Amplify Science

New York City Department of Education

Grade 2: Plant and Animal Relationships

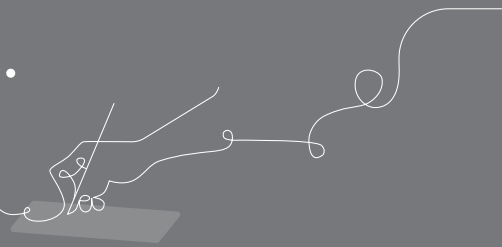
Summer Institute: Day 1

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 Plant and Animal Relationships 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.

Plant and Animal Relationships

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

Plant and Animal Relationships

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Framing the day

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

- Navigate the Amplify Science curriculum

THE LAWRENCE HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

+ Amplify.

AmplifyScience

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

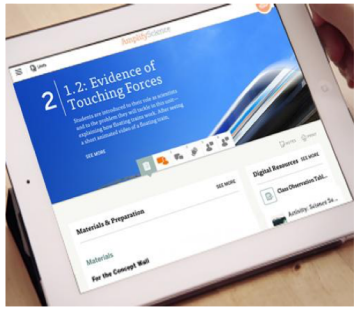
Grade 5

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

AmplifyScience

authored by THE LAWRENCE HALL OF SCIENCE UNIVERSITY OF CALIFORNIA, BERKELEY

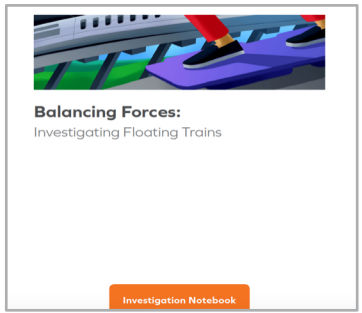
Elementary school components



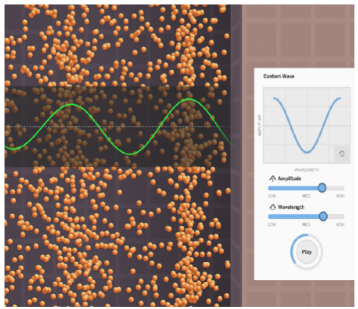
Digital Teacher's Guide

Hands-on materials

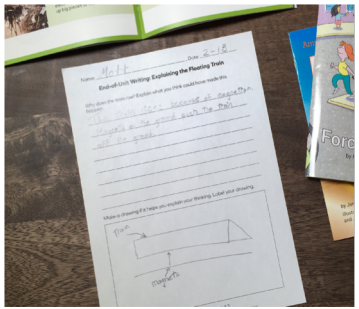
Student books



Investigation Notebooks



Digital applications (grades 2-5)



Assessments

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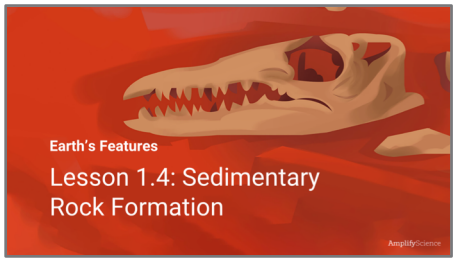
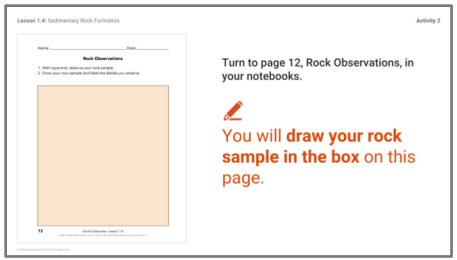
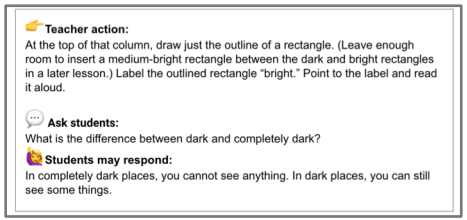
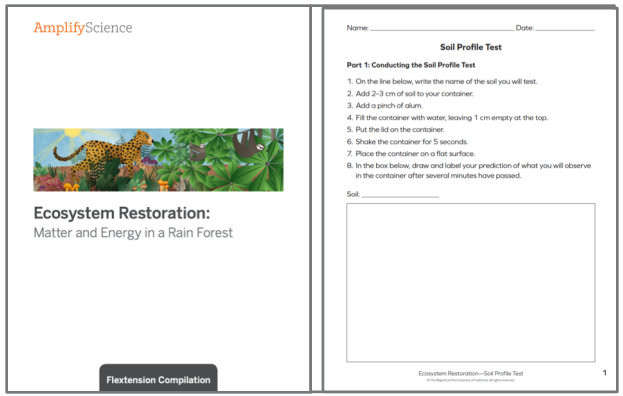
Amplify Science: What's new for 2019-2020



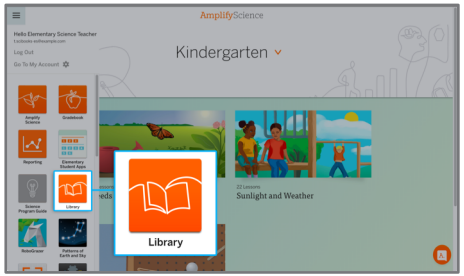




Classroom Slides



Hands-on Flextensions



New digital K–5 Student Books

Amplify.

What are the digital components of Amplify Science Elementary?

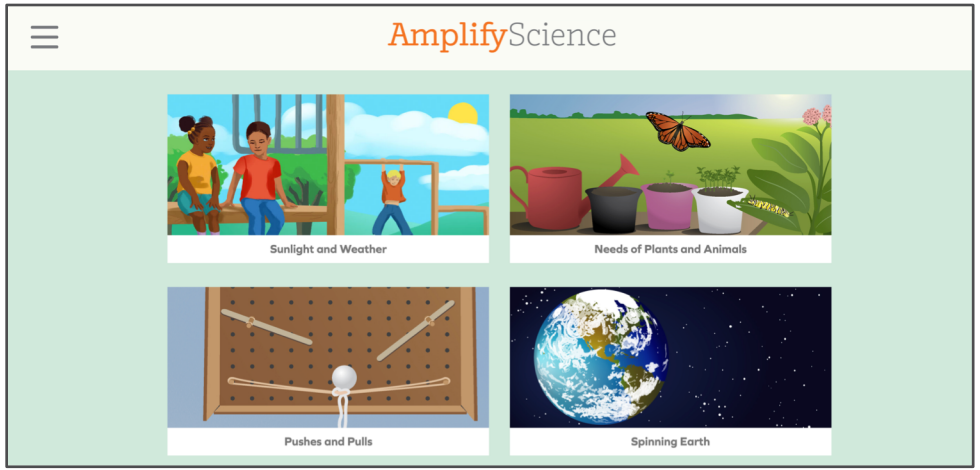
Student Simulations

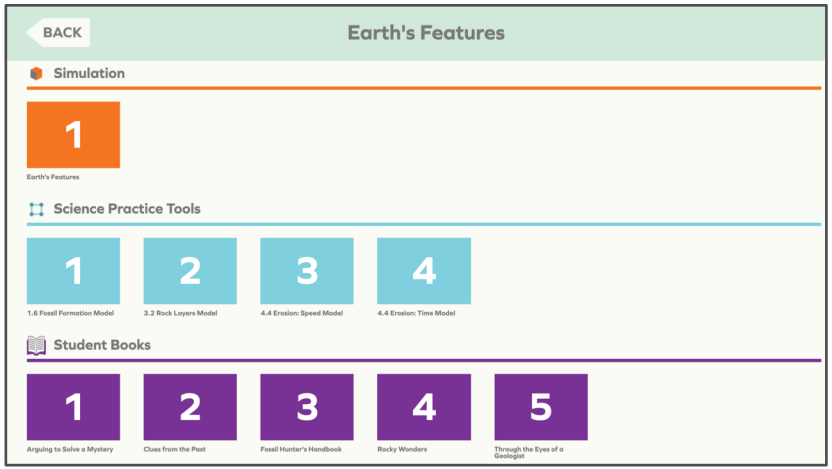
Student Science Practice Tools
(sorting tool, diagramming tool, modeling tool, data tool)

Teacher's Guide

Students apps page

Elementary digital experience for students grades 2-5 is through the student apps page:
apps.learning.amplify.com/elementary





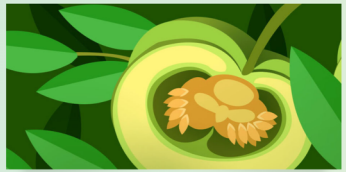
Teacher’s Guide navigation

Unit

Chapters

Lessons

Activities



22 Lessons

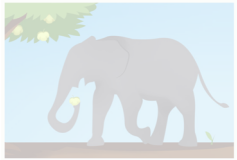
Plant and Animal Relationships

Chapter 1: Why aren't new chalta trees growing in the Bengal Tiger...

7 Lessons

Chapter 2: Why aren't the chalta seeds getting what they need to grow?

5 Lessons



Chapter 3: Why aren't the chalta seeds getting to places where they...

6 Lessons

Chapter 4: How are other seeds in the reserve able to get to places where they...

4 Lessons

Lesson 2.1:
Exploring Plant Parts

Lesson 2.2:
A Plant Is a System

Lesson 2.3:
2.3 Investigating How Roots and Leaves Grow

Lesson 2.4:
2.4 Finding a Good Place to Grow

Lesson 2.5:
Why Aren't New Chalta Trees Growing?

1 TEACHER-LED DISCUSSION
Revisiting the Bengal Tigers Reserve

2 MODELING TOOL
A Good Place to Grow in the Everglades

3 WRITING
Writing a Scientific Explanation

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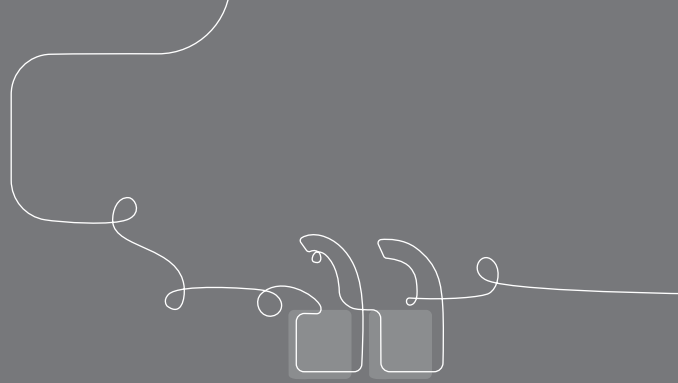

Questions?

