

Amplify Science

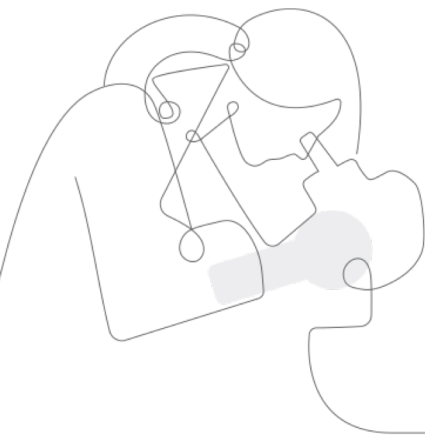
New York City Department of Education

Grade 1: Animal and Plant Defenses

Summer Institute: Day 1

Date

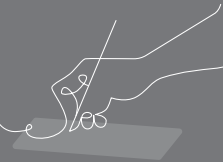
Presented by Your Name



Overarching goals

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

- Navigate program resources and describe how Amplify Science addresses 3-D learning and NYSSLS/NGSS.
- Use Animal and Plant Defenses unit resources to plan lessons that support ALL learners.



Getting to know the unit

Day 1



Day 1 Objectives

By the end of today, you will be able to:

- Explain what students learn in the unit, and how they learn it.
- Navigate the Amplify Science curriculum.
- Recognize how lessons engage students in the three dimensions of NYSSLS/NGSS (as appropriate).
- Articulate how lesson activities support students in building complex explanations.

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.



Animal and Plant Defenses

Plan for the day – Day 1

- **Framing the day**

- What is Amplify Science?
- Navigating the Digital Guide

- **Experiencing the unit**

- Amplify Science approach
- NYSSLS anticipatory activity
- Instructional sequence with model lesson
- Reflecting on the sequence

- **Closing**

- Amplify Science in NYC
- Reflection
- Questions



Animal and Plant Defenses

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- Questions

Framing the day

The purpose of this part of the day is for you to

- Navigate the Amplify Science curriculum



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+

Amplify.

Amplify Science

Elementary school course curriculum structure

Grade K

- Needs of Plants and Animals
- Pushes and Pulls
- Sunlight and Weather

Grade 1

- Animal and Plant Defenses
- Light and Sound
- Spinning Earth

Grade 2

- Plant and Animal Relationships
- Properties of Materials
- Changing Landforms

Grade 3

- Balancing Forces
- Inheritance and Traits
- Environments and Survival
- Weather and Climate

Grade 4

- Energy Conversions
- Vision and Light
- Earth's Features
- Waves, Energy, and Information

Grade 5

- Patterns of Earth and Sky
- Modeling Matter
- The Earth System
- Ecosystem Restoration

AmplifyScience

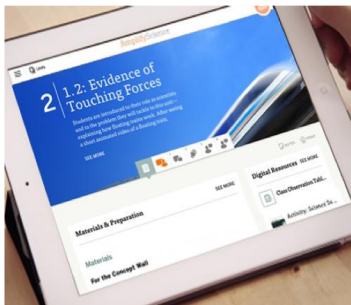
authored by



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Elementary school components



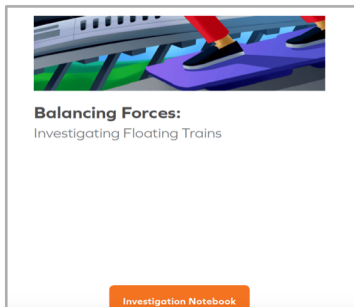
Digital Teacher's Guide



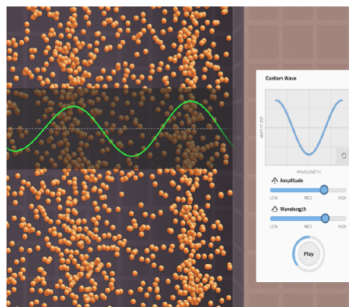
Hands-on materials



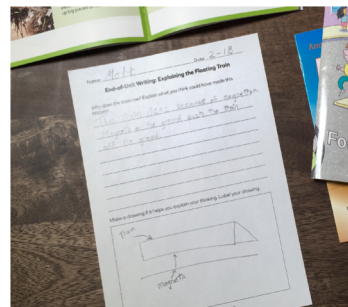
Student books



Investigation Notebooks

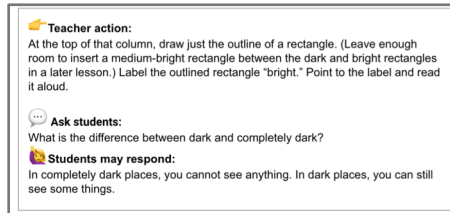
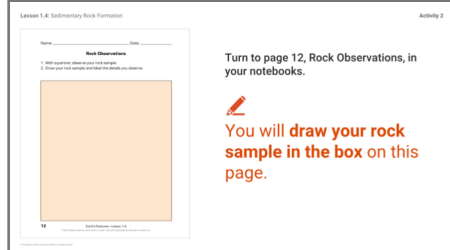


Digital applications (grades 2-5)

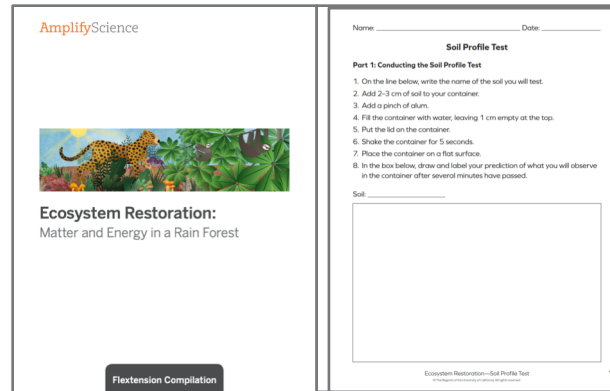


Assessments

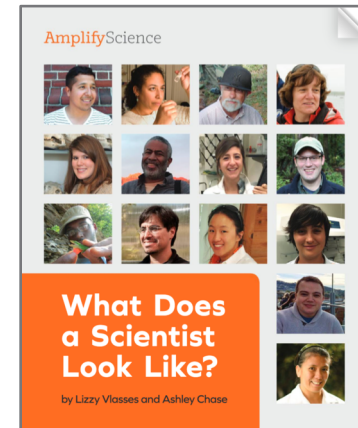
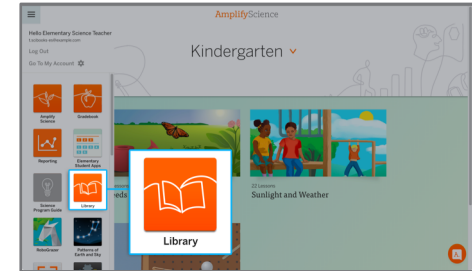
Amplify Science: What's new for 2019-2020



