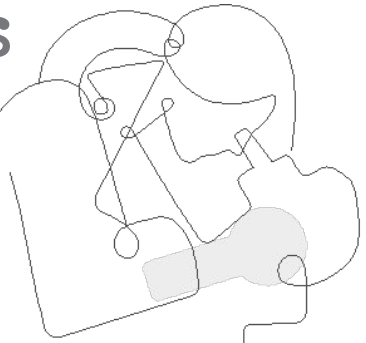
Amplify Science

Unit 1: Animal and Plant Defenses

(with a focus on Science & Engineering Practices)

Grade 1



LAUSD
April 2022
Presented by:

TOP RATED BY EDREPORTS

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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

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.

Navigation Temperature Check

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

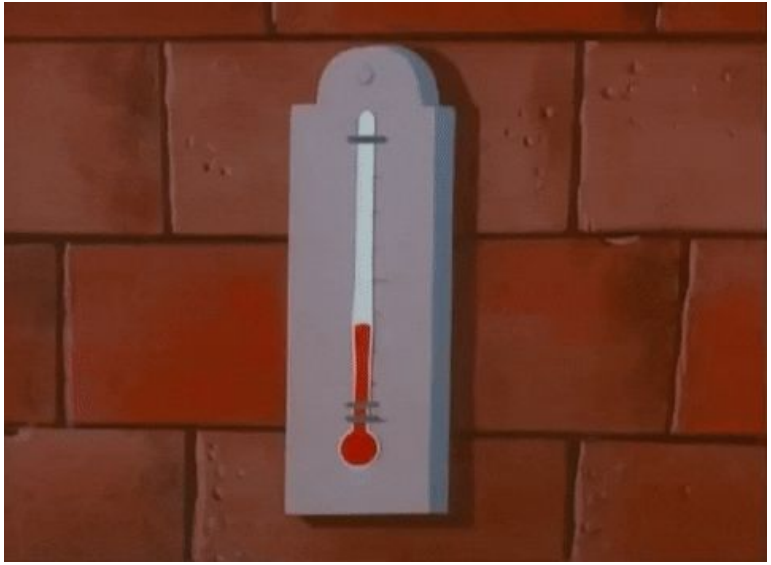
1 = Extremely Uncomfortable

2 = Uncomfortable

3 = Mild

4 = Comfortable

5 = Extremely Comfortable



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mCLASS Educators: To view or make changes to your account go to mclass.amplify.com.

Hi, Terin

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CKLA Hub | CKLA Resource Site | mCLASS Assessment | mCLASS Reporting | Reading 6-8

Reading K-5 | Science | Vocabulary

Amplify. on Schoology

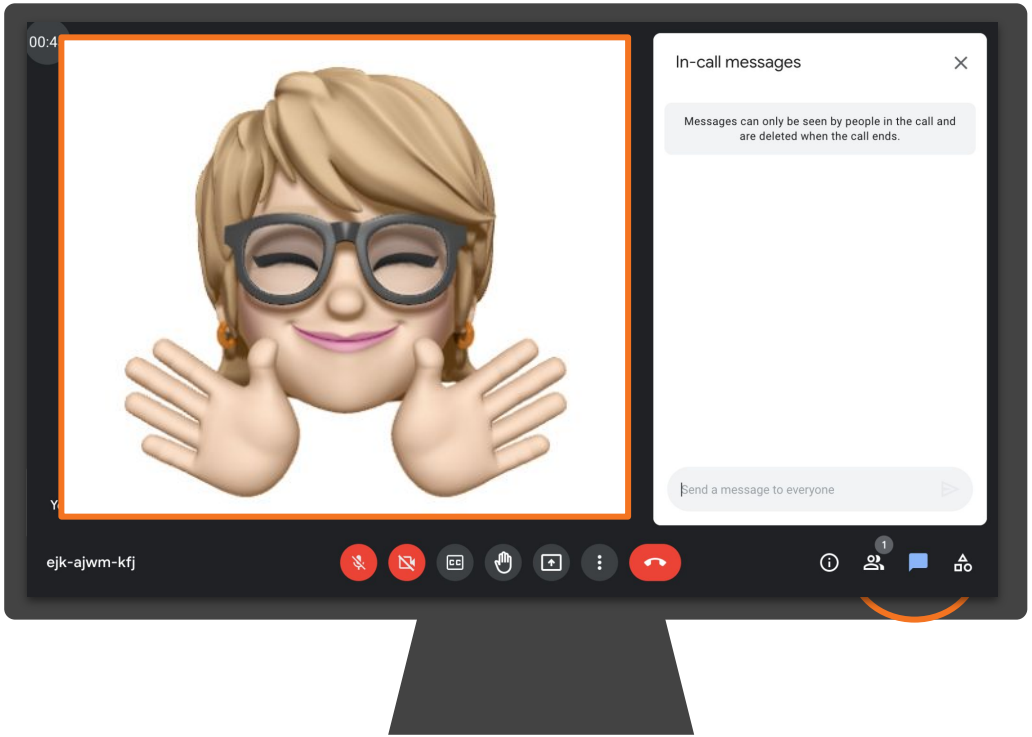
2021-2022

Schoology

- To join Amplify ES Group: W4PK-W466-63F5B

Ice Breaker!

- **Question:** In the chat, share one or two of the Science and Engineering Practices in NGSS.



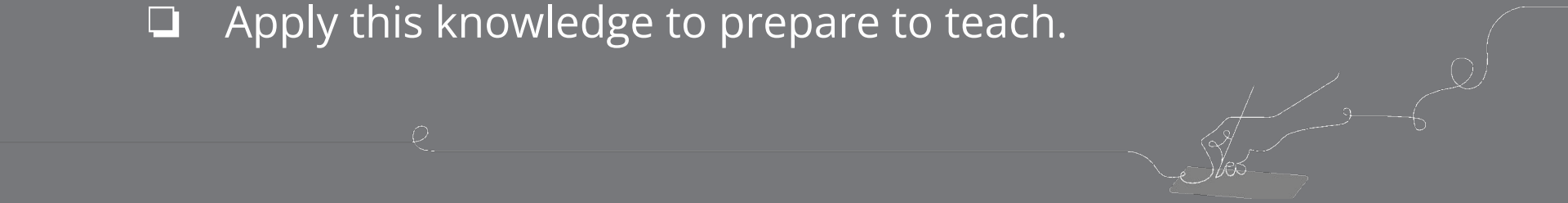
Plan for the day: Part 1

- Framing and Review
- Introducing the Unit
- Unit Internalization
- Identifying the Science and Engineering Practices
  - Chapter level
- Science and Engineering Practices within a lesson
  - Lesson Level Work Time
- Closing

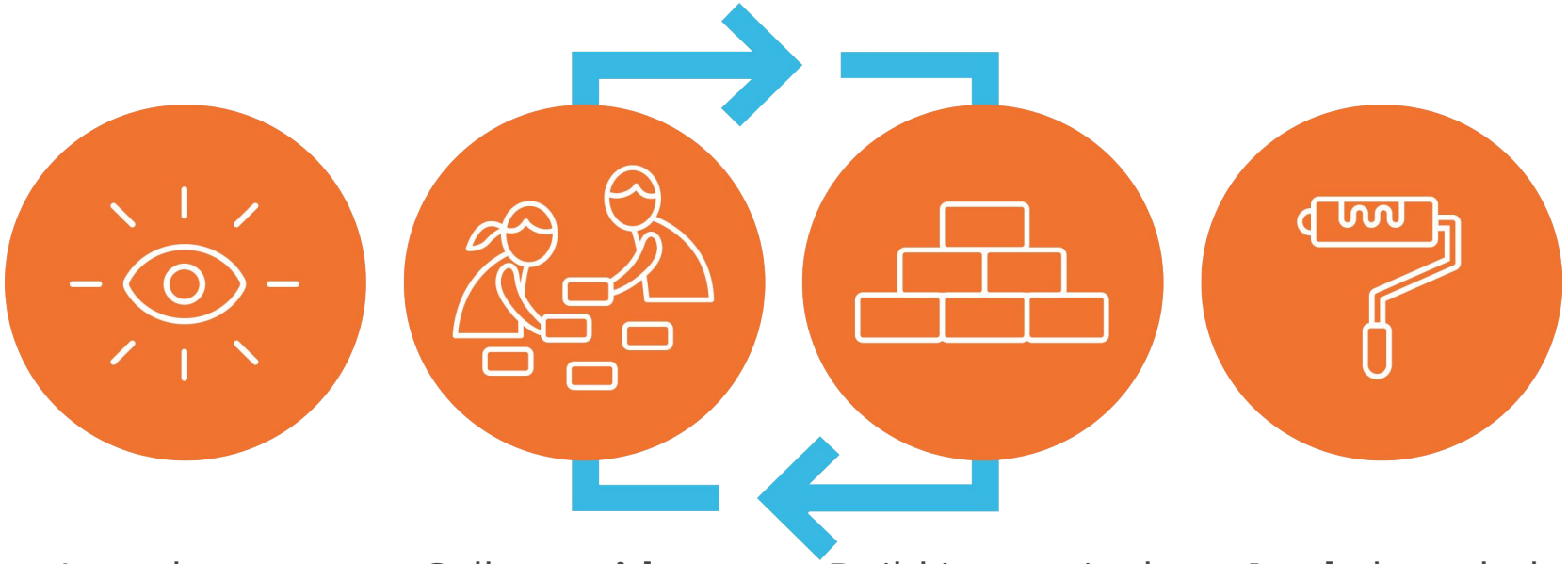
Overarching goals

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

- ❑ Internalize the unit
- ❑ Identify the Science and Engineering Practices within the unit
- ❑ Apply this knowledge to prepare to teach.



Amplify Science Approach



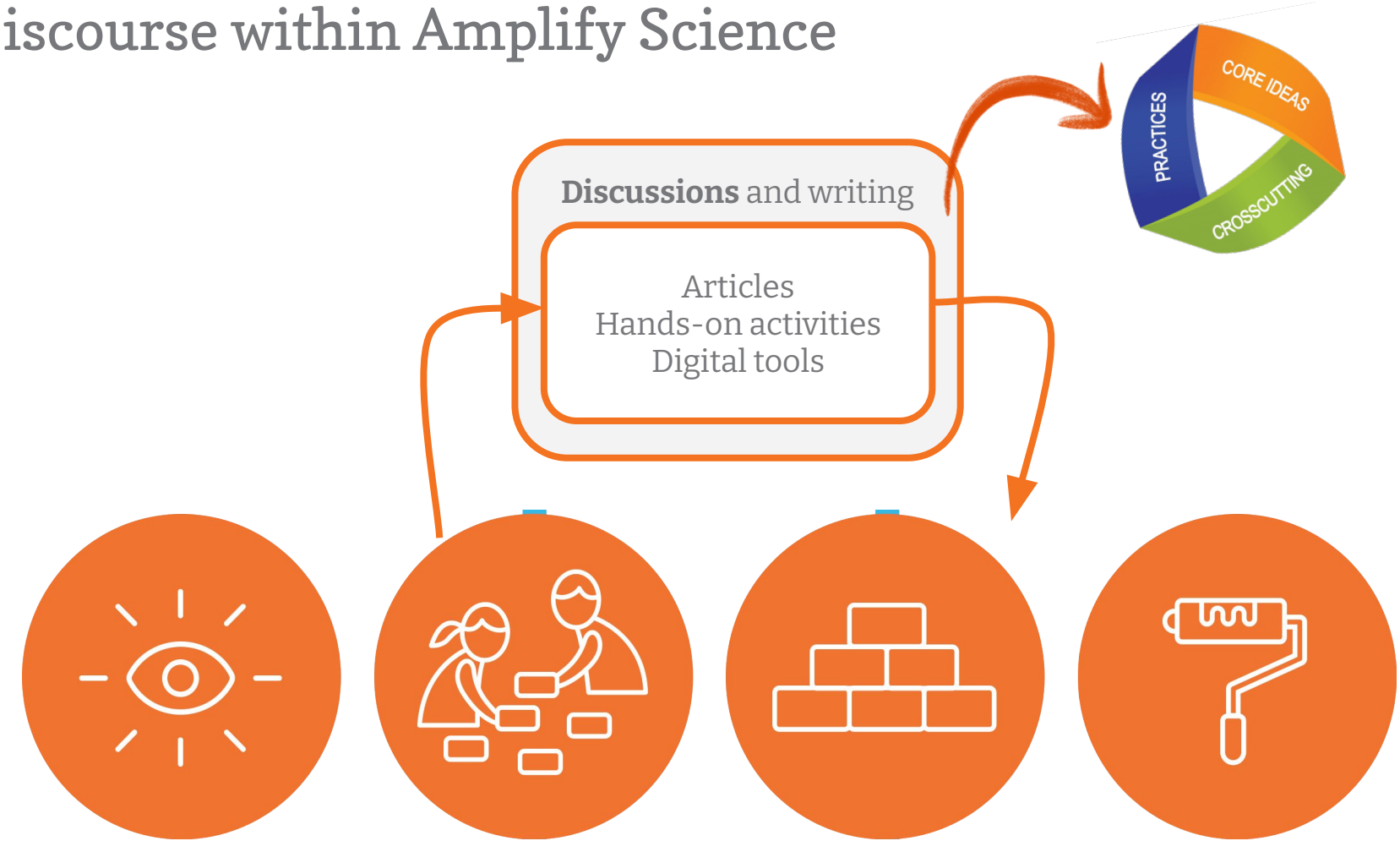
Introduce a **phenomenon** and a related problem

