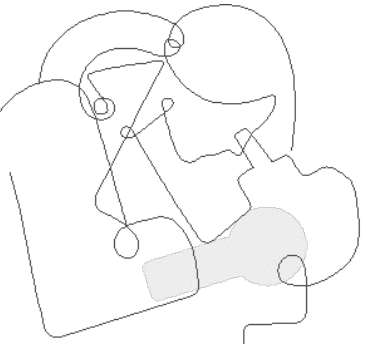
Amplify Science

Assessment System

Strengthening workshop



School/District Name
Date
Presented by Your Name

PLPG CERTIFIED PROVIDER

Amplify's Purpose Statement

Dear teachers,

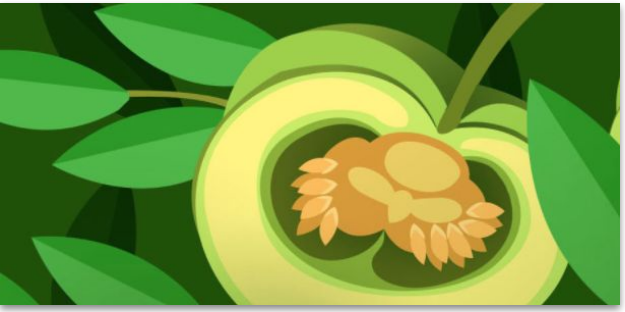
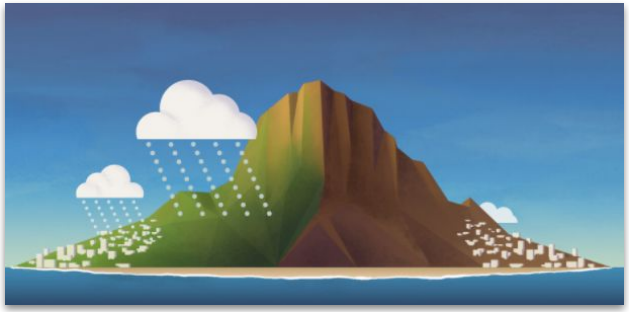
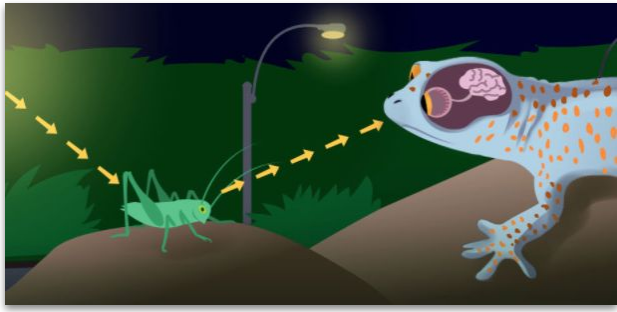
You do a job that is nearly impossible and **utterly essential.**

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

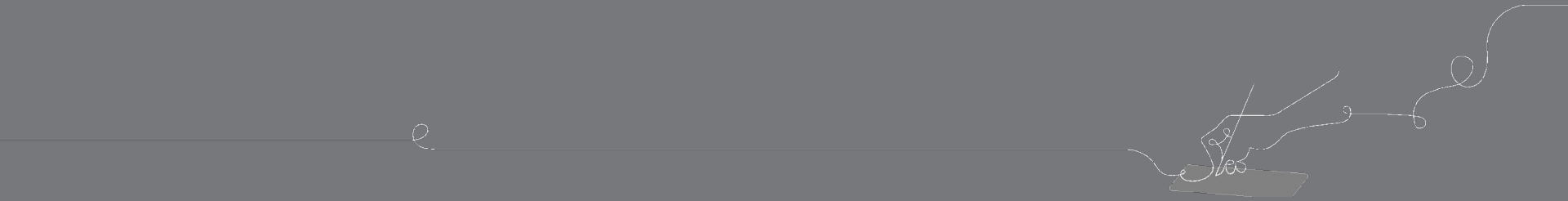
Plan for the day

- Introduction
- Progress Builds
- Formative assessment
- Pre and end of unit assessment
- Closing

Overarching goals

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

- ❑ Describe the overall structure of the Assessment System
- ❑ Describe the purpose of the Formative, Pre and Post Unit Assessments



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.