Classroom Slides

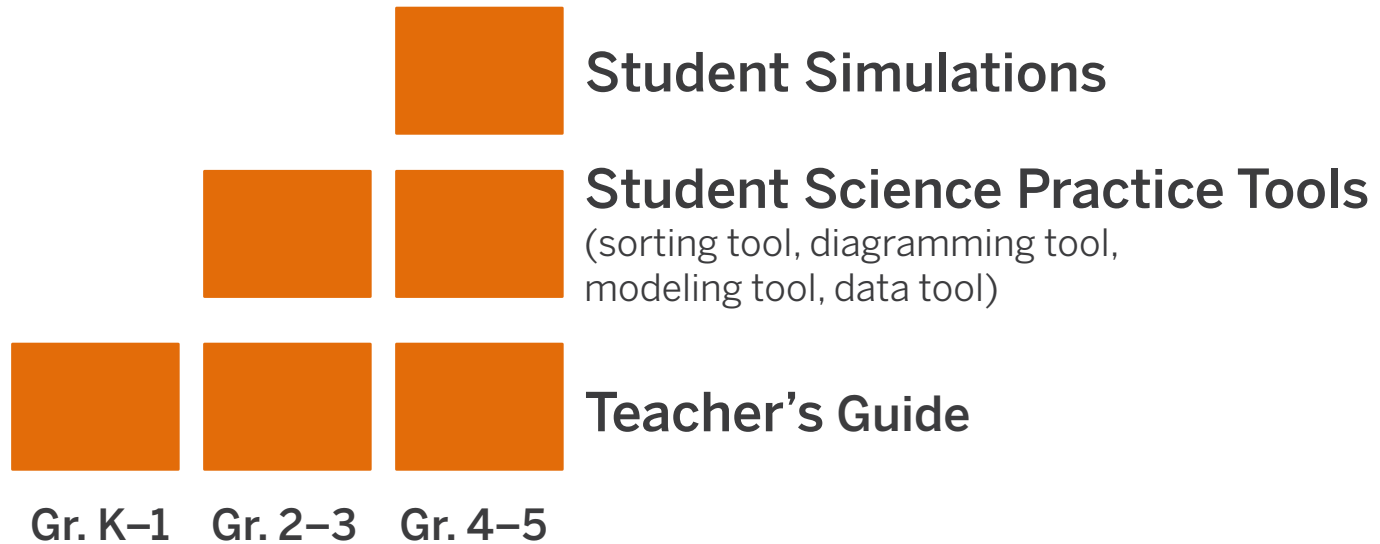


Hands-on
Flexextensions



New digital K–5
Student Books

What are the digital components of Amplify Science Elementary?



Teacher's Guide navigation




Unit




22 Lessons
Animal and Plant Defenses


Chapters




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

Lessons

Lesson 2.1:
Whose Lunch Is This?

Lesson 2.2:
Sharp Structures for Eating

...

Lesson 2.5:
Modeling Spikes

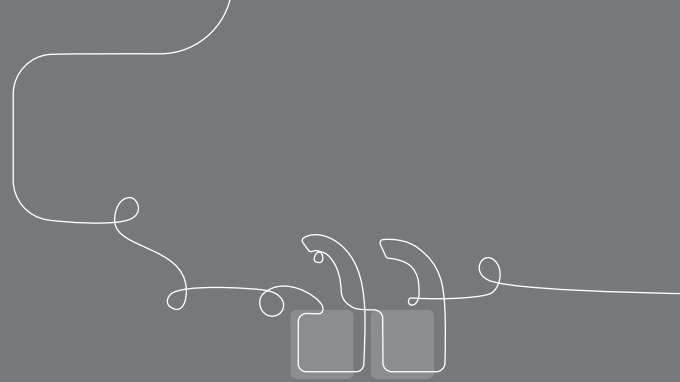
Lesson 2.6:
Modeling Camouflage

Lesson 2.7:
Explaining Defenses

Lesson 2.8:
Defending the Food Supply

Activities

1	WRITING Explaining a Defense in Spikes, Spines, and...	2	TEACHER-LED DISCUSSION Survival Role-Play Movement Routine	3	WRITING Explaining Spruce's Defenses	4	TEACHER-LED DISCUSSION Reflecting on Being a Scientist
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Questions?



Animal and Plant Defenses

Plan for the day – Day 1

- **Framing the day**

- What is Amplify Science?
- Navigating the Digital Guide

- **Experiencing the unit**

- Amplify Science approach
- NYSSLS anticipatory activity
- Instructional sequence with model lesson
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- **Closing**

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Experiencing the unit

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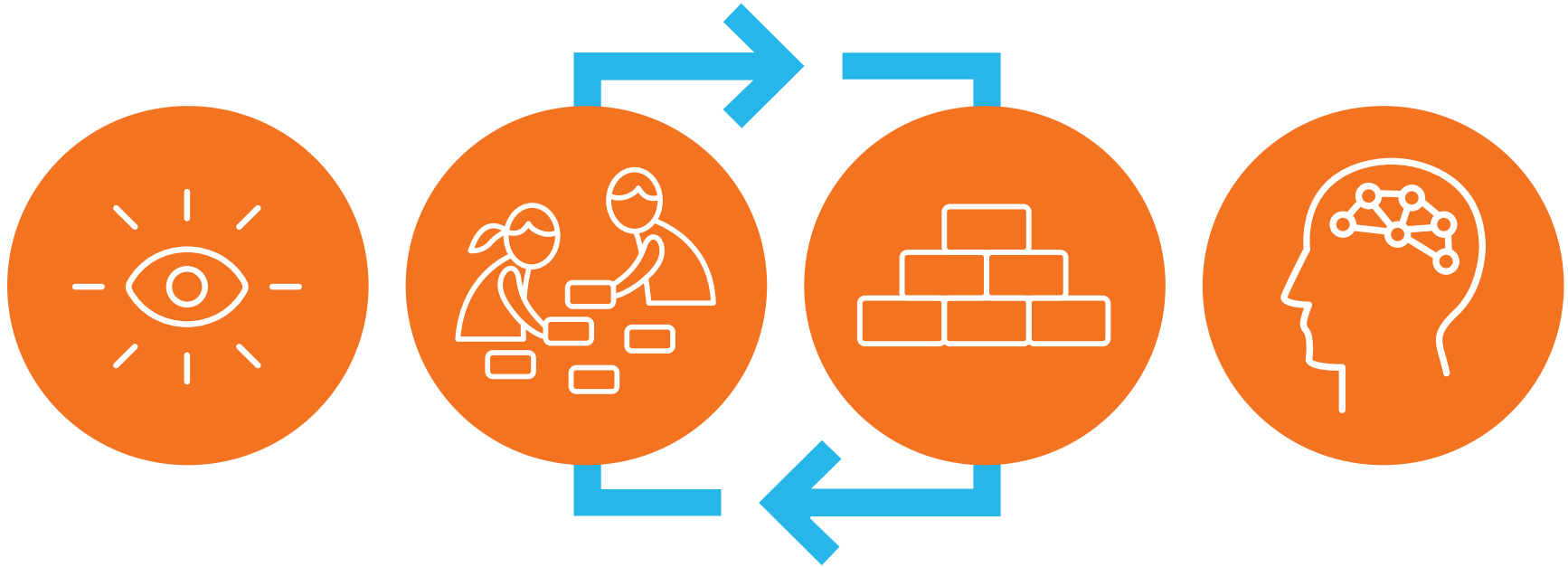
- Explain what students learn in the unit, and how they learn it.
- Recognize how lessons engage students in the three dimensions of NYSSLS (as appropriate).