Collect **evidence** from multiple sources

Build increasingly complex **explanations**

Apply knowledge to solve a different problem

Discourse within Amplify Science

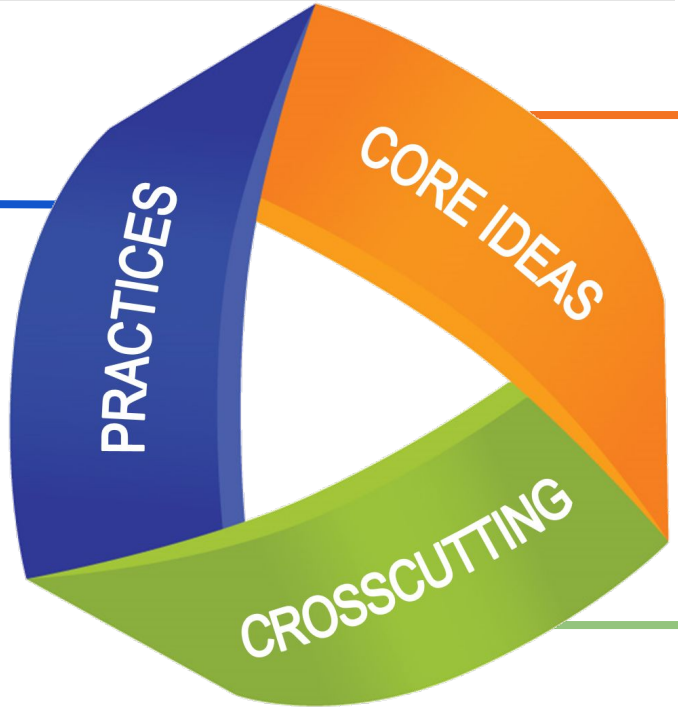


Next Generation Science Standards

Designed to help students build a cohesive understanding of science

What scientists do

Science and Engineering Practices



What scientists want to know

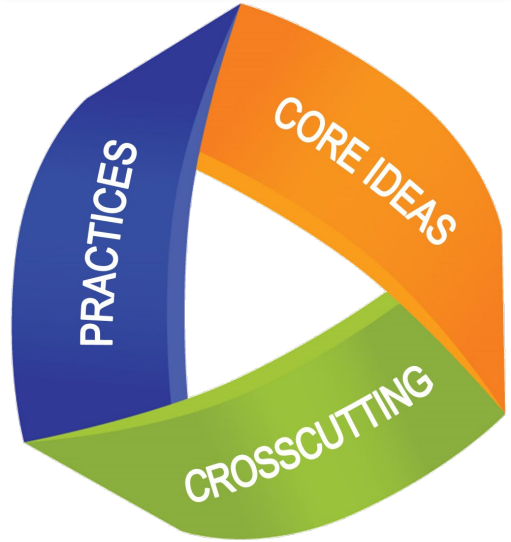
Disciplinary Core Ideas

How scientists think

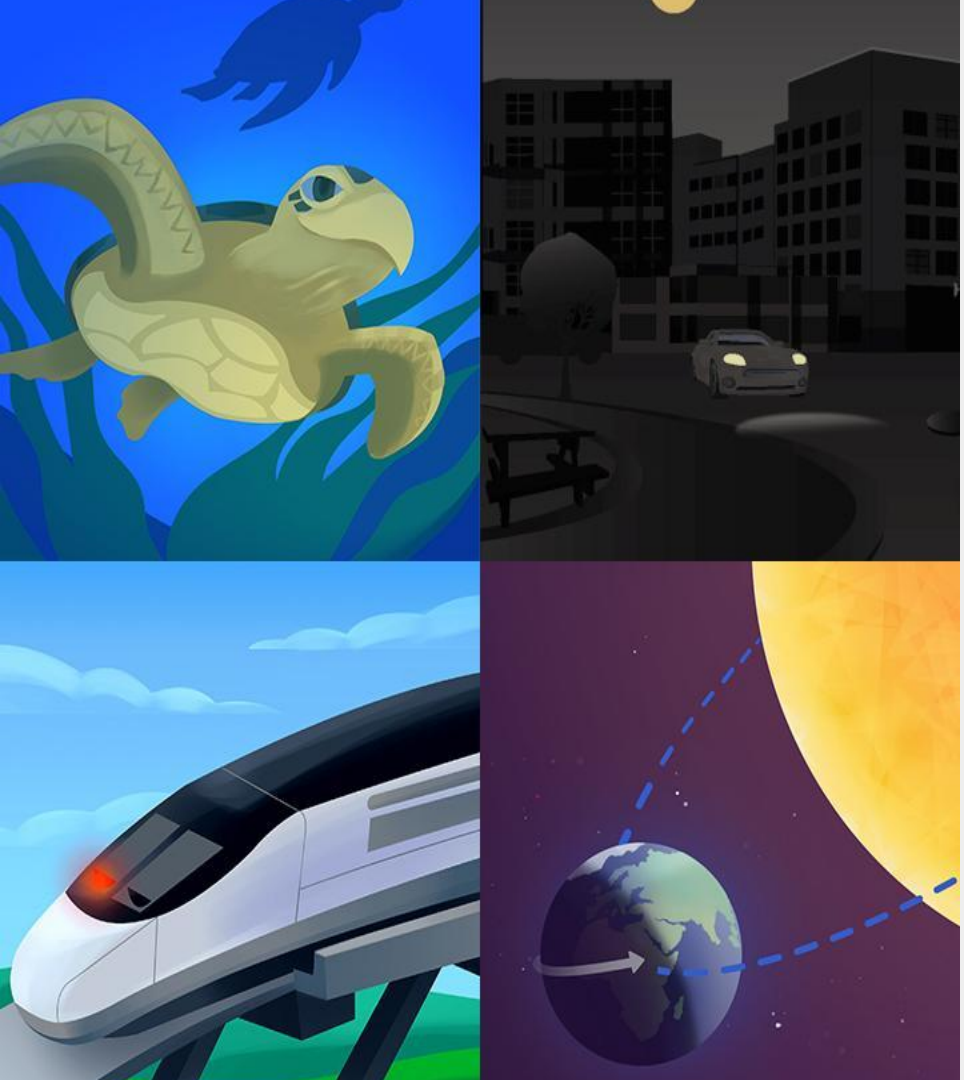
Crosscutting Concepts

Next Generation Science Standards

Science and Engineering Practices



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



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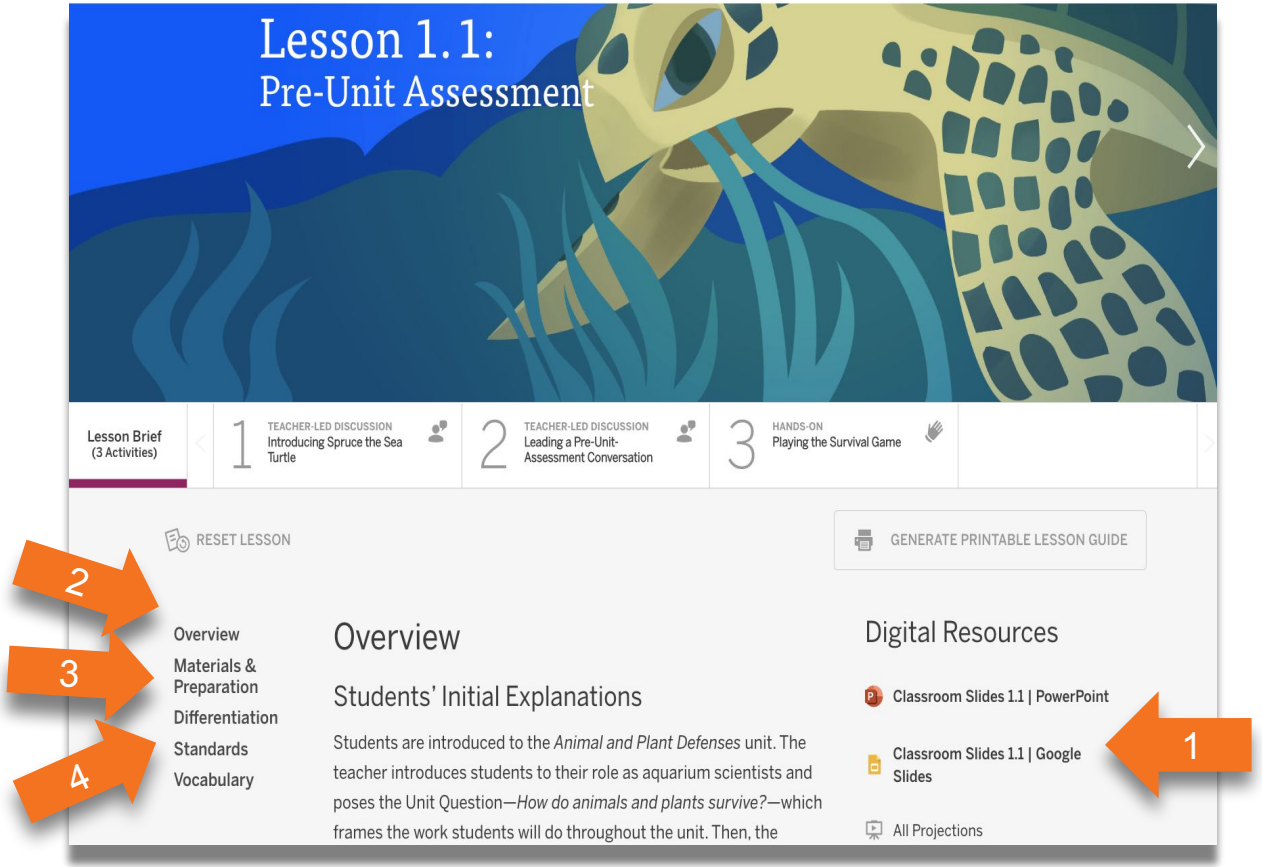
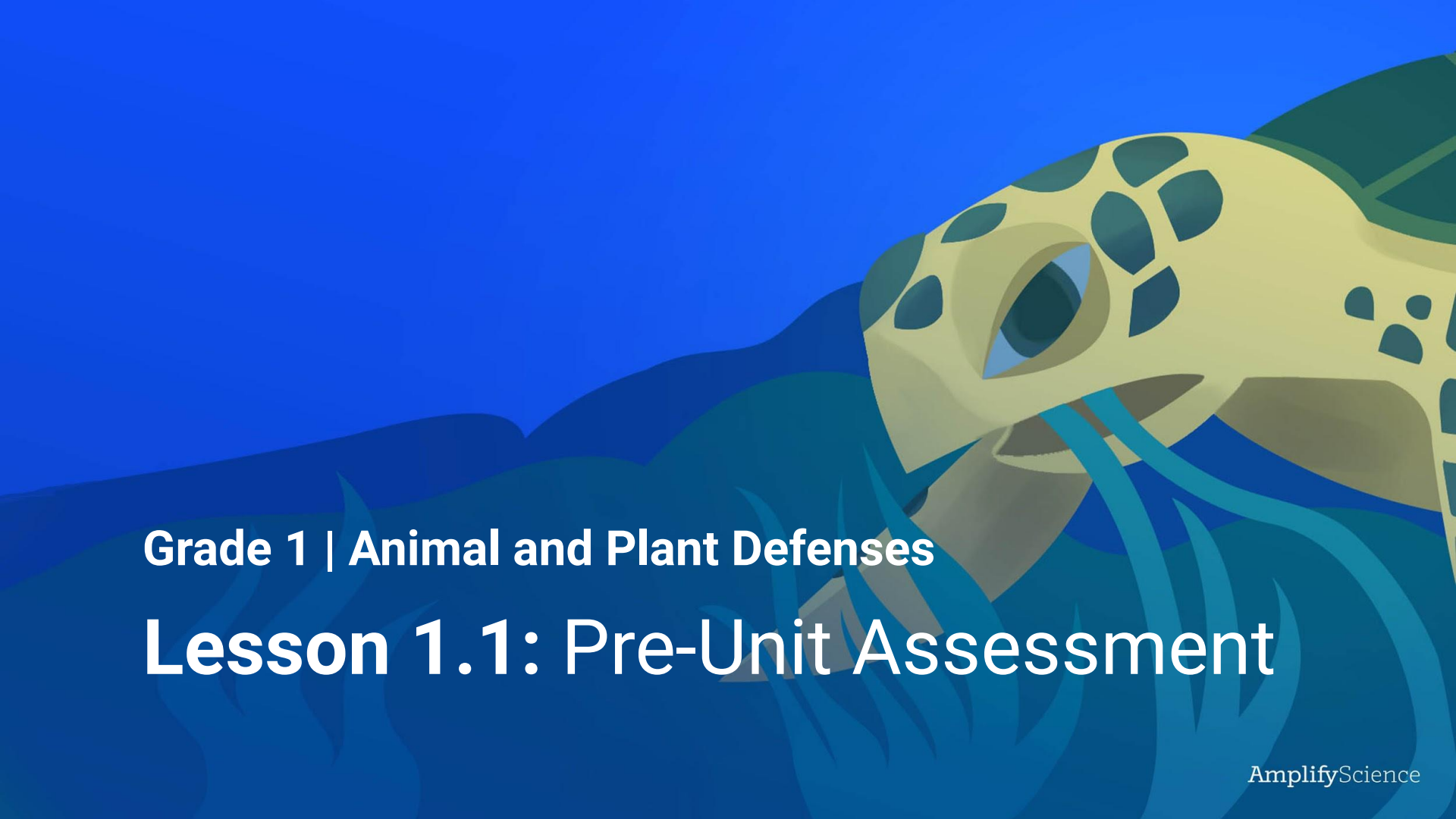
- Closing

4 Easy Steps to Teaching a lesson

DIRECTIONS:

1. Download the **Classroom Slides**
2. Read the **Overview.**
3. Explore the **Materials & Preparation** document.
4. Read the **Differentiation** document.





Grade 1 | Animal and Plant Defenses

Lesson 1.1: Pre-Unit Assessment

AmplifyScience

10 MIN

Activity 1

Introducing Spruce the Sea Turtle

We are going to be **scientists** and investigate animals and plants.

First, we will look at a picture and talk about what we see.

What do you know about **aquariums**?

Scientists ask questions to learn about the world. They ask questions about animals and plants.

We will ask questions to learn more about animals and plants, too.

What **questions** do you have about the animals and plants that live in the aquarium?

Unit Question

How do animals and plants survive?

Vocabulary

scientist

someone who learns about the natural world

This animal is a **sea turtle**.

A sea turtle named **Spruce** lives at the aquarium.

Soon people from the aquarium will take Spruce **back to the ocean**.

They will let Spruce go.

We are aquarium scientists.

What kind of **questions** do you have **about Spruce living in the ocean?**

Kids who visit the aquarium are worried that Spruce might not survive in the ocean.

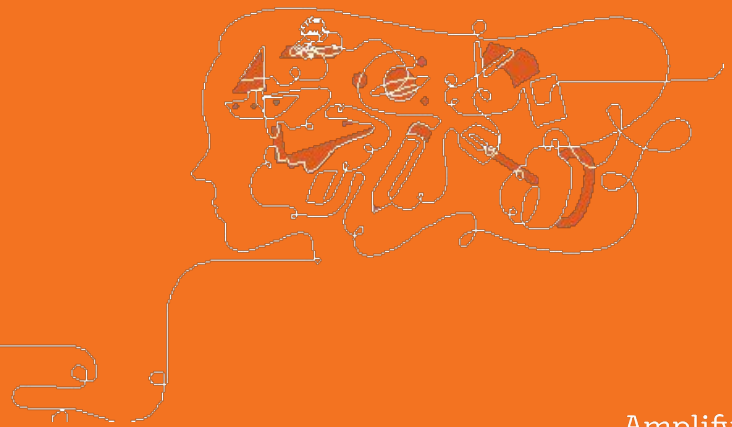
The director of the aquarium needs our help to explain to the kids **how Spruce will survive, or stay alive,** once she is back in the ocean.