Plant and Animal Relationships

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Experiencing the unit

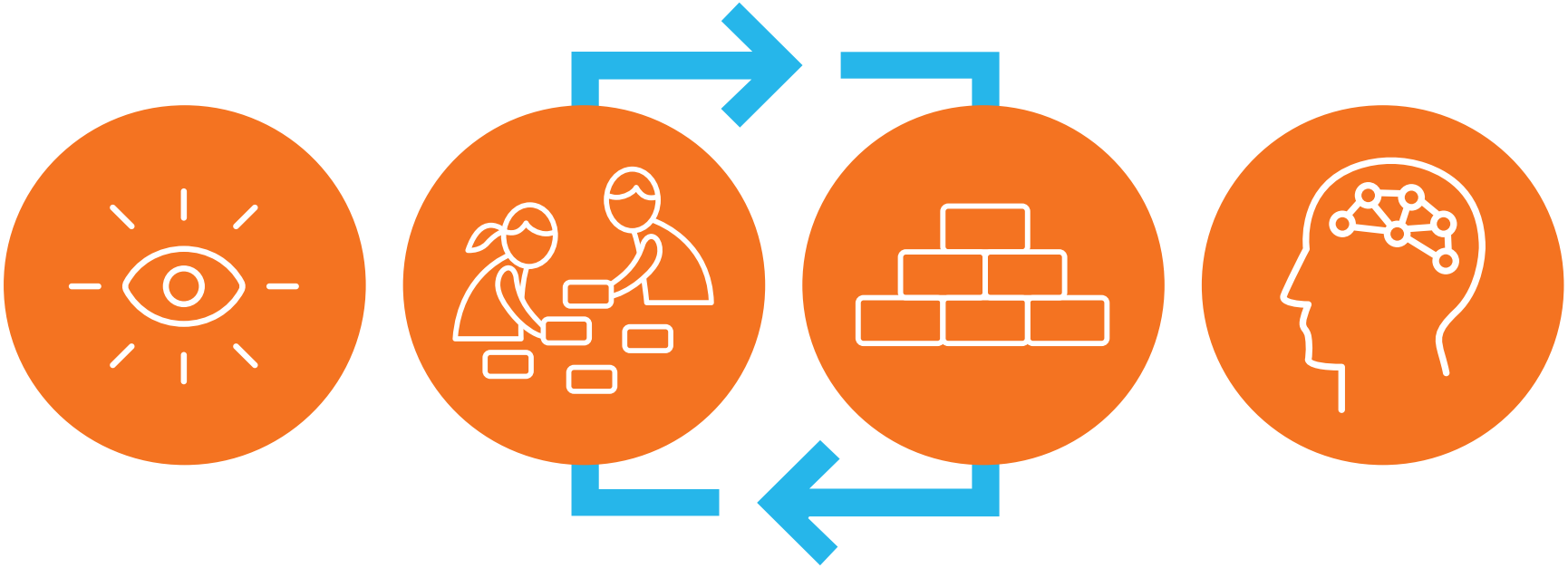
The purpose of this part of the day is for you to

- 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



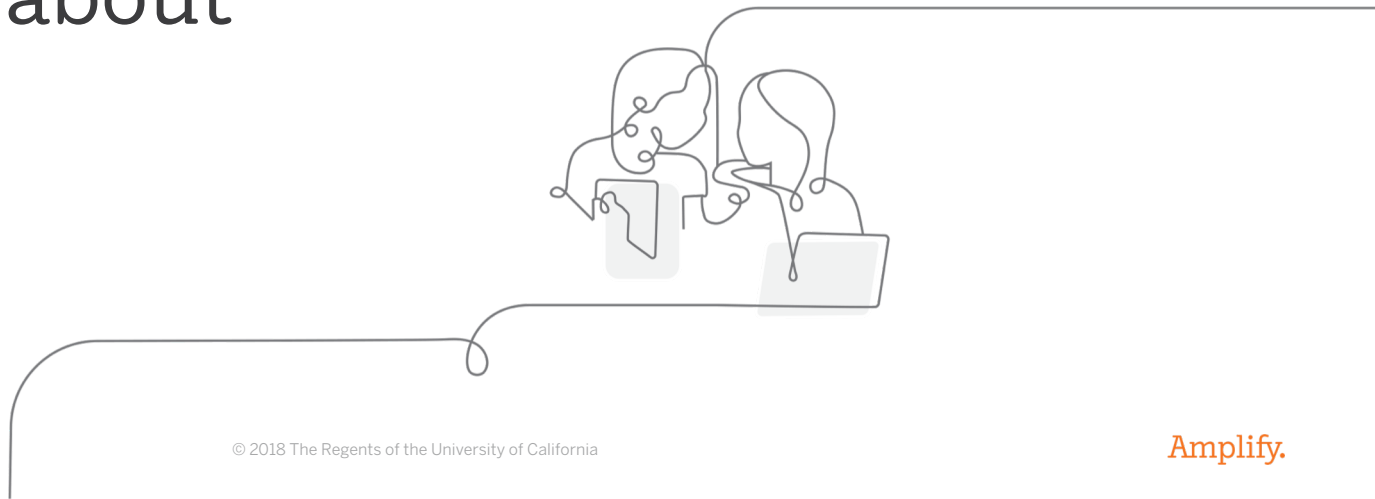
Introduce a phenomenon and a related problem

Collect evidence from multiple sources

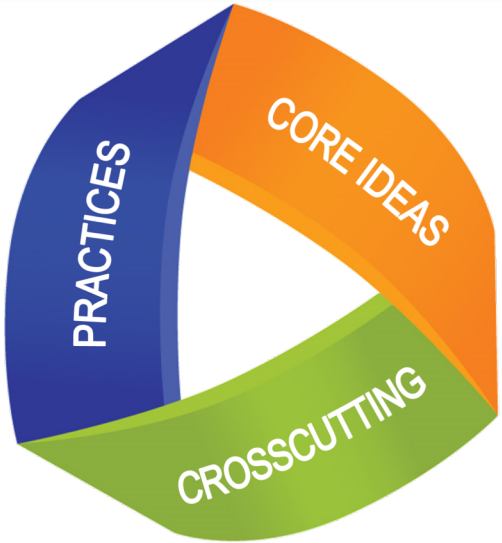
Build increasingly complex explanations

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**

Plant and Animal Relationships

Instructional sequence

Chapter 1: Why aren't new chalta trees growing in the Bengal Tiger Reserve?

JUMP DOWN TO CHAPTER OVERVIEW

Lesson 1.1:
Pre-Unit Assessment

Lesson 1.2:
My Nature Notebook

Lesson 1.3:
Investigating Habitats

Lesson 1.4:
Discovering the Problem in the Reserve

Lesson 1.5:
What Are Seeds?

Lesson 1.6:
Investigating Seed Needs

Lesson 1.7:
Explaining Why There Are No New Chalta Trees

Chapter 2: Why aren't the chalta seeds getting what they need to grow?

JUMP DOWN TO CHAPTER OVERVIEW

Lesson 2.1:
Exploring Plant Parts

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Three dimensions

Three dimensions of NYSSLS reference

3-D learning engages students in using scientific and engineering practices and applying crosscutting concepts as tools to develop understanding of and solve challenging problems related to disciplinary core ideas.

Science and Engineering Practices

1. **Asking Questions and Defining Problems**
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 and Designing Solutions**
7. **Engaging in Argument from Evidence**
8. **Obtaining, Evaluating, and Communicating Information**

Disciplinary Core Ideas

Earth and Space Sciences:
ESS1: Earth's Place in the Universe
ESS2: Earth's Systems
ESS3: Earth and Human Activity

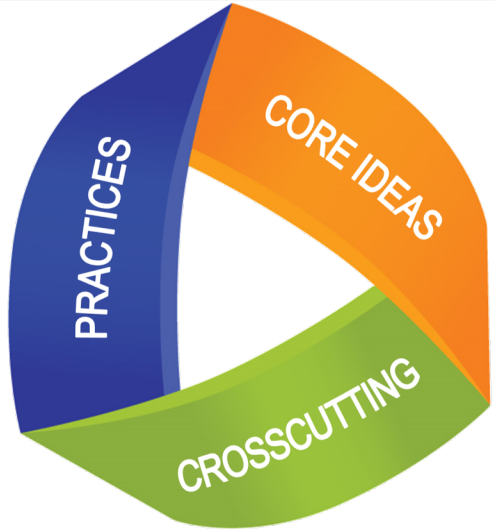
Life Sciences:
LS1: From Molecules to Organisms
LS2: Ecosystems
LS3: Heredity
LS4: Biological Evolution

Physical Sciences:
PS1: Matter and its Interactions
PS2: Motion and Stability
PS3: Energy
PS4: Waves and their Applications