Problem-based deep dives

Students inhabit the role of scientists and engineers to explain or predict phenomena. They use what they figure out to solve real-world problems.



Amplify Science approach



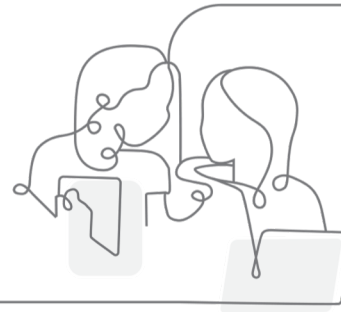
**Introduce a phenomenon
and a related problem**

**Collect evidence from
multiple sources**

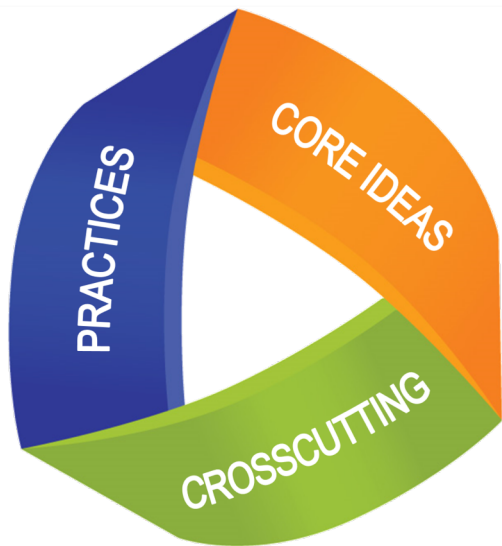
**Build increasingly
complex explanations**

**Apply knowledge
to a different context**

Figure out, not learn about



Three Dimensions of NGSS and NYSSLS



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



Animal and Plant Defenses

Instructional sequence

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

▼ JUMP DOWN TO CHAPTER OVERVIEW

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?

 [JUMP DOWN TO CHAPTER OVERVIEW](#)

Lesson 2.1:

Whose Lunch Is This?



Lesson 2.2:

Sharp Structures for Eating



Lesson 2.3:

Introducing Modeling



Lesson 2.4:

Modeling Shells and Armor



Lesson 2.5:

Modeling Spikes



Lesson 2.6:

Modeling Camouflage



Lesson 2.7:

Explaining Defenses




Lesson 2.8:

Defending the Food Supply



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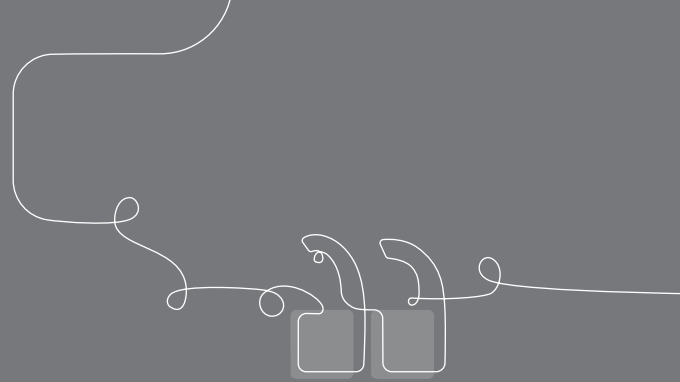
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Questions?



Animal and Plant Defenses

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- What is Amplify Science?
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- **Experiencing the unit**

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- NYSSLS anticipatory activity
- Instructional sequence with model lesson
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- **Closing**

- Amplify Science in NYC
- Reflection
- Questions

Self-reflection and closing

The purpose of this part of the day is for you to:

- Participants reflect on their ability to navigate the Teacher's Guide and their understanding of the Amplify Science Approach and how it supports three-dimensional learning.

New York State P-12 Science Standards Development, Adoption, and Implementation

Phase I
Raise Awareness & Build Capacity

Phase II
Transition & Implementation

Phase III
Implementation & Sustainability

Ongoing curriculum & professional development

Instruction aligned to NYS P12
Science Learning Standards begins...

...September 2019
for Grades P-3 and 6

...September 2020
for Grades 4 and 7

...September 2021
for Grades 5 and 8

September 2022
Continue Phase III transition toward full
implementation of the NYS 9-12 Science
Learning Standards at the local level

2016

2017

2018

2019-20

2021

2022-24

December 2016 adoption
of NYS P-12 Science
Learning Standards.

Standards Become
Effective July 1, 2017

March 2018
NYS P-12 Science
Roadmap
Released

June 2020
Last administration
of Grade 4 science
test aligned to the
1996 Standards

June 2021
No Grade 4 science test; these
students will take new science
test in grade 5 in 2022
Last administration of Grade 8
science test aligned to the 1996
Standards

June 2022
First administration
of new Elementary
Grade 5 and
Intermediate
Grade 8 science
tests

June 2023
First
administration
Biology, and Earth
and Space Science
Regents Exams

June 2024
First administration
Chemistry and
Physics Regents
Exams

State Level Science Assessment Development & Implementation

Elementary school course curriculum structure

Grade K

- Needs of Plants and Animals
- Pushes and Pulls
- Sunlight and Weather

Grade 1

- Animal and Plant Defenses
- Light and Sound
- Spinning Earth

Grade 2

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- Properties of Materials
- Changing Landforms

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Grade 5

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- Modeling Matter
- The Earth System
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AmplifyScience

authored by



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Middle school course curriculum structure

Middle School Curriculum New York City Edition

Grade 6

- Launch:
Harnessing Human Energy
- Thermal Energy
- Populations and Resources
- Matter and Energy in Ecosystems
- Weather Patterns
- Ocean, Atmosphere, and Climate
- Earth's Changing Climate

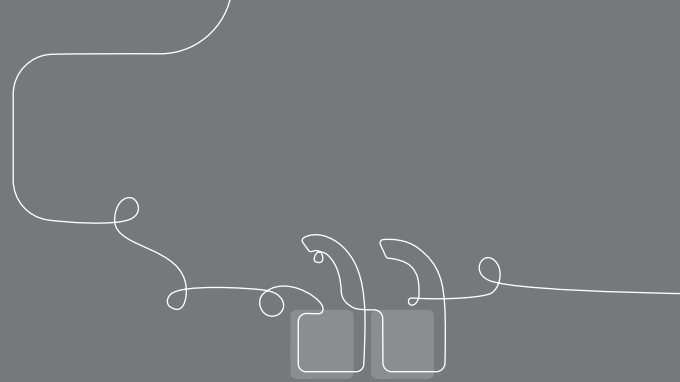
Grade 7

- Launch:
Microbiome
- Metabolism
- Phase Change
- Chemical Reactions
- Plate Motion
- Engineering Internship:
Plate Motion
- Rock Transformations
- Engineering Internship:
Earth's Changing Climate

Grade 8

- Launch:
Geology on Mars
- Earth, Moon, and Sun
- Force and Motion
- Engineering Internship:
Force and Motion
- Magnetic Fields
- Light Waves
- Traits and Reproduction
- Natural Selection
- Evolutionary History





Questions?