Chapter 1 Question

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

Coherent Storylines

Animal and Plant Defenses



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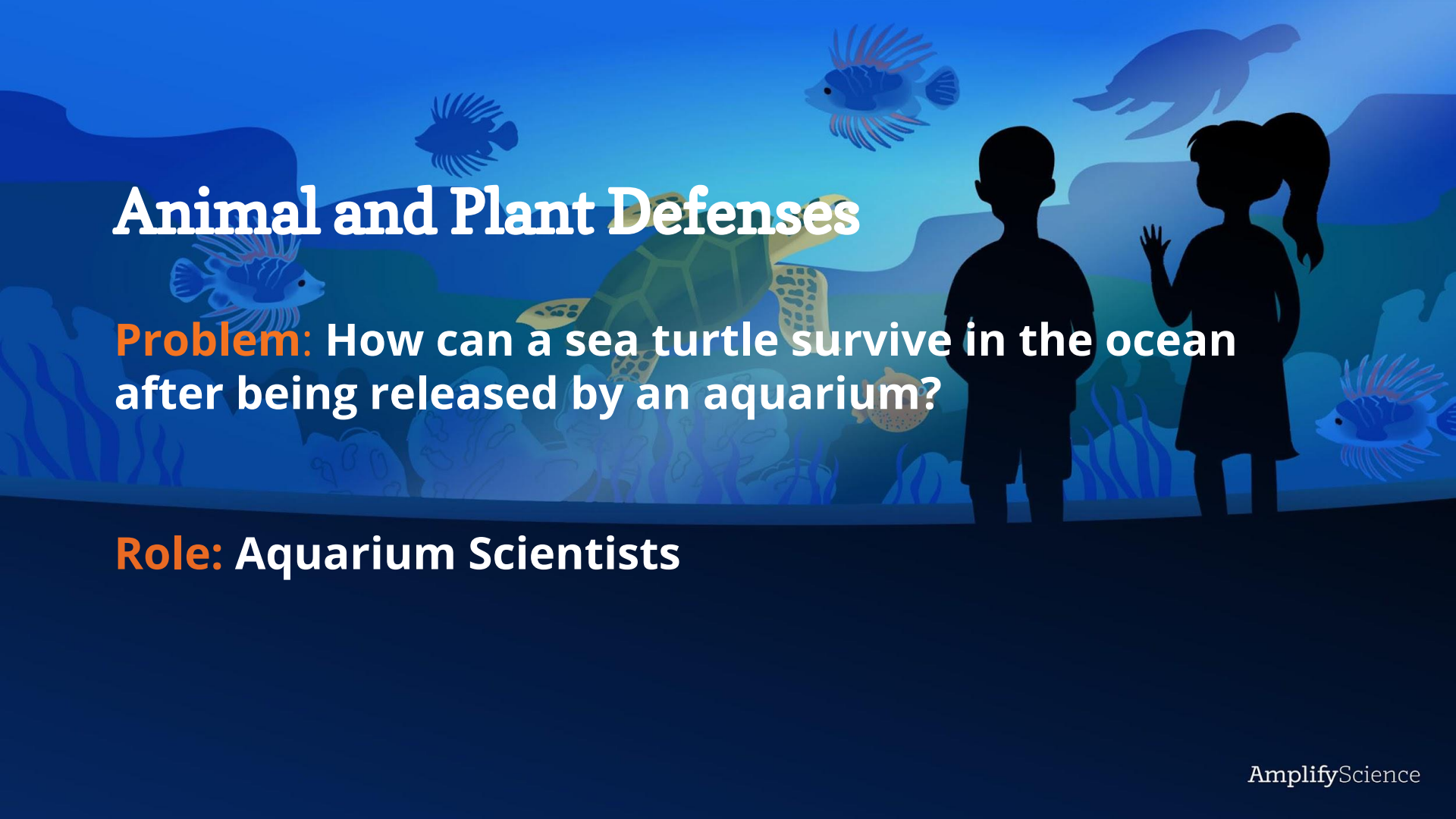


Animal and Plant Defenses

Problem: How can a sea turtle survive in the ocean after being released by an aquarium?

Role: Aquarium Scientists

Animal and Plant Defenses

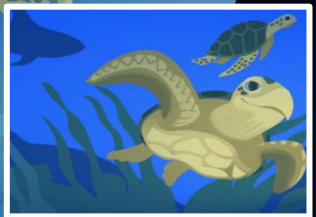
Coherent Storylines

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

5 Lessons

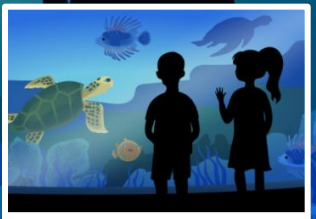
Chapter 2: How can Spruce the Sea Turtle survive where there are sharks?

8 Lessons



Chapter 3: How can Spruce the Sea Turtle's offspring survive where ther...

5 Lessons



Chapter 4: How can aquarium scientists explain animal defenses to the...

4 Lessons

Unit Question: How can a sea turtle survive in the ocean after being released by an aquarium?

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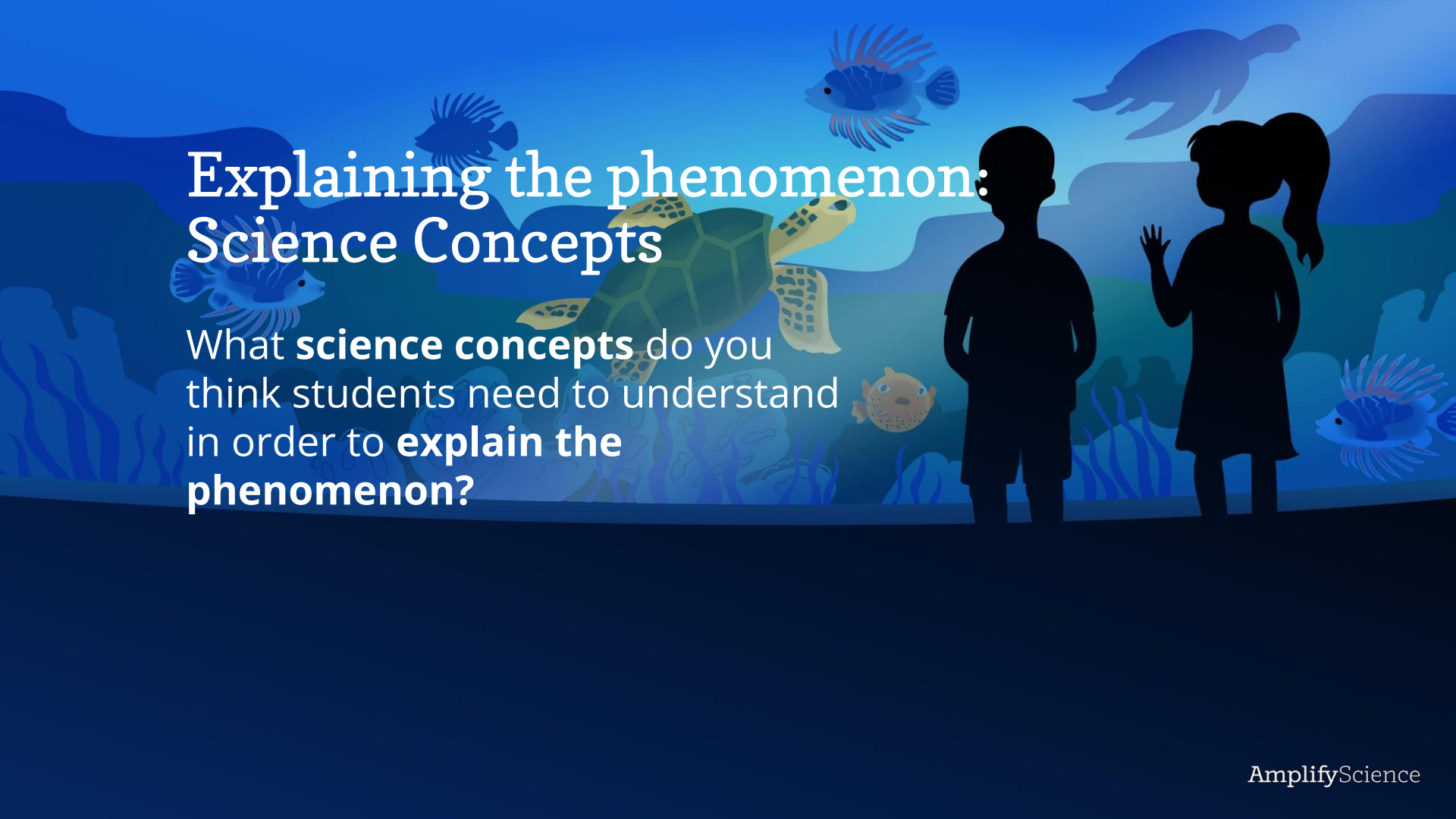
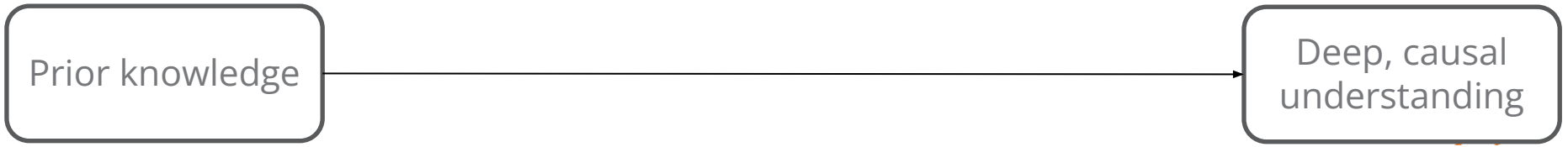


Explaining the phenomenon: Science Concepts

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

Animal and Plant Defenses: Progress Build

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. Students are expected to begin the unit with some ideas about plants' and animals' basic needs, such as light, water, and food, but they will have the opportunity to learn about a more comprehensive set of needs.



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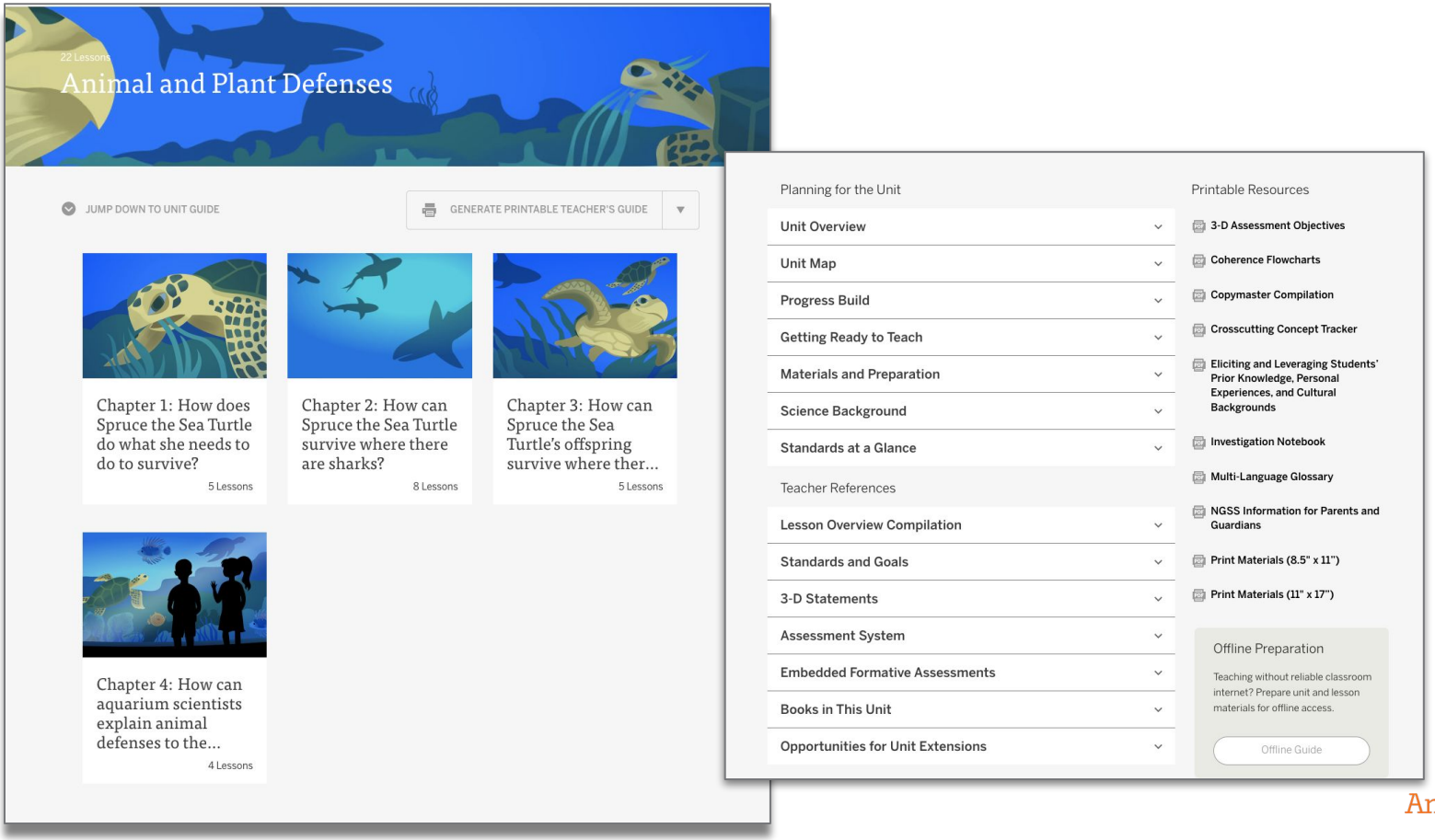
Navigate to the Unit Page