Opening reflection

Why do we assess our students?

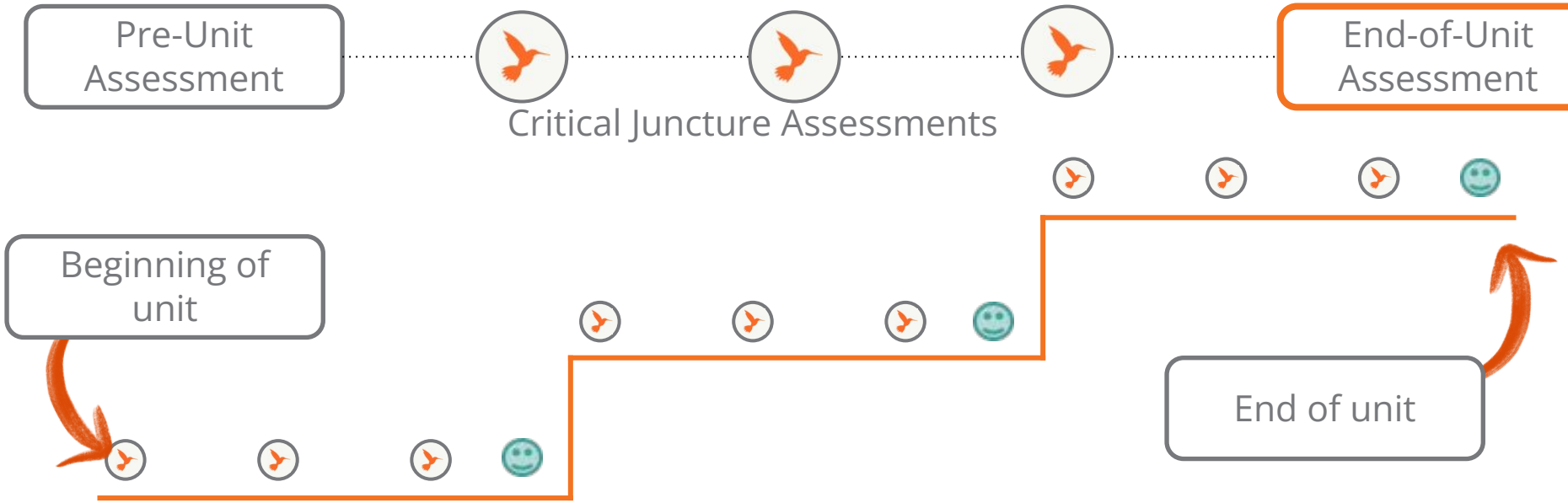
What is **challenging** about assessing our students?