Day 1 Objectives

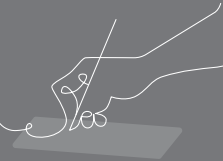
By the end of today, you will be able to:

- Explain what students learn in the unit, and how they learn it.
- Navigate the Amplify Science Curriculum.
- Recognize how lessons engage students in the three dimensions of NYSSLS/NGSS (as appropriate).
- Articulate how lesson activities support students with building complex explanations.

Overarching goals

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

- Navigate program resources and describe how Amplify Science addresses 3-D learning and NYSSLS/NGSS.
- Use Animal and Plant Defenses unit resources to plan lessons that support ALL learners.



Amplify Science

New York City Department of Education

Grade 1: Animal and Plant Defenses

Summer Institute: Day 2

Date

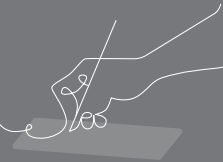
Presented by Your Name



Overarching goals

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

- Navigate program resources and describe how Amplify Science addresses 3-D learning and NYSSLS/NGSS.
- Use Animal and Plant Defenses unit resources to plan lessons that support ALL learners.



Day 1 Objectives

After yesterday, you should be able to:

- Explain what students learn in the unit, and how they learn it.
- Navigate the Amplify Science Curriculum.
- Recognize how lessons engage students in the three dimensions of NYSSLS/NGSS (as appropriate).
- Articulate how lesson activities support students with building complex explanations.

Supporting all learners

Day 2



Day 2 Objectives

By the end of today, you will be able to:

- Understand strategies and resources for supporting ALL learners. Articulate how lesson activities support ALL students in building complex explanations.
- Identify the multiple types of assessments embedded within the Amplify Science curriculum.
- Apply program resources to plan to teach.

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.



Animal and Plant Defenses

Plan for the day – Day 2

- **Opening the day**

- Culture building

- **Story of the unit**

- Unit Guide navigation
- Build of conceptual understanding using Unit Guide resources
- Progress Build
- Coherence

- **Embedded supports for all learners**

- Analyzing 3-D learning
- Assessment System
- Formative assessment

- **Considerations for an Amplify Science classroom**

- **Closing and reflection**

- Reflection
- Survey



Animal and Plant Defenses

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Story of the unit

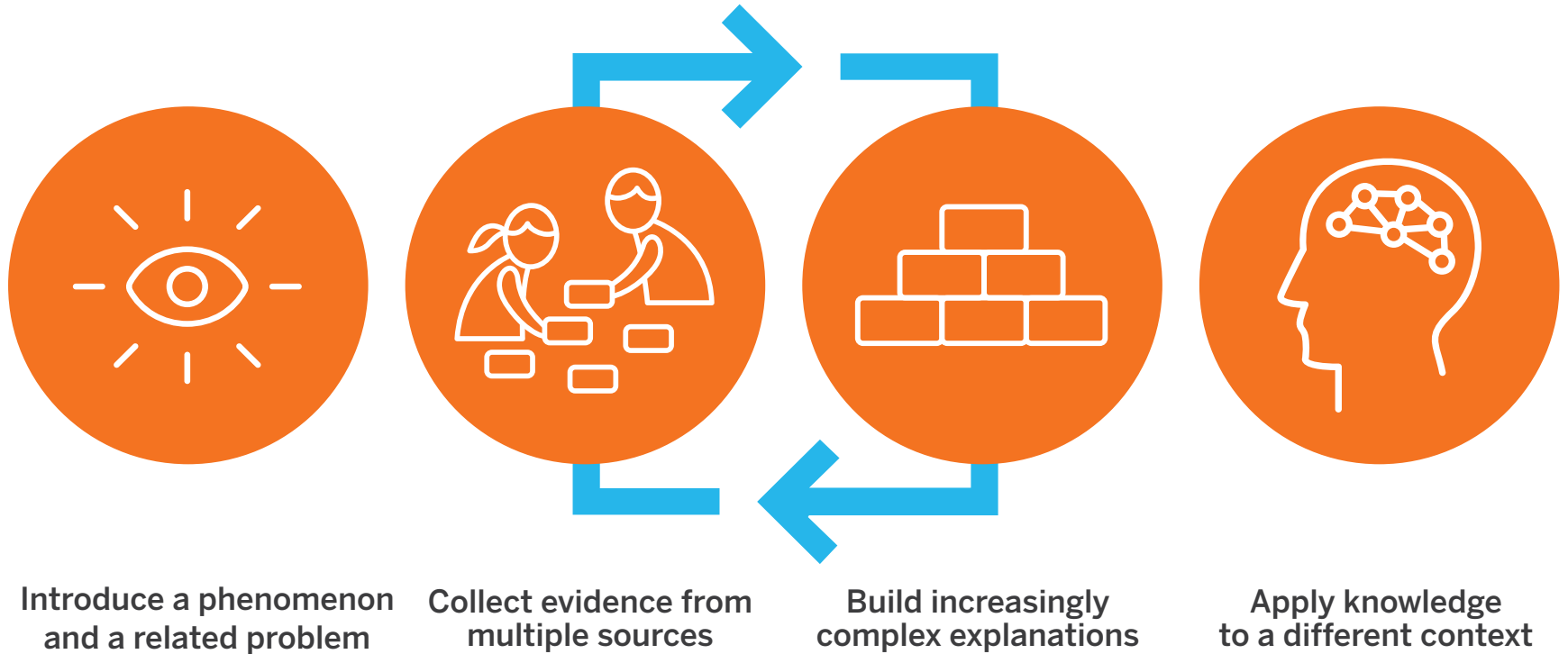
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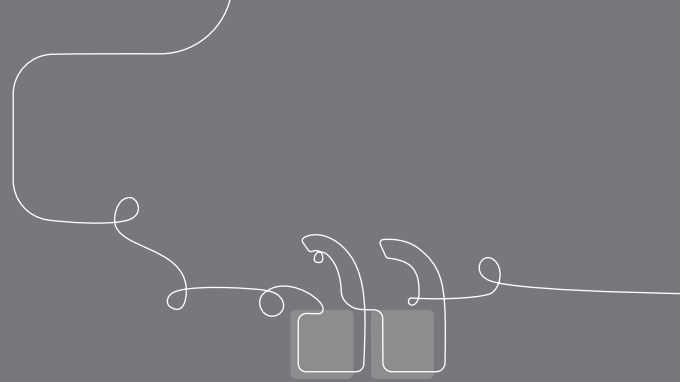
- Navigate the Amplify Science Curriculum.
- Articulate how lesson activities support students with building complex explanations.