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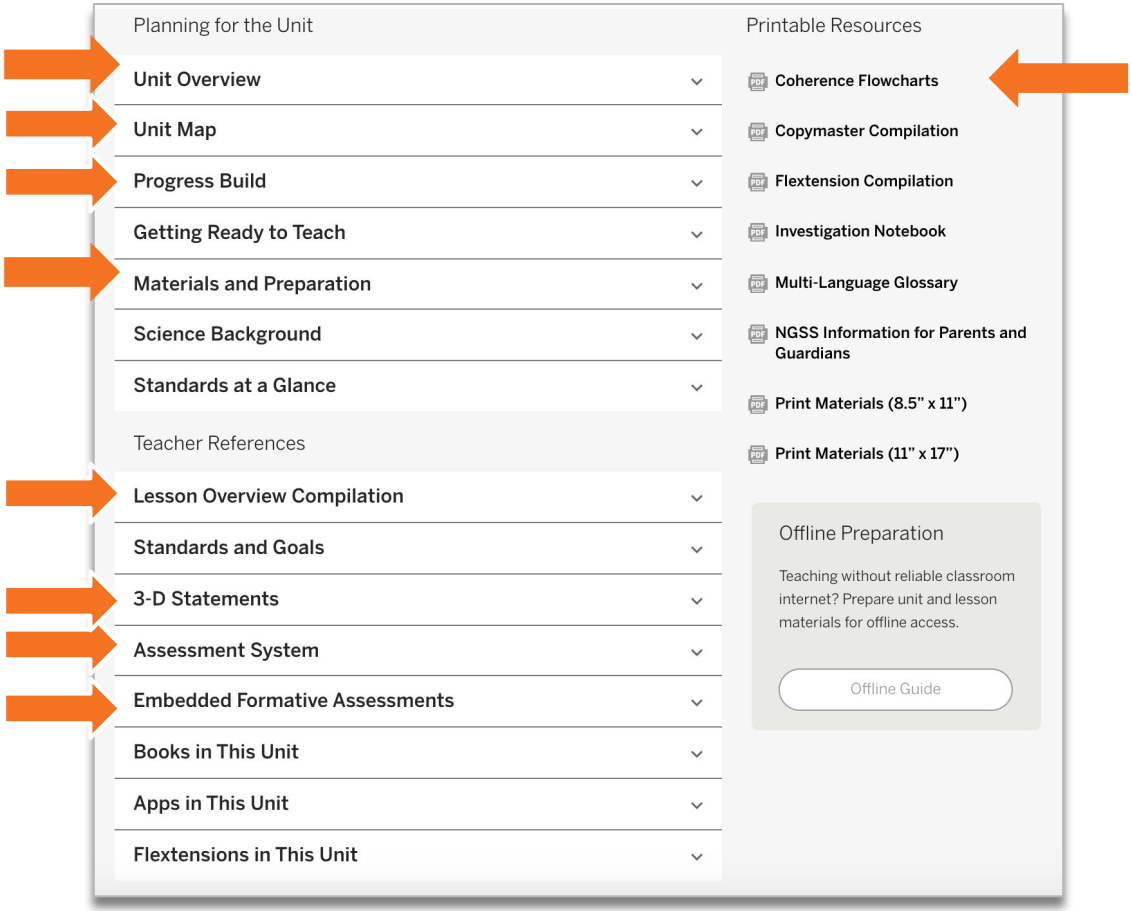
Key Unit Guide Documents for Planning



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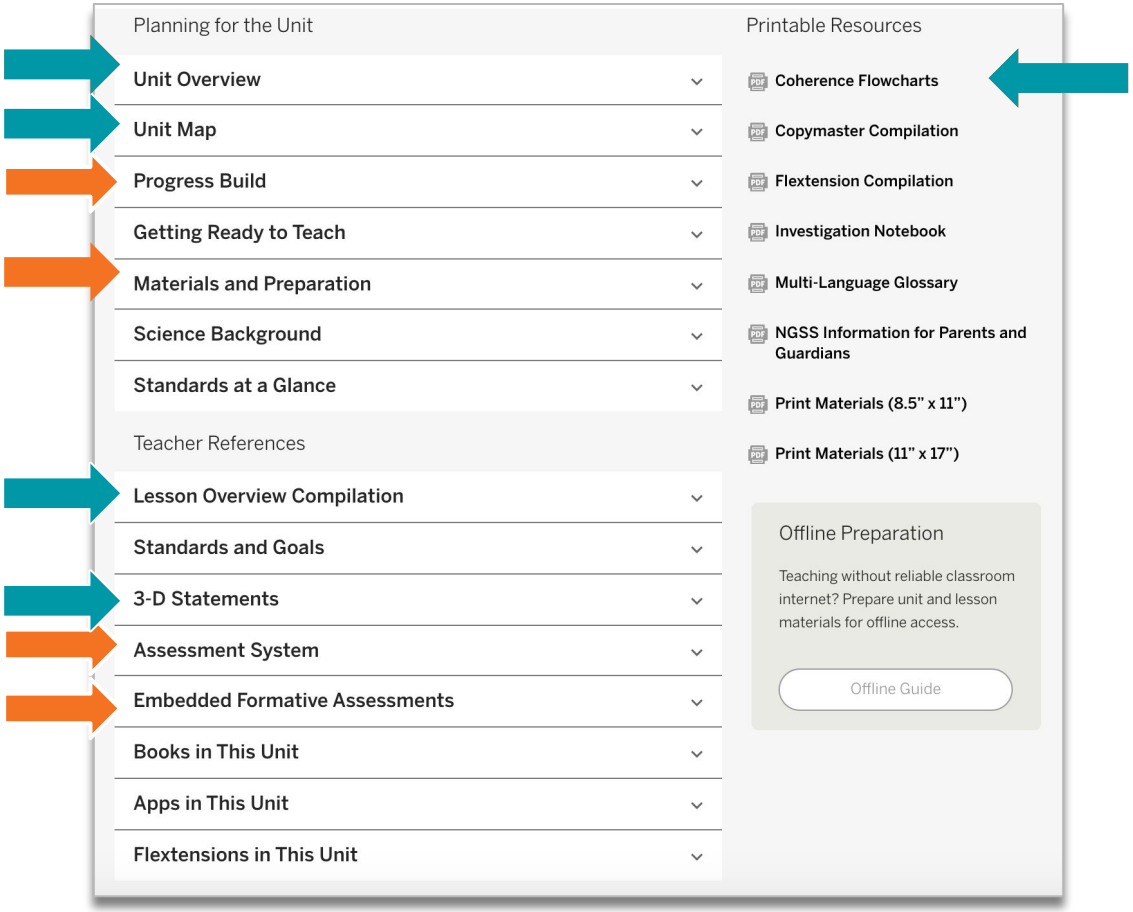


Core Unit Planning & Internalization

Unit Title: 1

Overview

[Resources: Unit Overview, Teacher's Guide, Coherence Flowchart, Unit Map, 3-D Statements]

What is the phenomenon/real-world problem students are investigating in your unit? 2

Student Role: 3

Unit Question: 4

Relationship between the Unit Phenomenon and Unit Question: 5

By the end of the unit, students figure out... 6

How do students engage with three-dimensional learning to figure out the phenomenon/real-world problem in your unit? 7

Unit Guide resources:
- Unit Overview
- Unit Map
- Coherence Flowchart

Unit Guide resources:
- Lesson Overview Compilation
- Unit Overview

Unit Guide resources:
- Unit Map

Unit Guide resources:
- 3D Statements at the Unit Level

Core Unit Planning & Internalization

Unit Title:	Animal and Plant Defenses

Overview

[Resources: Unit Overview, Teacher's Guide, Coherence Flowchart, Unit Map, 3-D Statements]

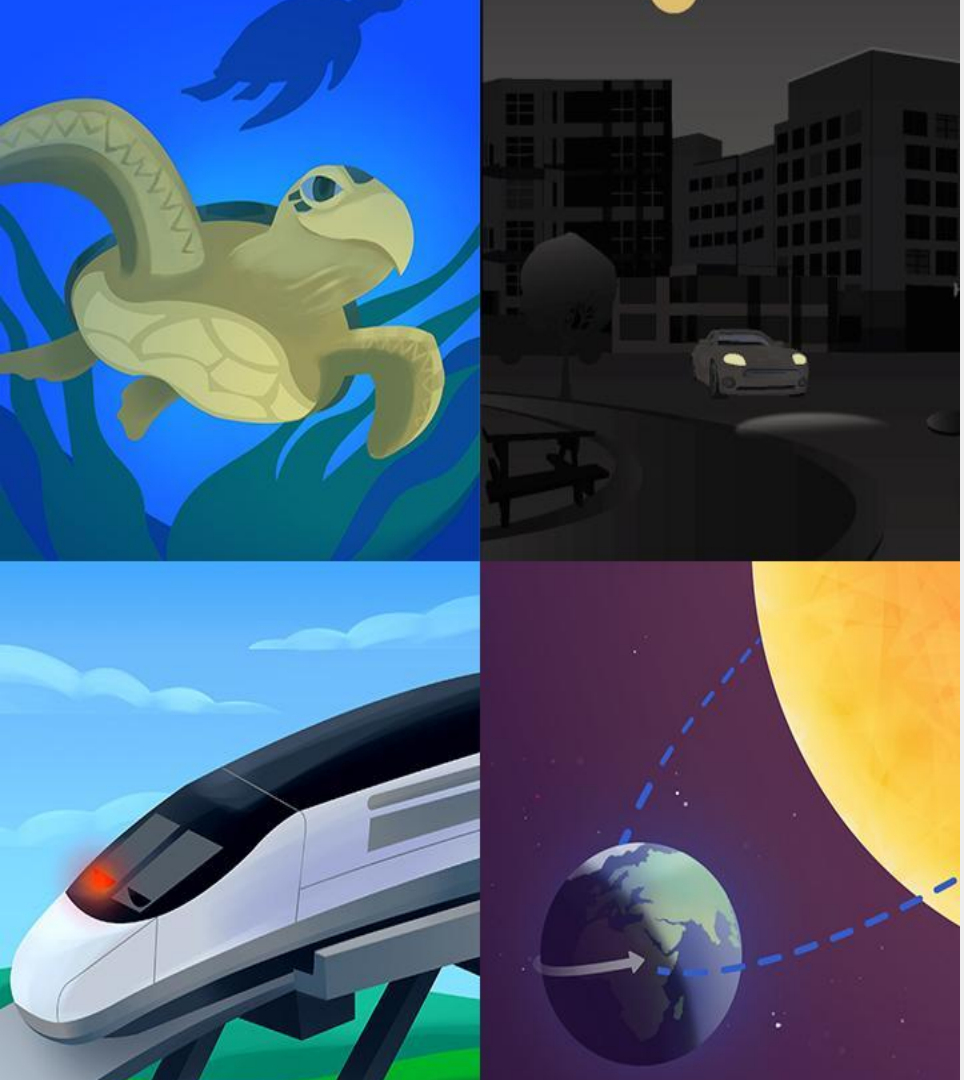
What is the phenomenon/real-world problem students are investigating in your unit?	Student Role:
How can a sea turtle survive in the ocean after being released by an aquarium?	Aquarium Scientists
Unit Question:	**Relationship between the Unit Phenomenon and Unit Question:**
How does Spruce the sea turtle do what she needs to do to survive?	Students will be able to use ideas of structure and function to explain how a wide variety of animals and plants and their offspring defend themselves from being eaten.

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

Keeping criteria in mind, students will design and build their own models and will communicate to visitors how one of four sea animals defends itself. Students showcase their ideas by explaining their models at an exhibition held for classroom visitors.

How do students engage with three-dimensional learning to figure out the phenomenon/real-world problem in your unit?

Students investigate how animals and plants, as well as their offspring, use their structures to meet their needs for survival (structure and function). Students apply what they learn by developing models and constructing explanations to communicate their ideas about how aquarium animals use their defenses to survive (cause and effect).



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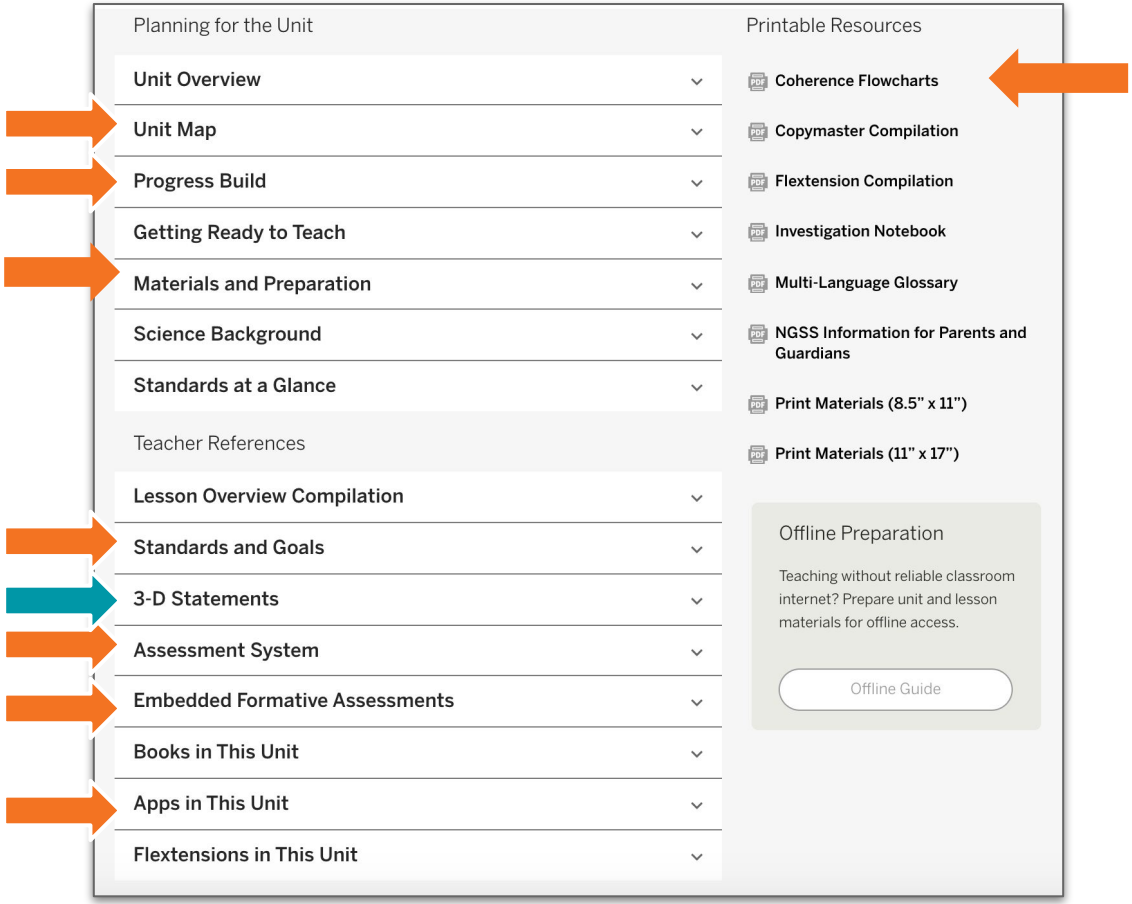
Key Documents for Planning Work Time



Animal and Plant Defenses: 3D Statements

Key

Practices | Disciplinary Core Ideas | Crosscutting Concepts

Unit Level

Students investigate how animals and plants, as well as their offspring, use their structures to meet their needs for survival (structure and function). Students apply what they learn by developing models and constructing explanations to communicate their ideas about how aquarium animals use their defenses to survive (cause and effect).

