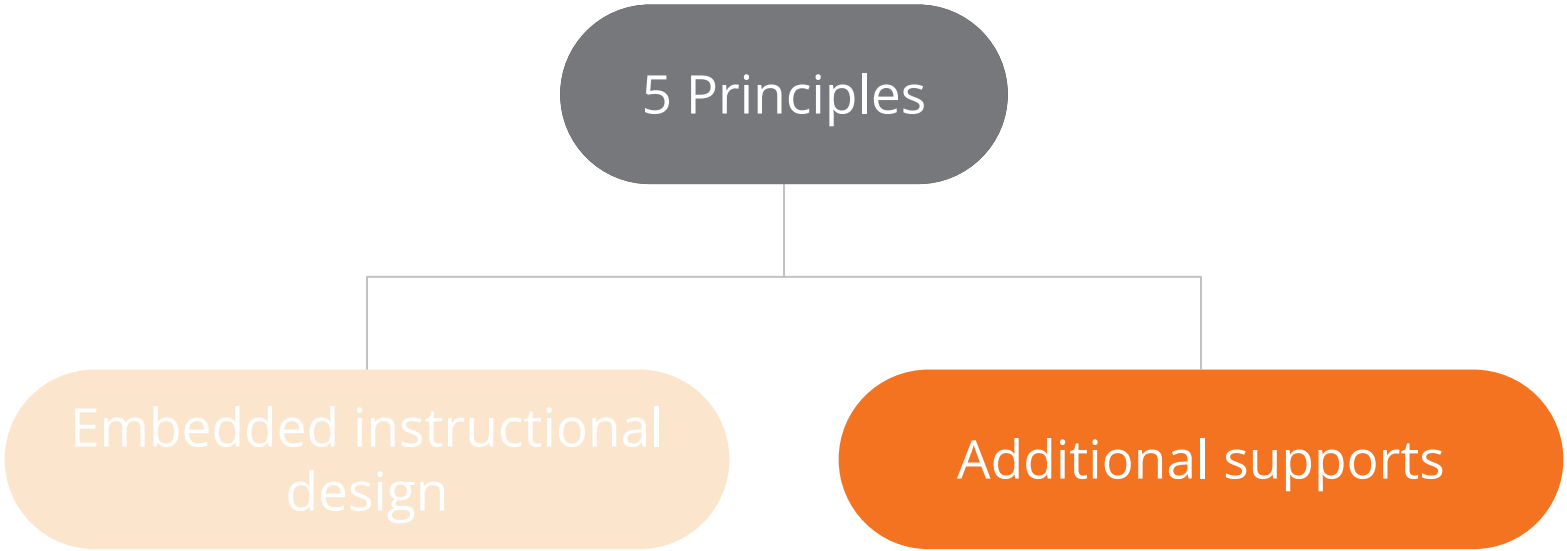
   - UN: californiasci@pd.tryamplify.net
   - PW: AmplifyNumber1



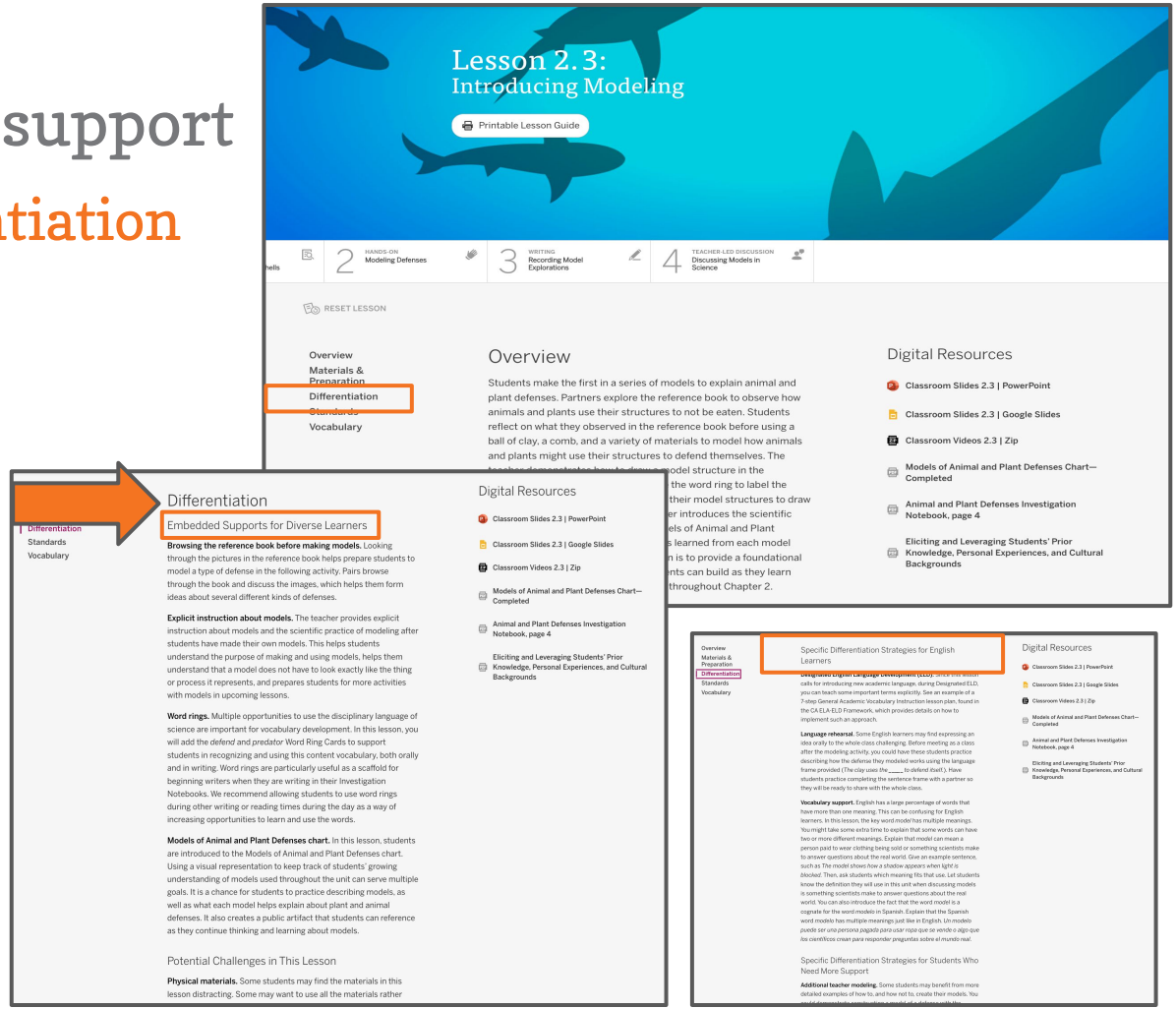
Supports for English learners



Providing additional support

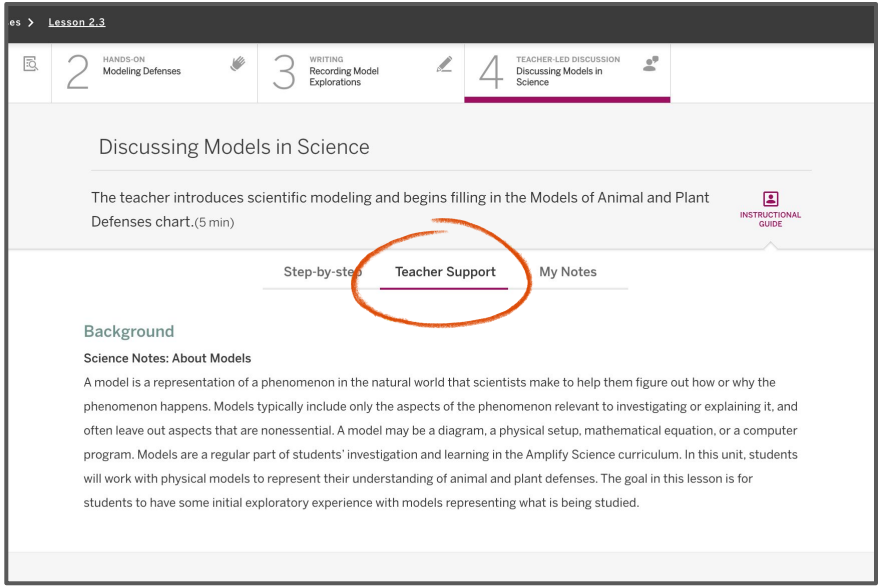
Lesson-specific differentiation

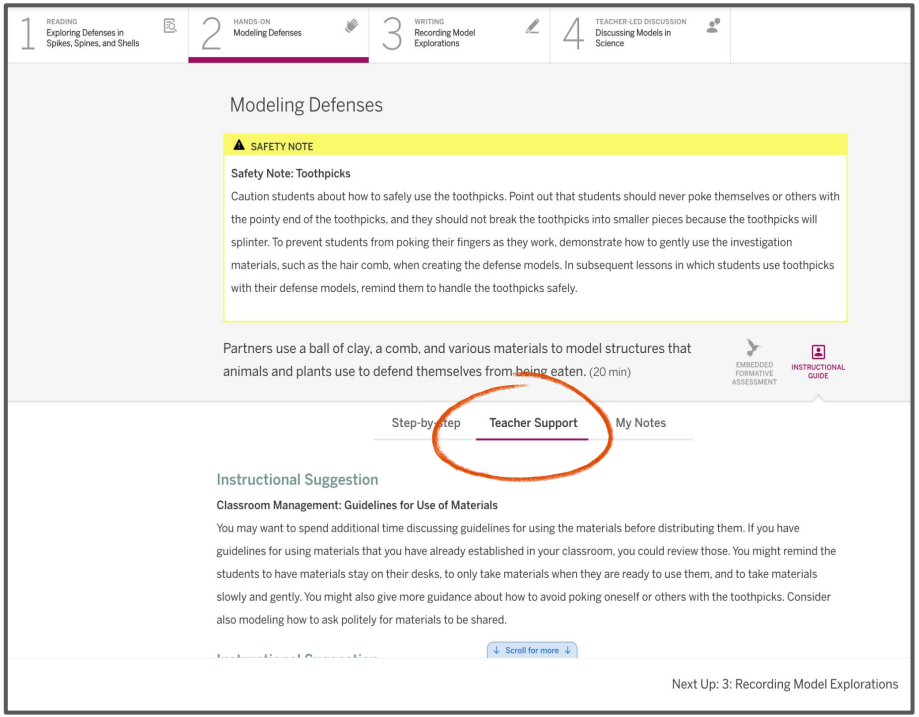
- Embedded supports for diverse learners
- Potential challenges in this lesson
- Specific differentiation strategies for:
  - English Learners
  - Students Who Need More Support
  - Students Who Need More Challenge



Providing additional support

Teacher Support notes

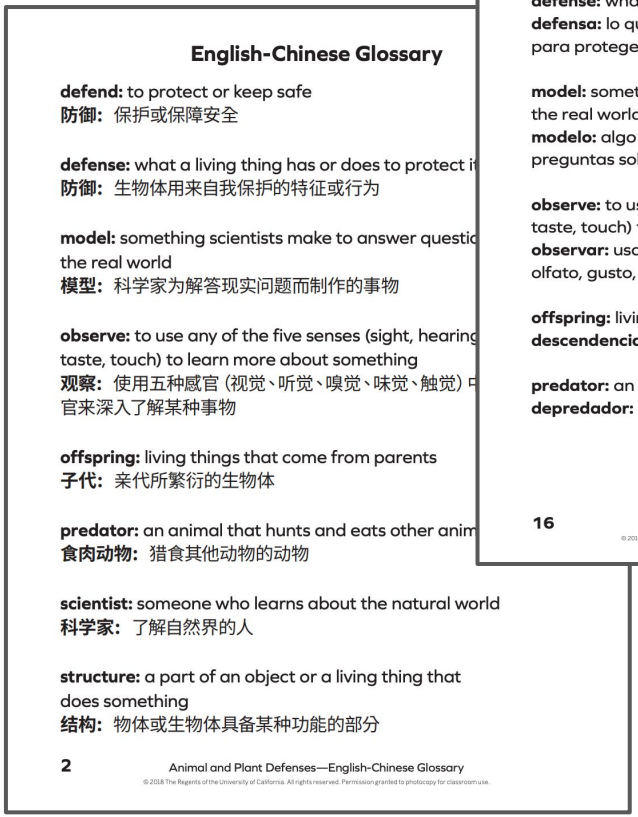




Providing additional support

Additional resources

- Multilingual glossaries
- Response options
- Word banks
- Read aloud functions
- K & 1 speaking and writing Explanation Frames



English-Chinese Glossary

defend: to protect or keep safe
防御： 保护或保障安全

defense: what a living thing has or does to protect it
防御： 生物体用来自我保护的特征或行为

model: something scientists make to answer questio
the real world
模型： 科学家为解答现实问题而制作的事物

observe: to use any of the five senses (sight, hearing
taste, touch) to learn more about something
观察： 使用五种感官（视觉、听觉、嗅觉、味觉、触觉）
官来深入了解某种事物

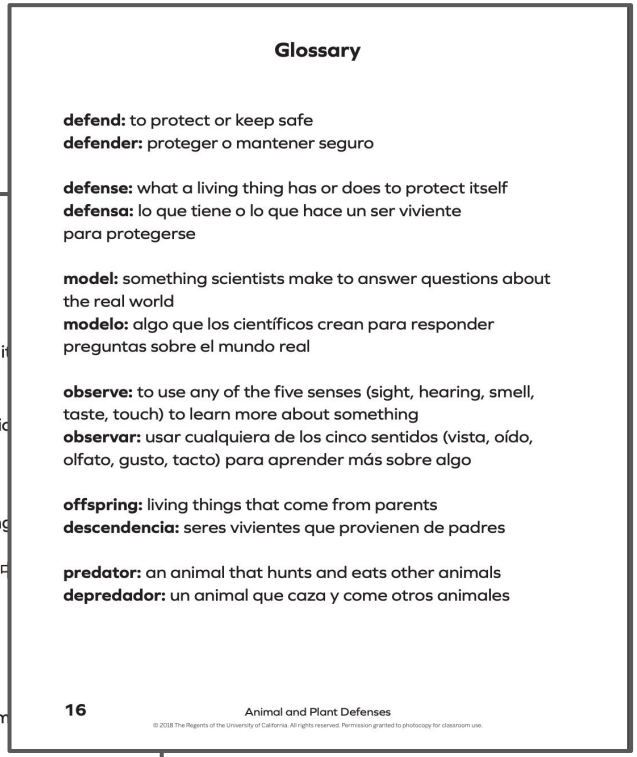
offspring: living things that come from parents
子代： 亲代所繁衍的生物体

predator: an animal that hunts and eats other anim
食肉动物： 猎食其他动物的动物

scientist: someone who learns about the natural world
科学家： 了解自然界的人

structure: a part of an object or a living thing that does something
结构： 物体或生物体具备某种功能的部分

2 Animal and Plant Defenses—English-Chinese Glossary



Glossary

defend: to protect or keep safe
defender: proteger o mantener seguro

defense: what a living thing has or does to protect itself
defensa: lo que tiene o lo que hace un ser viviente para protegerse

model: something scientists make to answer questions about the real world
modelo: algo que los científicos crean para responder preguntas sobre el mundo real

observe: to use any of the five senses (sight, hearing, smell, taste, touch) to learn more about something
observar: usar cualquiera de los cinco sentidos (vista, oído, olfato, gusto, tacto) para aprender más sobre algo

offspring: living things that come from parents
descendencia: seres vivientes que provienen de padres

predator: an animal that hunts and eats other animals
depredador: un animal que caza y come otros animales

16 Animal and Plant Defenses

Providing additional support

Additional resources for K & 1

Support for Speaking and Writing K & 1

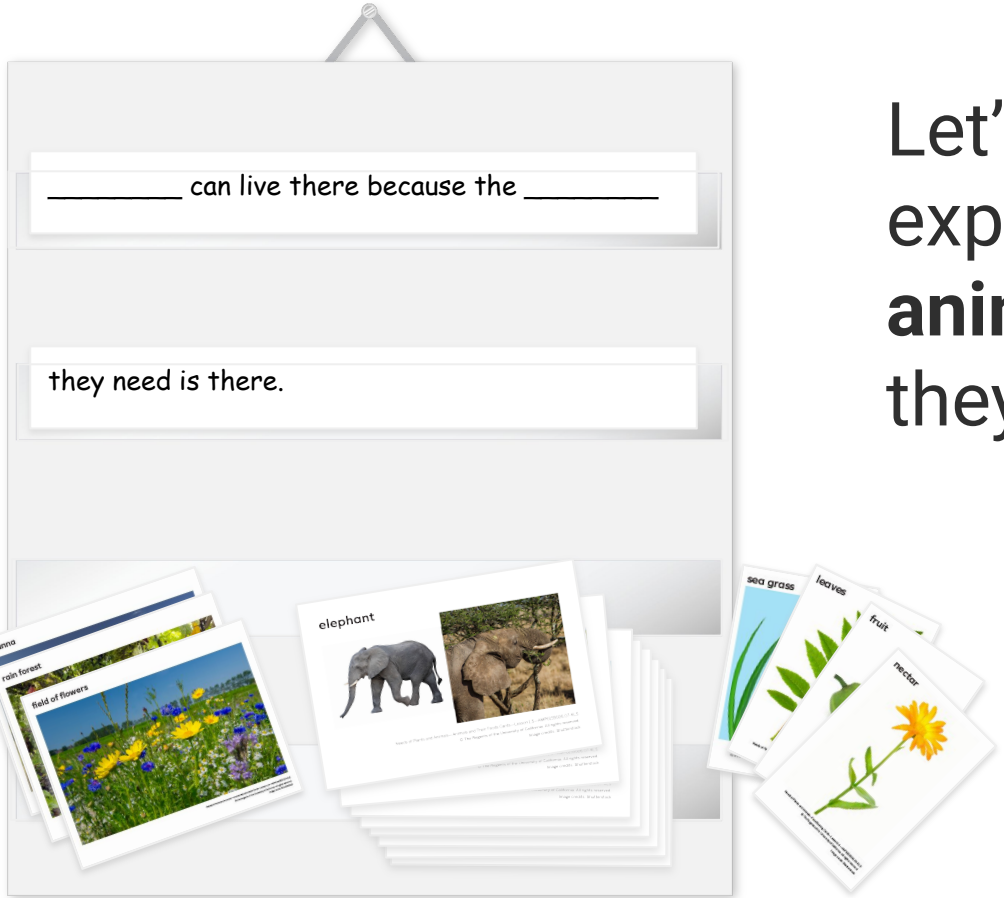
- Explanation Frames

We can talk about animals and what they need the way **scientists** do.