Progress Build: A unit-specific learning progression



Amplify Science approach





Questions?

Coherence Flowchart



Coherence

from knowing a
list of ideas



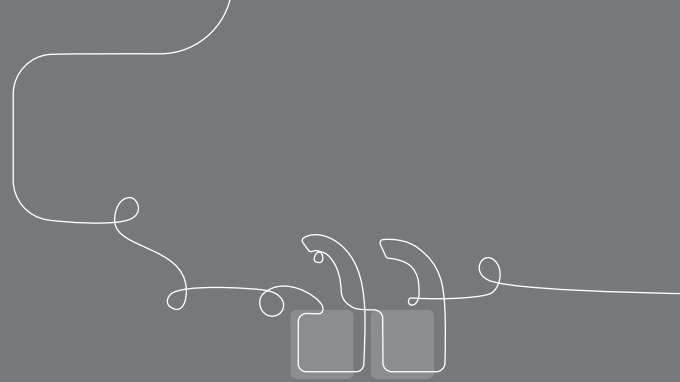
to knowing how
ideas fit together

Coherence

definitional
knowledge

versus

a rich network of
concepts that
builds over time



Questions?



Animal and Plant Defenses

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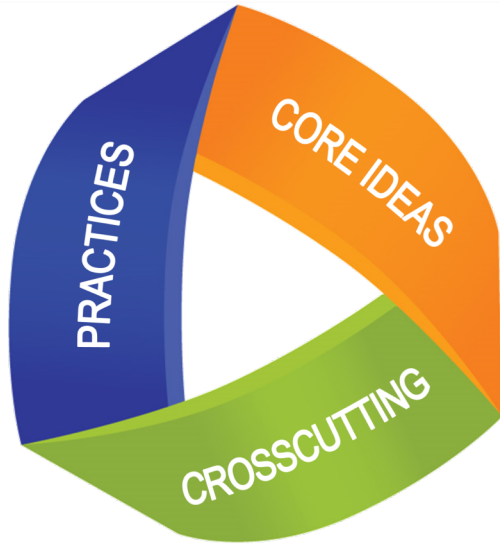
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Embedded supports for ALL learners

The purpose of this part of the day is for you to

- Understand strategies to support all learners.
- Articulate how lesson activities support ALL students with building complex explanations.
- Identify the multiple types of assessments embedded within the Amplify Science curriculum.

Turn and talk: Thinking three dimensionally



Disciplinary Core Ideas
Science and Engineering Practices
Crosscutting Concepts

Animal and Plant Defenses

▼ JUMP DOWN TO UNIT GUIDE



GENERATE PRINTABLE TEACHER'S GUIDE



From unit landing page, select "JUMP DOWN TO UNIT GUIDE" to access unit-level resources



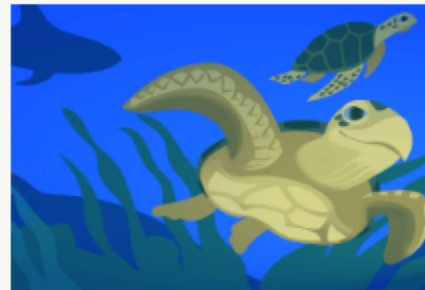
Chapter 1: How does Spruce the Sea Turtle do what she needs to do to survive?

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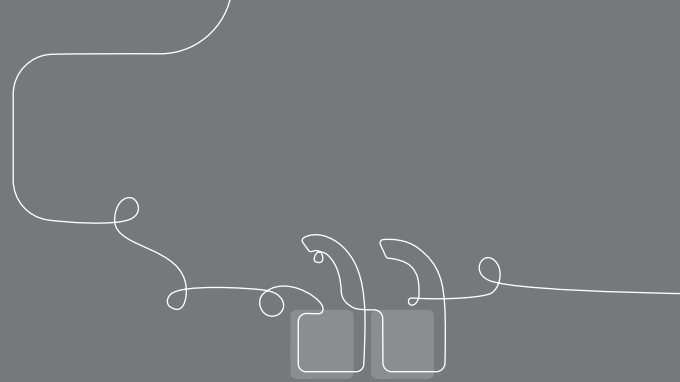
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8 Lessons



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

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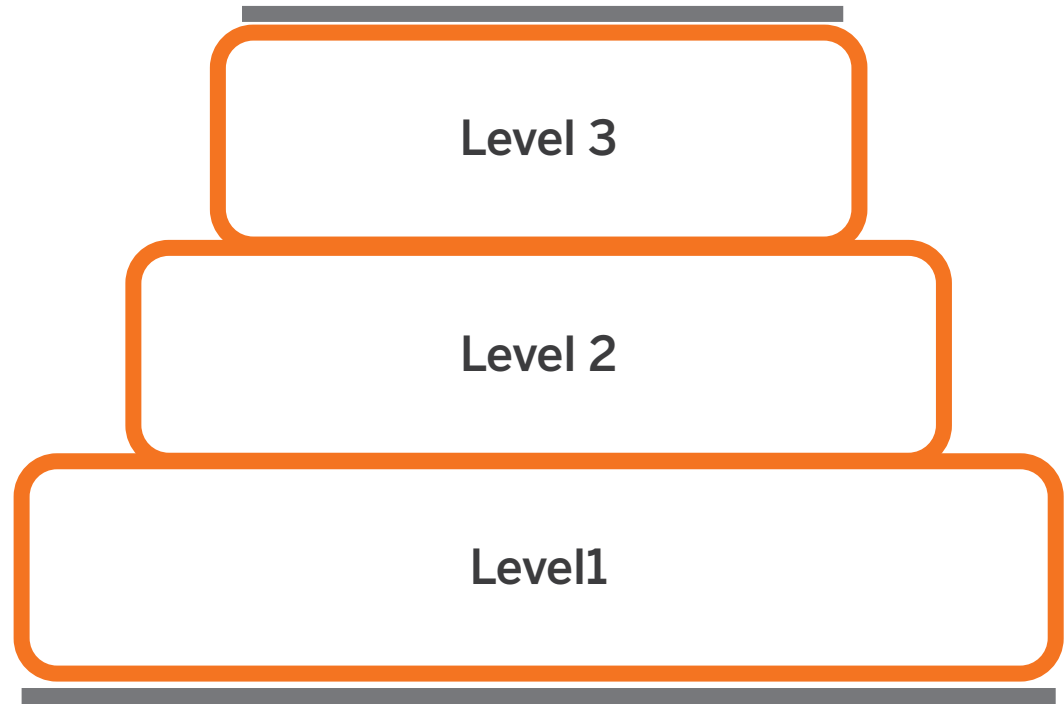
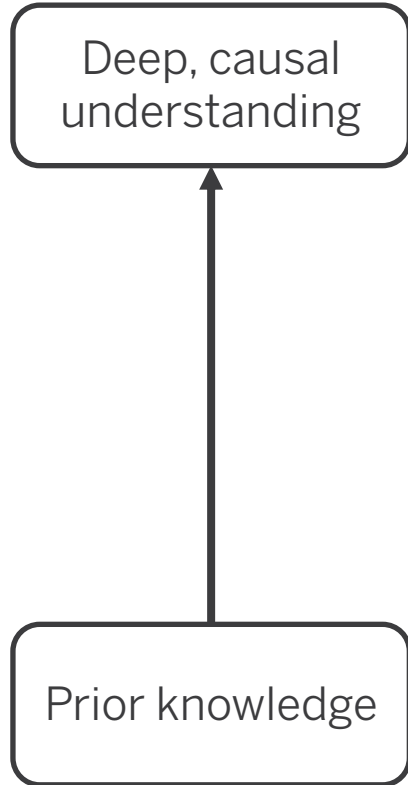