Opening Reflection: Assessment

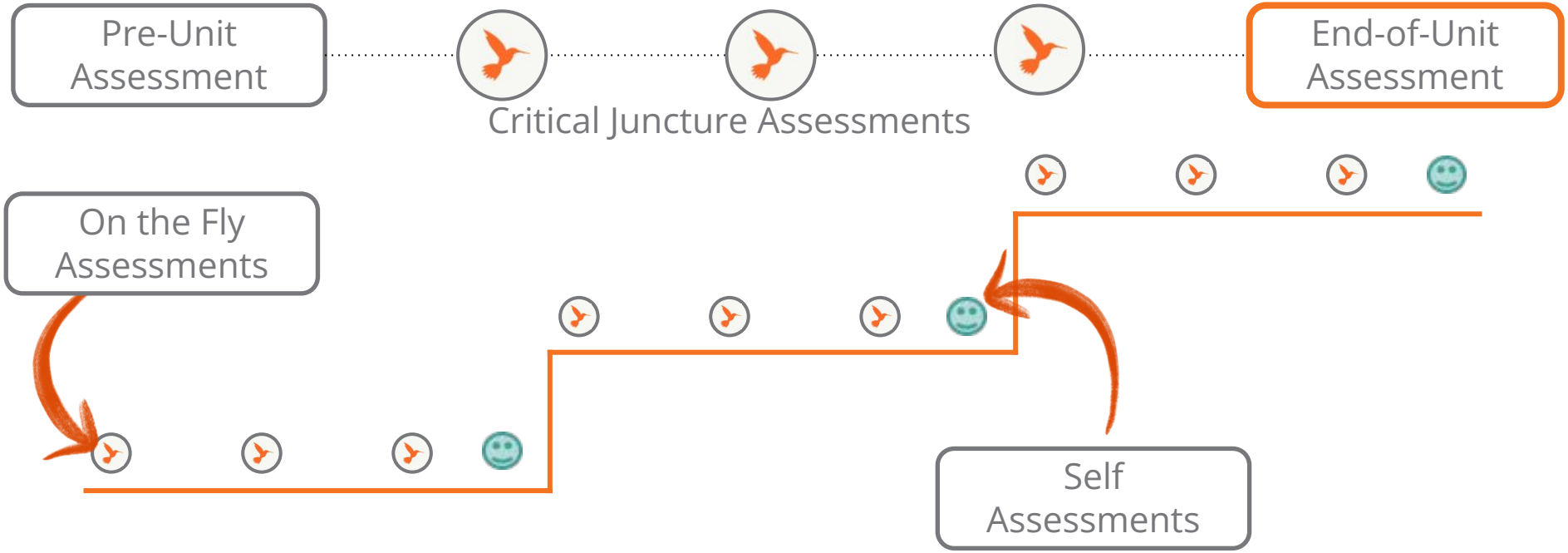
Why do we assess our students?

Why do we assess our students?