What do students do?

What science concepts are students learning?

How do students think about science concepts?

Animal and Plant Defenses: 3D Statements

Key

Practices | Disciplinary Core Ideas | Crosscutting Concepts

Unit Level

Students investigate how animals and plants, as well as their offspring, use their structures to meet their needs for survival (structure and function). Students apply what they learn by developing models and constructing explanations to communicate their ideas about how aquarium animals use their defenses to survive (cause and effect).

- **1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.** [Clarification Statement: Examples of patterns of behaviors could include the signals that offspring make (such as crying, cheeping, and other vocalizations) and the responses of the parents (such as feeding, comforting, and protecting the offspring).]
- **1-LS3-1. Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.** [Clarification Statement: Examples of patterns could include features plants or animals share. Examples of observations could include leaves from the same kind of plant are the same shape but can differ in size; and, a particular breed of dog looks like its parents but is not exactly the same.] [Assessment Boundary: Assessment does not include inheritance or animals that undergo metamorphosis or hybrids.]

Connections to Other Performance Expectations

This unit supports students in making connections to the disciplinary core ideas represented in these additional Performance Expectations, which are also addressed in other Amplify Science units.

- **K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.**

  Note: Students focus on the disciplinary core ideas represented in this Performance Expectation in the Amplify Science *Light and Sound* unit.
- **K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.**

  Note: Students focus on the disciplinary core ideas represented in this Performance Expectation in the Amplify Science *Light and Sound* unit.

Science and Engineering Practices

As with all Amplify Science units, the *Animal and Plant Defenses* unit provides students with exposure to most of the eight science and engineering practices described in the NGSS. This unit emphasizes the following practices (listed in order of particular emphasis), providing students with explicit instruction and expectations for increasing independence over the course of the unit.

- **Practice 2: Developing and Using Models.** Students create several physical models to help explain their ideas about animal and plant defenses, including an extended independent opportunity to do so in Chapter 4. The class discusses key ideas about scientific models, and students read a book showing two children making models to help them explain ideas.
- **Practice 6: Constructing Explanations and Designing Solutions.** Students construct oral and written explanations throughout the unit, including refining and adding to a written class explanation about the sea turtle's survival at the end of each chapter and an independent opportunity for oral explanation in Chapter 4. Students use what they have learned about animal defenses to design a solution for keeping the aquarium food that is stored outside the aquarium from being eaten by wild animals.

- **Practice 8: Obtaining, Evaluating, and Communicating Information.** Students read and search for evidence in a variety of books that are custom written for this unit. Students receive explicit instruction and have multiple opportunities to use the reading comprehension strategy of visualizing as they engage with the books in the unit. This strategy promotes active engagement with ideas in each book. During the reading of each book, students are involved in visualizing processes described to help them figure out new science ideas. In addition to obtaining information from books, students also obtain information by carefully observing photographs and videos. They communicate information through oral and written explanations as well as other supported opportunities to share ideas.
- **Practice 1: Asking Questions.** Students work to understand and answer a series of questions as they work to explain how the sea turtles will be able to survive. There are also multiple opportunities for students to ask and discuss their questions about how living things survive, how living things avoid being eaten, and about plant and animal offspring.
- **Practice 4: Analyzing and Interpreting Data.** Students have multiple opportunities to analyze the data they collect from observations of photographs and from videos of animals in the wild.
- **Practice 7: Engaging in Argument from Evidence.** Frequent class discussions involve students in identifying evidence and making sense of how that evidence helps to answer the key questions students are investigating.
- **Practice 3: Planning and Carrying Out Investigations.** Students investigate animal and plant defenses through secondhand data: careful observation of photographs and videos.

In all Amplify Science units, practices from the NGSS, CCSS-ELA, and CCSS-Math are linked. For instance, as students build models that describe and explain how animals' defensive structures function to help them, they are engaging in CCSS-Math Practice 1 (Practice 1: Make sense of problems and persevere in solving them). When students ask and answer questions about the investigations and/or the science text, and when they create and use drawings and models to support these investigations, they are developing the foundational capacity to build knowledge about a phenomenon through research and to respond analytically to informational sources, as called for by the CCSS-ELA Standards.

Disciplinary Core Ideas

Focal Disciplinary Core Ideas

This unit addresses the following core ideas:

LS1.A: Structure and Function:

- All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects; protect themselves; move from place to place; and seek, find, and take in food, water, and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)

LS1.B: Growth and Development of Organisms:

- Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. (1-LS1-2)

LS1.D: Information Processing:

Animal and Plant Defenses

Science & Engineering Practices

Unit Level

Students investigate how animals and plants, as well as their offspring, use their structures to meet their needs for survival (structure and function). Students apply what they learn by developing models and constructing explanations to communicate their ideas about how aquarium animals use their defenses to survive (cause and effect).

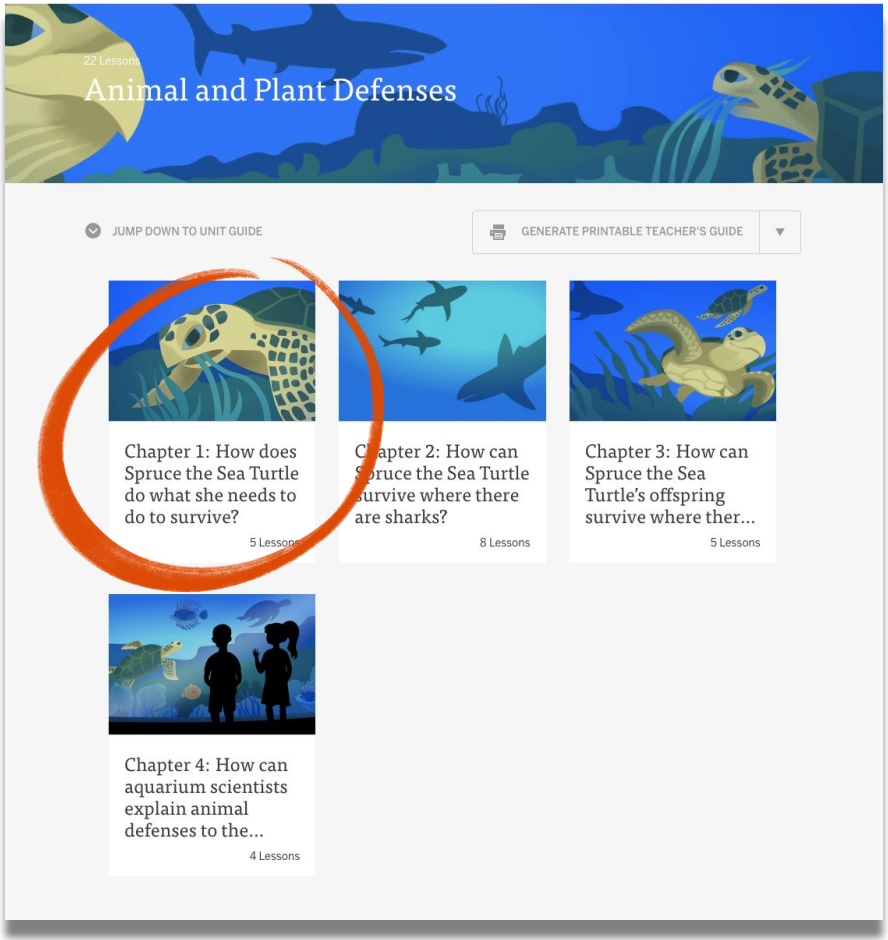
UNIT

Investigate

Developing models and constructing explanations to communicate

These are the Science and Engineering Practices that the students will be engaged with at the **unit** level.

Animal and Plant Defenses- Chapter Level



3D Statements

Key

Practices | Disciplinary Core Ideas | Crosscutting Concepts

Chapter Level

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

Students analyze and interpret data to figure out that all animals and plants need air, water, food, and the ability to defend themselves from being eaten in order to survive (cause and effect). Students apply what they learn in order to explain how all plants and animals, as well as Spruce the Sea Turtle, use their specific structures to grow and survive (structure and function).

3D Statements: Animal and Plant Defenses

UNIT Level

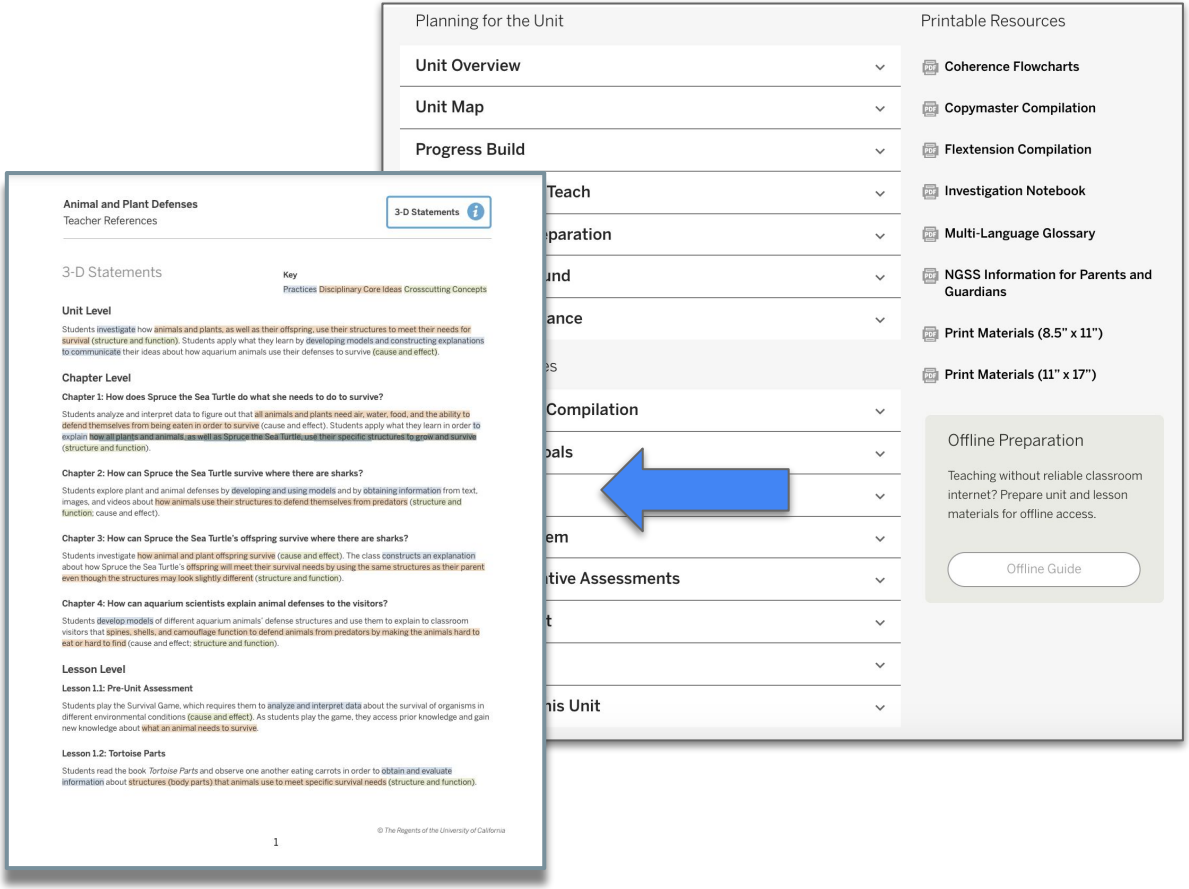
Investigate	Developing models and constructing explanations to communicate

Chapter Level

Chapter 1: To explain	Chapter 2:	Chapter 3:	Chapter 4:

3D Statements Work time

1. Go to the **3D Statement** on the **Unit Page.**
2. Look at the 3D Statement **for each chapter**
3. Identify the **Science and Engineering Practices** for each chapter.



3D Statements: Animal and Plant Defenses

UNIT Level

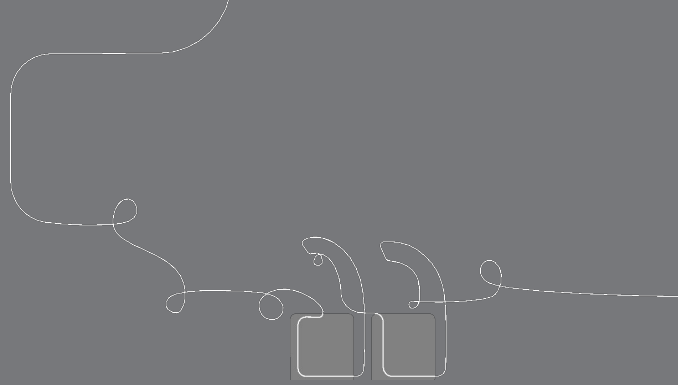
- Investigate
- Developing models and constructing explanations to communicate

Chapter Level

- Chapter 1: To explain
- Chapter 2: Developing and using models
- Chapter 2: Obtaining information
- Chapter 3: Constructs an explanation
- Chapter 4: Develop models

Building the practices incrementally, chapter by chapter.

Questions?