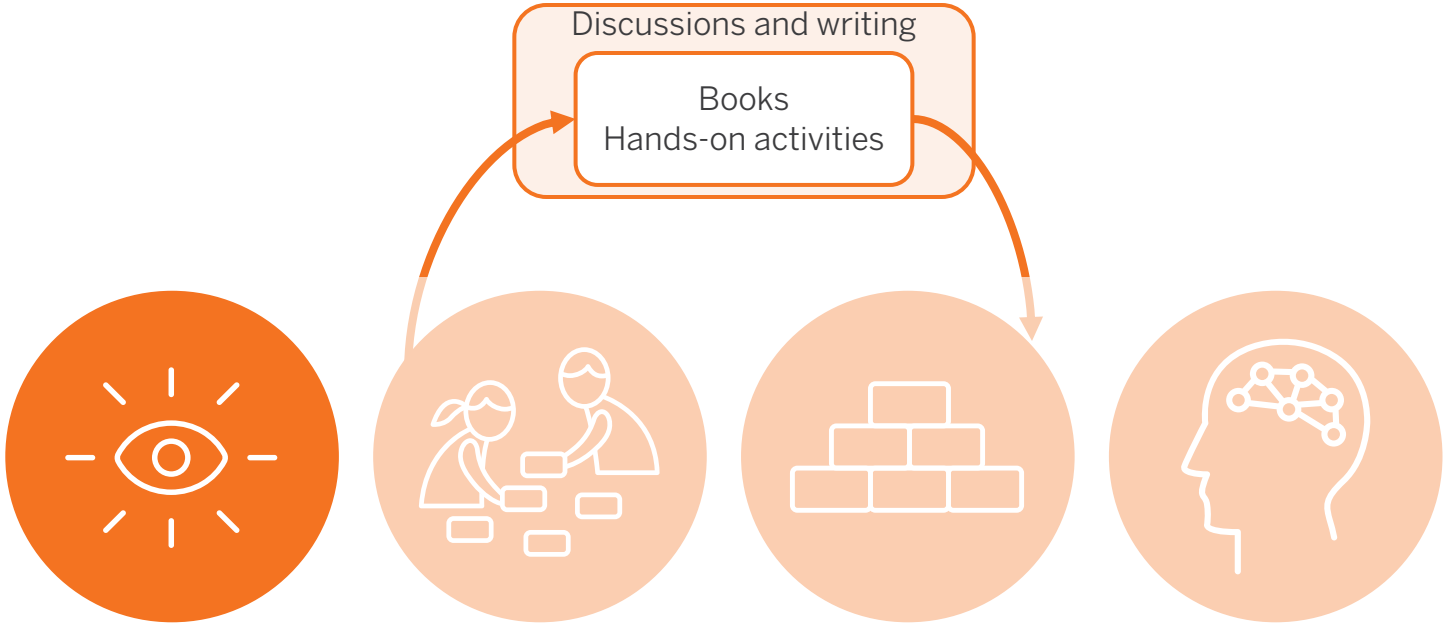
Engineering, Technology and the Applications of Science:
ETS1: Engineering Design
ETS2: Links among Engineering Technology, Science and Society

Crosscutting Concepts

1. **Patterns**
2. **Cause and Effect**
3. **Scale, Proportion, and Quantity**
4. **Systems and System Models**
5. **Energy and Matter**
6. **Structure and Function**
7. **Stability and Change**

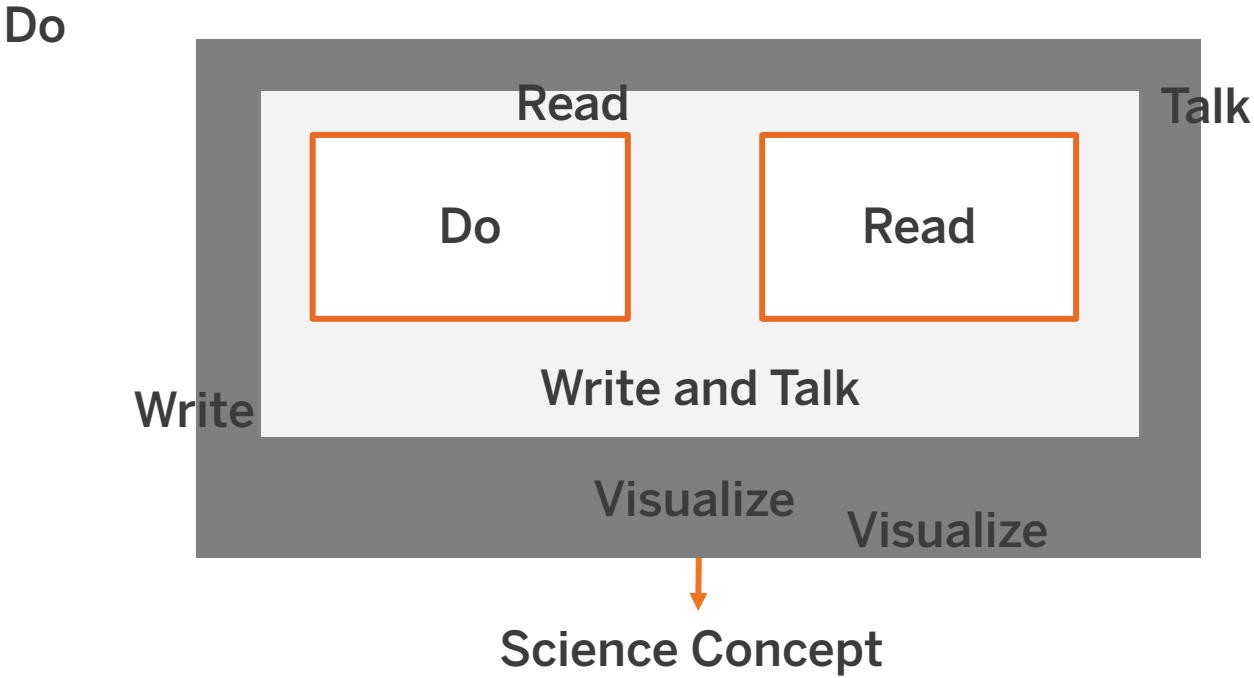


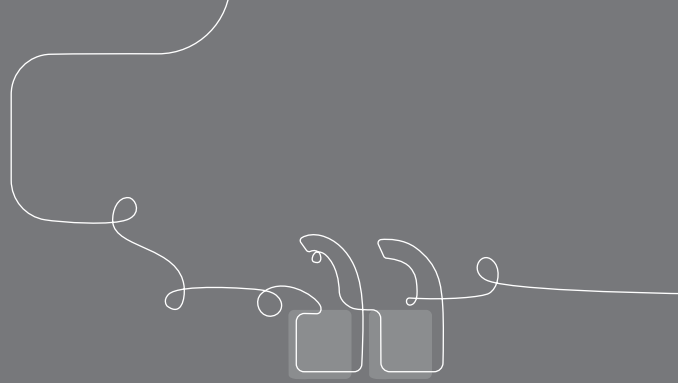
Amplify Science approach



Multimodal instruction

Do, Talk, Read, Write, Visualize





Questions?

Plant and Animal Relationships

Plan for the day – Day 1

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  - Amplify Science in NYC
  - Reflection
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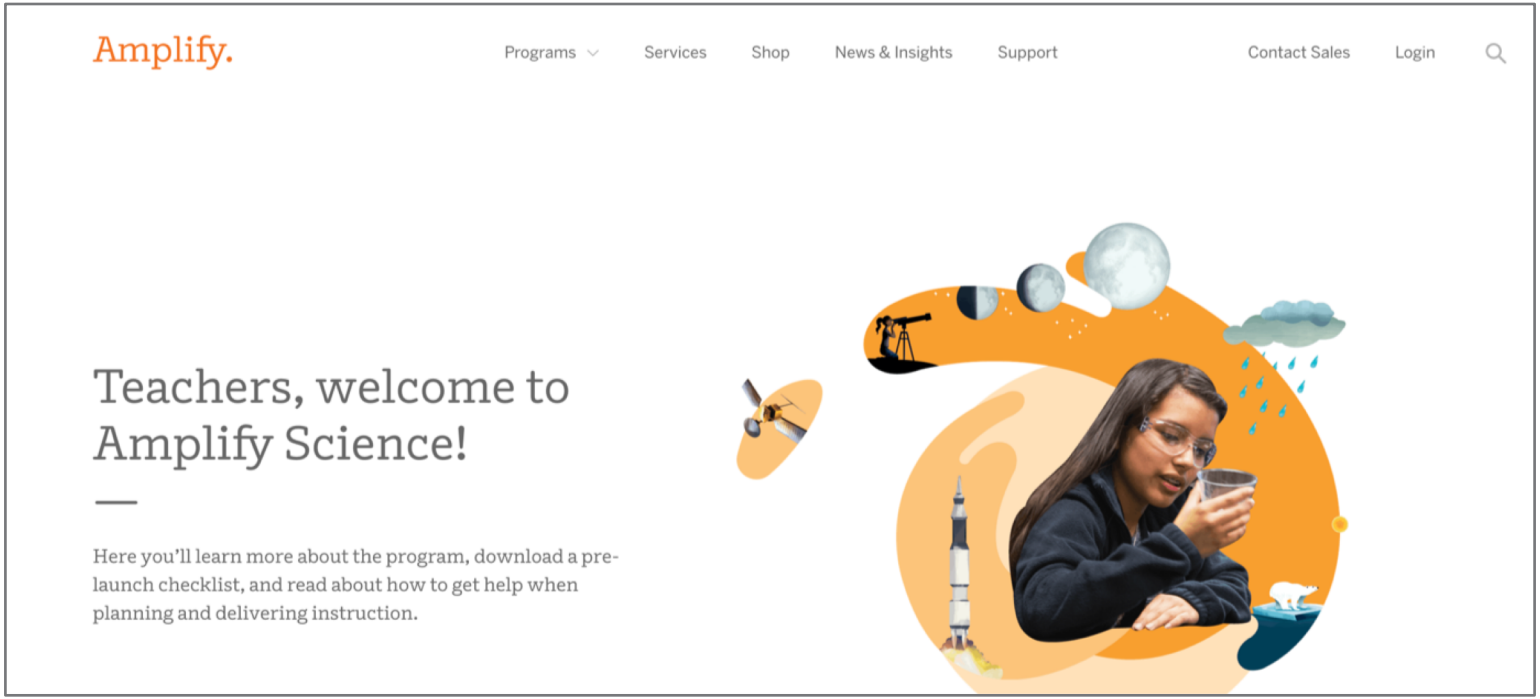
Self-reflection and closing