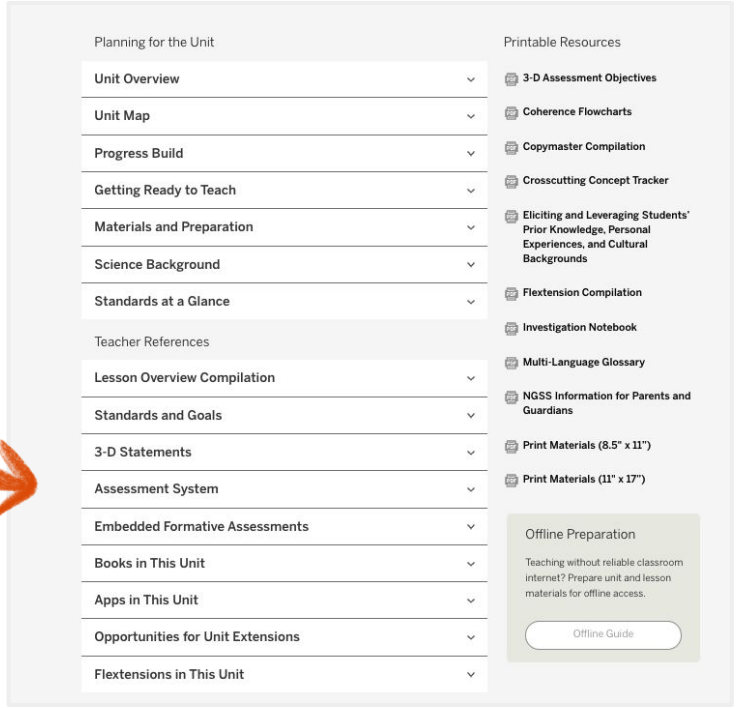
K-5 Assessment System

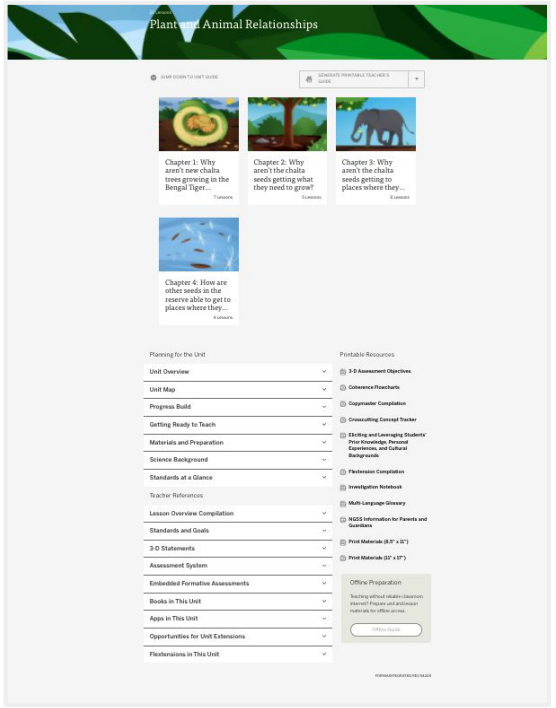


K-5 Assessment System



Assessment System Document

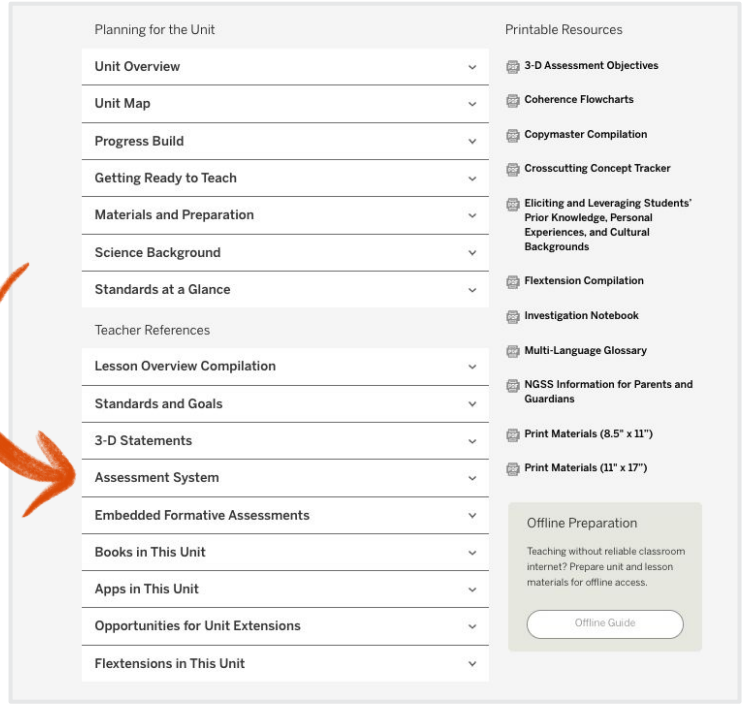


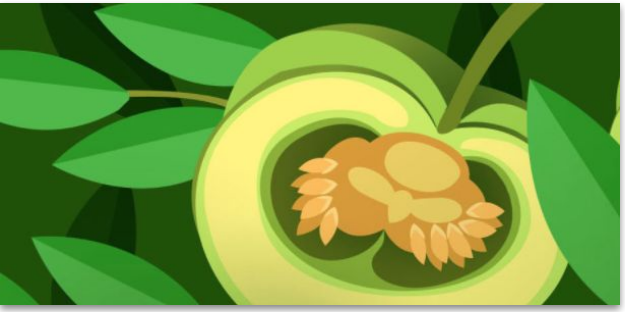
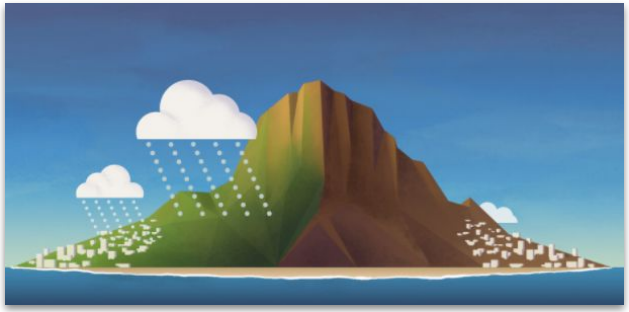
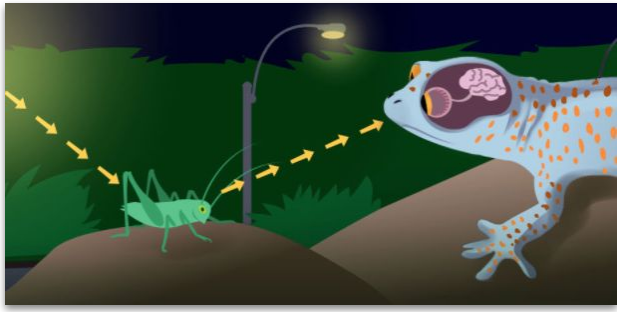