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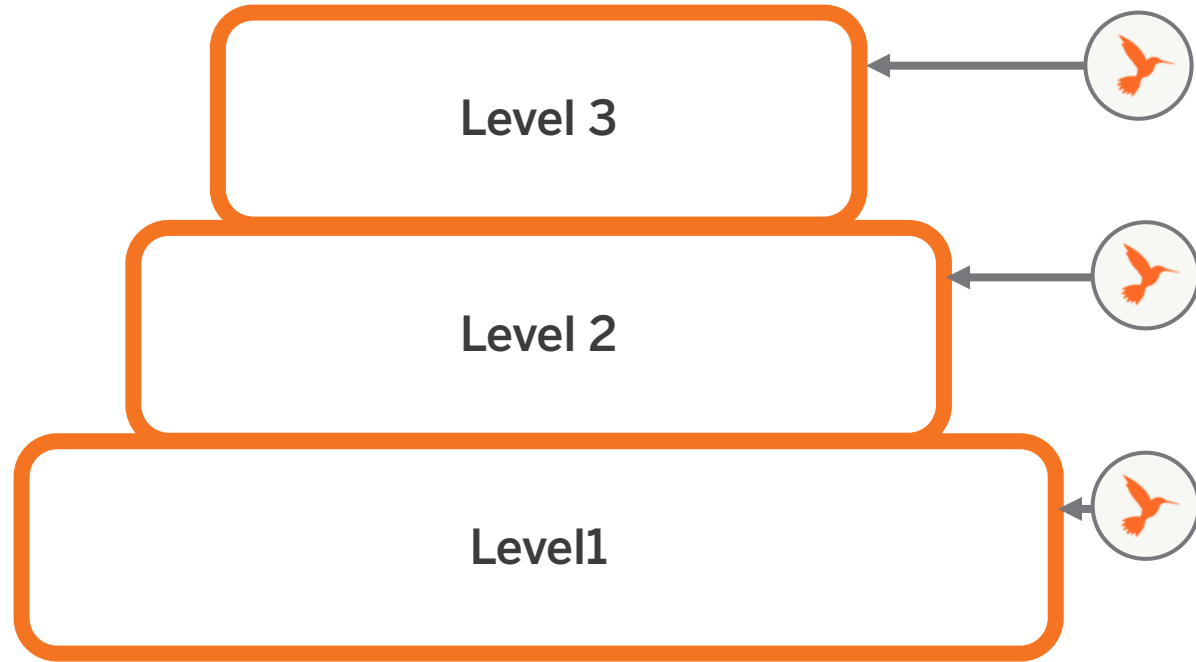
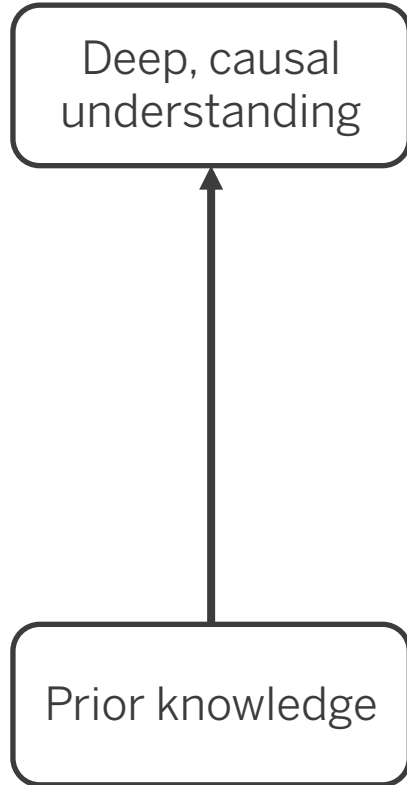
Amplify Science Assessment System