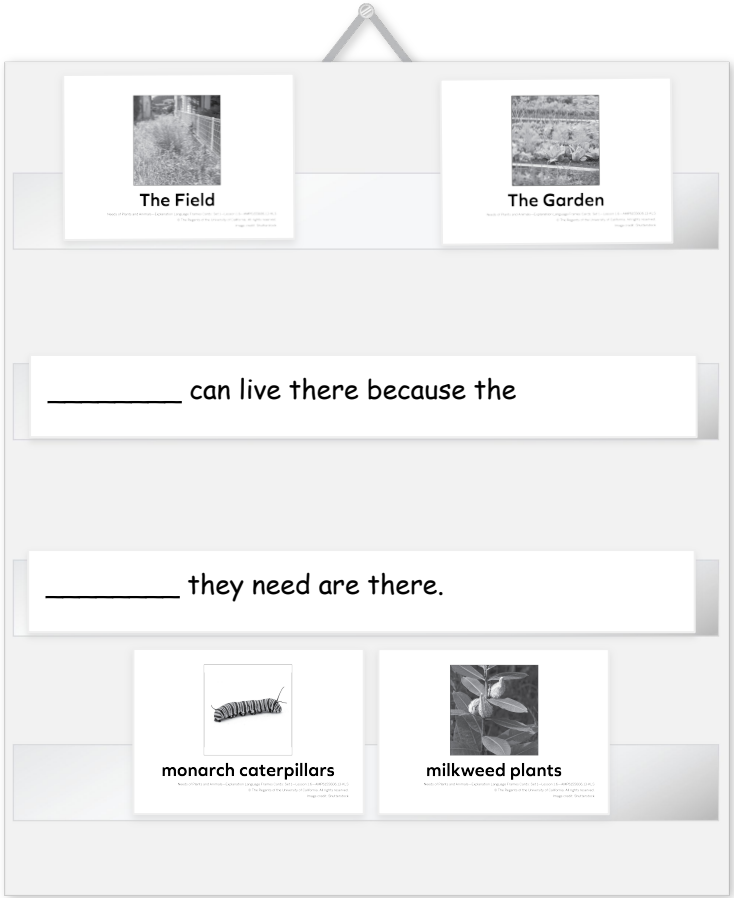
_____ can live there because the _____

they need is there.

Let’s use these words to explain why a **manatee** can live where it does.



Let's use these words to explain why the **other animals** can live where they do.



Now we can explain our ideas as a scientist would.

First, let's explain why **monarch caterpillars can live in the Field.**

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

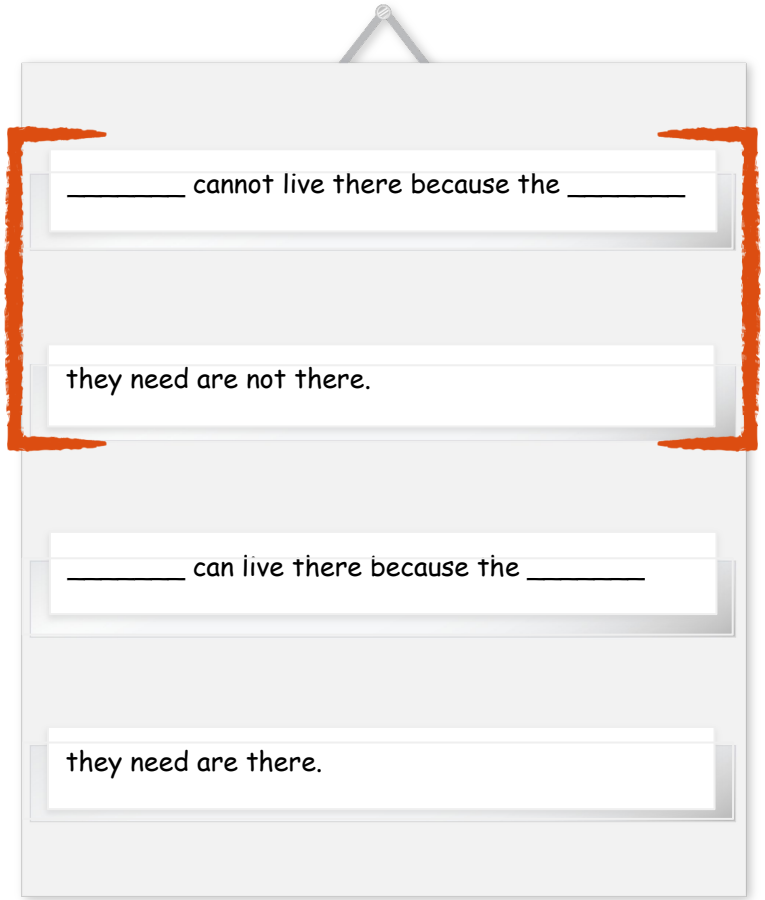
The Garden

Needs of Plants and Animals
Mariposa Grove Cards—Lesson 1.6—AMPG150606.08-KLS

Image credit: Shutterstock

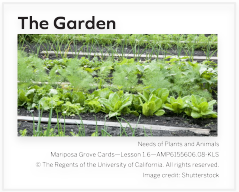
We will think about **the Garden** first.

First, you will share your ideas. Then, I will write them on this chart.



You can use these words to talk with a partner about **why monarch caterpillars cannot live in the Garden**.

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



Let's **record** our ideas.

5 Principles for Supporting English Learners

Pg. 6-14

Embedded and Additional Supports in Amplify Science

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.

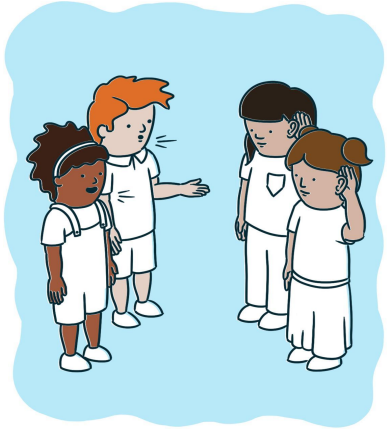
Principle 5: Provide multimodal means of accessing science content and expressing language.

Let's Work

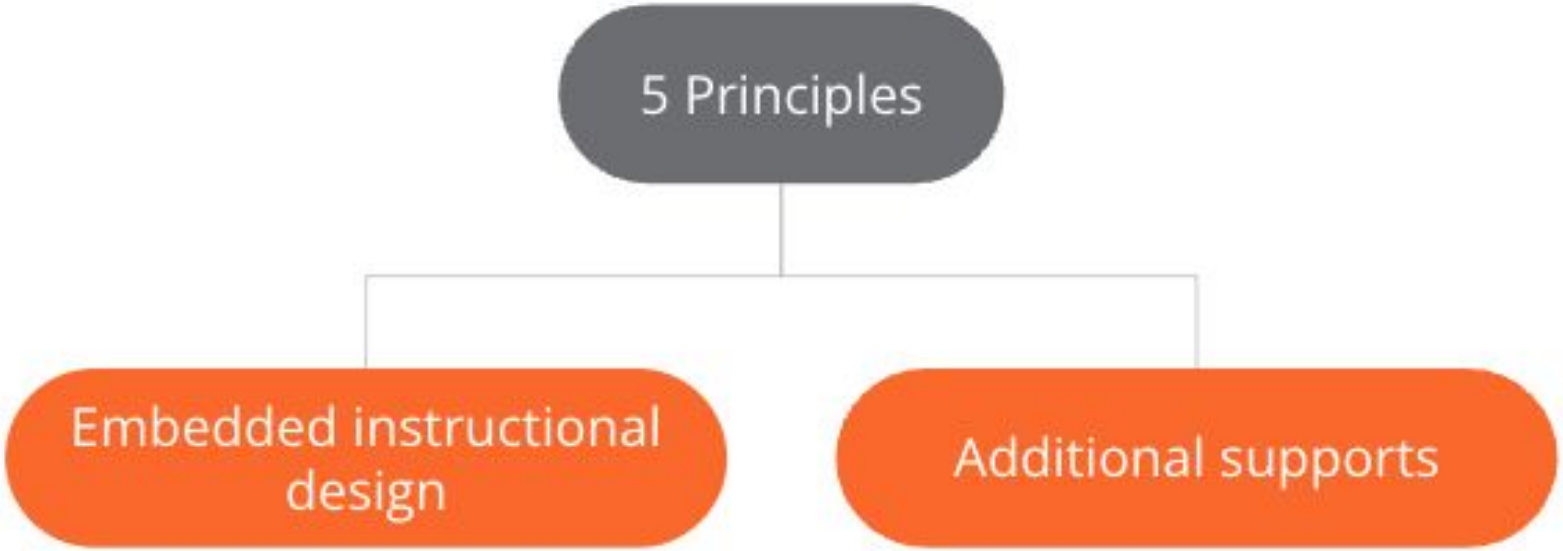
Pg. 6-14

What are the Principles for Supporting English Learners?

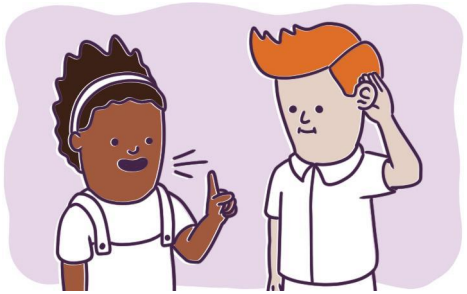
- Form 5 groups in the room (could be by tables)
- Each group will be assigned a Principle to internalize.
- Independently read your group's Principle for Supporting ELLs.
- Discuss and Summarize with your group.
- Create an illustration/poster of your findings
- Share out



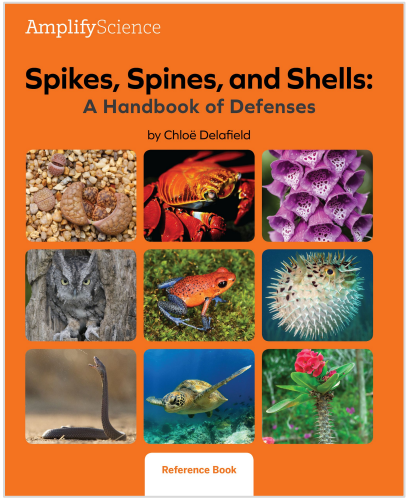
What are the embedded and additional supports that apply to each principle?



Principle 1: Leverage and build students' informational background knowledge.

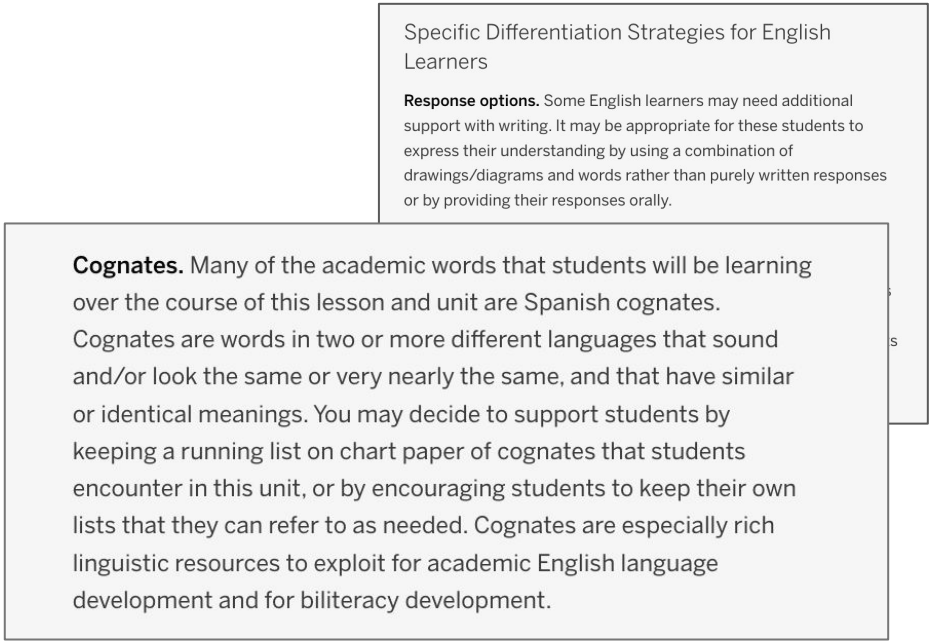


- Partner discourse routines
- Daily written reflections
- Active reading
- Anticipation guides



Principle 2: Capitalize on students' knowledge of language.

- Science/Everyday word charts
- Leveraging native language
- Cognates
- Multilingual glossary



Principle 3: Provide explicit instruction about the language of science.

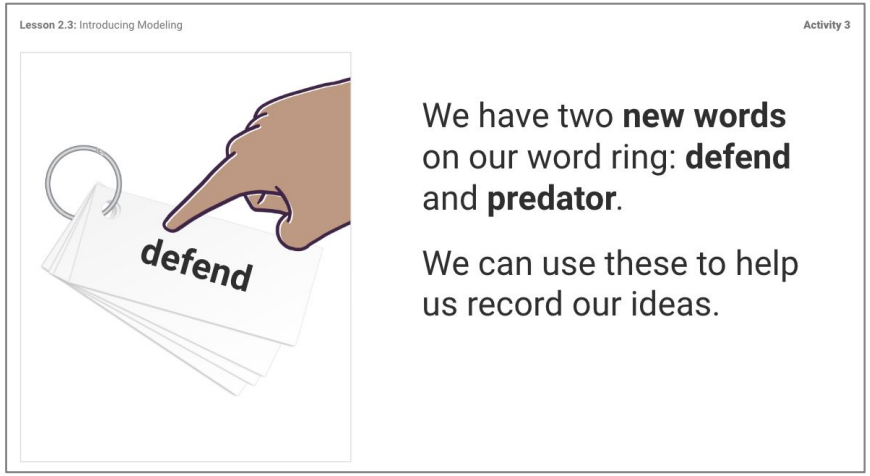
- Language Frames /sentence starters
- Argumentation
- Modeling active reading
- Word Relationships
- Word banks
- Multiple meaning words

_____ can live there because the

_____ they need are there.

Principle 4: Provide opportunities for scaffolded practice.

- Gradual release
- Graphic organizers
- Argumentation
- Reflective writing
- Clear and concise instructions
- Language Practice
- Modeling tools



💬 **Suggested teacher talk:**

We are going to practice saying the word.

- Say the word after me: *model.*
- Now say the word together: *model*.
- Now whisper the word *model* to your partner.

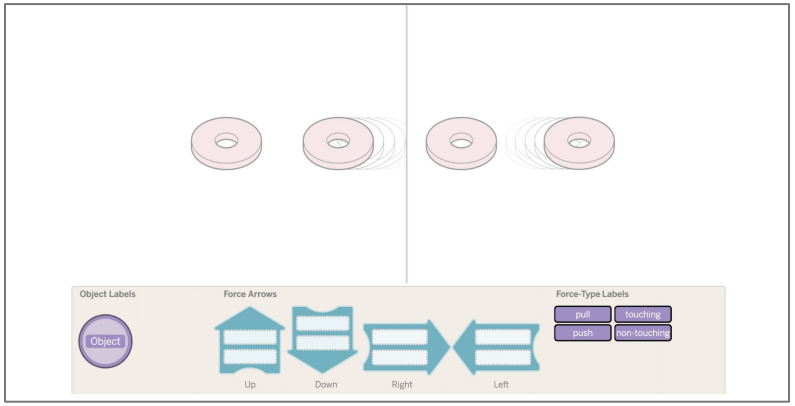
A *model* is something scientists make to answer questions about the real world.

Principle 4: Provide opportunities for scaffolded practice (cont'd)

- Create and using models
- Strategic grouping
- Promoting inclusion in discussion
- Extended modeling
- Partner reading

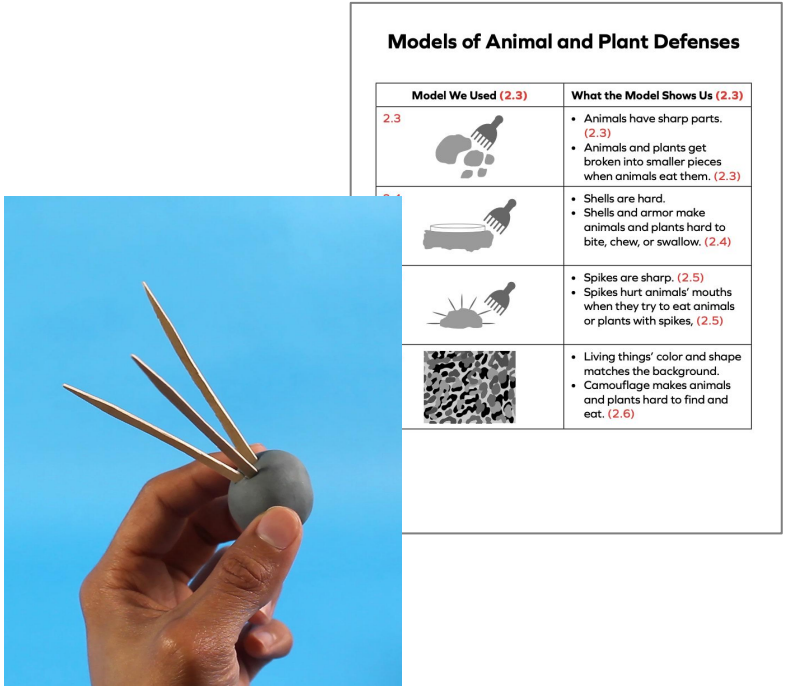
Principle 5: Provide multimodal means of accessing science content and expressing language.

- Multimodal instruction
- Use of visual representations of images
- Interpreting and creating visual representations
- Use of physical and digital models
- Additional practice in other modalities
- Additional visual representations



Principle 5: Provide multimodal means of accessing science content and expressing language (cont'd)

- Additional visual representations
- Optional graphic organizers
- Response options
- Increase wait time for student responses
- Student summarize



Models of Animal and Plant Defenses

Model We Used (2.3)	What the Model Shows Us (2.3)
2.3	• Animals have sharp parts. (2.3) • Animals and plants get broken into smaller pieces when animals eat them. (2.3)
	• Shells are hard. • Shells and armor make animals and plants hard to bite, chew, or swallow. (2.4)
	• Spikes are sharp. (2.5) • Spikes hurt animals' mouths when they try to eat animals or plants with spikes, (2.5)
	• Living things' color and shape matches the background. • Camouflage makes animals and plants hard to find and eat. (2.6)

Pg. 6-14

Now it's your turn!