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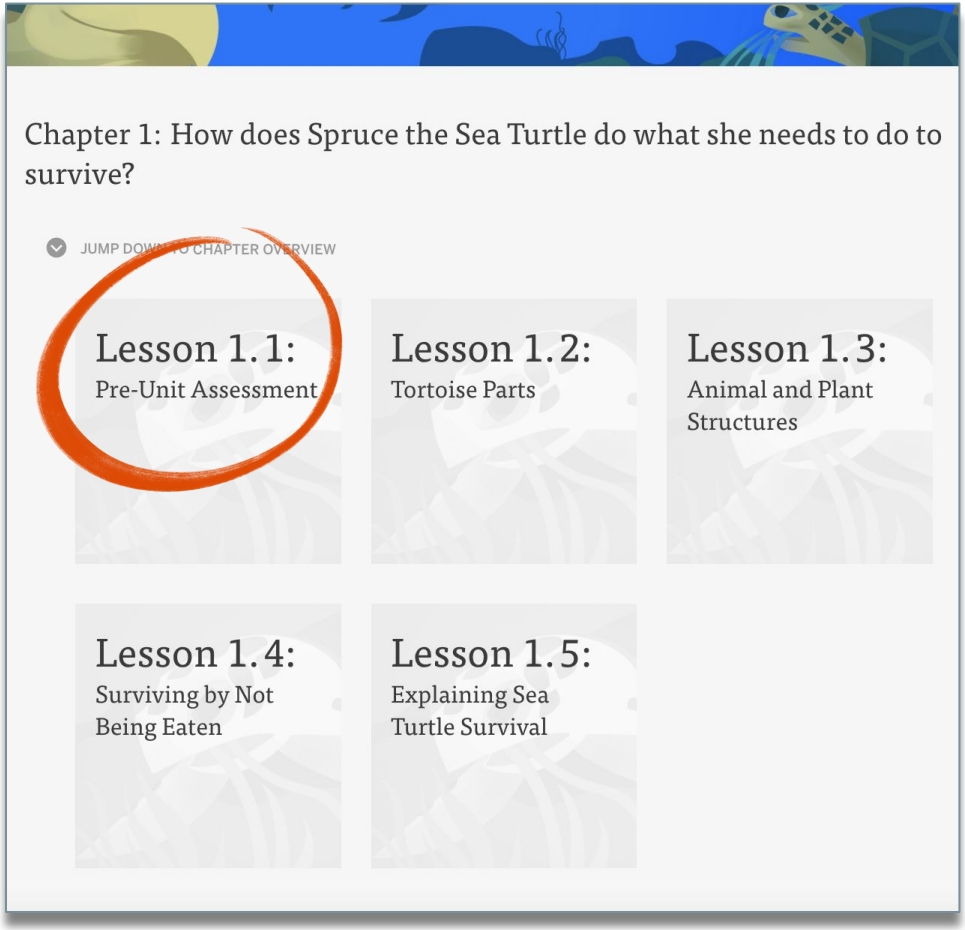
Animal and Plant Defenses



3D Statements, Lesson 1.1

Key

Practices | Disciplinary Core Ideas | Crosscutting Concepts

Lesson Level
Lesson 1.1: Pre-Unit Assessment

Students play the Survival Game, which requires them to analyze and interpret data about the survival of organisms in different environmental conditions (cause and effect). As students play the game, they access prior knowledge and gain new knowledge about what an animal needs to survive.

3D Statements, Lesson 1.1

Key

Practices | Disciplinary Core Ideas | Crosscutting Concepts

Lesson Level
Lesson 1.1: Pre-Unit Assessment

Students play the Survival Game, which requires them to analyze and interpret data about the survival of organisms in different environmental conditions (cause and effect). As students play the game, they access prior knowledge and gain new knowledge about what an animal needs to survive.

15 MIN

Activity 2

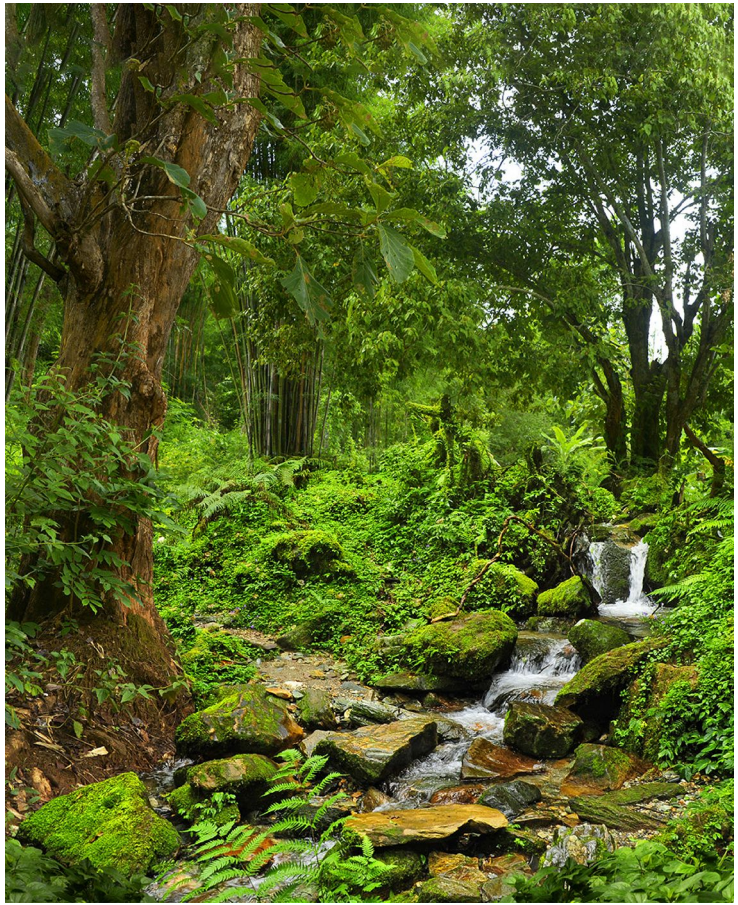
Leading a Pre-Unit-Assessment Conversation

Let’s talk about the **ideas that we already have** about how living things survive.

We will think about one animal as an example.

This is a **porcupine**.

We can see that a porcupine has four legs, dark fur, and sharp spines on its back.



The porcupine lives in a **forest** like this one.

The forest has many animals, trees, plants, and small streams.

What do you think the porcupine needs to do to survive in the forest where it lives?

Leopards also live in the forest. They try to eat porcupines when they find them.

Leopards have spotted fur, claws, and sharp teeth.

How does the porcupine survive with leopards around?

What would happen if a leopard tried to eat the porcupine?

Now, close your eyes and **picture this in your head**:

The porcupine has a baby, and then that baby grows up. Imagine that **baby all grown up**.

Would that grown-up baby look **exactly like** its parent?

Would it look **a little different** than its parent?

Would it look **completely different**?

Why do you think so?

Will that grown-up baby **survive in the same way** as its parent or will it survive in a **different** way?

Why do you think so?

20 MIN

Activity 3

Playing the Survival Game

Students play the Survival Game, which requires them to analyze and interpret data about the survival of organisms in different environmental conditions (cause and effect). As students play the game, they access prior knowledge and gain new knowledge about what an animal needs to survive.

Chapter 1 Question

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

Investigation Question:

What do animals and plants need to do to survive?

Vocabulary

survive

to stay alive

What things do you think **animals** and **plants** need to **survive**?

We are going to **play a game** about the things that animals and plants need to survive.

First, let's look at the **cards** together.

I will need four volunteers to help me **show how to play** the game.

Setting Up the Survival Game (Practice)

1.
Each player takes a cup.

2.
Without looking, each player chooses a Role Card with a living thing on it.

3.
Make three piles of Need Cards in the middle: food, air, and water.

Playing the Survival Game (Practice)

1.
Listen to the directions for the living thing on your Role Card.

2.
When I tell you to, take a Need Card from one of the piles.

3.
Use your cup to hold your Need Cards.

Now we will all **play the game** in our groups.

Setting Up the Survival Game

1.
Each player takes a cup.

2.
Without looking, each player chooses a Role Card with a living thing on it.

3.
Make three piles of Need Cards in the middle: food, air, and water.

Playing the Survival Game (Round 1)

1.
Listen to the directions for the living thing on your Role Card.

2.
When I tell you to, take a Need Card from one of the piles.

3.
Use your cup to hold your Need Cards.

Which living things **survived** in Round 1 of the game?

Why did **all** the living things survive?

Playing the Survival Game (Round 2)

1.
Listen to the directions for the living thing on your Role Card.

2.
When I tell you to, take a Need Card from one of the piles.

3.
Use your cup to hold your Need Cards.

Which living things **survived** in Round 2 of the game?

Which living things **did not survive**?

Why did only **some** living things survive?

Playing the Survival Game (Round 3)

1.
Listen to the directions for the living thing on your Role Card.

2.
When I tell you to, take a Need Card from one of the piles.

3.
Use your cup to hold your Need Cards.

Which living things **survived** in Round 3 of the game?

Which living things **did not survive**?

Why did only **some** living things survive?

Key Concept

To survive, animals and plants need to get water, air, and food.

End of Lesson

THE LAWRENCE HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

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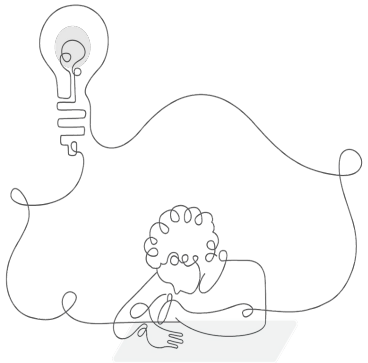
Science and Engineering Practices
Lesson 1.1

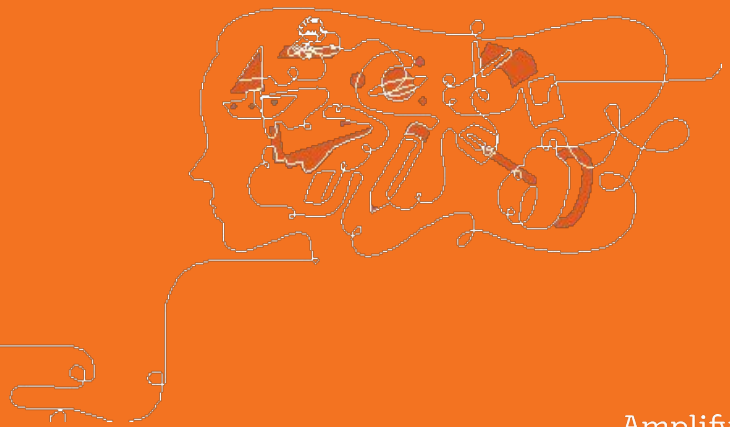
Students play the Survival Game, which requires them to analyze and interpret data about the survival of organisms in different environmental conditions (cause and effect). As students play the game, they access prior knowledge and gain new knowledge about what an animal needs to survive.



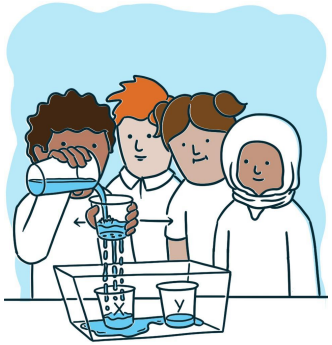
What kind of information did student obtain during the reading of this book?