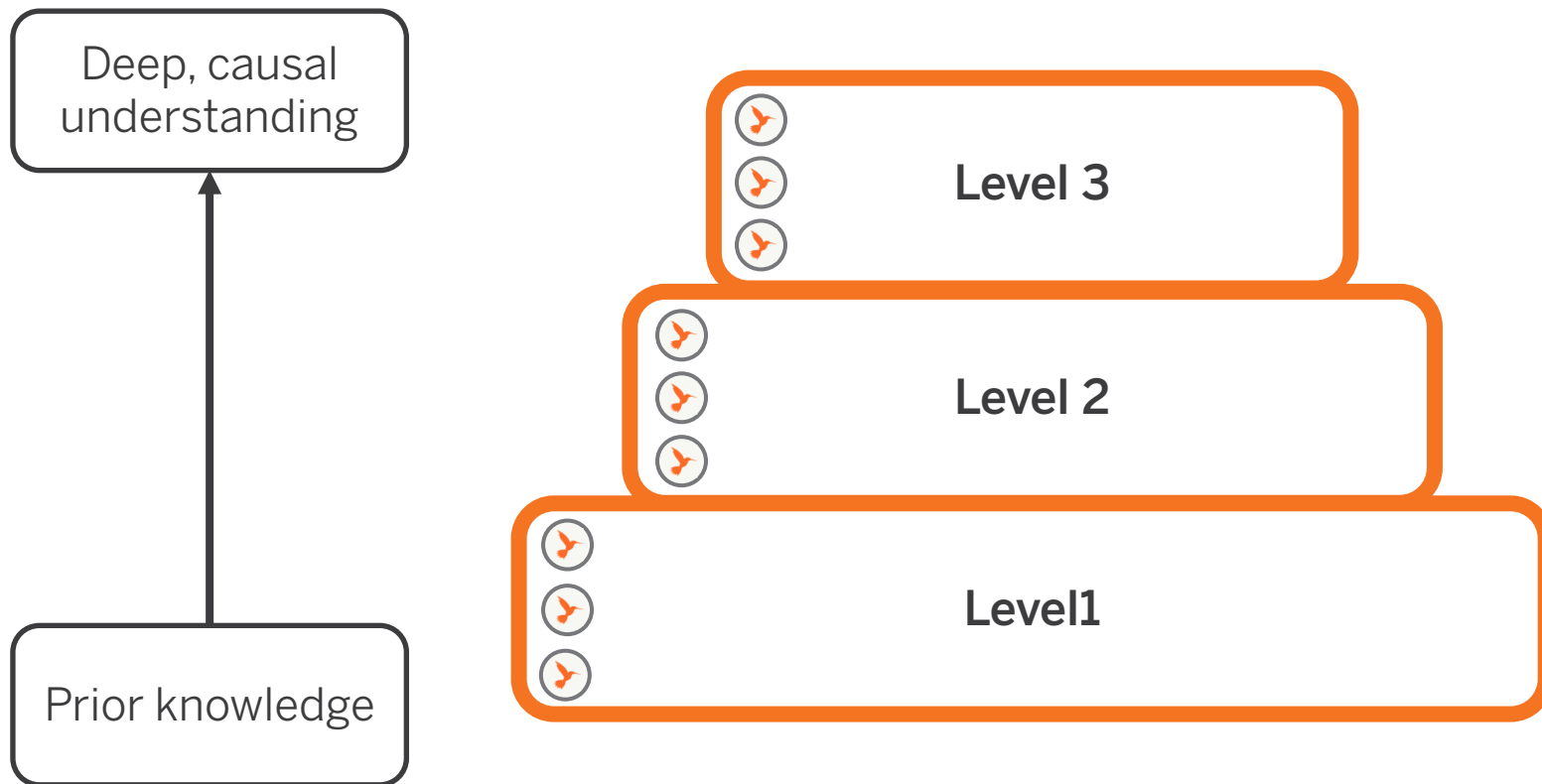
Pre- and End-of-Unit Assessments



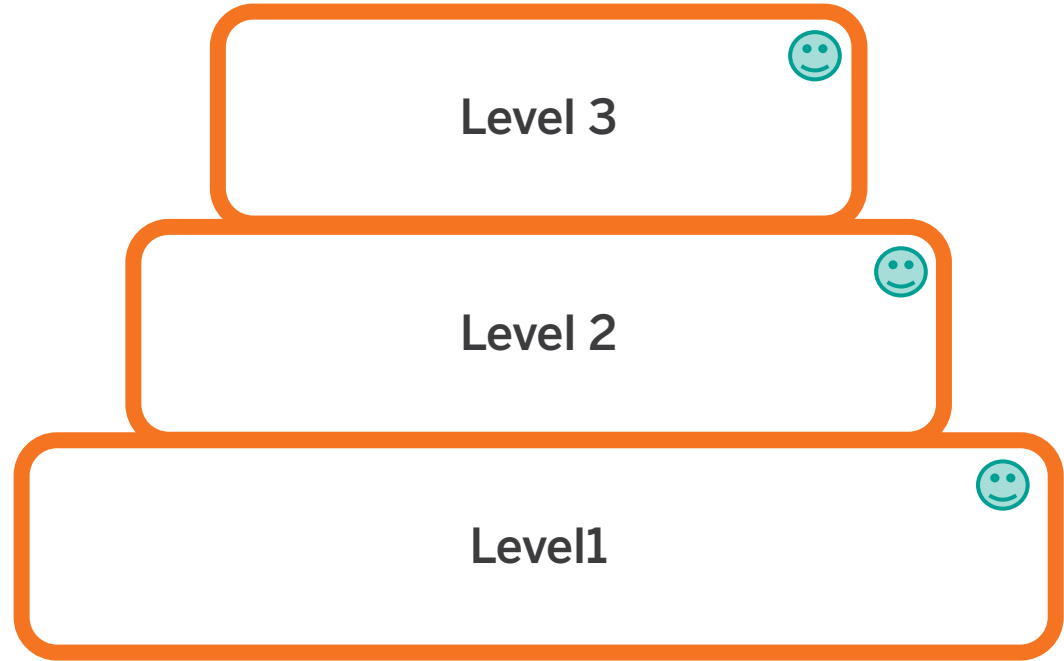
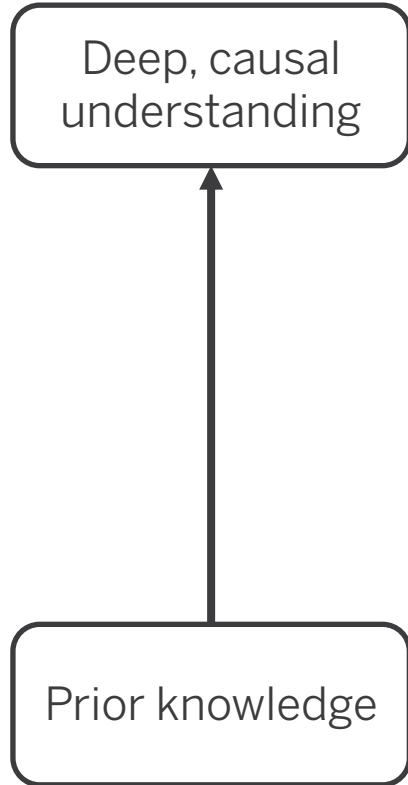
Critical Juncture Assessments