5 Principles for Supporting English Learners

Explore the embedded and additional support resources that are available.

Examples:

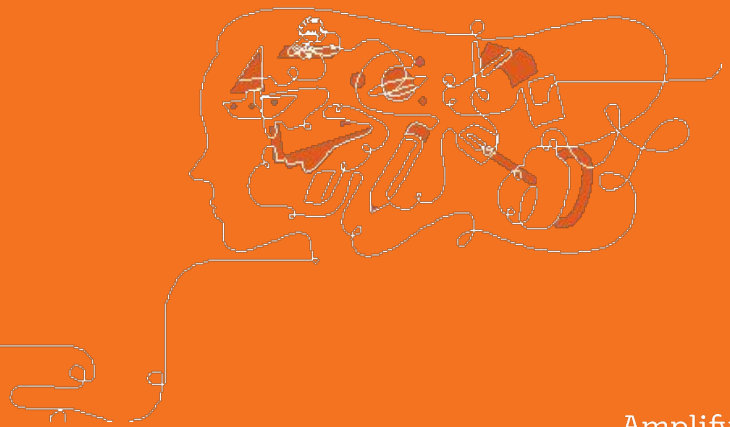
Unit 1 Landing page

- Printable Resources
  - Investigation Notebook
  - Multi-language Glossary
  - Eliciting and Leveraging....

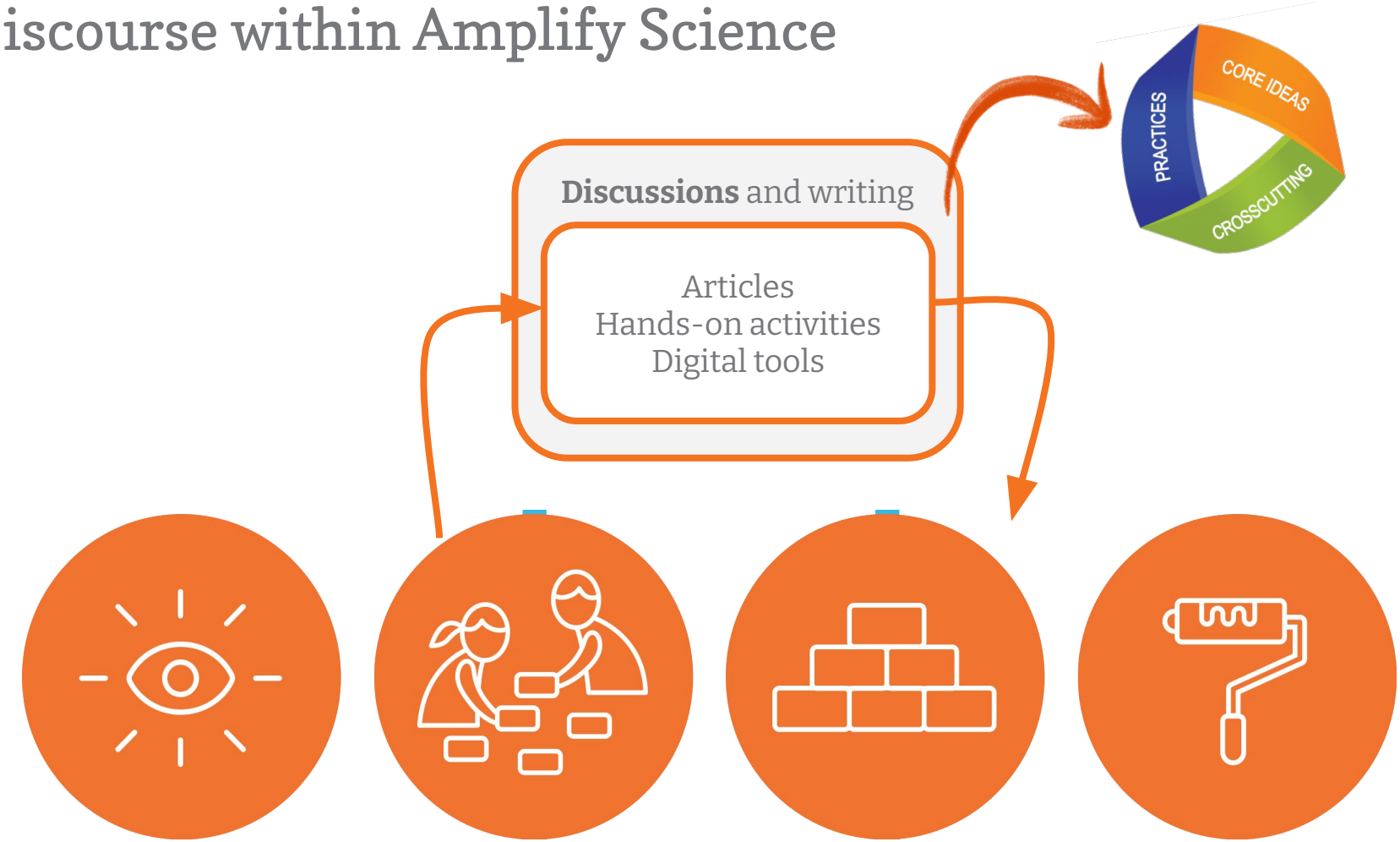
Lesson Page

- Lesson Brief
  - Teacher support tab
- Digital resources (depends on lesson)
  - Classroom Slides
  - Additional resources

Break

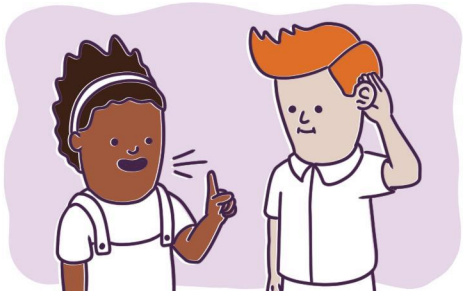


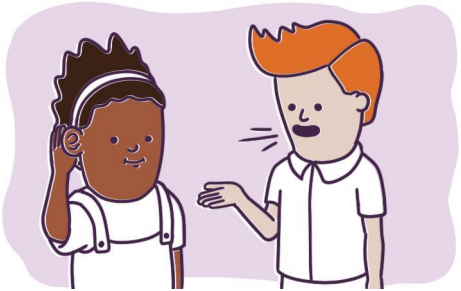
Discourse within Amplify Science



Let's Practice

Discourse Routines





Discourse Routine Reference

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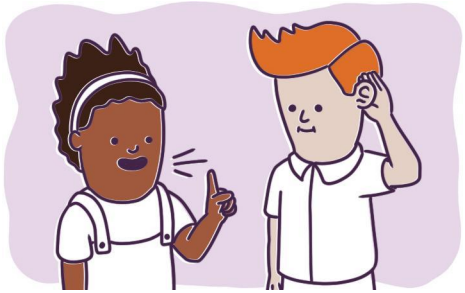
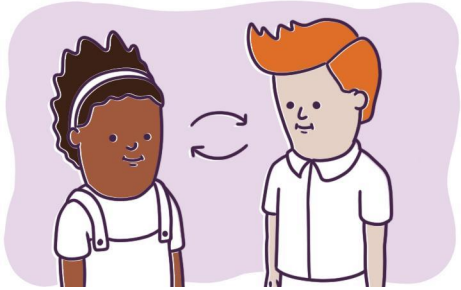
Shared Listening

Shared Listening



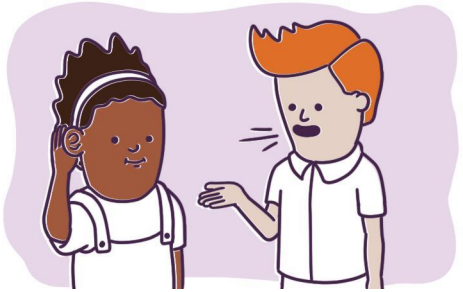
1.

Partner A shares.
Partner B listens.



2.

Partners switch.



3.

Partner B shares.
Partner A listens.

Share ideas on ways you support your English learners.

After doing the shared listening routine, call on individuals to share what their partner said. This demonstrates their ability to listen.

Think-Pair-Share

Think-Pair-Share Routine

Think

Think silently about the question.

Pair

Turn and talk to a partner about the question.

Share

Share your ideas about the question with the class.

Think-Draw-Pair-Share Routine

Think

Think silently about the question.

Draw

Draw your ideas in your notebook.

Pair

Turn and talk to a partner about the question.

Share

Share your ideas about the question with the class.

Think-Write-Pair-Share Routine

Think

Think silently about the question.

Write

Write your ideas about the question in your notebook.

Pair

Turn and talk to a partner about the question.

Share

Share your ideas about the question with the class.

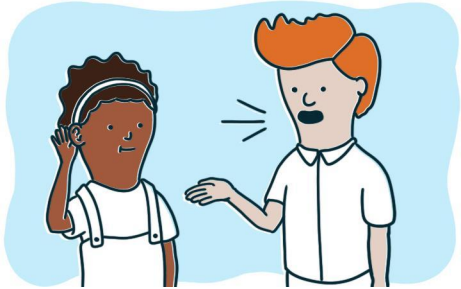
We are used to using this routine. Is there anyone that has tried to build on this strategy or different ways to group students?

Building on Ideas

Building on Ideas

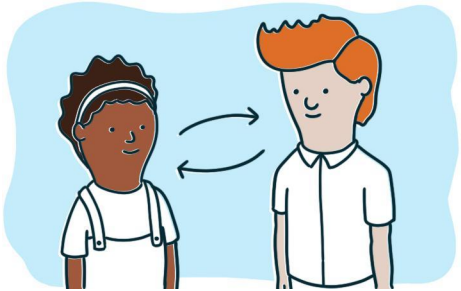
Step 1

I will pose a question. **Partner A shares** for one minute while **Partner B listens.**



Step 2

Partner B repeats what Partner A said, and then **agrees or disagrees.**



Step 3

Partner A repeats what Partner B said, and then says if that **changed their mind or not.**

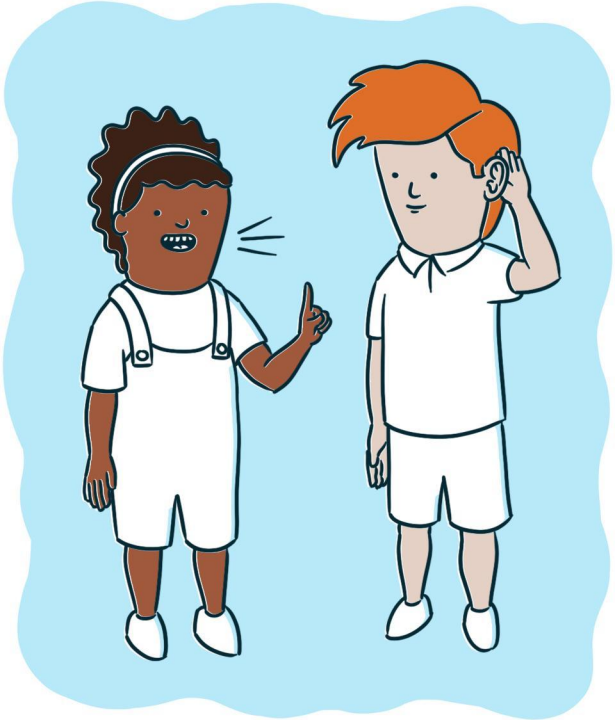
Building on Ideas: Question 1

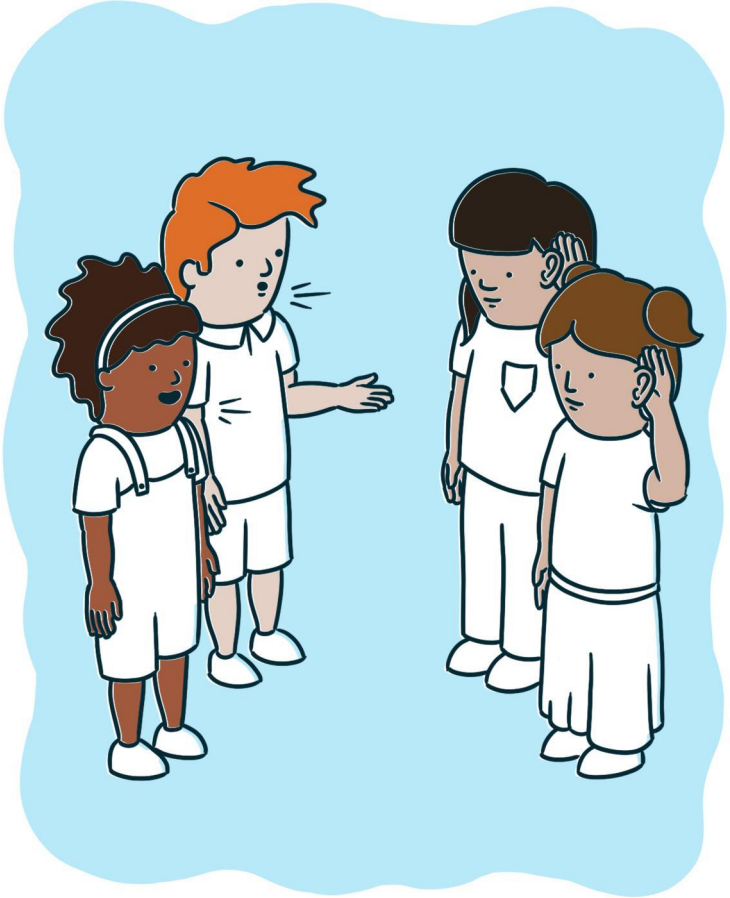
Why do we need to teach Amplify science with fidelity?

Partner A
We need to teach with fidelity because _____.

Partner B
I heard you say _____.
I agree/disagree because _____.

Partner A
I heard you say _____.
This changed/didn't change what I think because _____.





You will now join another pair and discuss your ideas about Question 1.

Why do we need to teach Amplify science with fidelity?

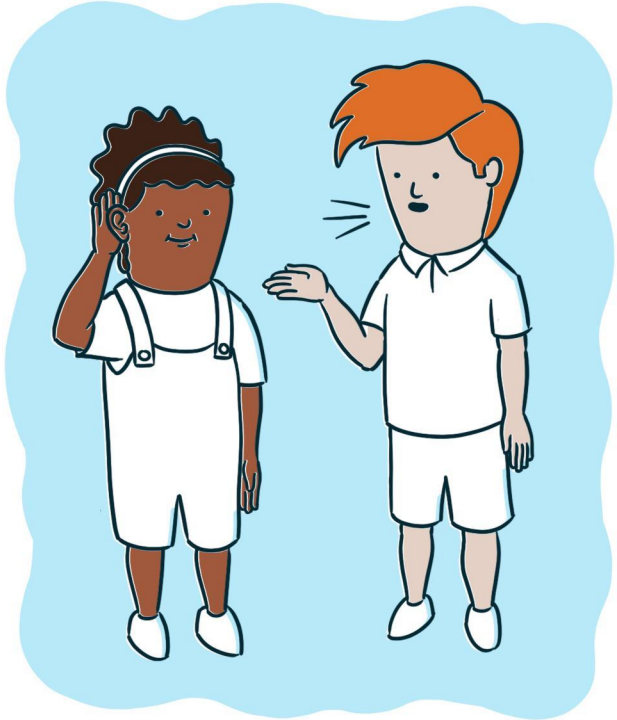
Building on Ideas: Question 2

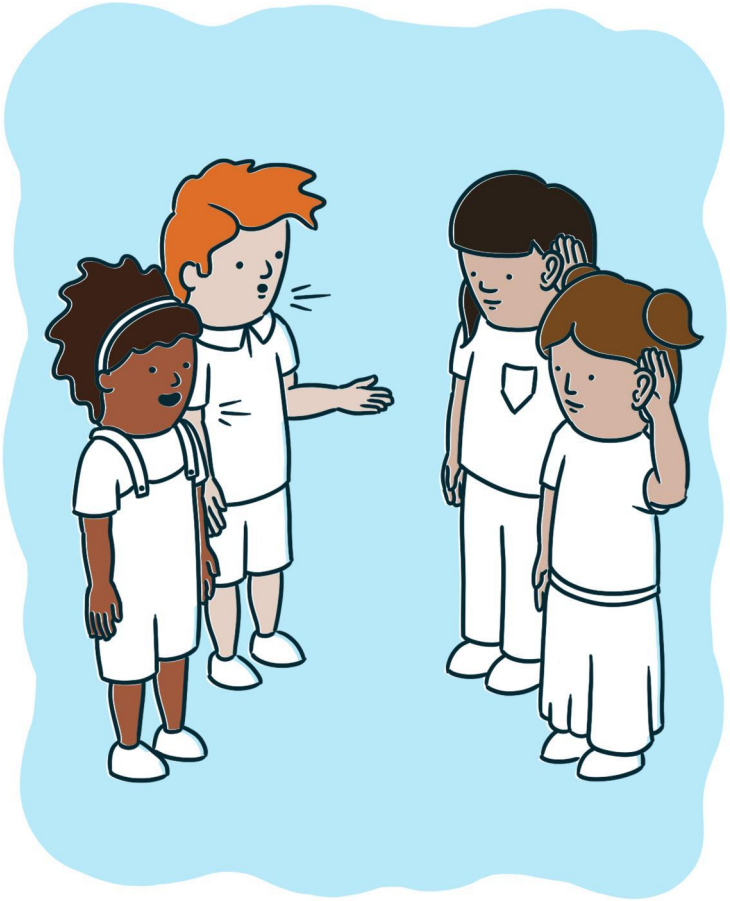
Why is timing important?

Partner B
Timing is important because _____.

Partner A
I heard you say _____.
I agree/disagree because _____.

Partner B
I heard you say _____.
This changed/didn't change what I think because _____.





Join another pair and **discuss** your ideas about Question 2.

Why is timing important?

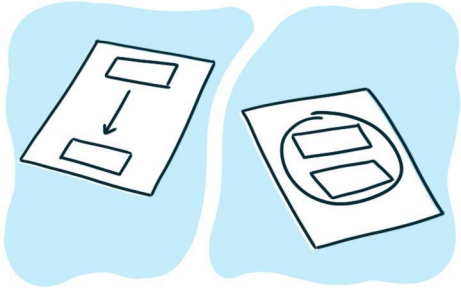
Concept Mapping

Concept Mapping

Step 1

Choose two or three word cards at a time.

Talk about how the words are related.