Lesson Level

Exploration



3D Statements: Animal and Plant Defenses



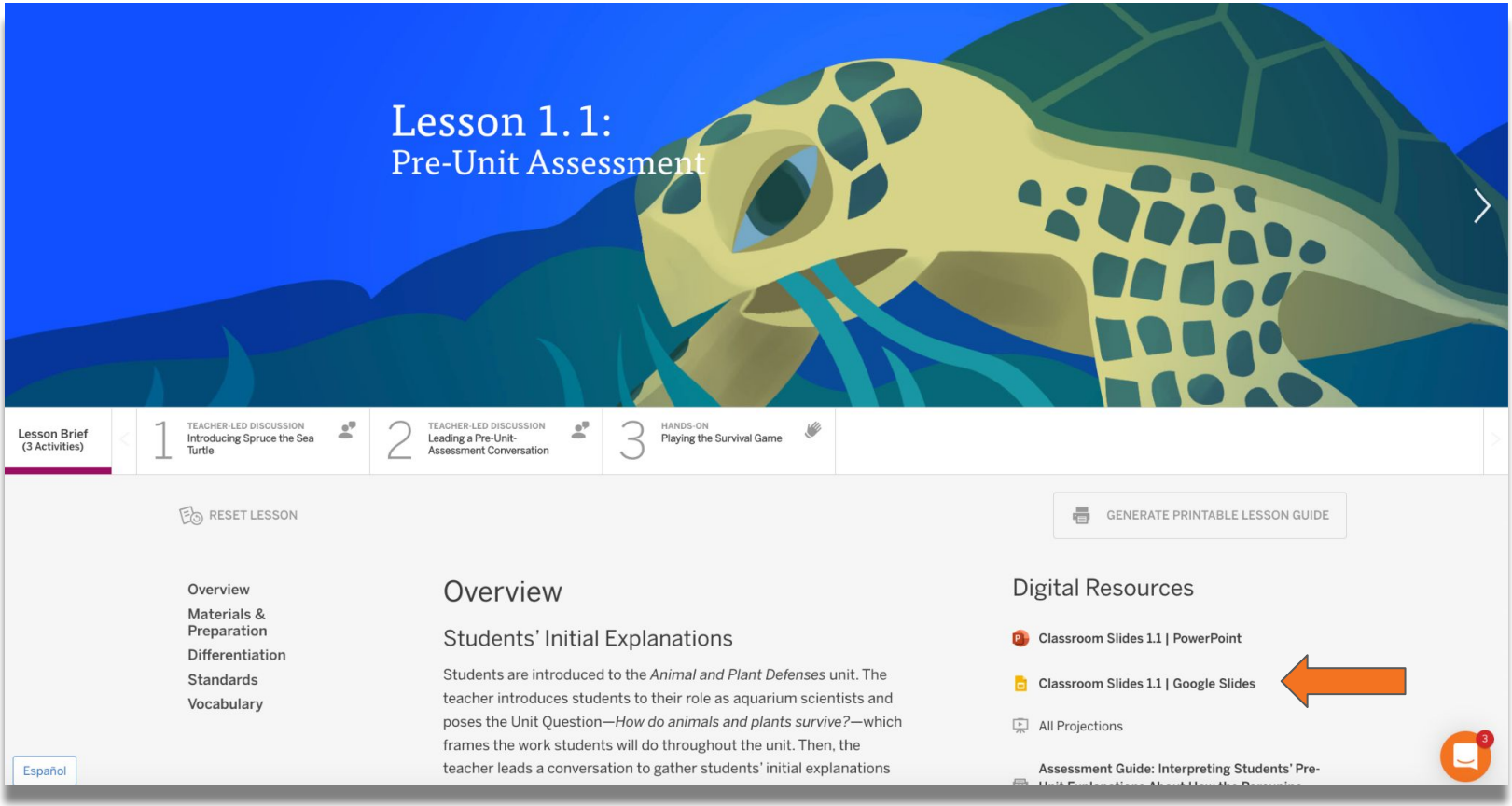
UNIT Level

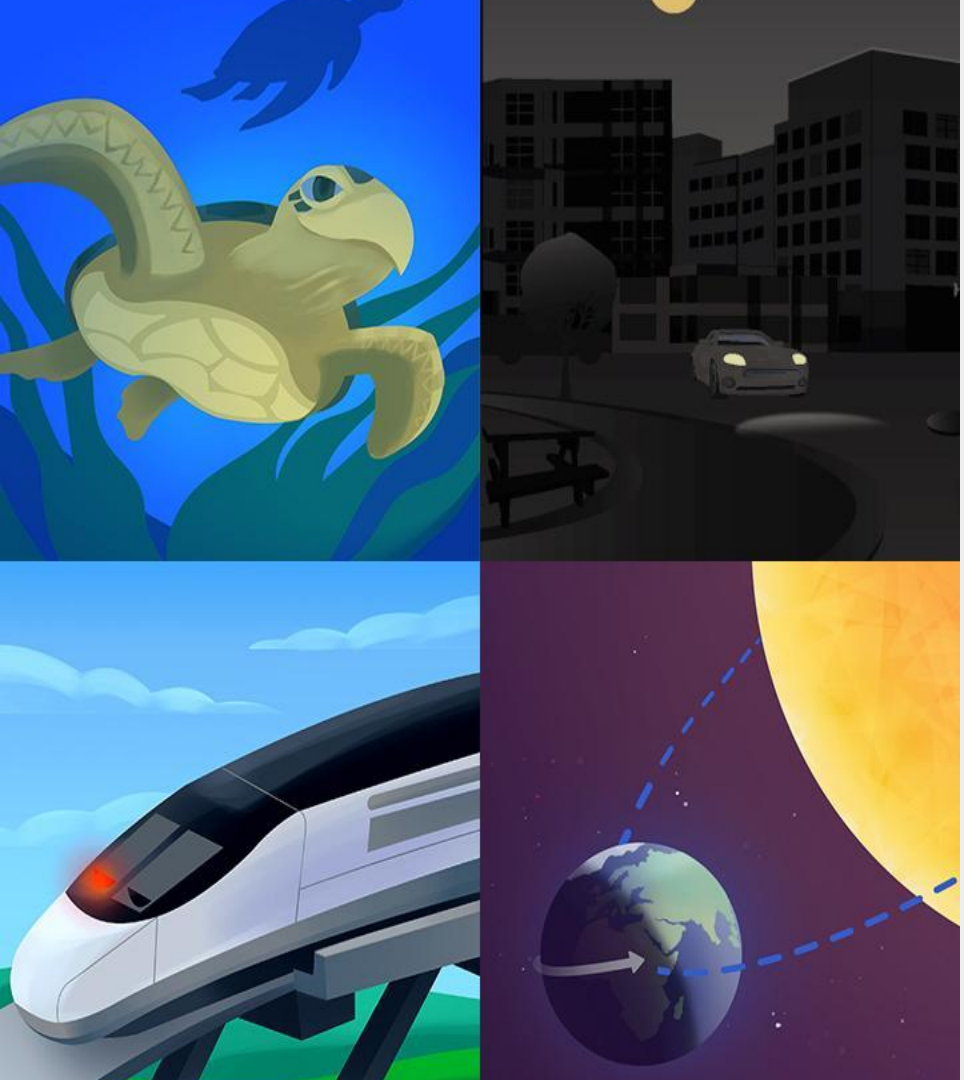
- Investigate
- Developing models and constructing explanations to communicate

Chapter Level

- Chapter 1: To explain
  - Lesson 1.1: Analyze and interpret data
  - Lesson 1.2:
  - Lesson 1.3:
  - Lesson 1.5:
  - Lesson 1.4:

Lesson Brief





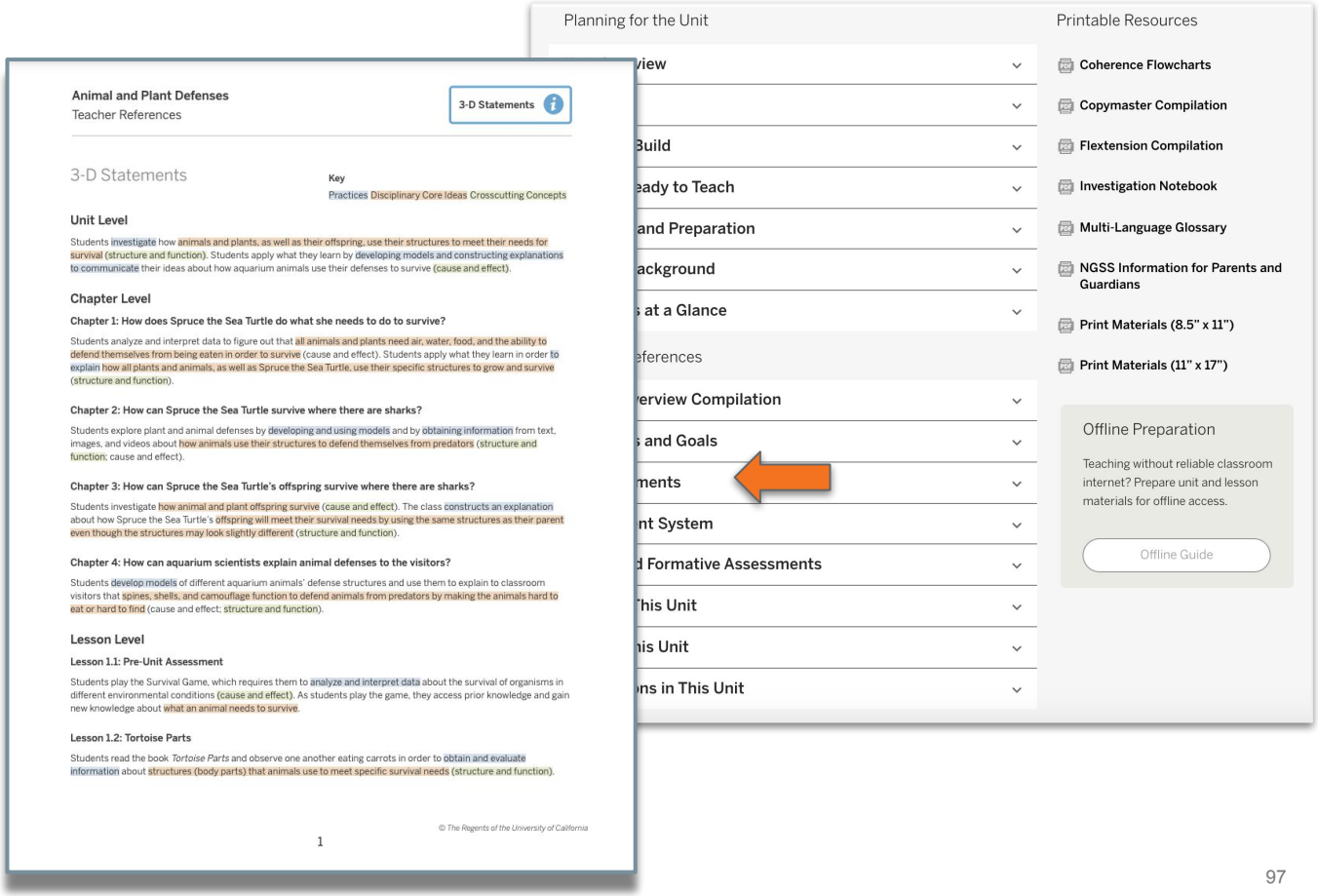
Plan for the day: Part 2

- Framing and Review
- Introducing the Unit
- Unit Internalization
- Identifying the Science and Engineering Practices
  - Chapter level
- Science and Engineering Practices within a lesson
  - Lesson Level Work Time
- Closing

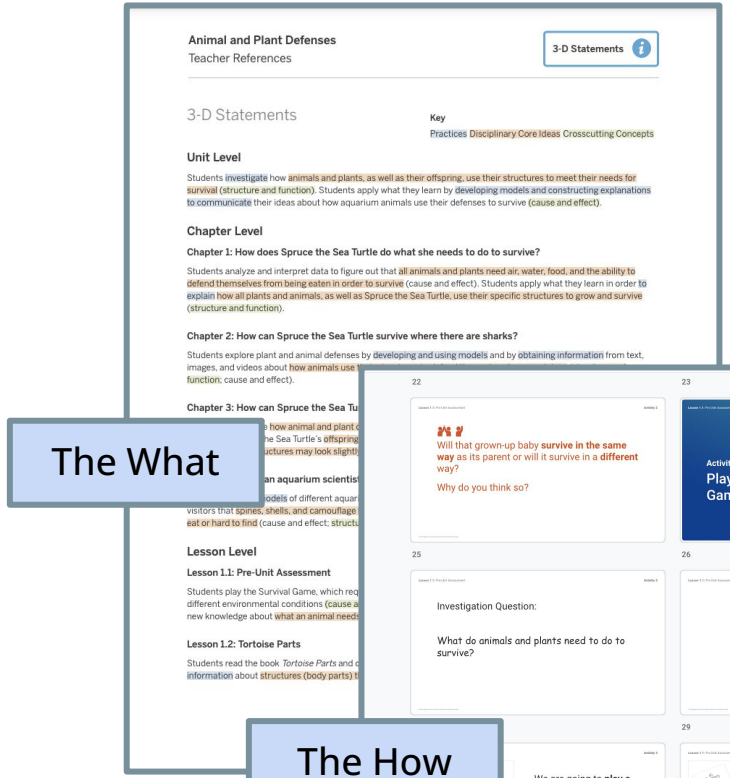
3D Statements **Lesson Work time**

1. Identify what **Science and Engineering Practices** are addressed in each lesson in Chapter One.

2. Identify how the **Science and Engineering Practices** are addressed



Science & Engineering Practices: Animal and Plant Defenses


Animal and Plant Defenses
Teacher References

3-D Statements

3-D Statements

Key
Practices Disciplinary Core Ideas Crosscutting Concepts

Unit Level

Students investigate how animals and plants, as well as their offspring, use their structures to meet their needs for survival (structure and function). Students apply what they learn by developing models and constructing explanations to communicate their ideas about how aquarium animals use their defenses to survive (cause and effect).

Chapter Level

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

Students analyze and interpret data to figure out that all animals and plants need air, water, food, and the ability to defend themselves from being eaten in order to survive (cause and effect). Students apply what they learn in order to explain how all plants and animals, as well as Spruce the Sea Turtle, use their specific structures to grow and survive (structure and function).

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

Students explore plant and animal defenses by developing and using models and by obtaining information from text, images, and videos about how animals use t
function: cause and effect).

Chapter 3: How can Spruce the Sea Tu

s how animal and plant c
he Sea Turtle's offspring
uctures may look slightl

an aquarium scientist

odels of different aquar
visitors that spines, shells, and camouflage
eat or hard to find (cause and effect: structu

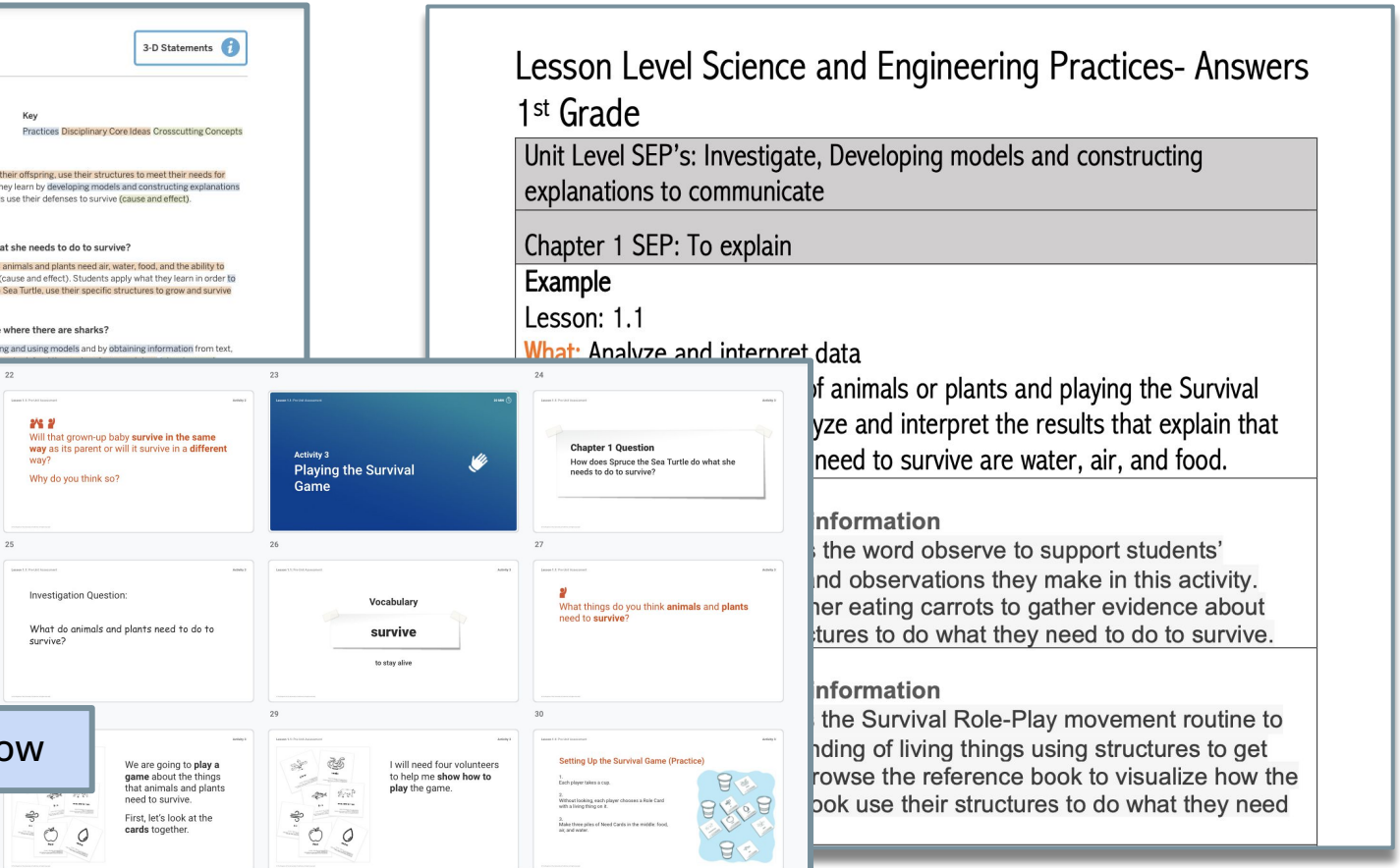
Lesson Level

Lesson 1.1: Pre-Unit Assessment

Students play the Survival Game, which req
different environmental conditions (cause a
new knowledge about what an animal needs

Lesson 1.2: Tortoise Parts

Students read the book *Tortoise Parts* and c
information about structures (body parts) t


Lesson Level Science and Engineering Practices- Answers
1st Grade

Unit Level SEP's: Investigate, Developing models and constructing explanations to communicate
Chapter 1 SEP: To explain
Example Lesson: 1.1 What: Analyze and interpret data f animals or plants and playing the Survival yze and interpret the results that explain that need to survive are water, air, and food.
nformation the word observe to support students' nd observations they make in this activity. her eating carrots to gather evidence about tures to do what they need to do to survive.
nformation the Survival Role-Play movement routine to nding of living things using structures to get rowse the reference book to visualize how the ook use their structures to do what they need

22 23 24

Will that grown-up baby **survive in the same way** as its parent or will it survive in a **different** way?