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

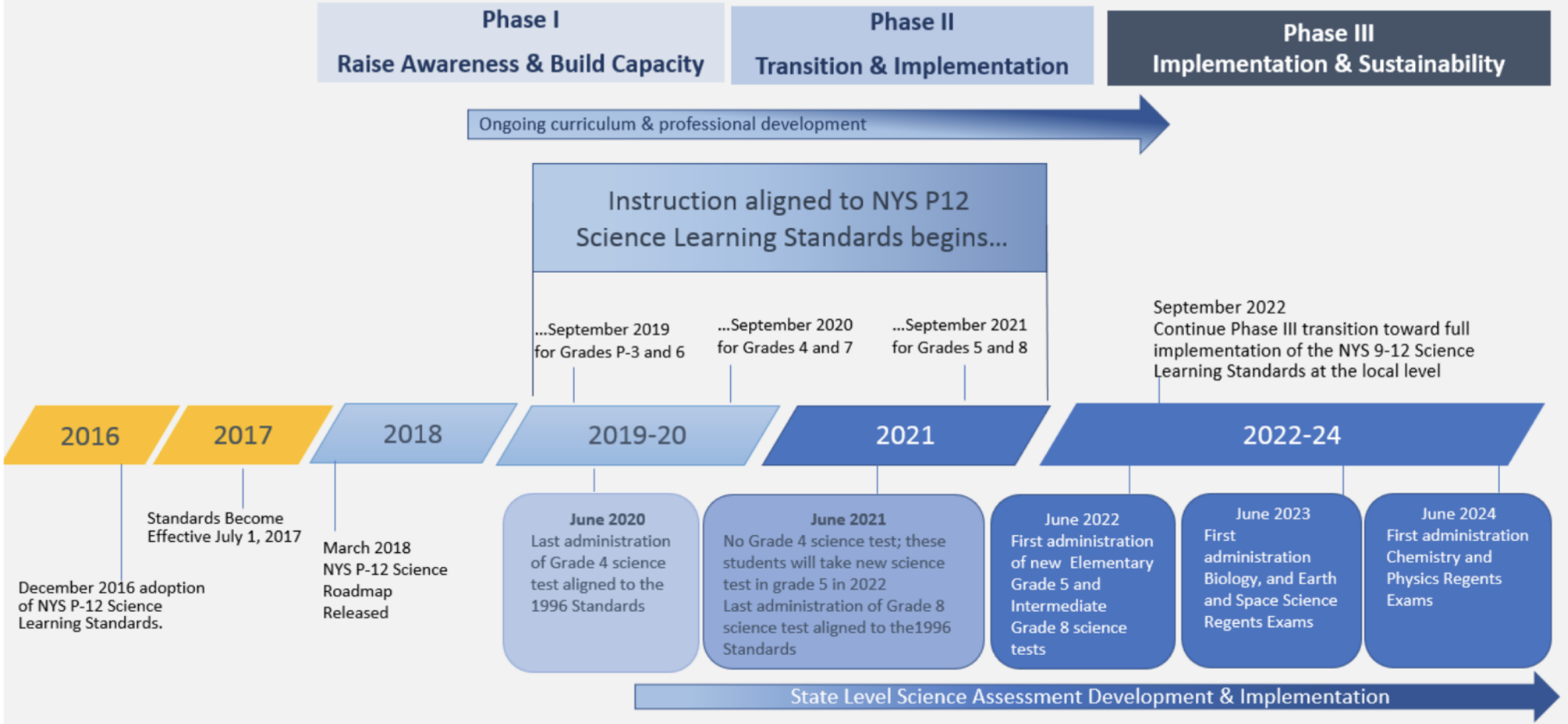
- Participants reflect on their ability to navigate the Teacher's Guide and their understanding of the Amplify Science Approach and how it supports three-dimensional learning.

Welcome to Amplify Science

http://bit.ly/AmplifyScienceBTS

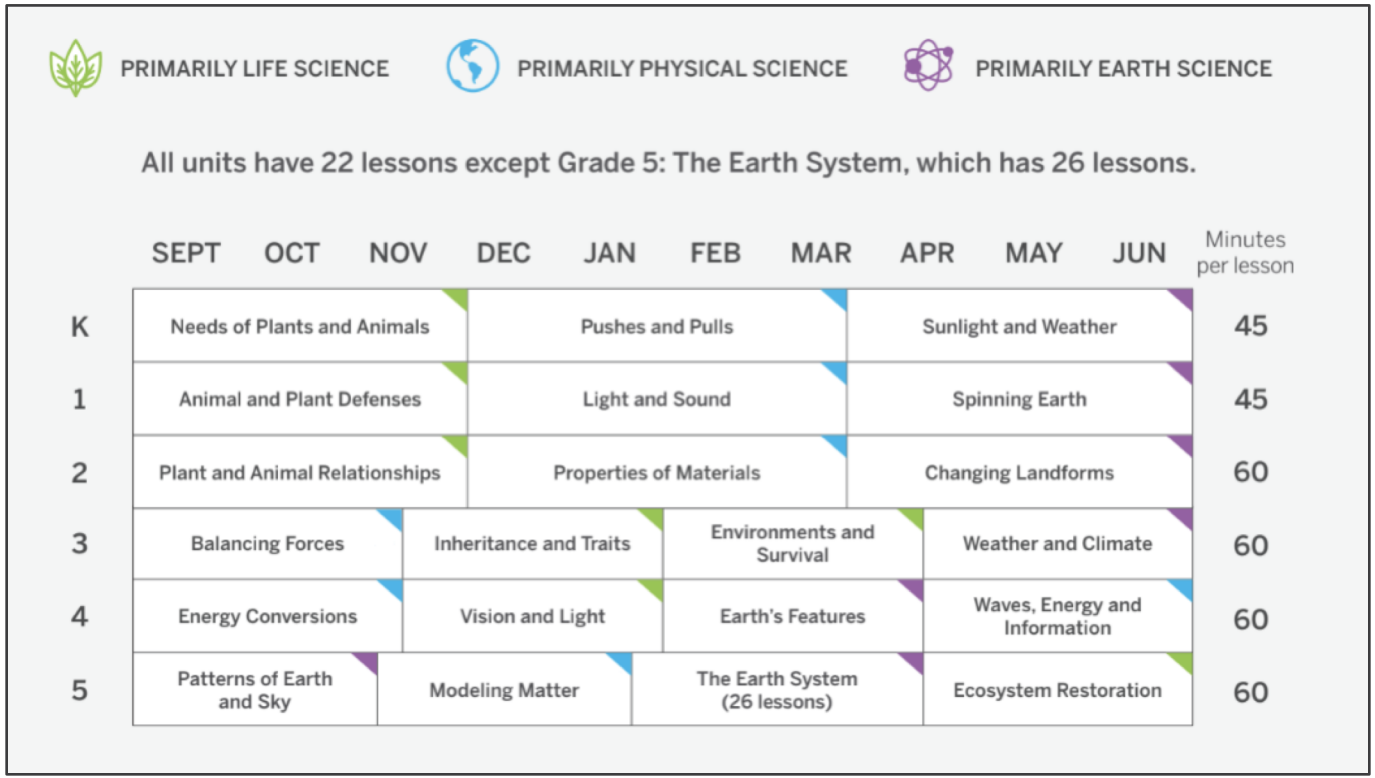


New York State P-12 Science Standards Development, Adoption, and Implementation



Planning your year

Overview: Amplify Science K-5 course structure



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
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- 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

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Middle school course curriculum structure

Middle School Curriculum New York City Edition

Grade 6

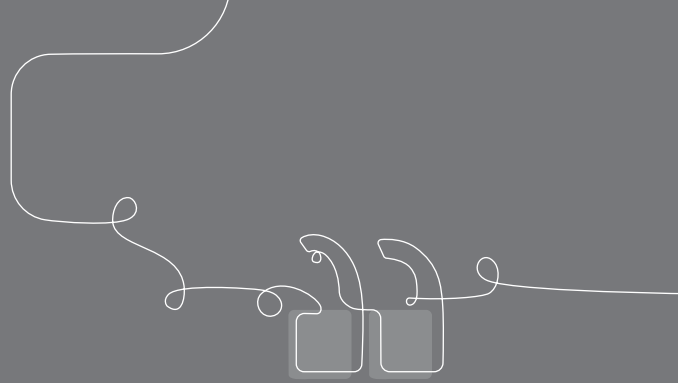
- Launch: Harnessing Human Energy
- Thermal Energy
- Populations and Resources
- Matter and Energy in Ecosystems
- Weather Patterns
- Ocean, Atmosphere,and Climate
- Earth's Changing Climate

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

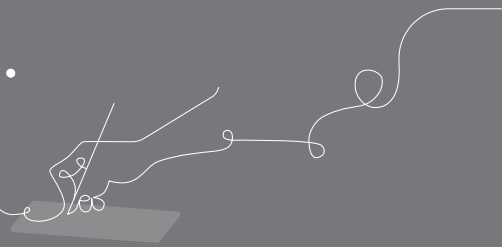
By the end of today, you will be able to:

- 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 Plant and Animal Relationships unit resources to plan lessons that support ALL learners.



Amplify Science

New York City Department of Education

Grade 2: Plant and Animal Relationships

Summer Institute: Day 2

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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.

Plant and Animal Relationships

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

Plant and Animal Relationships

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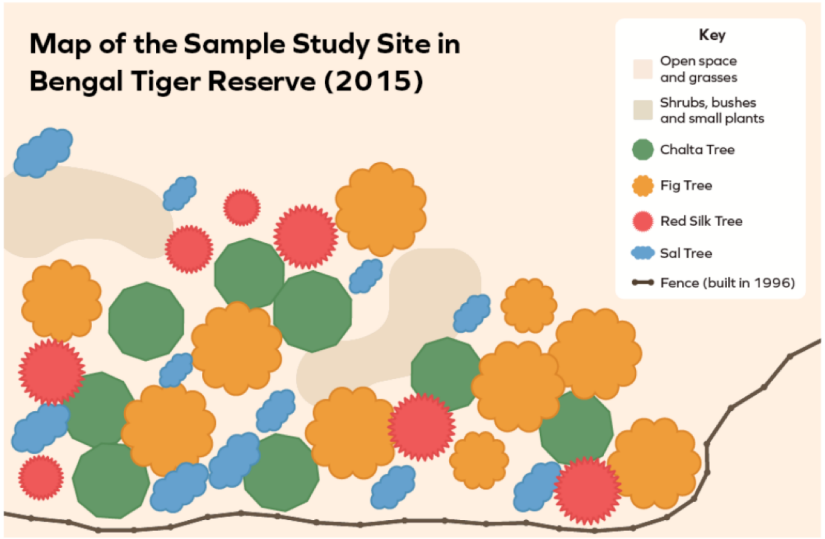
Story of the unit