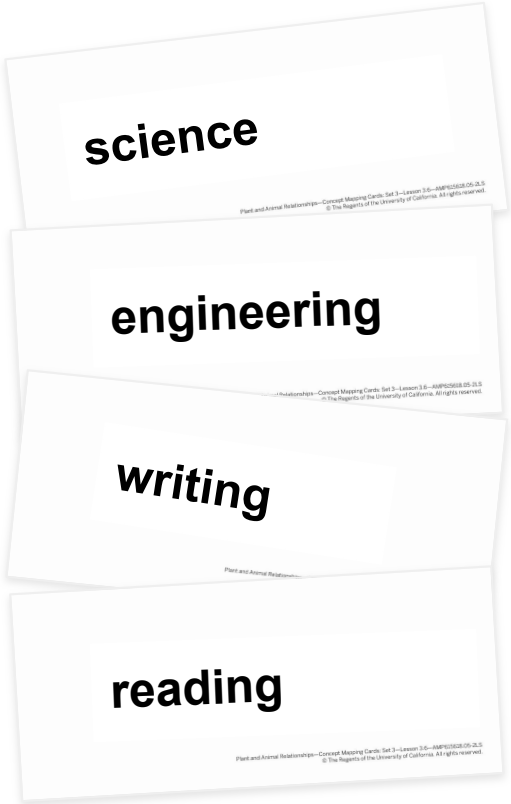
Step 2

Glue the words to a piece of paper.

Draw lines or **circles**, and **write** to show how the words are related.

Step 3

You can **record more words** if you would like.



Choose **two or three** words and **discuss** how those words are related to each other.

Paste two or three word cards on the paper.

Draw and write to show how the words are related.

Thought Swap

Thought Swap

Step 1

Make two lines so that you each have a partner directly across from you.

Step 2

Discuss the first question with your partner.

Step 3

Switch partners and discuss the next question.

Thought Swap Question 1:

What have you been successful with in teaching Amplify Science?

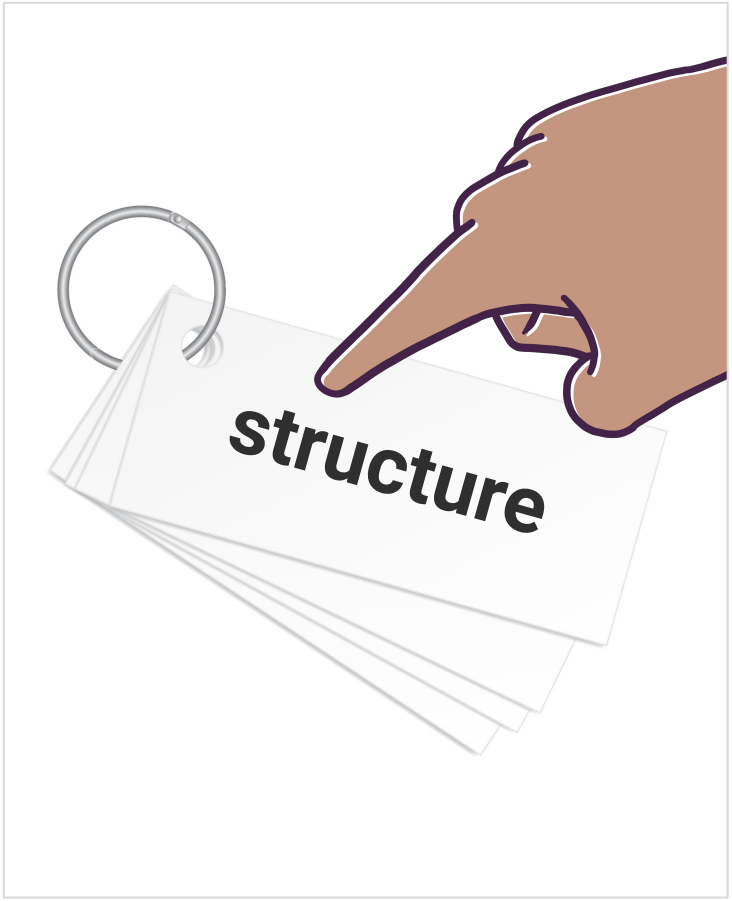
Now, switch partners for Thought Swap Question 2:

What have you struggled with in teaching Amplify Science? How did you address it?

Variation on Thought Swap

Put students in groups of 8 (or 6) and have them rotate as the questions change.

Word Relationships



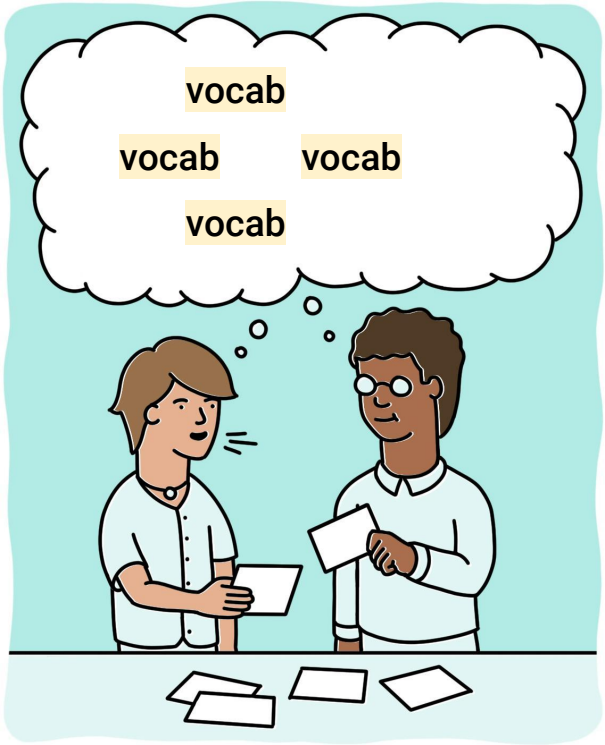
This **word ring** is a tool we can use to remember a word or how to spell it.

Word Relationships Routine

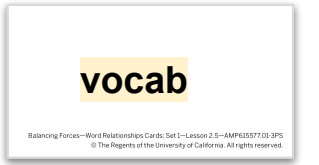
Make Sentences
Use at least two words from the Word Relationships Cards in each sentence. You may use the same word more than once. Try to use all the vocabulary words.

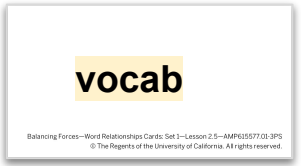
Take Turns
Take turns as both the speaker and the listener.

Create More Than One Sentence
There are many different sentences that could help to answer the Investigation Question. You and your partner will need to create multiple sentences in order to answer the question completely.



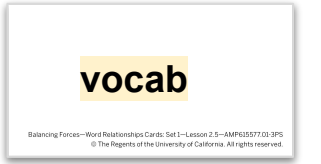
Here is a sentence using two of the word cards:

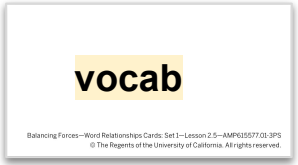
A 

causes 

to occur.

Here is a sentence using three of the word cards:

A 

can 

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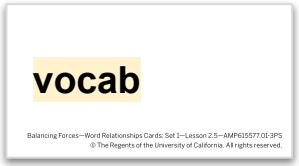
with a 

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Evidence Circles

Scientific Language for Evidence Circles

Ways to share ideas:

- I think Claim _____ (A, B, or C) is best because _____ .
- The evidence shows that _____ .
- This means that _____ .

Ways to respond to others:

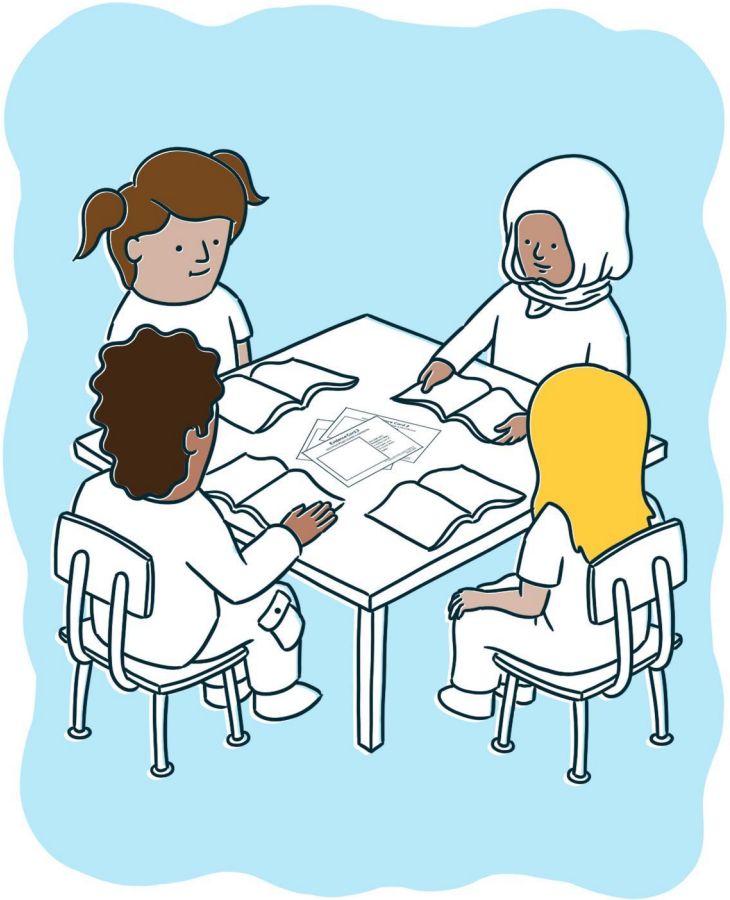
- I agree because _____ .
- I disagree because _____ .

Questions to ask during the discussion:

- What evidence supports your claim?
- Could you say more about why the evidence you shared supports your claim?

You can use the scientific language to help you discuss.

Make sure each person gets to read the cards.



Begin your **Evidence Circles.**

Discuss to decide which claim is best.

I will call on a volunteer to share for each group.

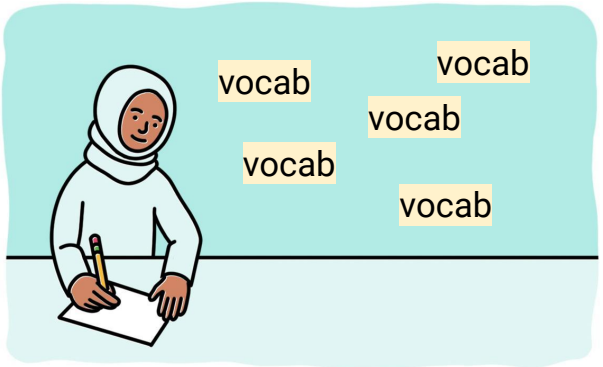
Did your group come to an **agreement?**

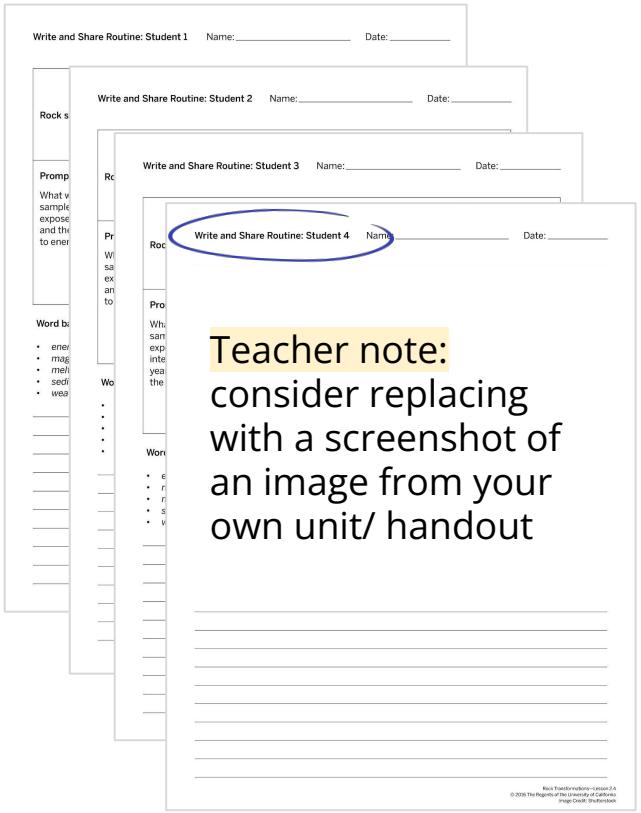
Why did you choose to link the **evidence** that you did?

Write and Share

Write and Share Routine

1. Carefully **read and annotate** the information you're given.
2. **Answer your prompt** using the vocabulary words.
3. After everyone in your group has had a chance to write, **take turns introducing your prompts and sharing** your responses.
4. While one student presents, the others should **listen carefully.**
5. After each student presents, the other students in the group can **ask questions** or make comments.

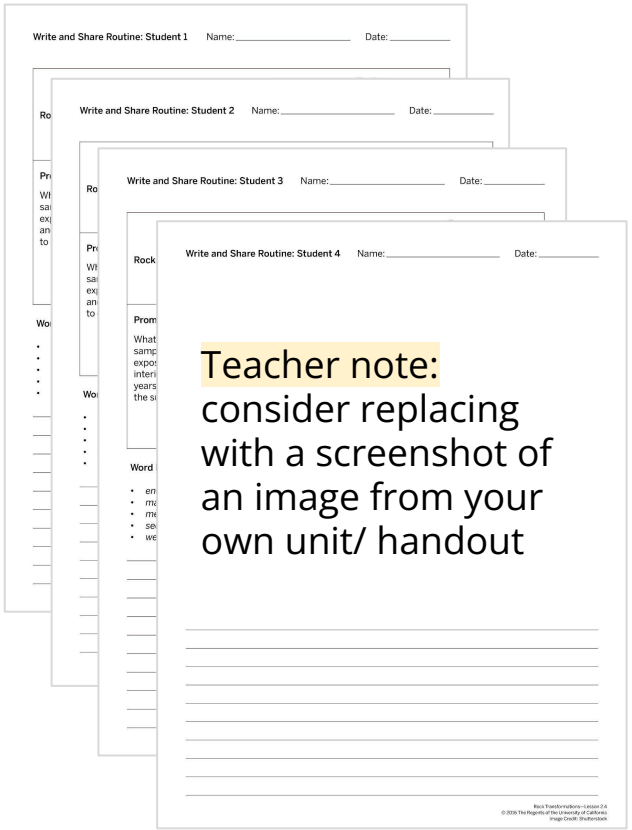




I'll give each member of your group a number.

Find the sheet that matches your number. This is the piece of evidence you will respond to.

Investigation Notebook **pgs XX- XX**



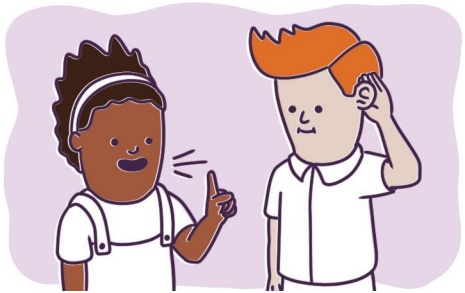
Let's hear from a few different groups.

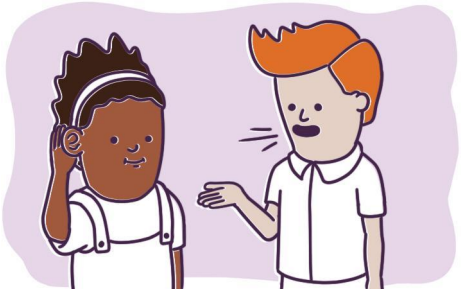
What ideas did you share in your group?

What did you **learn** from another group member?

Discourse Routine Templates

Discourse Routines





Discourse Routine Templates

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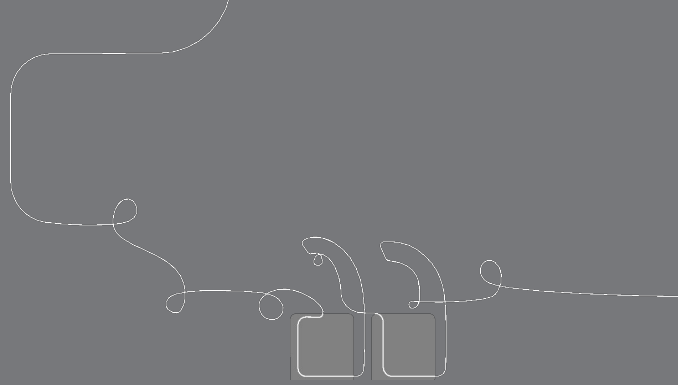
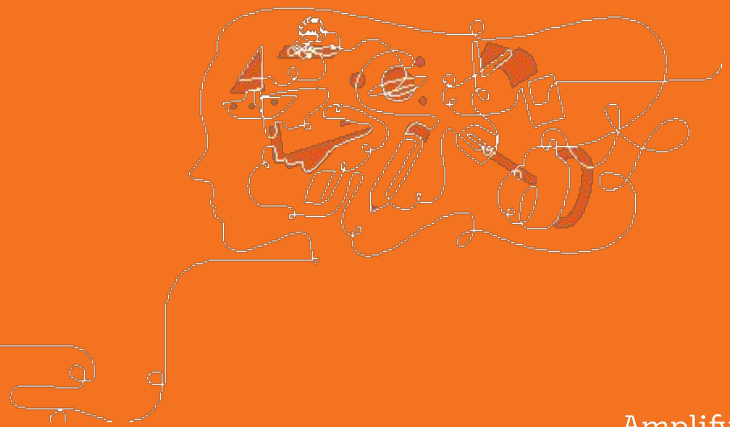
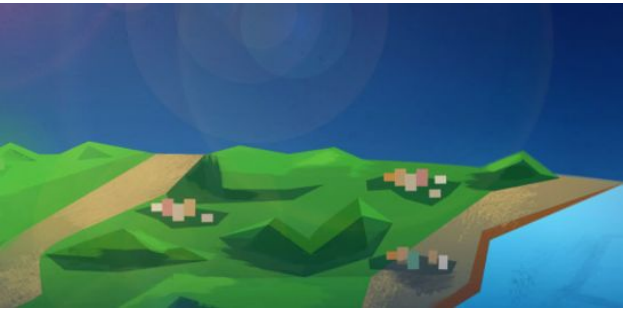
Questions?



Lunch Break





Plan for the day

- Introduction
- Language of the Science Classroom
- Embedded and Additional Supports
- Experiencing a Lesson
- Planning for Supports
- Closing

Animal and Plant Defenses

Problem: How does a sea turtle or other sea animals at the aquarium could defend themselves from ocean predators once they are released back into the wild?

Role: Marine Scientists

Students are challenged to figure out how Spruce and her offspring will survive in an ocean where the are predators.