Why do you think so?

Activity 3
Playing the Survival Game

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

25 26 27

Investigation Question:

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29 30

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Setting Up the Survival Game (Practice)

1. Each player takes a cup.
2. Without looking, each player chooses a Role Card with a living thing on it.
3. Make three piles of Need Cards in the middle: food, air, and water.

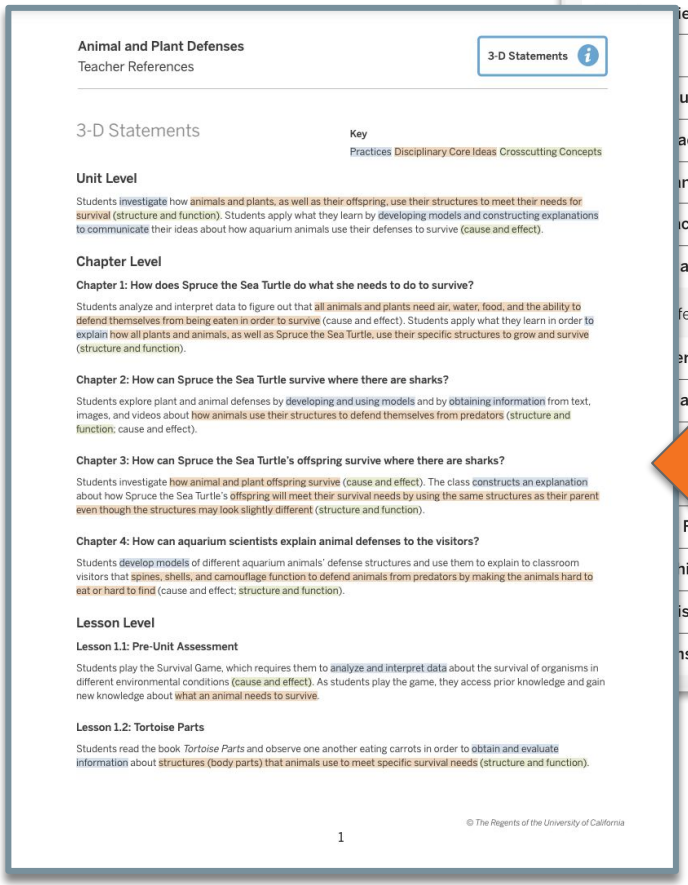
31 32 33

The What

The How

3D Statements **Share Out**

Share the what and how of the **Science and Engineering Practices** addressed in each lesson.



Animal and Plant Defenses
Teacher References

3-D Statements

3-D Statements

Key
Practices Disciplinary Core Ideas Crosscutting Concepts

Unit Level

Students investigate how animals and plants, as well as their offspring, use their structures to meet their needs for survival (structure and function). Students apply what they learn by developing models and constructing explanations to communicate their ideas about how aquarium animals use their defenses to survive (cause and effect).

Chapter Level

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

Students analyze and interpret data to figure out that all animals and plants need air, water, food, and the ability to defend themselves from being eaten in order to survive (cause and effect). Students apply what they learn in order to explain how all plants and animals, as well as Spruce the Sea Turtle, use their specific structures to grow and survive (structure and function).

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

Students explore plant and animal defenses by developing and using models and by obtaining information from text, images, and videos about how animals use their structures to defend themselves from predators (structure and function; cause and effect).

Chapter 3: How can Spruce the Sea Turtle's offspring survive where there are sharks?

Students investigate how animal and plant offspring survive (cause and effect). The class constructs an explanation about how Spruce the Sea Turtle's offspring will meet their survival needs by using the same structures as their parent even though the structures may look slightly different (structure and function).

Chapter 4: How can aquarium scientists explain animal defenses to the visitors?

Students develop models of different aquarium animals' defense structures and use them to explain to classroom visitors that spines, shells, and camouflage function to defend animals from predators by making the animals hard to eat or hard to find (cause and effect; structure and function).

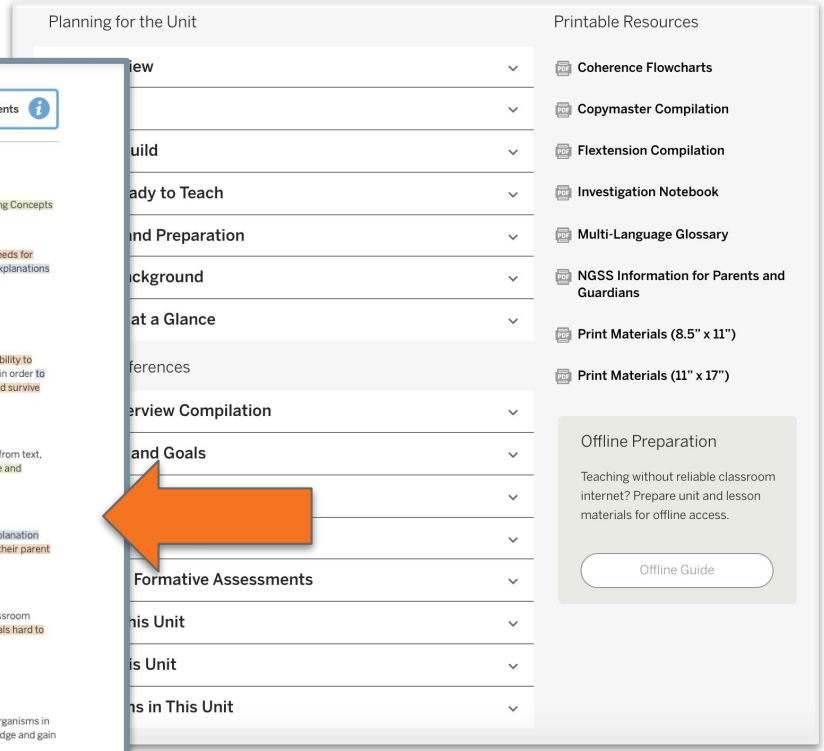
Lesson Level

Lesson 1.1: Pre-Unit Assessment

Students play the Survival Game, which requires them to analyze and interpret data about the survival of organisms in different environmental conditions (cause and effect). As students play the game, they access prior knowledge and gain new knowledge about what an animal needs to survive.

Lesson 1.2: Tortoise Parts

Students read the book *Tortoise Parts* and observe one another eating carrots in order to obtain and evaluate information about structures (body parts) that animals use to meet specific survival needs (structure and function).



Science & Engineering Practices: Animal and Plant Defenses

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

Lesson 1.1
What: Analyze and interpret data
How: By taking on the role of animals or plants and playing the Survival Game three times, they analyze and interpret the results that explain that three things all living things need to survive are water, air, and food.

Lesson 1.2
What: **Obtain and evaluate information**
How: The teacher introduces the word observe to support students' understanding of the firsthand observations they make in this activity. Partners observe one another eating carrots to gather evidence about how animals use their structures to do what they need to do to survive.

Lesson 1.3
What: **Obtain and evaluate information**
How: The teacher introduces the Survival Role-Play movement routine to support students' understanding of living things using structures to get what they need. Partners browse the reference book to visualize how the animals and plants in the book use their structures to do what they need to do to survive.

Lesson 1.3
What: Construct explanations
How: The teacher introduces the Structure-Function Language Frame to help students articulate how animals meet their needs. Students revisit *Tortoise Parts* to describe how a tortoise uses its structures to do what it needs to do to survive.

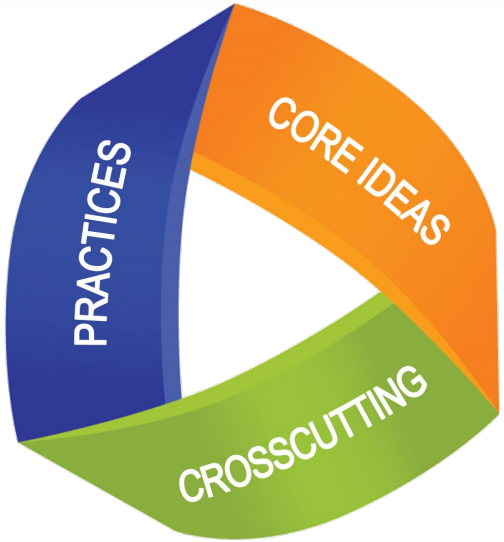
Lesson 1.4
What: Obtain and evaluate more information
How: The students play a modified version of the game that reinforces students' understanding that all living things need to get water, air, and food to survive, and it introduces the idea that living things also need to not be eaten in order to survive.

Lesson 1.4
What: Use Explanations Frames to explain
How: The teacher introduces a pair of Explanation Language Frames to help students articulate one reason why living things do or do not survive: not being eaten or being eaten.

Lesson 1.5
What: Construct explanation
How: The teacher introduces a new Explanation Language Frame, and then the class completes a Shared Writing to explain how Spruce does what she needs to do to survive in the ocean.

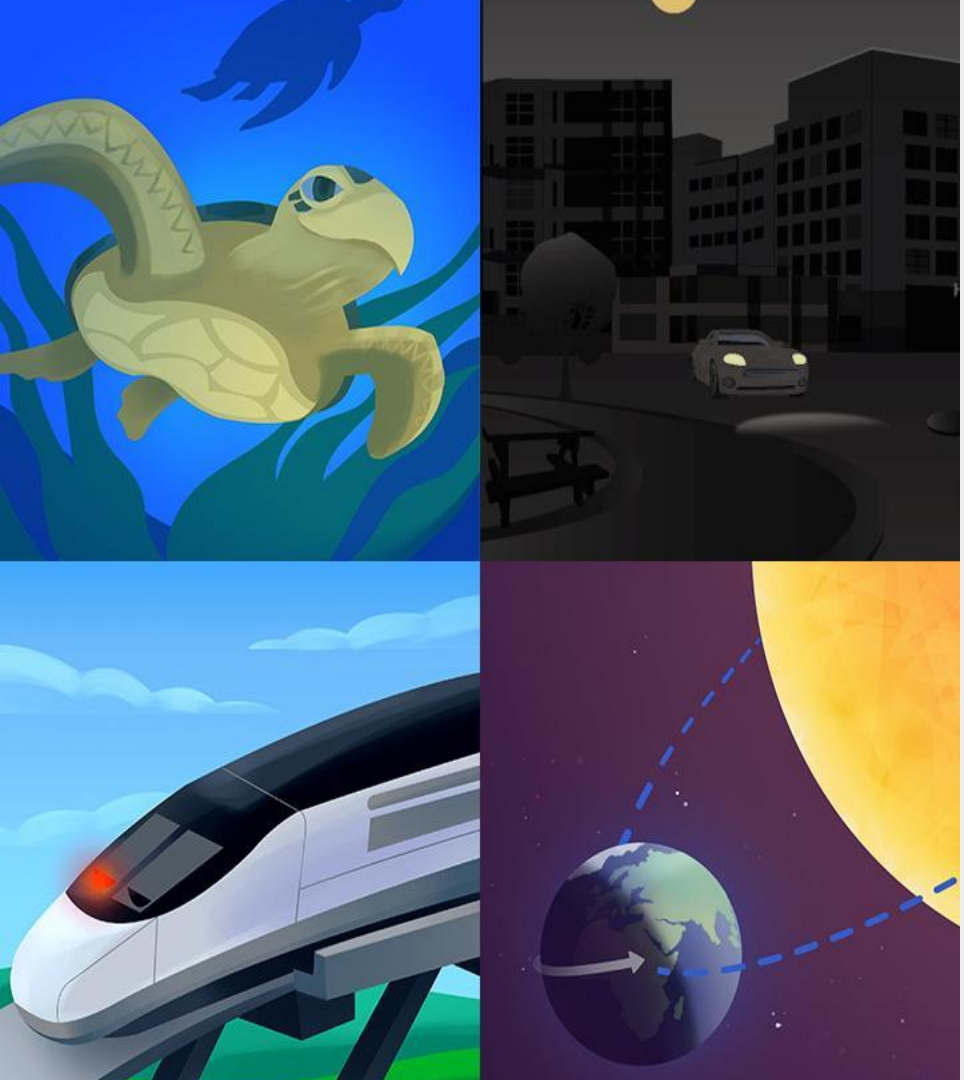
Next Generation Science Standards

Science and Engineering Practices



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

Questions?



Plan for the day: Part 2

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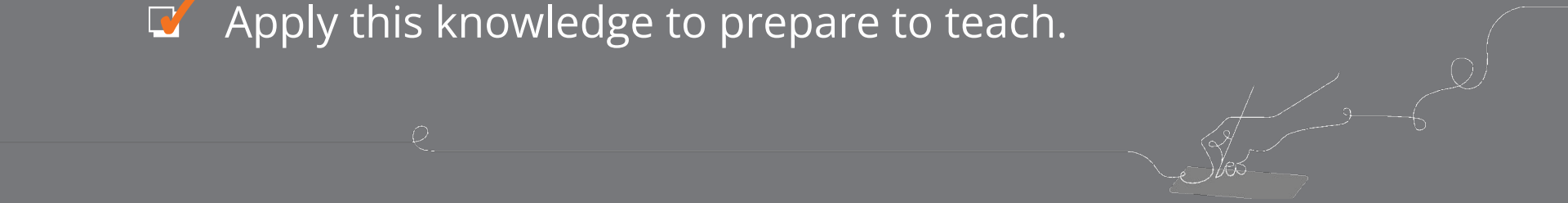
Overarching Goals

Upon completion of this session, we are now able to:

- ☑ Internalize the unit
- ☑ Identify the Science and Engineering Practices within the unit
- ☑ Apply this knowledge to prepare to teach.



Closing reflection

Based on our work today, share:

Head: something you'll keep in mind

Heart: something you're feeling

Feet: something you're planning to do

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!

ify.

Additional resources and ongoing support

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help@amplify.com

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Amplify Chat

Thank you!