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

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

Plant and Animal Relationships solution

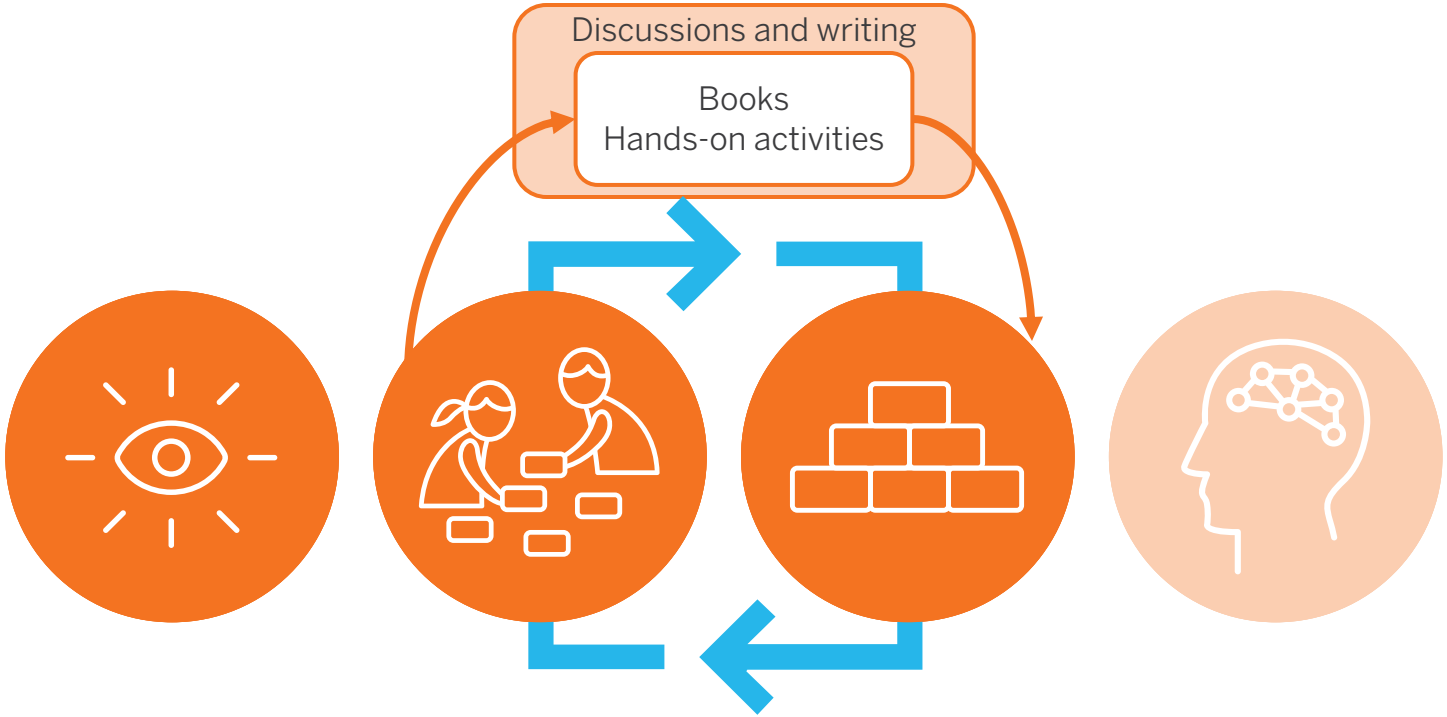


- The chalta trees depend on elephants to disperse their seeds.
- Elephants depend on chalta fruit for food. They eat the fruit, move to new places, and leave droppings with chalta seeds inside.
- A fence is blocking the elephants from entering the Reserve, so elephants cannot disperse the chalta seeds.

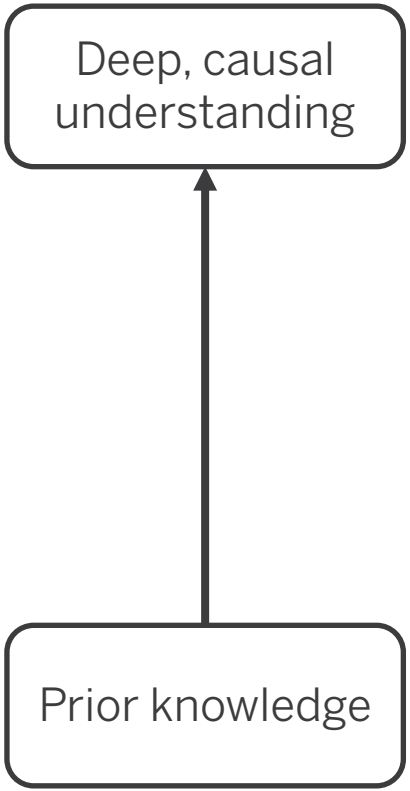
Turn and talk:

What do students still need to know in order to construct this explanation?

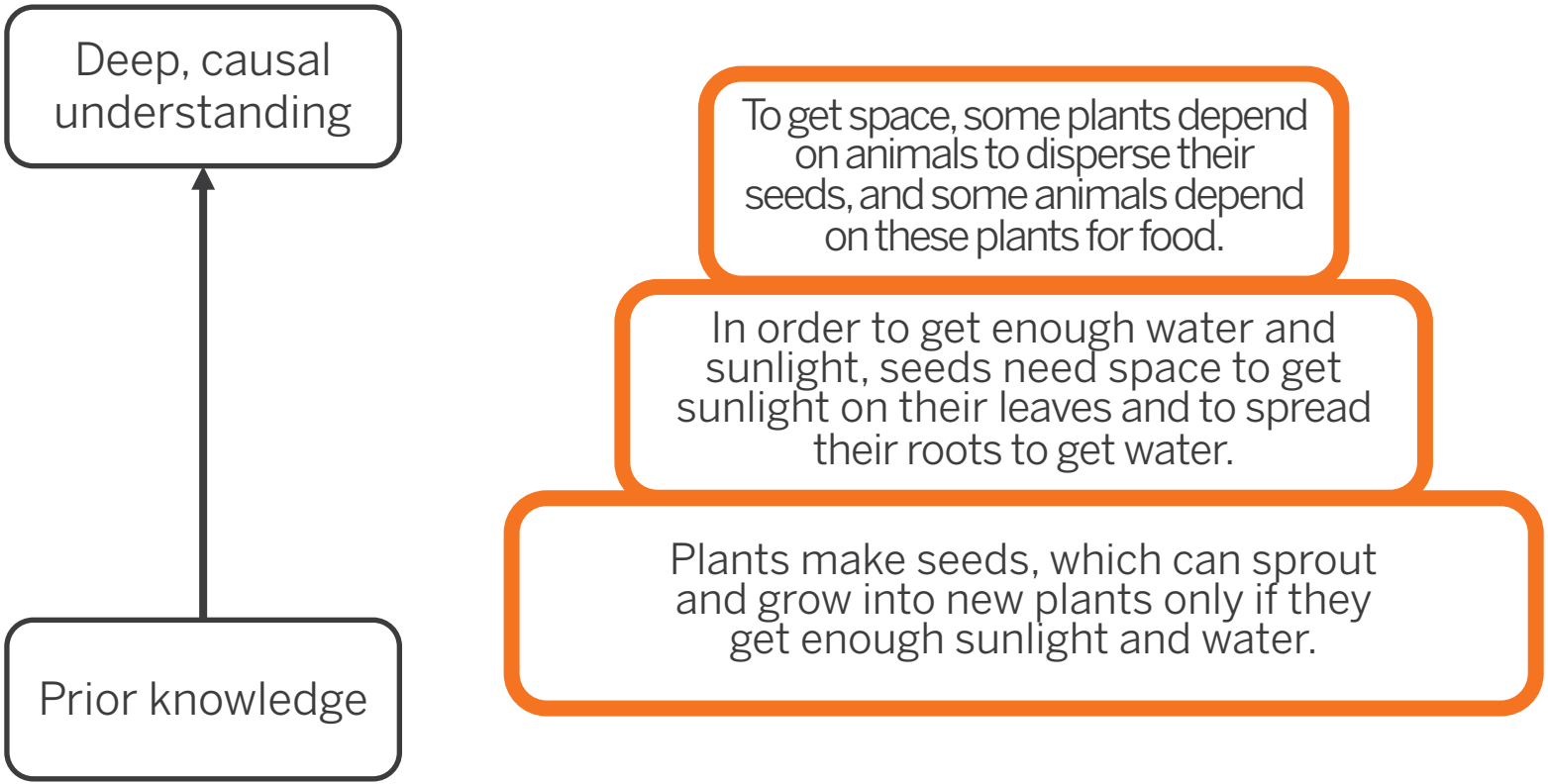
Amplify Science approach



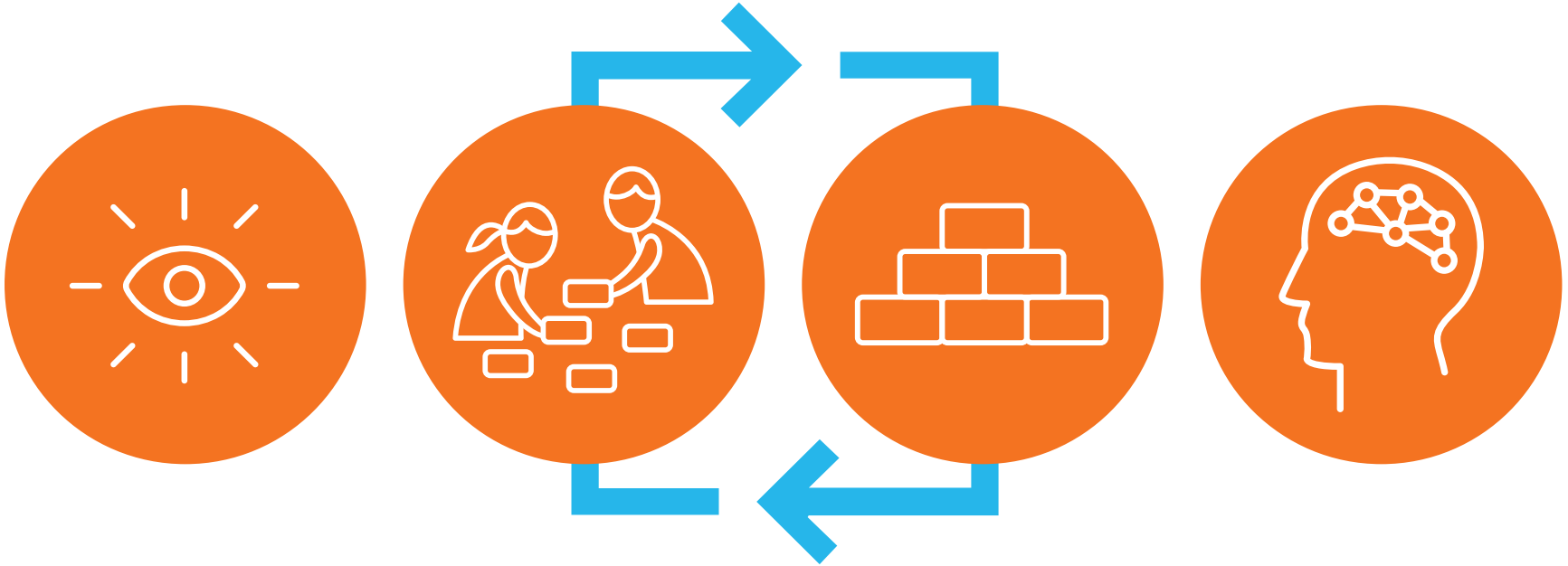
Progress Build: A unit-specific learning progression