Animal and Plant Defenses

Coherent Storylines

How does Spruce the Sea Turtle do what she needs to do to survive?

How can Spruce the Sea Turtle survive where there are sharks?

How can Spruce the Sea Turtle's offspring survive where there are sharks?

How can scientists explain animal defenses to visitors?

Animal and Plant Defenses

Unit Question: How do animals and plants survive?

Students learn to construct scientific explanations of why animals' and plants' offspring are able to survive in areas where there are animals that might eat them.

Animal and Plant Defenses

Explaining the phenomenon: Science Concepts

What **science concepts** do you think students need to understand in order to **explain the phenomenon?**

Progress Build

Animal and Plant Defenses

Assumed prior knowledge (preconceptions): It is assumed students know that animals and plants are living things and can die if they do not get what they need.

Level 1

To survive, animals and plants must not be eaten by animals that try to eat them for food

Level 2

Many animals and plants have body structures with qualities that make them good for stopping animals from finding and/or eating them.

Level 3

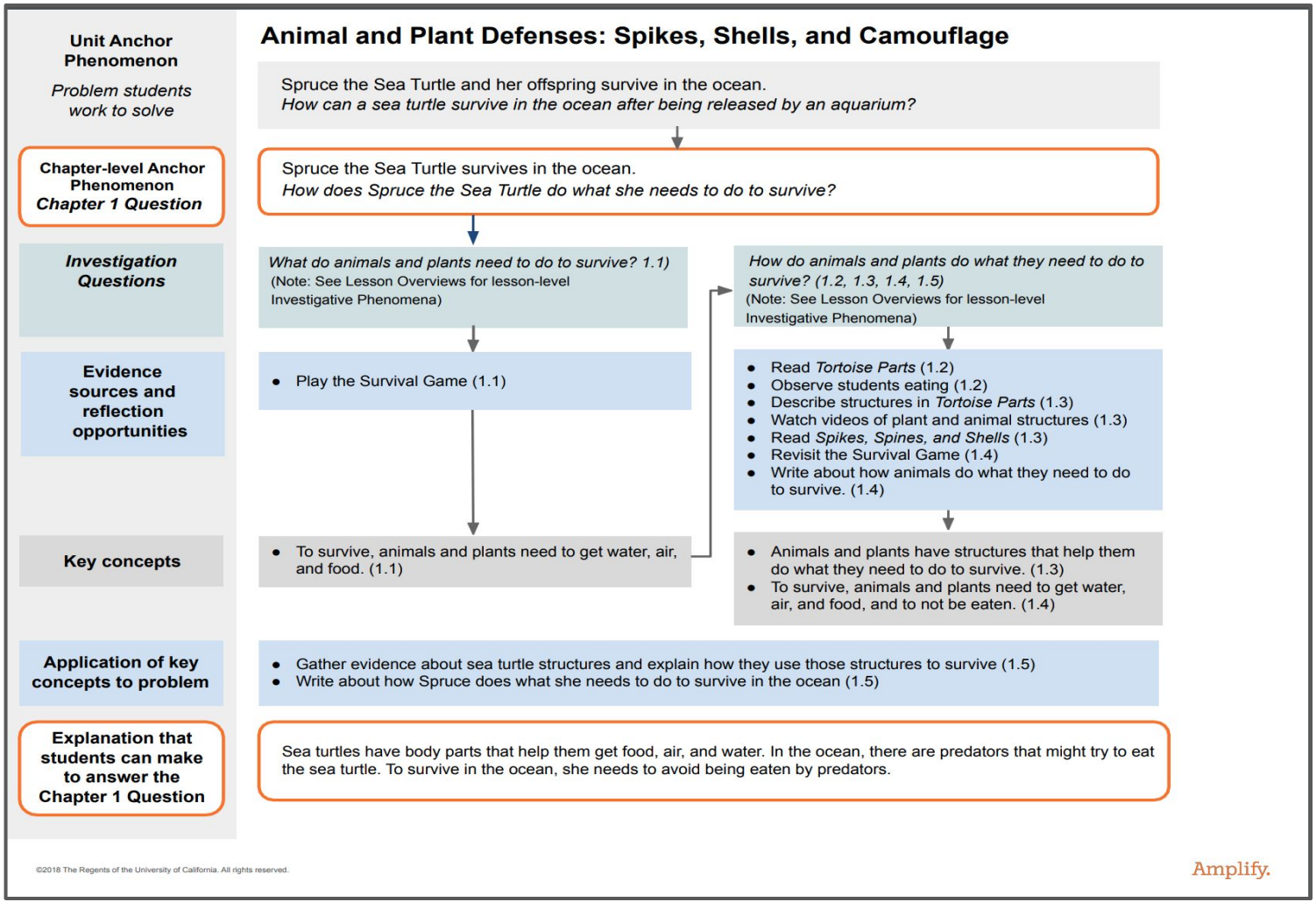
Animals' and plants' offspring have similar, though not identical, structures to their parents that work in the same ways.

Animal and Plant Defenses

By the end of the unit, students learn:

- Sea turtles have body parts that help them get food, air, and water. To survive in the ocean, she needs to avoid being eaten by predators.
- Spruce has body structures that function as defenses against being eaten by sharks.
- The offsprings might not look exactly alike, but they will grow up with structures, like their parents to allow them to defend themselves and survive on their own without help from their parents.
- To create models to explain animals defenses to the visitors of the aquarium.

Chapter 1


Animal and Plant Defenses: Spikes, Shells, and Camouflage
Unit Anchor Phenomenon
Problem students work to solve
Spruce the Sea Turtle and her offspring survive in the ocean.
How can a sea turtle survive in the ocean after being released by an aquarium?
Chapter-level Anchor Phenomenon
Chapter 1 Question
Spruce the Sea Turtle survives in the ocean.
How does Spruce the Sea Turtle do what she needs to do to survive?
Investigation Questions
What do animals and plants need to do to survive? 1.1)
(Note: See Lesson Overviews for lesson-level Investigative Phenomena)
How do animals and plants do what they need to do to survive? (1.2, 1.3, 1.4, 1.5)
(Note: See Lesson Overviews for lesson-level Investigative Phenomena)
Evidence sources and reflection opportunities
Play the Survival Game (1.1)
Read Tortoise Parts (1.2)
Observe students eating (1.2)
Describe structures in Tortoise Parts (1.3)
Watch videos of plant and animal structures (1.3)
Read Spikes, Spines, and Shells (1.3)
Revisit the Survival Game (1.4)
Write about how animals do what they need to do to survive. (1.4)
Key concepts
To survive, animals and plants need to get water, air, and food. (1.1)
Animals and plants have structures that help them do what they need to do to survive. (1.3)
To survive, animals and plants need to get water, air, and food, and to not be eaten. (1.4)
Application of key concepts to problem
Gather evidence about sea turtle structures and explain how they use those structures to survive (1.5)
Write about how Spruce does what she needs to do to survive in the ocean (1.5)
Explanation that students can make to answer the Chapter 1 Question
Sea turtles have body parts that help them get food, air, and water. In the ocean, there are predators that might try to eat the sea turtle. To survive in the ocean, she needs to avoid being eaten by predators.
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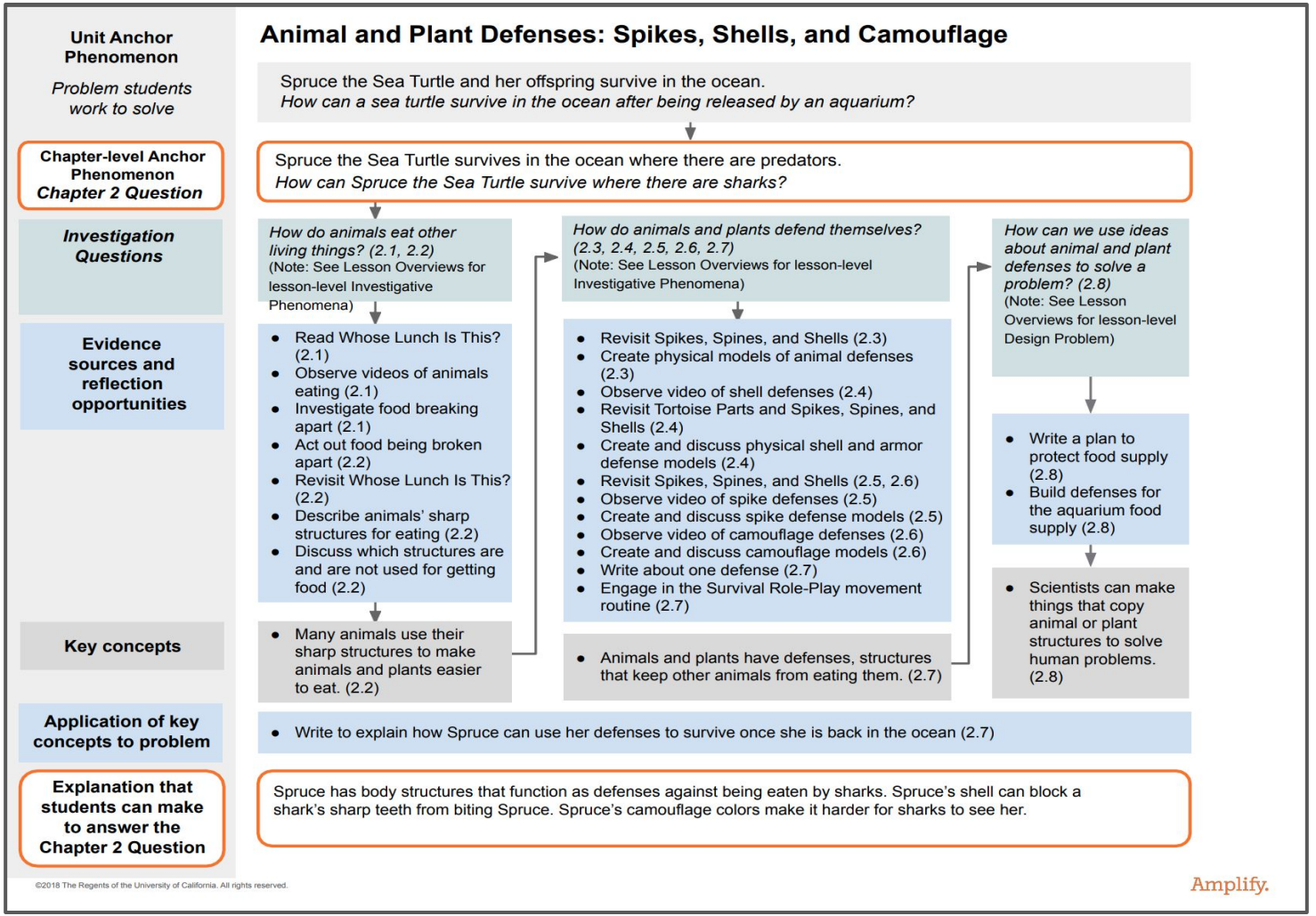
Amplify.

Chapter 2


Animal and Plant Defenses: Spikes, Shells, and Camouflage
Unit Anchor Phenomenon
Problem students work to solve
Spruce the Sea Turtle and her offspring survive in the ocean.
How can a sea turtle survive in the ocean after being released by an aquarium?
Chapter-level Anchor Phenomenon
Chapter 2 Question
Spruce the Sea Turtle survives in the ocean where there are predators.
How can Spruce the Sea Turtle survive where there are sharks?
Investigation Questions
How do animals eat other living things? (2.1, 2.2)
(Note: See Lesson Overviews for lesson-level Investigative Phenomena)
How do animals and plants defend themselves? (2.3, 2.4, 2.5, 2.6, 2.7)
(Note: See Lesson Overviews for lesson-level Investigative Phenomena)
How can we use ideas about animal and plant defenses to solve a problem? (2.8)
(Note: See Lesson Overviews for lesson-level Design Problem)
Evidence sources and reflection opportunities
Read Whose Lunch Is This? (2.1)
Observe videos of animals eating (2.1)
Investigate food breaking apart (2.1)
Act out food being broken apart (2.2)
Revisit Whose Lunch Is This? (2.2)
Describe animals' sharp structures for eating (2.2)
Discuss which structures are and are not used for getting food (2.2)
Revisit Spikes, Spines, and Shells (2.3)
Create physical models of animal defenses (2.3)
Observe video of shell defenses (2.4)
Revisit Tortoise Parts and Spikes, Spines, and Shells (2.4)
Create and discuss physical shell and armor defense models (2.4)
Revisit Spikes, Spines, and Shells (2.5, 2.6)
Observe video of spike defenses (2.5)
Create and discuss spike defense models (2.5)
Observe video of camouflage defenses (2.6)
Create and discuss camouflage models (2.6)
Write about one defense (2.7)
Engage in the Survival Role-Play movement routine (2.7)
Write a plan to protect food supply (2.8)
Build defenses for the aquarium food supply (2.8)
Key concepts
Many animals use their sharp structures to make animals and plants easier to eat. (2.2)
Animals and plants have defenses, structures that keep other animals from eating them. (2.7)
Scientists can make things that copy animal or plant structures to solve human problems. (2.8)
Application of key concepts to problem
Write to explain how Spruce can use her defenses to survive once she is back in the ocean (2.7)
Explanation that students can make to answer the Chapter 2 Question
Spruce has body structures that function as defenses against being eaten by sharks. Spruce's shell can block a shark's sharp teeth from biting Spruce. Spruce's camouflage colors make it harder for sharks to see her.
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Animal and Plant Defenses: Chapter 1

Chapter 1 Question: How does Spruce the Sea Turtle do what she needs to do to survive?

Investigation Question 1: What makes an object start to move?

- What do animals and plants need to do to survive?
- How do animals and plants do what they need to do to survive?

Chapter 2 Question: How can Spruce the Sea Turtle survive where there are sharks?

Investigation Question 1: How do animals eat other living things?

Investigation Question 2: How do animals and plants defend themselves?

Animal and Plant Defenses

Chapters

Chapter 1: How does Spruce the Sea Turtle do what she needs to do to survive?

LESSON 1.1
Pre-Unit Assessment

LESSON 1.2
Tortoise Parts

LESSON 1.3
Animal and Plant Structures

LESSON 1.4
Surviving by Not Being Eaten

LESSON 1.5
Explaining Sea Turtle Survival

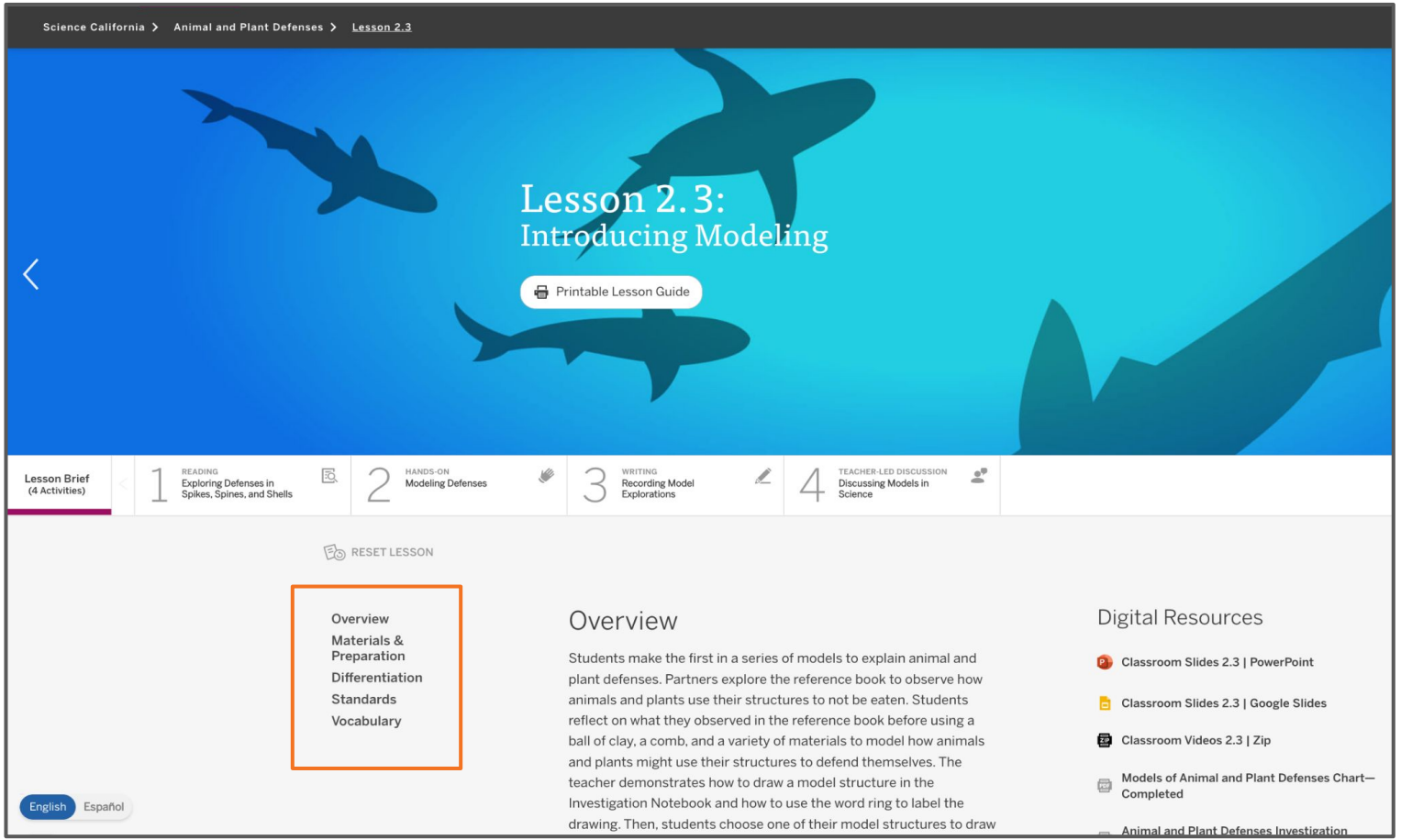
Chapter 2: How can Spruce the Sea Turtle survive where there are sharks?

LESSON 2.1
Whose Lunch Is This?