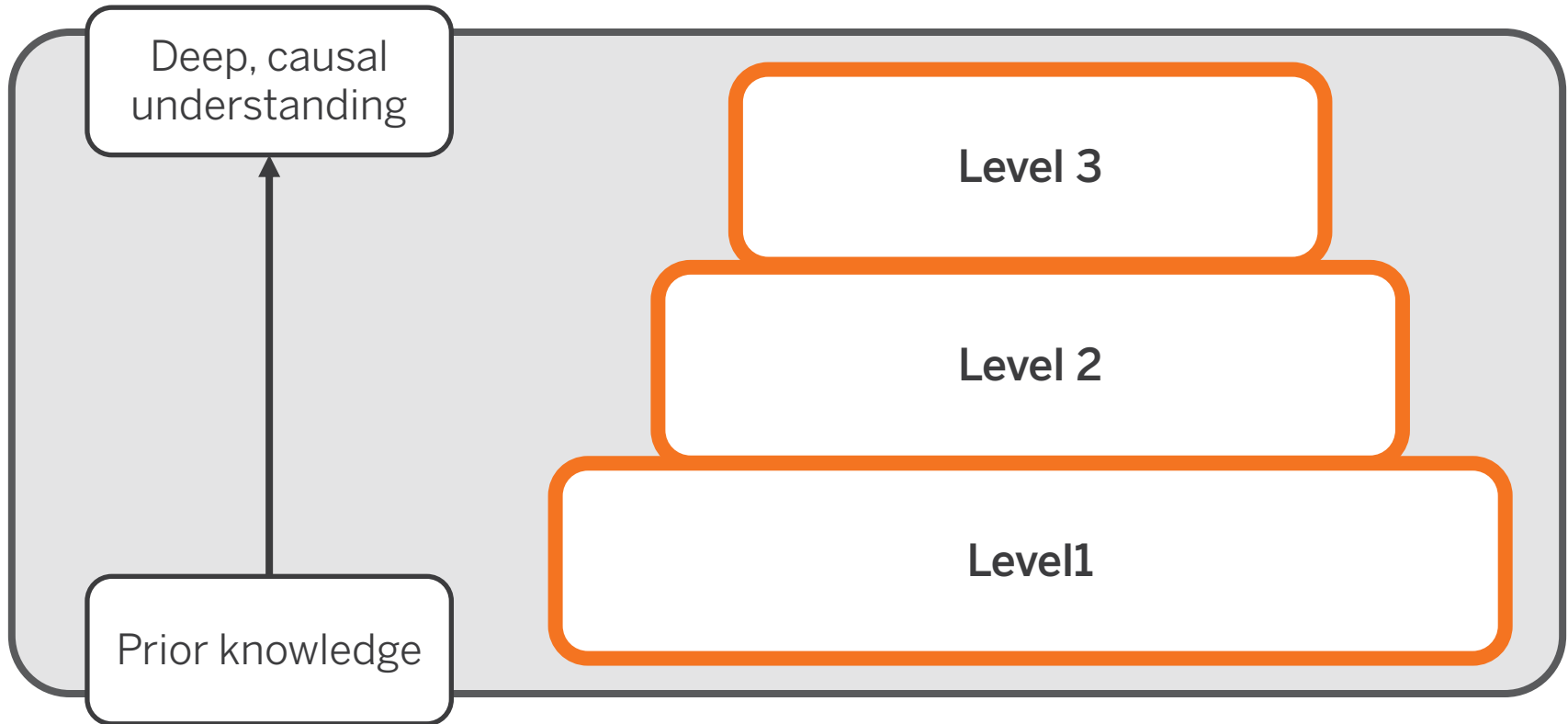
On-the-Fly Assessments



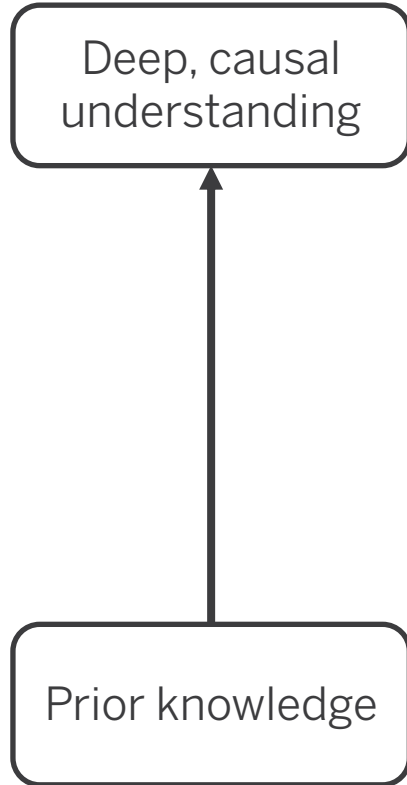
Student Self-Assessments



Portfolio Assessment



Investigation Assessment



Animal and Plant Defenses

☑ JUMP DOWN TO UNIT GUIDE



GENERATE PRINTABLE TEACHER'S GUIDE



From unit landing page, select "JUMP DOWN TO UNIT GUIDE" to access unit-level resources



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8 Lessons



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

5 Lessons

Amplify Assessment System

- Credible
- Actionable
- Timely



Formative assessment



Animal and Plant Defenses

▼ JUMP DOWN TO UNIT GUIDE



GENERATE PRINTABLE TEACHER'S GUIDE



From unit landing page, select "JUMP DOWN TO UNIT GUIDE" to access unit-level resources



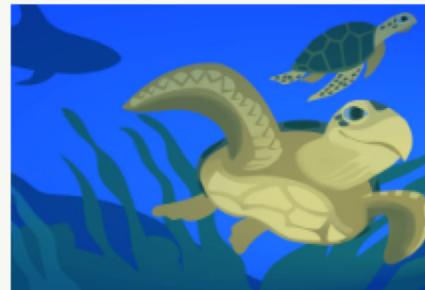
Chapter 1: How does Spruce the Sea Turtle do what she needs to do to survive?

5 Lessons



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

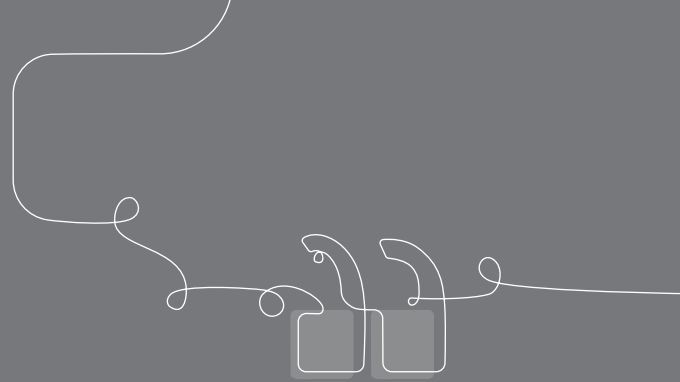
8 Lessons



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

5 Lessons

Questions?





Animal and Plant Defenses

Plan for the day – Day 2

- **Opening the day**

- Culture building

- **Story of the unit**

- Unit Guide navigation
- Build of conceptual understanding using Unit Guide resources
- Progress Build
- Coherence

- **Embedded supports for all learners**

- Analyzing 3-D learning
- Assessment System
- Formative assessment

- **Considerations for an Amplify Science classroom**

- **Closing and reflection**

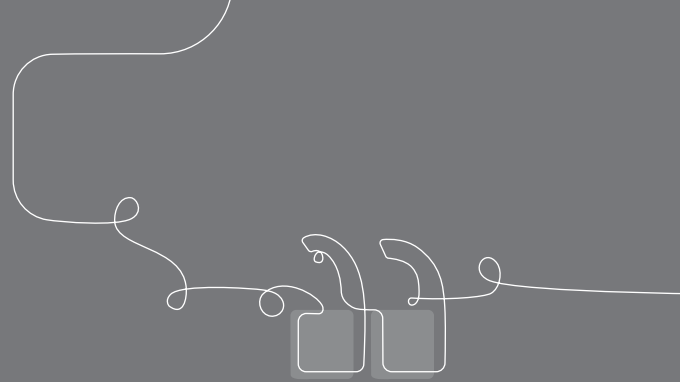
- Reflection
- Survey

Considerations for an Amplify Science classroom

The purpose of this part of the day is for you to:

- Apply program resources to plan to teach.

Questions?





Animal and Plant Defenses

Plan for the day – Day 2

- **Opening the day**

- Culture building

- **Story of the unit**

- Unit Guide navigation
- Build of conceptual understanding using Unit Guide resources
- Progress Build
- Coherence

- **Embedded supports for all learners**

- Analyzing 3-D learning
- Assessment System
- Formative assessment

- **Considerations for an Amplify Science classroom**

- **Closing and reflection**

- Reflection
- Survey

Closing and reflection

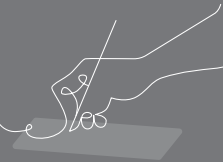
The purpose of this part of the day is for you to:

- Reflect on the learning for the day.

Overarching goals

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

- Navigate program resources and describe how Amplify Science addresses 3-D learning and NYSSLS/NGSS.
- Use Animal and Plant Defenses unit resources to plan lessons that support ALL learners.



Questions?