Plant and Animal Relationships Progress Build



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

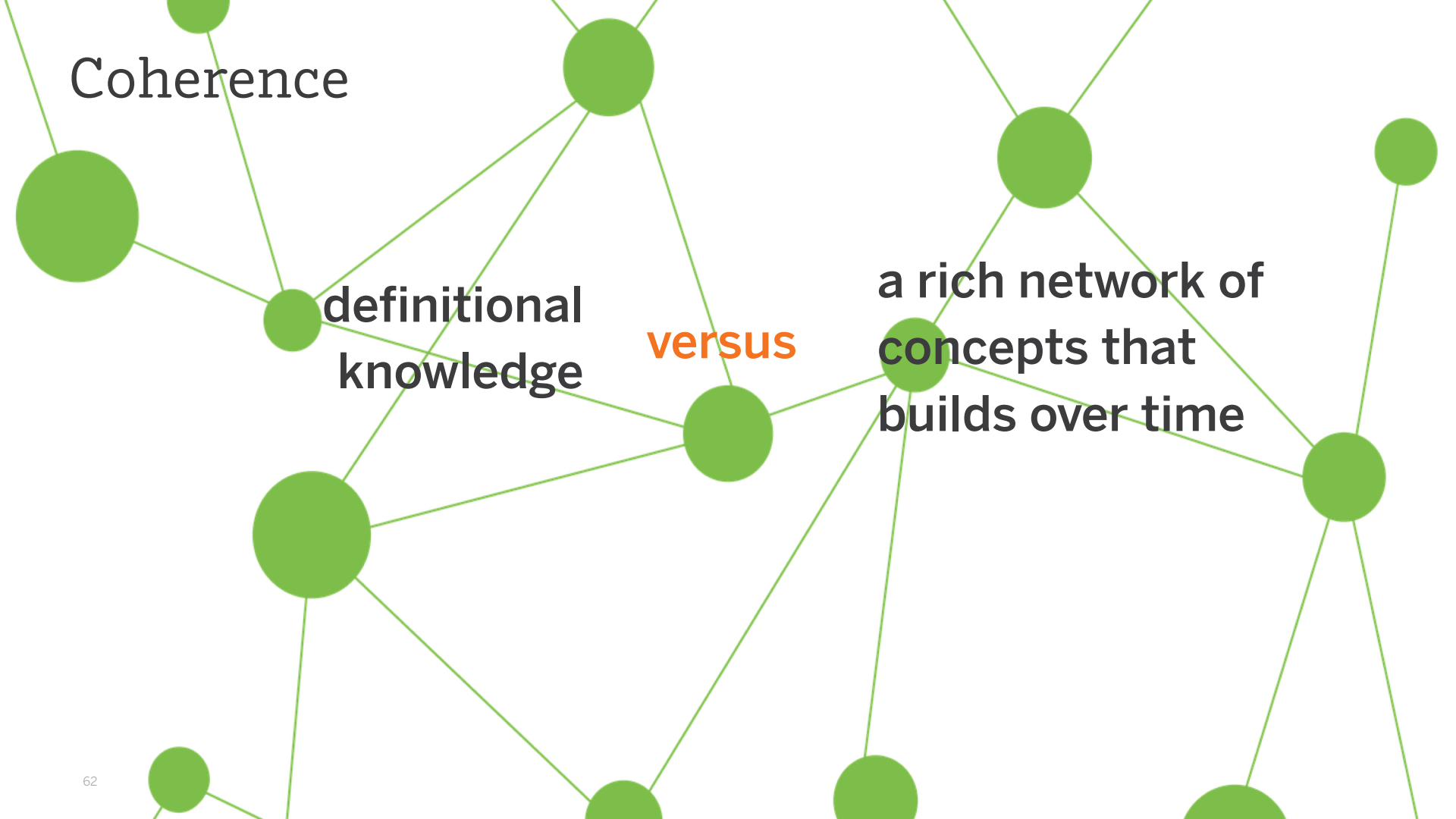
Coherence Flowchart

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

Plant and Animal Relationships: Investigating Systems in a Bengali Forest

The problem students work to solve

What is happening to the chalta trees in the Bengal Tiger Reserve?

Chapter 2 Question

Why aren't the chalta seeds getting what they need to grow?

Investigation Questions

How do plants get the water and sunlight that they need to grow? (2.1, 2.2)

Why can't plants always get the sunlight and water they need to grow? (2.3, 2.4, 2.5)

Evidence Sources and Reflection Opportunities

- Observe and measure roots and leaves (2.1)
- Read A Plant is a System (2.2)
- Discuss and record relationships between science words (2.2)

- Write about roots and leaves (2.3)
- Play Growing Roots game (2.3)
- Observe Sunlight and Leaves model (2.3)
- Participate in Plant Growth Body Model (2.3)
- Test predictions of which seeds will grow with digital modeling tool (2.4)
- Write about a good place for a seed to grow (2.4)
- Discuss and test predictions with modeling tools (2.4)

Key Concepts

- Plants have leaves that get sunlight. Plants have roots that get water from the soil. (2.2)

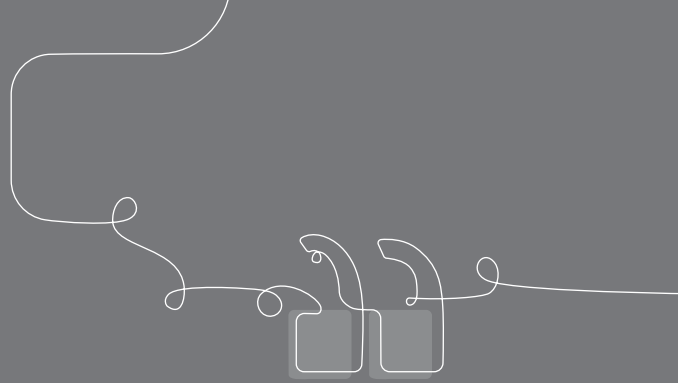
- Without enough space, plants can't get sunlight and water they need to grow. (2.4)
- Leaves need space to get sunlight. Roots need space in the soil to get water. (2.4)

Application of Key Concepts to the problem

- Compose a scientific explanation about why the chalta seeds are not getting the sunlight and water they need to grow (2.5)

The explanation that students can make to answer the Chapter 2 Question

The chalta trees in the Bengal Tiger Reserve use their roots to get water from the soil and their leaves to get sunlight. The chalta tree seeds need to move away from other plants and get to a place where they can spread their roots and leaves to get what they need to grow. The chalta seeds must not be getting to a new place where they can grow.



Questions?

Plant and Animal Relationships

Plan for the day – Day 2

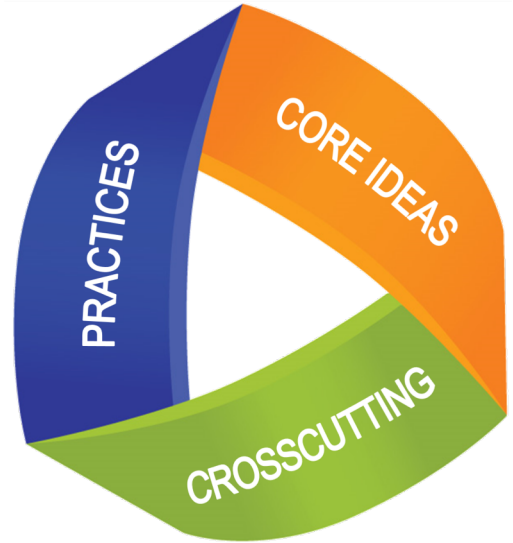
- **Opening the day**
  - Culture building
- **Story of the unit**
  - Unit Guide navigation
  - Build of conceptual understanding using Unit Guide resources
  - Progress Build
  - Coherence
- **Embedded supports for all learners**
  - Analyzing 3-D learning
  - Assessment System
  - Formative assessment
- **Considerations for an Amplify Science classroom**
- **Closing and reflection**
  - Reflection
  - Survey

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

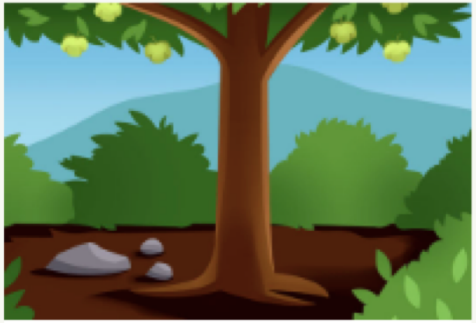
Crosscutting Concepts

JUMP DOWN TO UNIT GUIDE

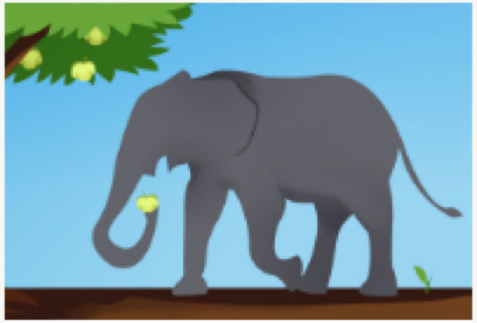
GENERATE PRINTABLE TEACHER'S GUIDE

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

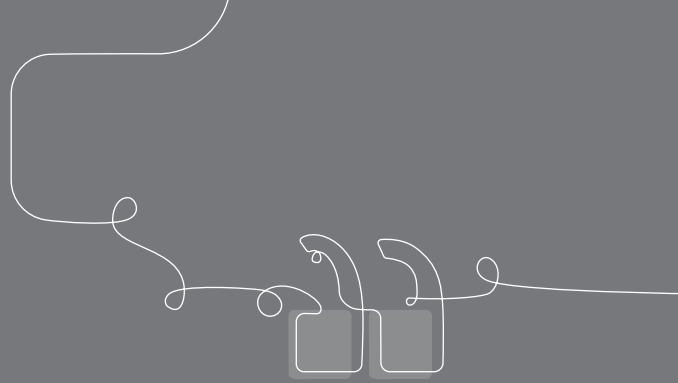
Chapter 1: Why aren't new chalta



Chapter 2: Why aren't the chalta



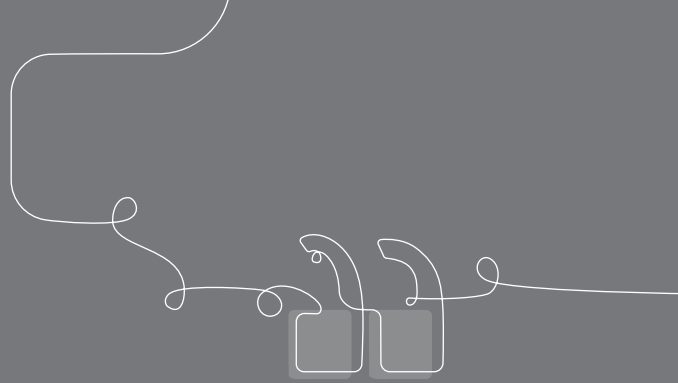
Chapter 3: Why aren't the chalta



Questions?