LESSON 2.2
Sharp Structures for Eating

LESSON 2.3
Introducing Modeling

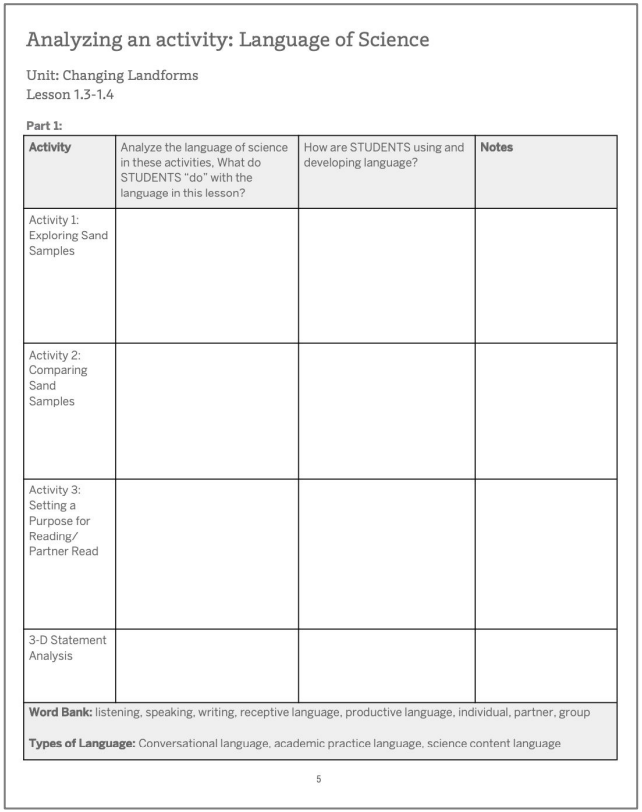
The Lesson Brief



Considering language demands

Read over the lesson brief and consider:

- What will students “do” with language in this lesson? (*receptive or productive)*
- What types of language will support students in engaging with the lesson?



Analyzing an activity: Language of Science

Unit: Changing Landforms
Lesson 1.3-1.4

Part 1:

Activity	Analyze the language of science in these activities, What do STUDENTS “do” with the language in this lesson?	How are STUDENTS using and developing language?	**Notes**
Activity 1: Exploring Sand Samples			
Activity 2: Comparing Sand Samples			
Activity 3: Setting a Purpose for Reading/ Partner Read			
3-D Statement Analysis			

Word Bank: listening, speaking, writing, receptive language, productive language, individual, partner, group

Types of Language: Conversational language, academic practice language, science content language

5

Animal and Plant Defenses

Language demands - Lesson 2.3

The 3-D Statement can help focus us in on the goal of the lesson.

- Create Physical Models (Productive Language-Discussion with partner)
- Information from *Spike, Spines, and Shells*.. (Receptive Language)
- Cause and effect, structure and function (Comparative language)

3-D Statement

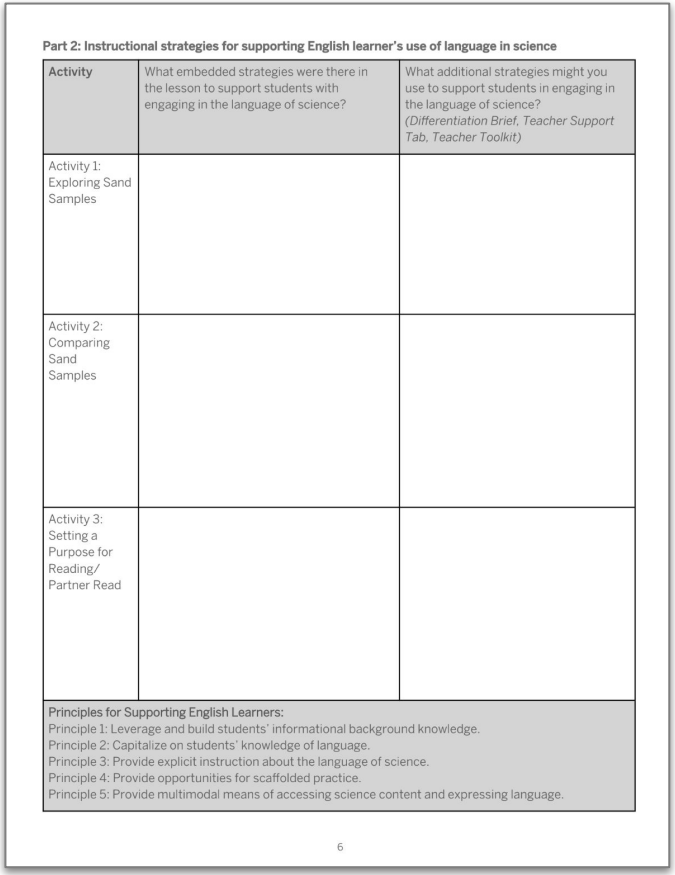
Key: Practices Disciplinary Core Ideas Crosscutting Concepts

Students create physical models of structures that animals and plants use to defend themselves from being eaten (cause and effect, structure and function), inspired by the information they gathered from the book *Spikes, Spines, and Shells: A Handbook of Defenses*.

Strategies and supports

As we go through the lesson, think about what strategies or supports are used to engage students in the language of science.

- Embedded
- Additional



Part 2: Instructional strategies for supporting English learner's use of language in science

Activity	What embedded strategies were there in the lesson to support students with engaging in the language of science?	What additional strategies might you use to support students in engaging in the language of science? *(Differentiation Brief, Teacher Support Tab, Teacher Toolkit)*
Activity 1: Exploring Sand Samples		
Activity 2: Comparing Sand Samples		
Activity 3: Setting a Purpose for Reading/ Partner Read		

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.

6

Animal and Plant Defenses

Materials for Lesson 2.3

For the Classroom Wall

Vocabulary Cards: defend, defense model

Partner Reading Guidelines

For the Class:

Spikes, Spines, and Shells Big Book
1 index card (4" x 6") *
Modeling clay
Word rings
Hole punch*
1 sheet of chart paper*
Pocket chart (or whiteboard*
marker*
Masking tape*

For Each Group of Four Students:

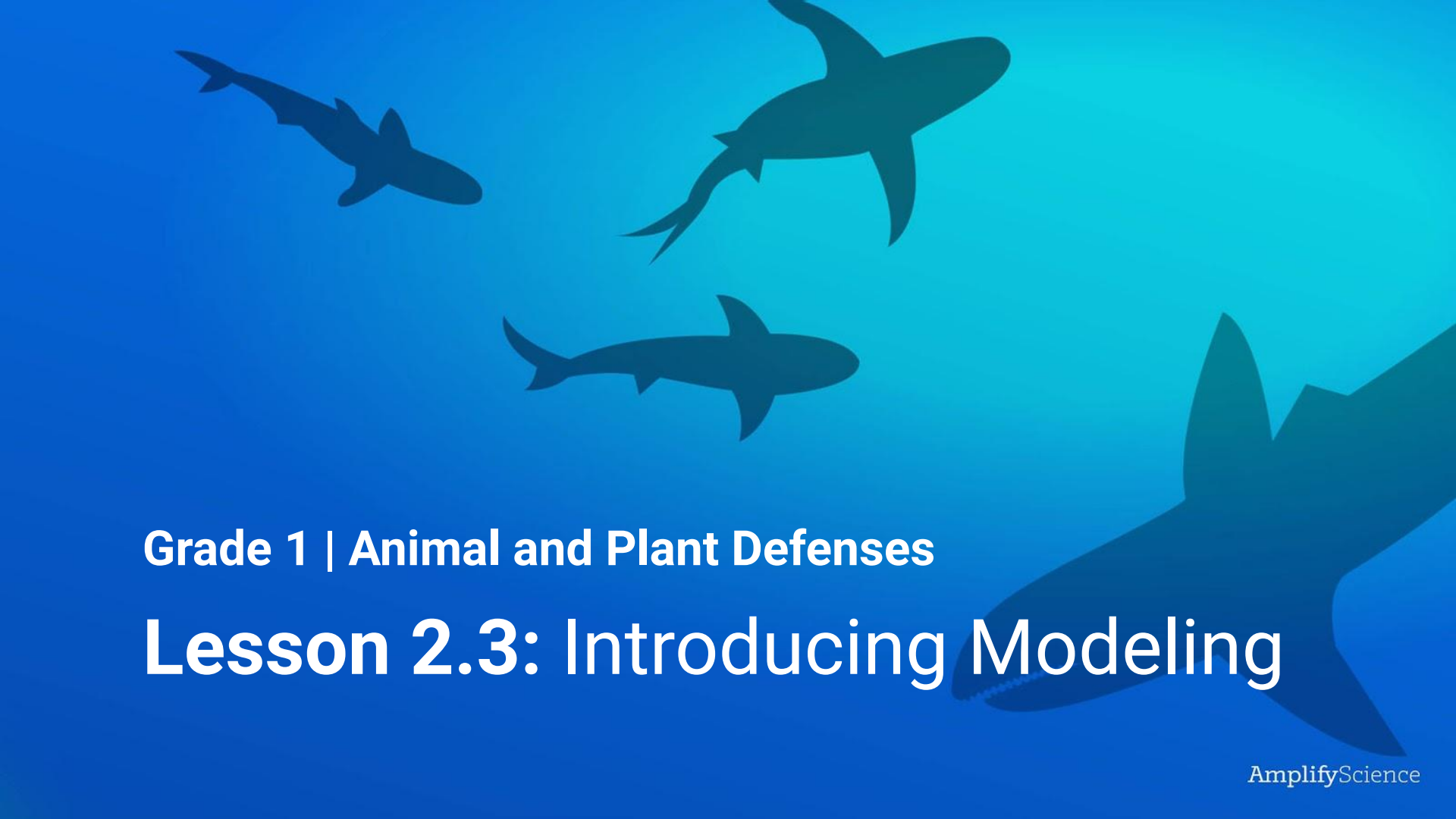
2 medium paper cups
8 plastic coins
20 toothpicks
15 pencil-top erasers
3-3 pieces of colored tissue paper
1 tray (or other container) for materials&*

For Each Pair of Students:

1 plastic comb
1 ball of clay
1 copy of *Spikes, Spines, and Shells* book

For Each Student:

1 word ring with 2 new word ring cards: defend, predator
Investigation Notebook (Page 4)/



Grade 1 | Animal and Plant Defenses

Lesson 2.3: Introducing Modeling

AmplifyScience

Plant and Animal Defenses

Classroom Wall

Partner Reading Guidelines

1. Sit next to your partner and place the book between you.
2. Take turns reading.
3. Read in a quiet voice.
4. Be respectful and polite to your partner.
5. Ask your partner for help if you need it. Work together to make sure you both understand what you read.

Problem: How does a sea turtle or other sea animals at the aquarium could defend themselves from ocean predators once they are released back into the wild?

Unit Question: How do animals and plants survive?

Chapter 1

Key Concept: To survive, animals and plants need to get water, air, and food, and not be eaten.

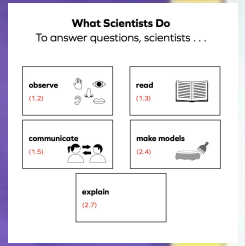
Key Concept:
•Animals and plants have structures that help them survive

Chapter 2 Question: How can Spruce the sea turtle survive where there are sharks?

Investigation Question: How do animals eat other living things?

Key Concept:

Vocabulary:
observe
scientist
structure
survive
predator



10 MIN

Activity 1

Exploring Defenses in Spikes, Spines, and Shells

Chapter 2 Question

How can Spruce the Sea Turtle survive where there are sharks?

Just like other predators, sharks eat animals by finding them and using sharp structures, such as their teeth, to catch them or break them into smaller pieces.

We want to figure out how Spruce the Sea Turtle can **defend** herself from sharks.

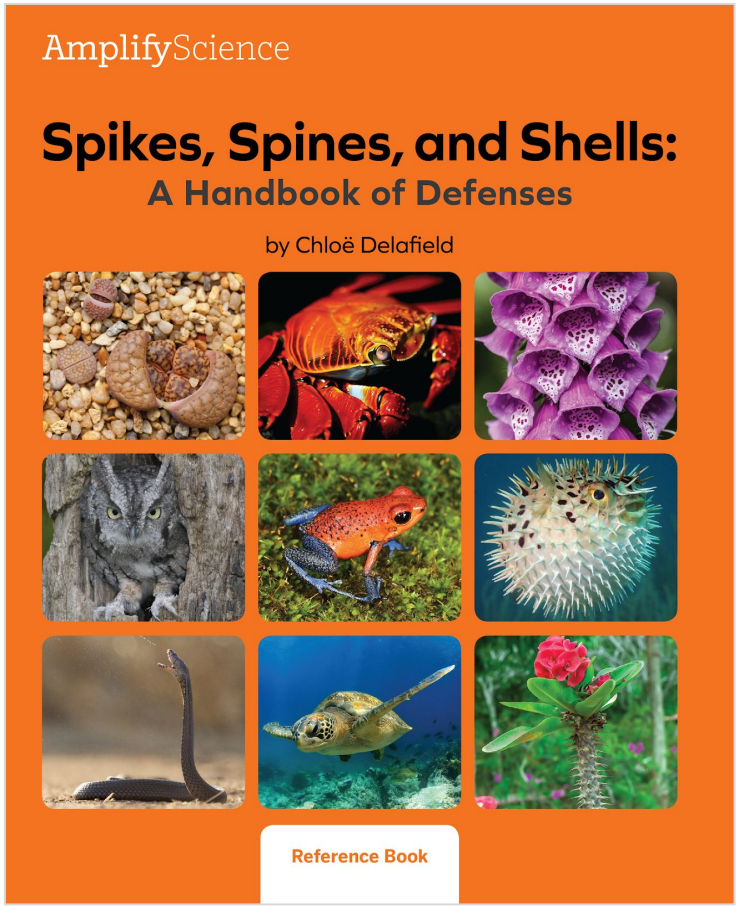
Investigation Question:

How do animals and plants defend themselves?

Vocabulary

defend

to protect or keep safe



We read this **reference book** before.

Now, we will use this book to help answer our question about how animals and plants **defend** themselves.

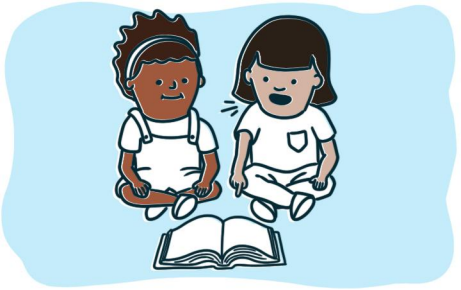
Partner Reading

1.

Sit **next to** your partner.

2.

Put the **book between** you.



3.

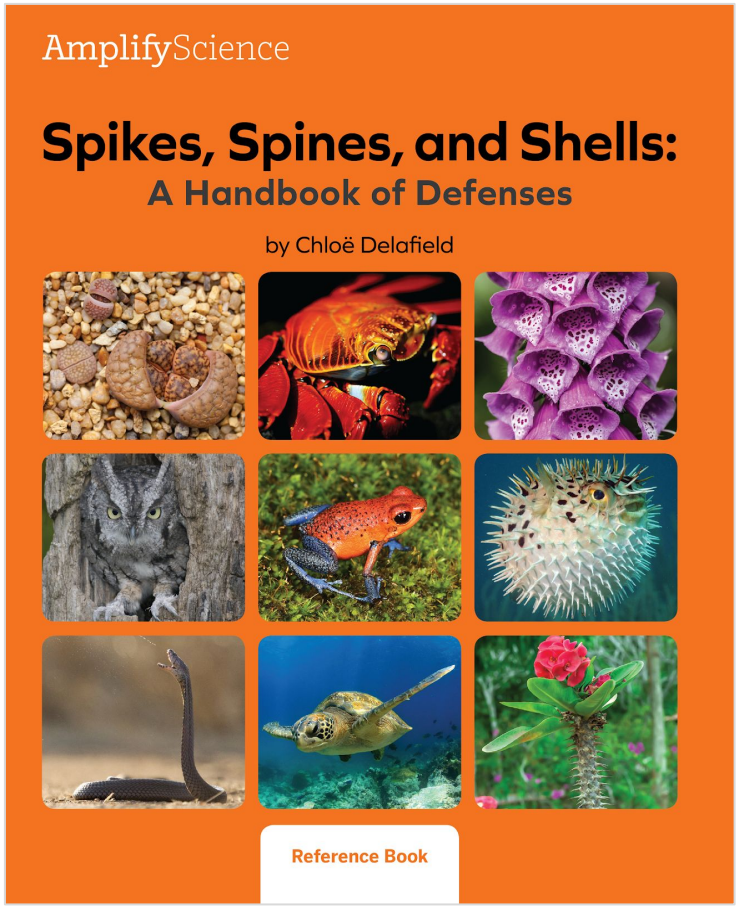
Work together to read and understand.

Crown of Thorns

What Are They?

This is a type of thorny plant that grows in hot places where it rains a lot. It is called the crown of thorns plant.

I will show you how partners can work together to **visualize**.



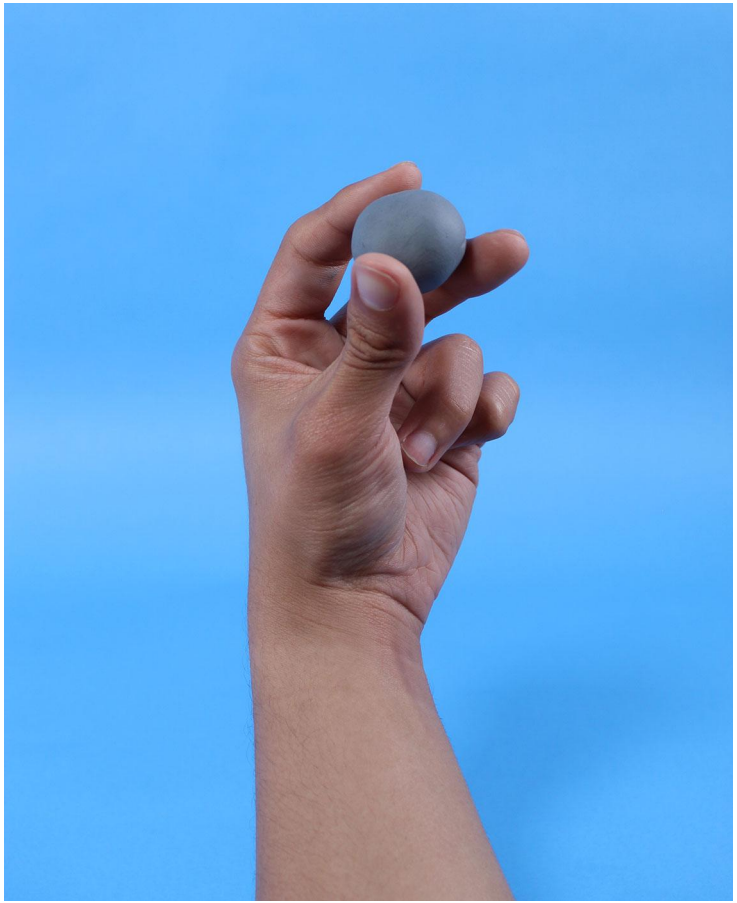
Look through the book and **visualize** how animals and plants use their **structures** to keep from being eaten.