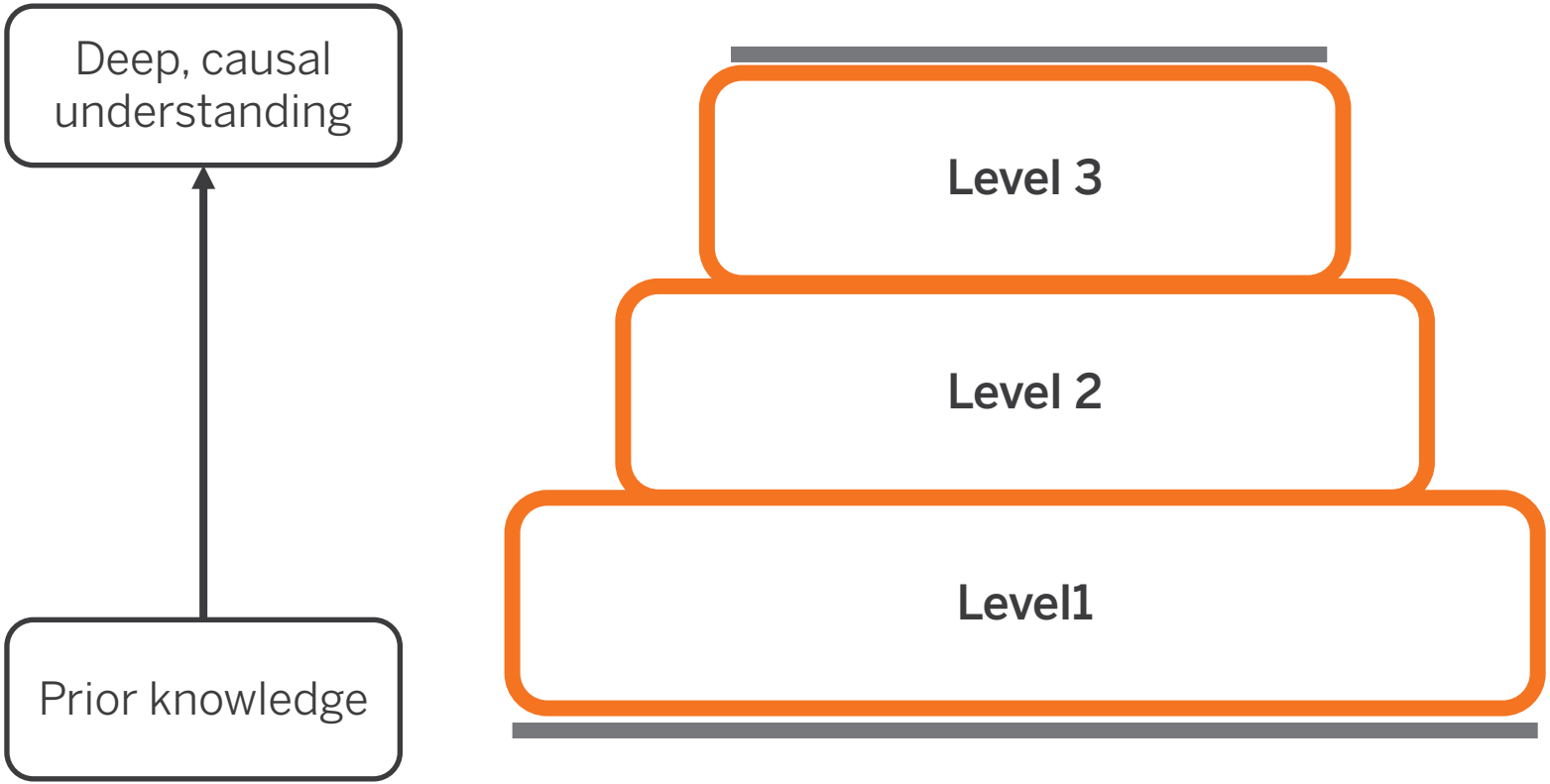
Amplify Science Assessment System

Turn and talk



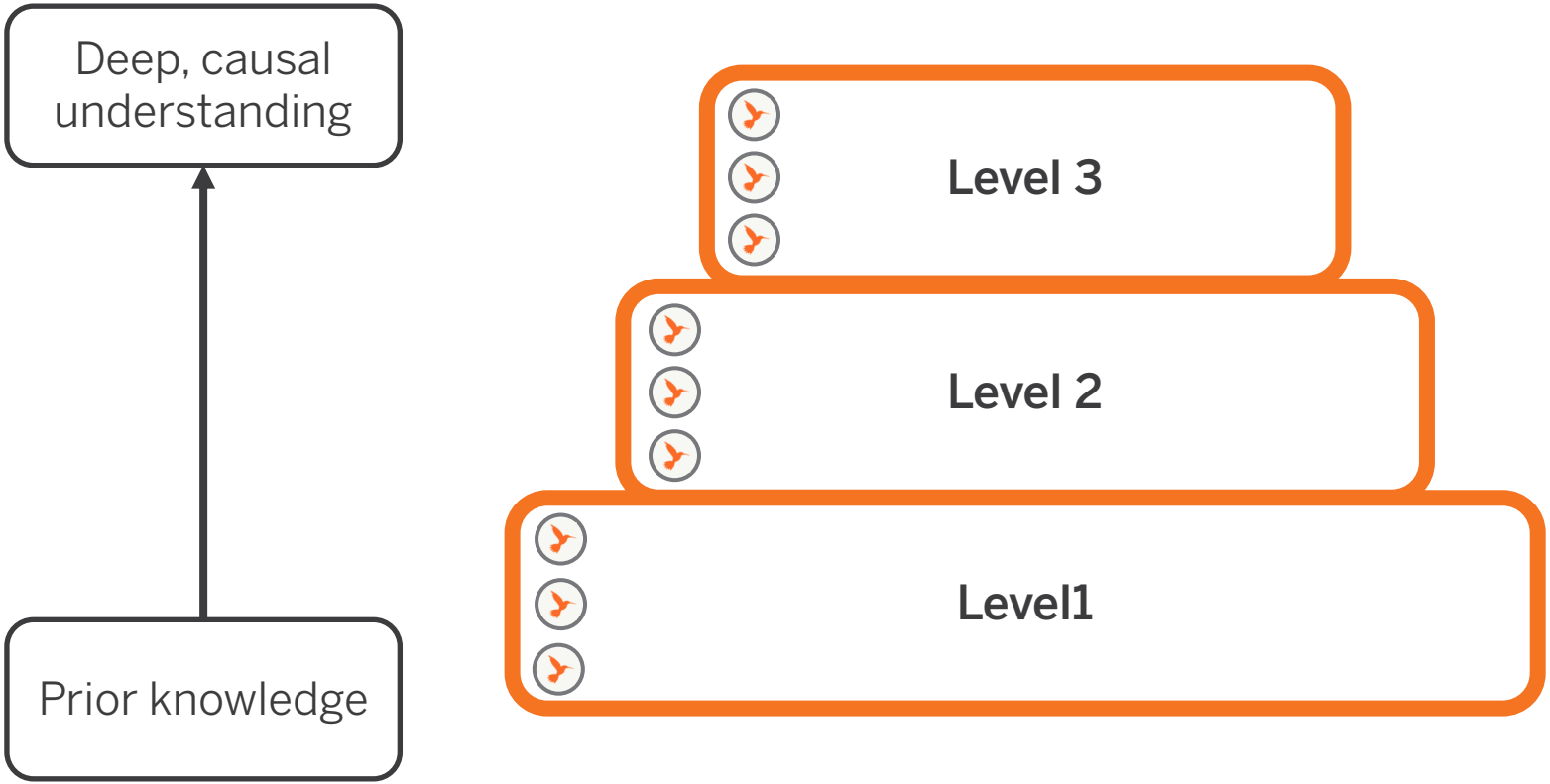
- Why do you assess your students?
- How and when do you assess your students? What are students doing?
- How do you collect data? How do you use data collected during assessment?

Pre- and End-of-Unit Assessments



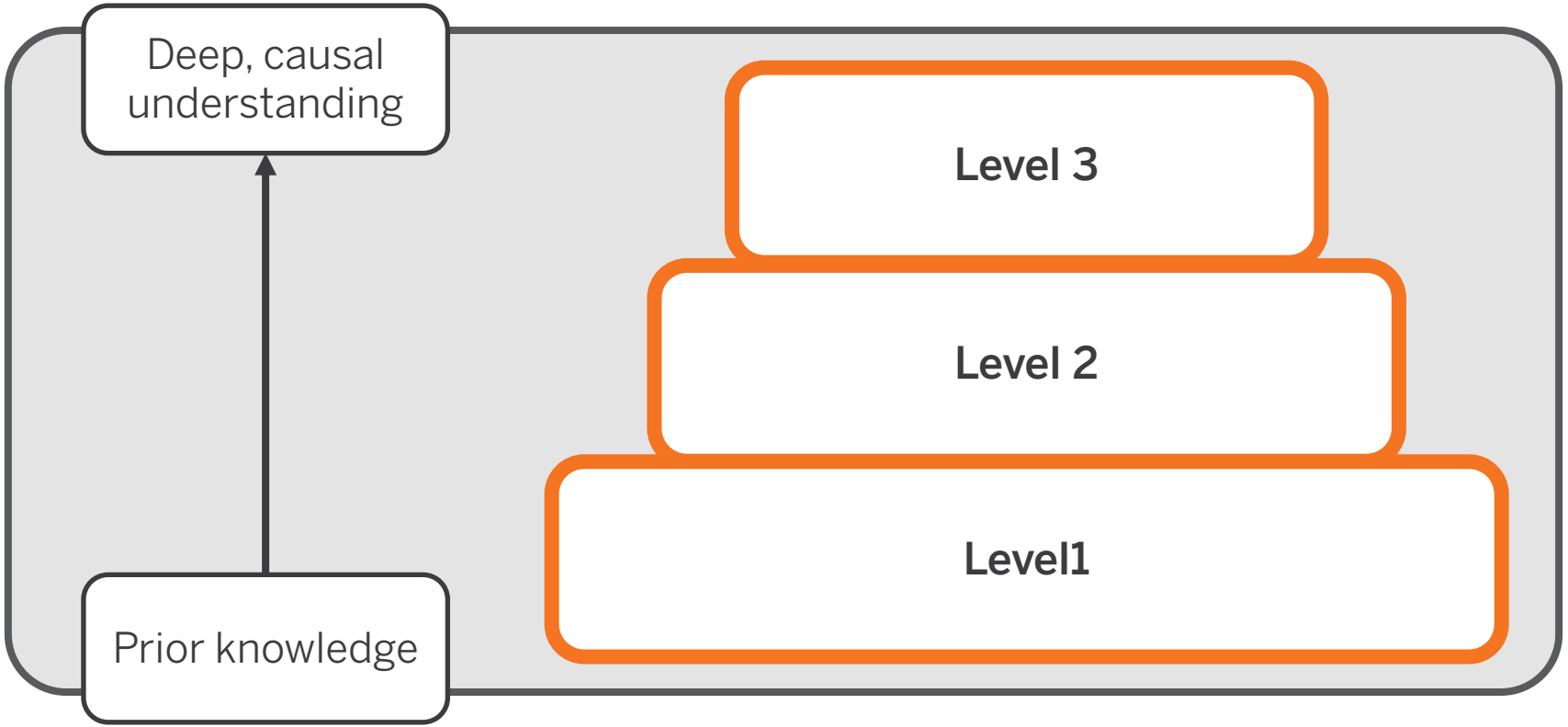
Critical Juncture Assessments

On-the-Fly Assessments

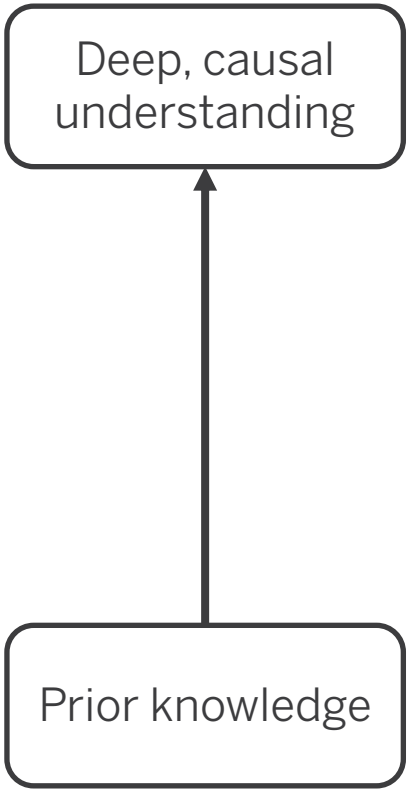


Student Self-Assessments

Portfolio Assessment



Investigation Assessment



Amplify Assessment System

- Credible
- Actionable
- Timely

Formative assessment

Formative assessment

Planning to inform instruction

On-the-Fly Assessment 5: Parts of the Plant System

ON THE FLY ASSESSMENT

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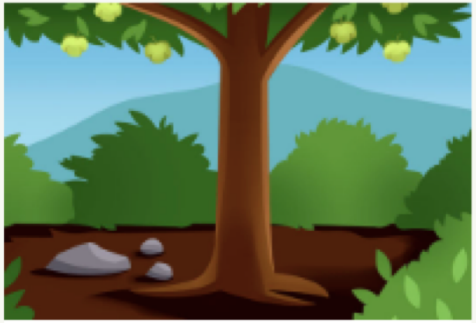

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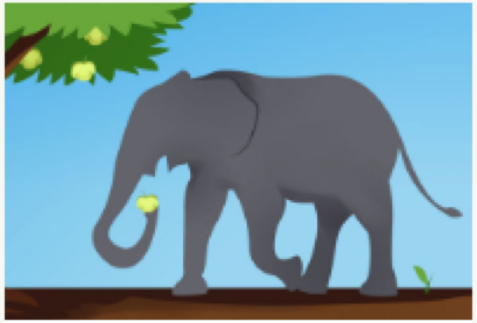

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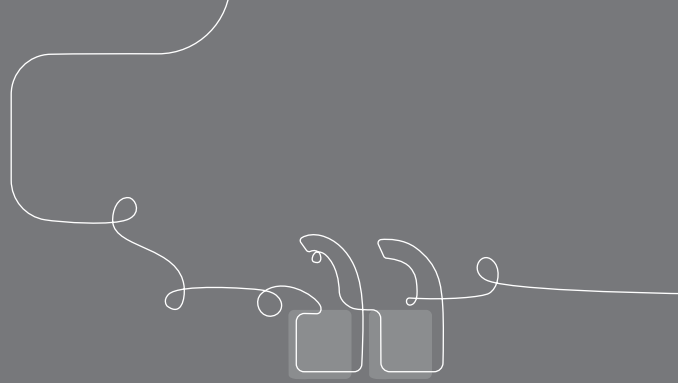


Questions?

Plant and Animal Relationships

Plan for the day – Day 2

- **Framing the day**
  - Coherence
- **Embedded supports for ALL learners**
  - 3-D learning
  - Unit essentials and instructional builds
- **Supports for instructional decisions**
  - Amplify Science assessment System
  - Formative assessment
  - Summative assessment
- **Considerations for an Amplify Science classroom**
- **Closing and reflection**
  - Reflection
  - Questions
  - Survey

Considerations for an Amplify Science classroom

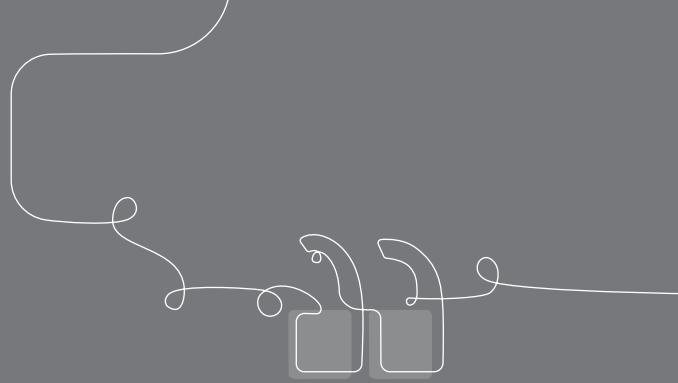
The purpose of this part of the day is for you to:

- Apply program resources to plan to teach.

Considerations for an Amplify Science classroom

Reflection

- What Unit Guide resources will you rely on as you continue to internalize this new curriculum and prepare for managing classroom kit materials and technology in your classroom?
- What questions do you still have?



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Closing and reflection

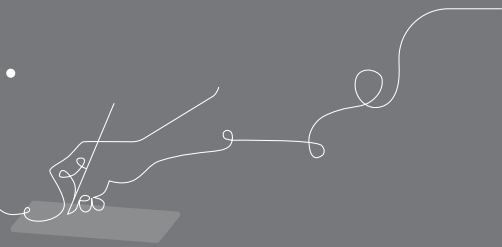
The purpose of this part of the day is for you to:

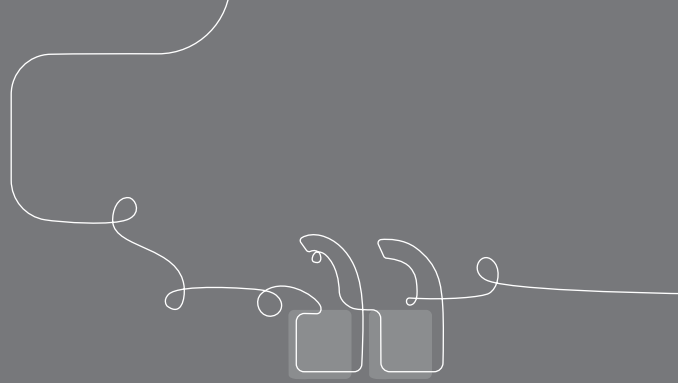
- Reflect on the learning for the day.

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 Plant and Animal Relationships unit resources to plan lessons that support ALL learners.





Questions?

Top Tips

1. Find your kit! Open it up ASAP and look through materials
    a. Note how they are labeled with the lesson number they correspond to
    b. Plan where to house your “unit wall” in the classroom
2. Bookmark **apps.learning.amplify.com/elementary** on student computers
3. Set aside time to practice navigation with your students
4. Become comfortable with managing projections
    a. Download PDF of projections or keep Teacher's Guide open
5. Practice unit Simulations and digital apps (2-5) yourself before using with students
    a. Use Unit Guide doc: Apps in this Unit
6. Engage in self-study: Practice locating assessments using cards; Explore Unit Guide

Logging on tips and tricks

Student Digital Access (2-5)

- Bookmark student apps page on all student devices.
- Establish a log-on routine.
- Inquire about accessing student logins and distribution of those logins.

Additional Amplify resources

Program Guide

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

my.amplify.com/programguide

Amplify Help

Find lots of advice and answers from the Amplify team.

my.amplify.com/help

Amplify.

Additional Amplify support

Customer Care

Seek information specific to enrollment and rosters, technical support, materials and kits, and teaching support, weekdays 7AM-7PM EST.

scihelp@amplify.com

800-823-1969

Amplify Chat

When contacting the customer care team:

- Identify yourself as an Amplify Science user.
- Note the unit you are teaching.
- Note the type of device you are using (Chromebook, iPad, Windows, laptop).
- Note the web browser you are using (Chrome or Safari).
- Include a screenshot of the problem, if possible.
- Copy your district or site IT contact on emails.