20 MIN

Activity 2

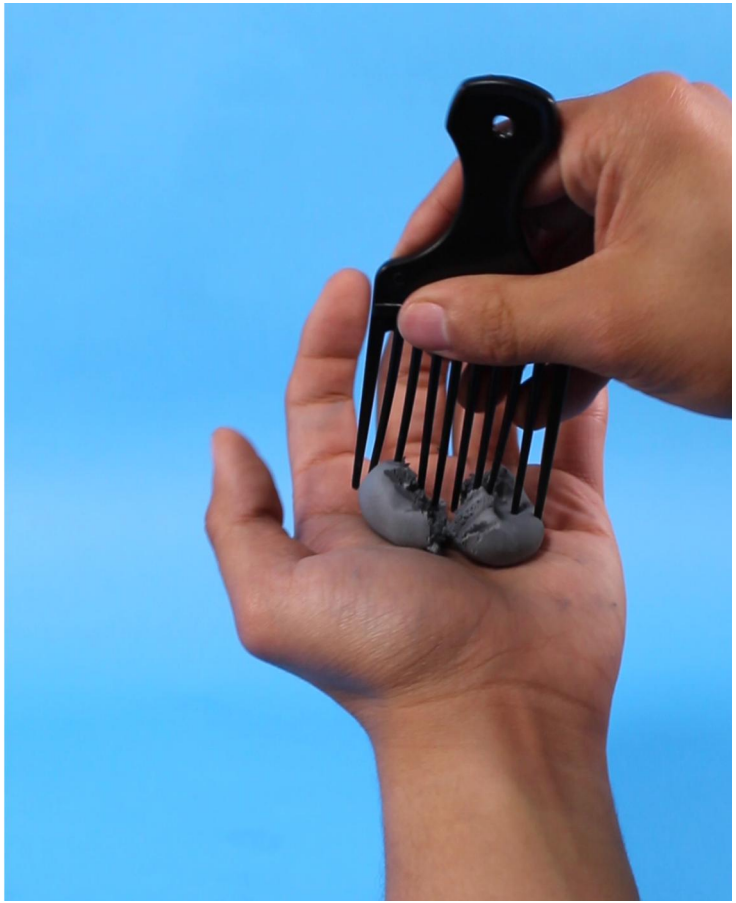
Modeling Defenses

We will **use these materials** to explore and find out more about how living things might use their structures to not be eaten.



This **ball of clay** is like the soft body of an animal or plant.

This **comb** has sharp points like the sharp structures of an animal, such as the claws or teeth.

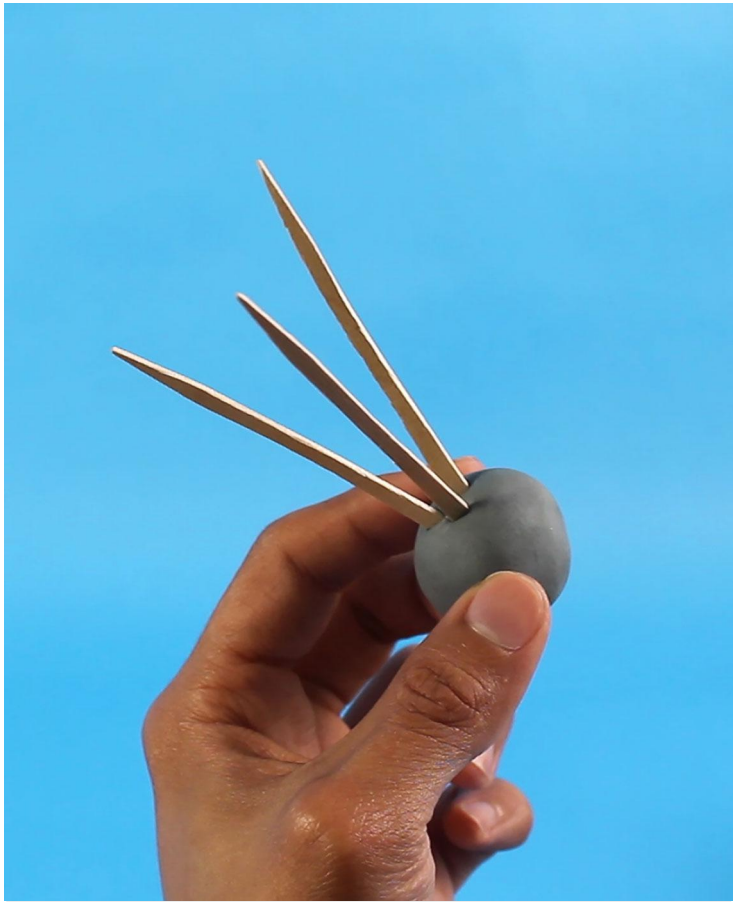


The **comb poking the clay** is like an animal using its sharp structures to catch another living thing and break it into smaller pieces.

If an animal or plant does not have **structures to defend itself**, it is easy for another animal to catch it and eat it.

We are going to make structures to **defend** the clay from being poked by the comb.

These are the materials we will use.



I will show you a **demonstration** of how you can choose a material, make a structure, and check how well it works.


These toothpicks
might defend the
clay animal or plant

Making Structures to Defend a Clay Animal or Plant

1.
Choose a material to make your structures. Think about the kinds of structures you saw in the book.

2.
Make structures to defend your clay animal or plant.

3.
Test your structures by poking with the comb. Do they keep the clay from being broken apart?

10 MIN

Activity 3

Recording Model Explorations

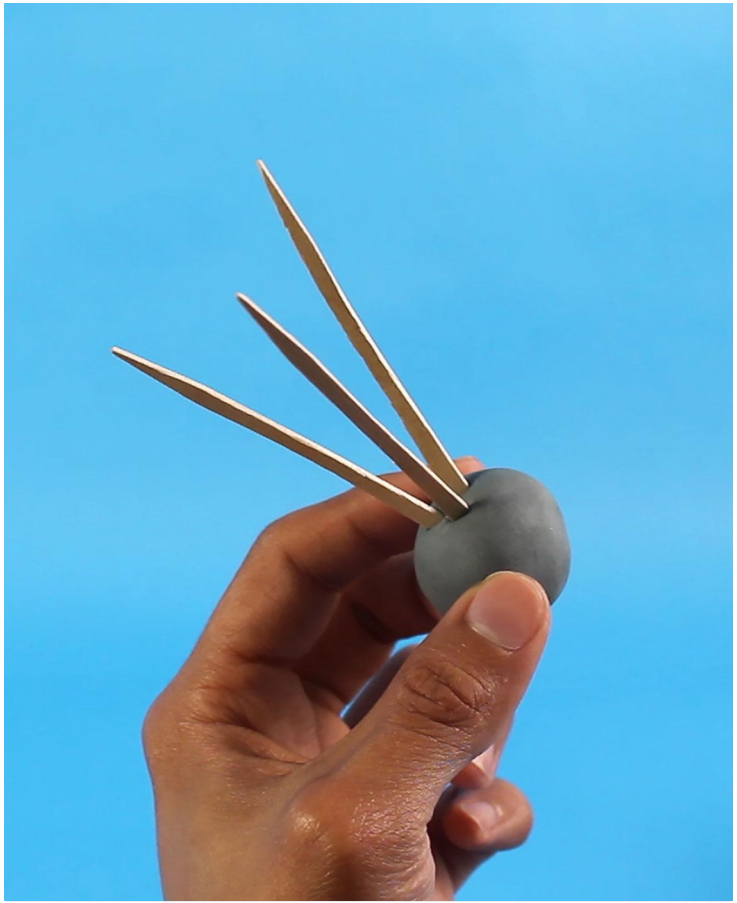
Name: _____ Date: _____

Exploring Structures Used to Defend

Directions:

1. Draw a structure that worked to defend the clay.
2. Label your drawing.

I will **show you how** to record ideas about your best structure for defending the clay.



I am choosing this structure to **record** in the notebook.

We have two **new words** on our word ring: **defend** and **predator**.

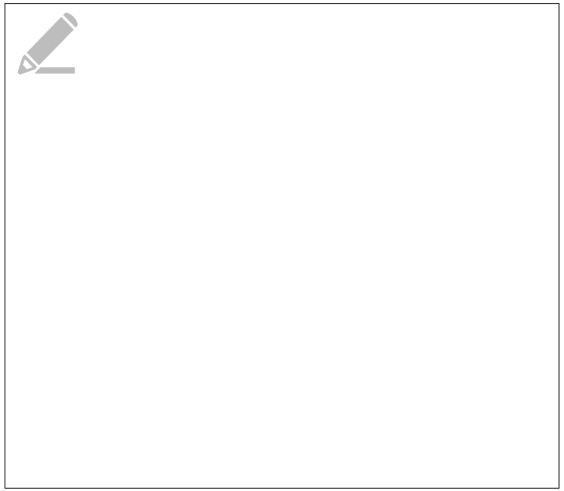
We can use these to help us record our ideas.

Name: _____ Date: _____

Exploring Structures Used to Defend

Directions:

1. Draw a structure that worked to defend the clay.
2. Label your drawing.



First, I will **draw** my **structure** here.

Name: _____ Date: _____

Exploring Structures Used to Defend

Directions:

1. Draw a structure that worked to defend the clay.
2. Label your drawing.

Turn to page 4 in your notebooks.

Draw your best structure.

Use your **word ring** to help you write a label.

How did you use the materials to make **structures** that defended the clay well?

Did you try any materials that did **not** defend the clay well?

Vocabulary

defense

what a living thing has or does to protect itself

5 MIN

Activity 4

Discussing Models in Science

You and your partner just made a **model** of how animals and plants use their structures to defend themselves from being eaten.

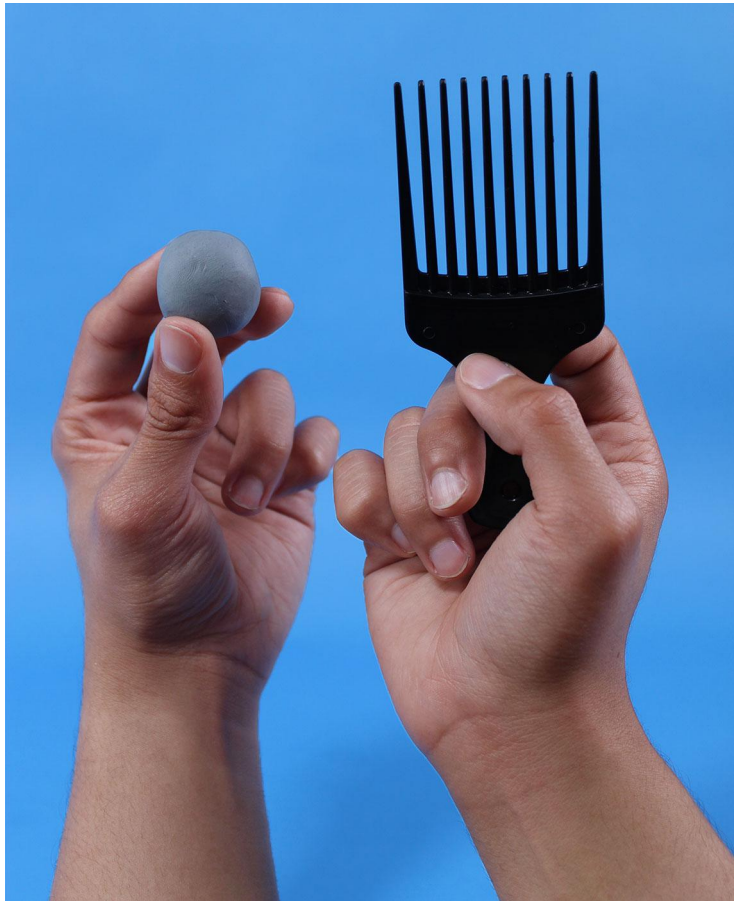
Vocabulary

model

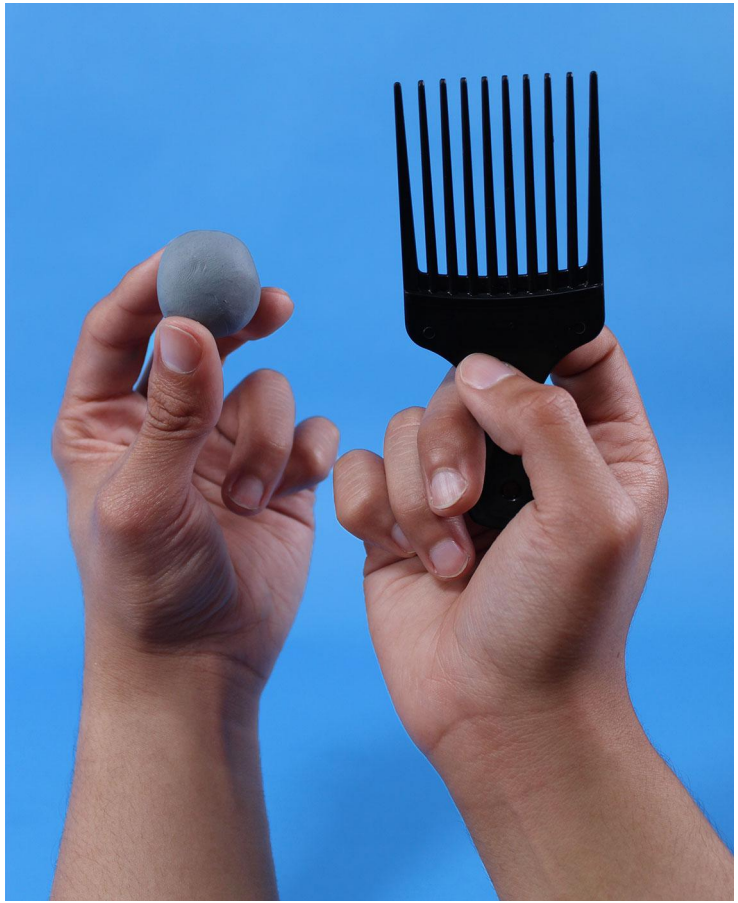
something scientists make to answer questions about the real world

Scientists make models to answer questions about the real world.

A model is not the real thing, but it is **like the real thing** in important ways.



The **clay** and the **comb** are two parts of model.



Our model is **like real animals and plants** in ways that help us understand the real thing.

Our model is **different** from real animals and plants in some ways, too.

Models of Animal and Plant Defenses

Model We Used	What the Model Shows Us

We will use this **chart** to record the models we make and what they help us explain.

Models of Animal and Plant Defenses

Model We Used	What the Model Shows Us
	

We will use the first column to show the model we made.

Let’s add the drawing of our **Clay and Comb model.**

Models of Animal and Plant Defenses

Model We Used	What the Model Shows Us
	

We will use the second column to record what each model shows us.

What did using the comb to poke and break apart the clay show us?

End of Lesson

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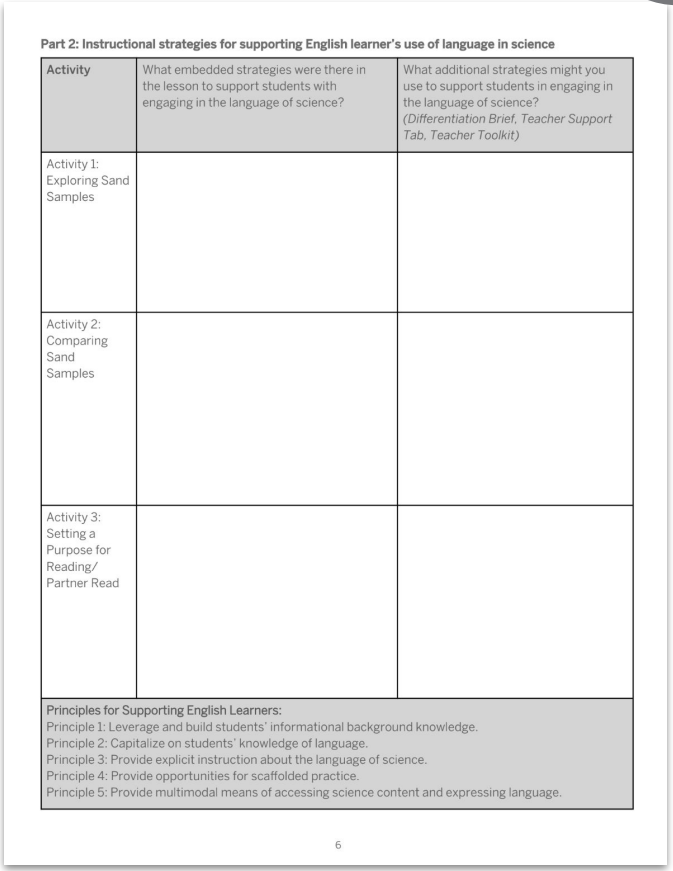
Reflecting

Strategies and supports

What strategies and supports were used to support engaging in the language of science?

- Embedded
- Additional



Part 2: Instructional strategies for supporting English learner's use of language in science

Activity	What embedded strategies were there in the lesson to support students with engaging in the language of science?	What additional strategies might you use to support students in engaging in the language of science? *(Differentiation Brief, Teacher Support Tab, Teacher Toolkit)*
Activity 1: Exploring Sand Samples		
Activity 2: Comparing Sand Samples		
Activity 3: Setting a Purpose for Reading/ Partner Read		

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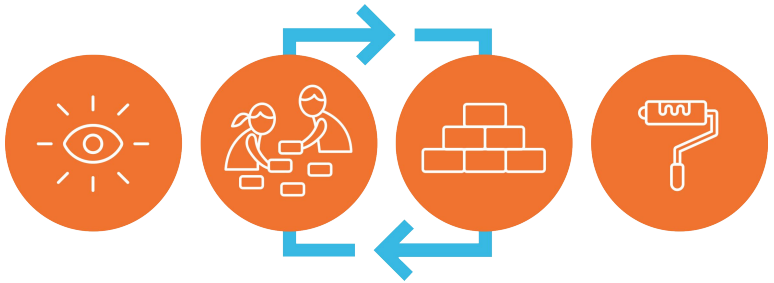
Principle 5: Provide multimodal means of accessing science content and expressing language.

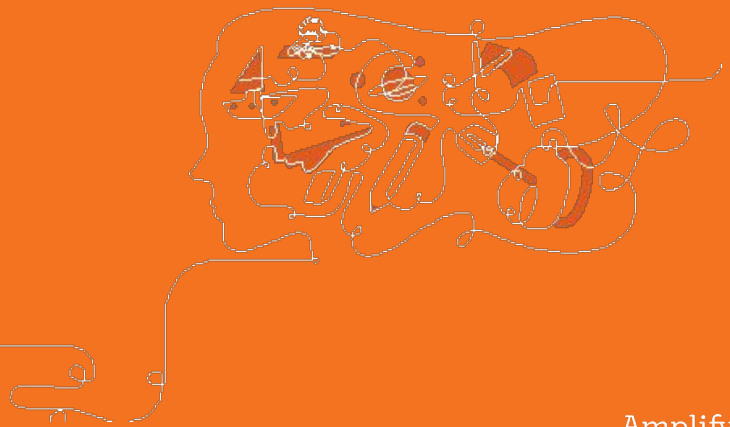
6

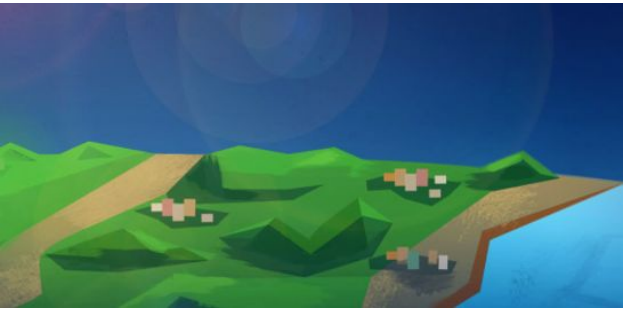
Strategies for engaging English learners

- Oral and visual support
- Graphic Organizers
- Multimodal instruction
    - Do, Talk, Read, Write, Visualize
- Using different registers



Break



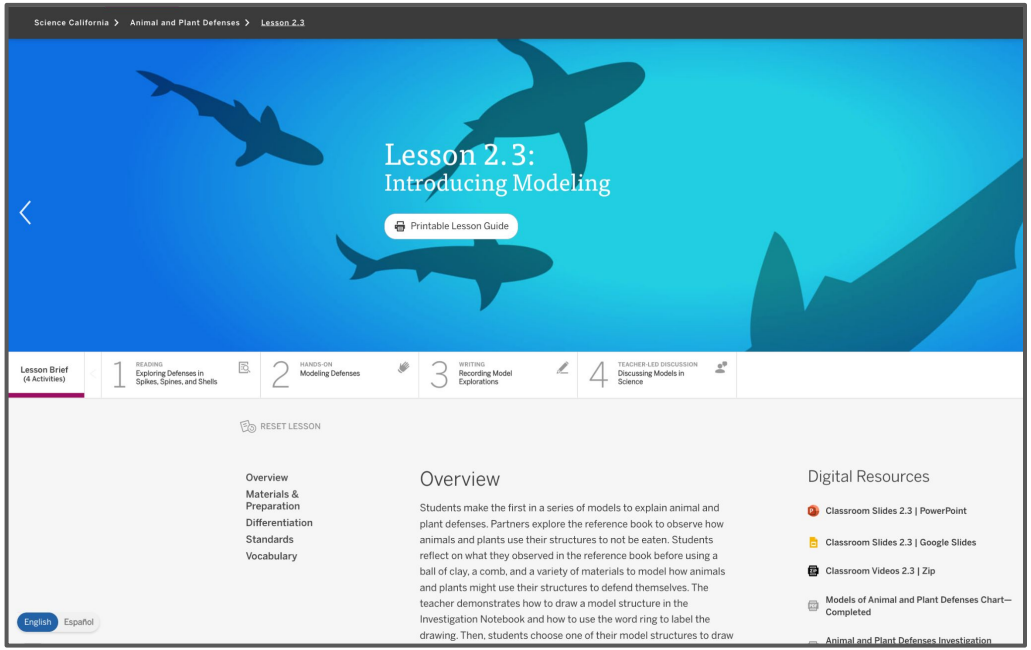


Plan for the day

- Introduction
- Language of the Science Classroom
- Embedded and Additional Supports
- Experiencing a Scaffolded Lesson
- Planning for Supports
- Closing

Work time

- Navigate to a lesson you'll teach in the upcoming week.
- Skim the lesson to get a sense of the activities.
- Read the 3-D Statement

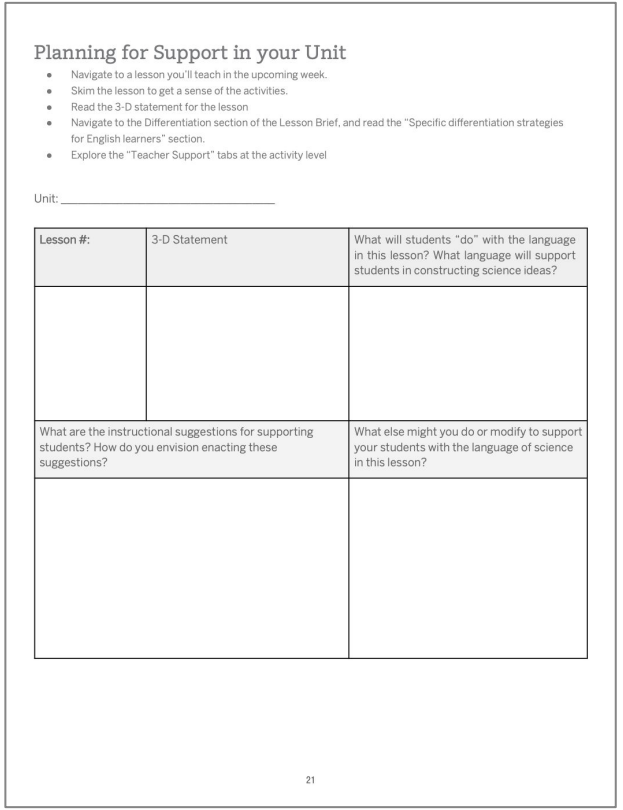


Work time

- Navigate to the Differentiation section of the Lesson Brief, and read the “Specific differentiation strategies for English learners” section.
- Click through the activity tabs and explore any Teacher Support Notes
- Consider any additional supports from your own teacher toolkit

  Possible Suggestion: Download the classroom slides for your lesson, and add an additional support from your discourse template resource.

Pg. 17-18



Planning for Support in your Unit

- Navigate to a lesson you'll teach in the upcoming week.
- Skim the lesson to get a sense of the activities.
- Read the 3-D statement for the lesson
- Navigate to the Differentiation section of the Lesson Brief, and read the "Specific differentiation strategies for English learners" section.
- Explore the "Teacher Support" tabs at the activity level

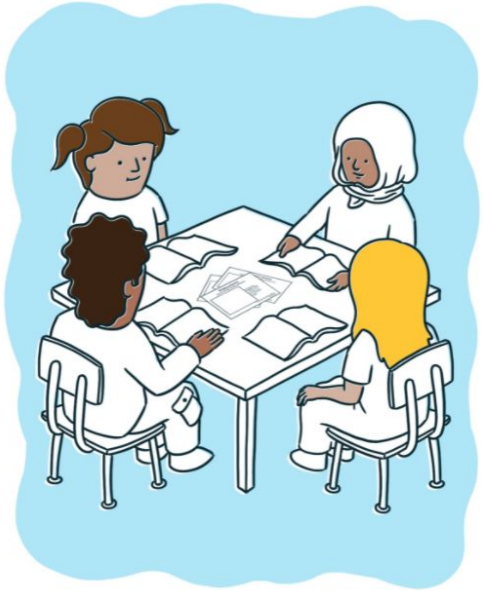
Unit: _____

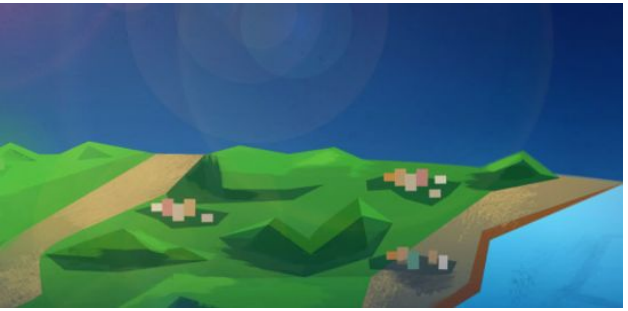
Lesson #:	3-D Statement	What will students "do" with the language in this lesson? What language will support students in constructing science ideas?
What are the instructional suggestions for supporting students? How do you envision enacting these suggestions?		What else might you do or modify to support your students with the language of science in this lesson?

21

Share Out

Share the additional strategies and supports you chose for your lesson.





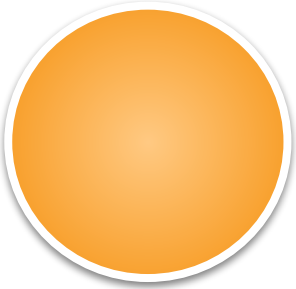
Plan for the day

- Introduction
- Language of the Science Classroom
- Experiencing a Scaffolded Lesson
- Embedded and Additional Supports
- Planning for Supports
- Closing

Closing reflection

Based on our work today, share:

1-3 big points you're taking away from this session



A question or topic that's still circling in your mind

Something that's "squaring" (resonating) with you from this session

Overarching goals

- ☑ Describe the language and literacy demands in a lesson and their role in students developing science understanding
- ☑ Implement key strategies to promote English learners' academic language development and science understanding

Let's connect this goal to our students

Additional resources

Welcome, caregivers!

—

We hope you enjoy learning more about Amplify Science and what students are learning in science this year.

Para acceder a este sitio en español haga clic aquí.

Amplify welcomes you and your learner to the Science program for the new school year. We are very excited to

TOP RATED BY EDREPORTS

Grades 6-8

[Caregivers]

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

Welcome to Amplify Science!

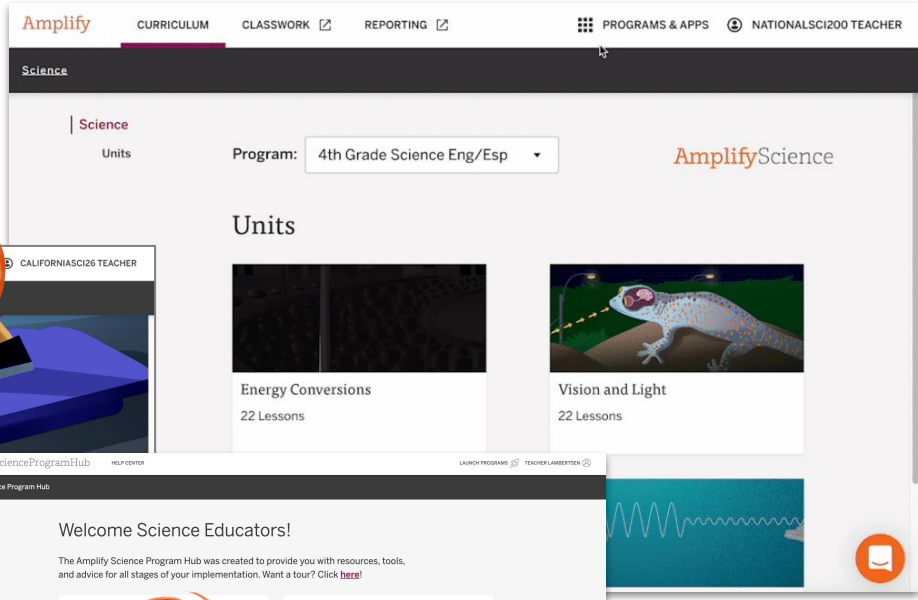
This site contains supporting resources designed for the LAUSD Amplify Science adoption for grades TK–8.

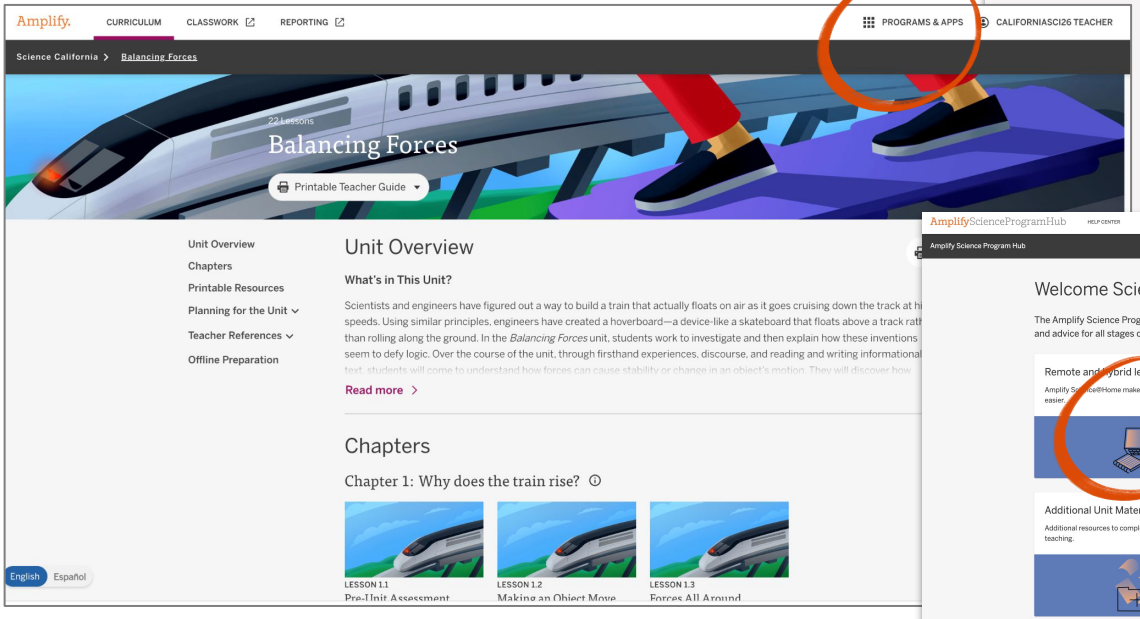
- Access the Amplify Science Program Hub (To help orient you to the new design, watch this video and view this reference guide.)
- Find out more about Amplify Science@Home
- Share the Caregiver Hub (Eng/Span) with your families
- For LAUSD ES Teachers- Amplify Science & Benchmark Advance Crosswalk
- Instructional guidance for a Responsive Relaunch of Amplify Science in 21-22

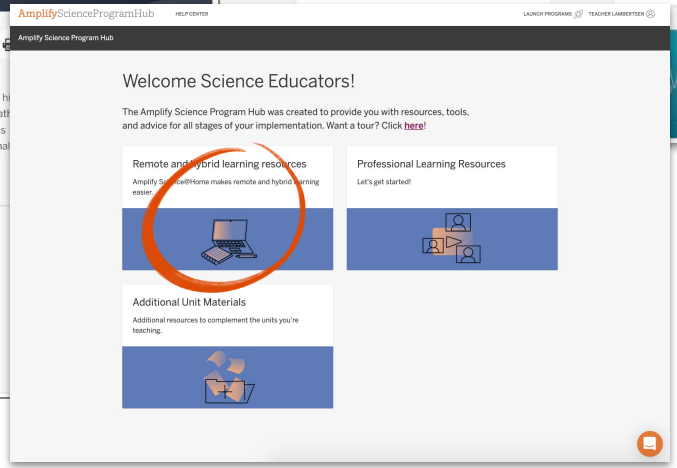
Click the button below to preview the digital Teacher's Guide, and check back for exciting updates to this site!

Program Hub

Use the Amplify Science Program Hub to find useful resources for implementing Amplify Science, including unit overview videos and planning tools.

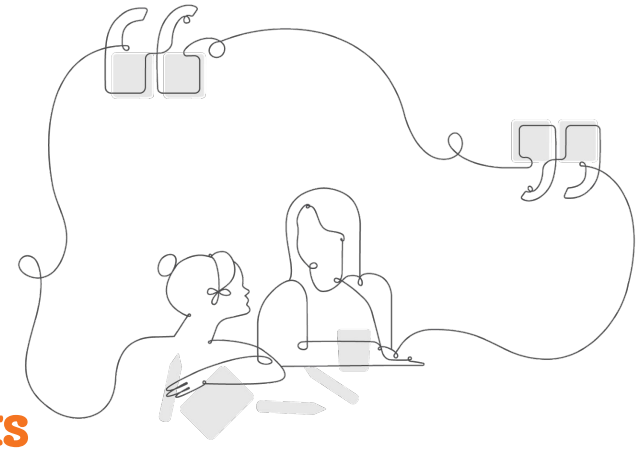






Upcoming Professional Development!

Unit 2 Internalization / Guided Planning (remote, 4:30-6:00 pm)



- 11/2 - Part 1, 11/3 - Part 2 (grades 3-5)
- 11/9 - Part 1, 11/10 -Part 2 (grades K-2)

Unit 2. Part 3 - with a focus on assessments (onsite 8:00 am - 3:00 pm)

- December 3 (grades 3-6)
- December 12 (grades K-2)

Additional resources and ongoing support

Seek information specific to enrollment and rosters, technical support, materials and kits, and teaching support.

help@amplify.com

800-823-1969

Amplify Chat

Your feedback matters!

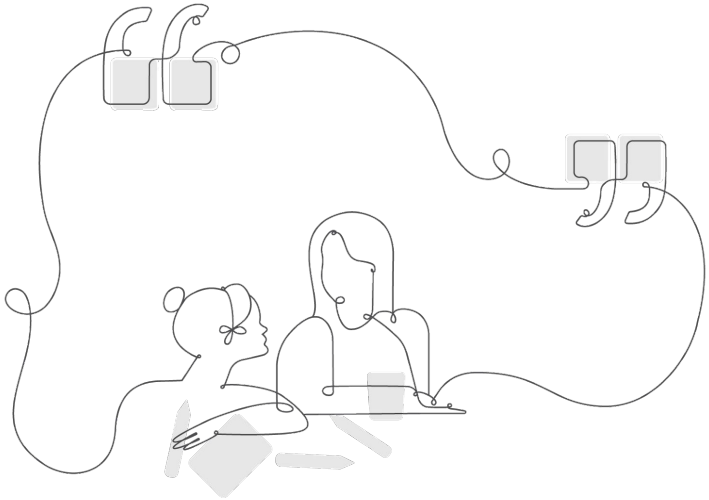
Survey

Facilitation

Session design

Final Question: Is there anything else you would like us to know?

- Curriculum
- Materials
- Enrollment and licensing
- And more!



Please provide feedback!

surveymonkey.com/r/AmpSciPD

Type:

Strengthen

Session title:

Part 3: Unit 1, Supporting English Language Learners

Professional Learning Specialist name:

Insert name

(insert email, if you would like)