Assessment System

Work time

- Browse the Assessment System Document



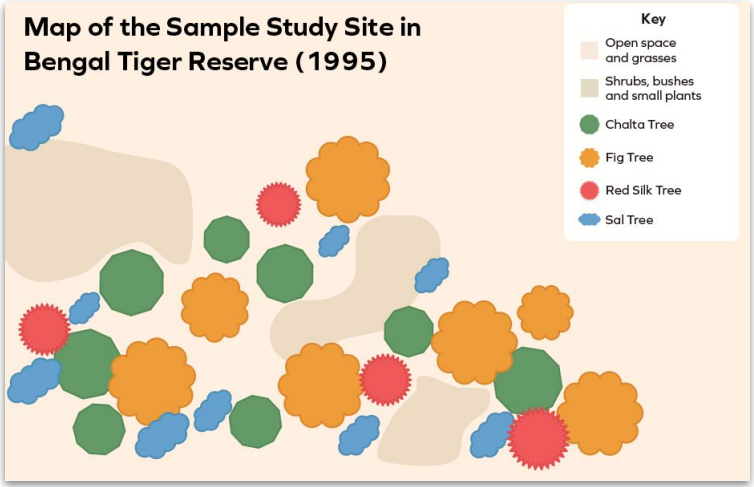
Plan for the day

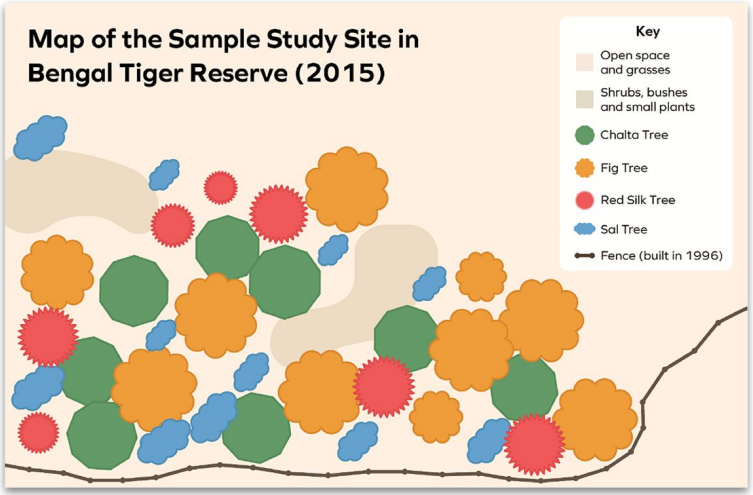
- Introduction
- **Progress Builds**
- Formative assessment
- Pre and post unit assessment
- Closing

Focal unit: Grade 2

Plant and Animal Relationships

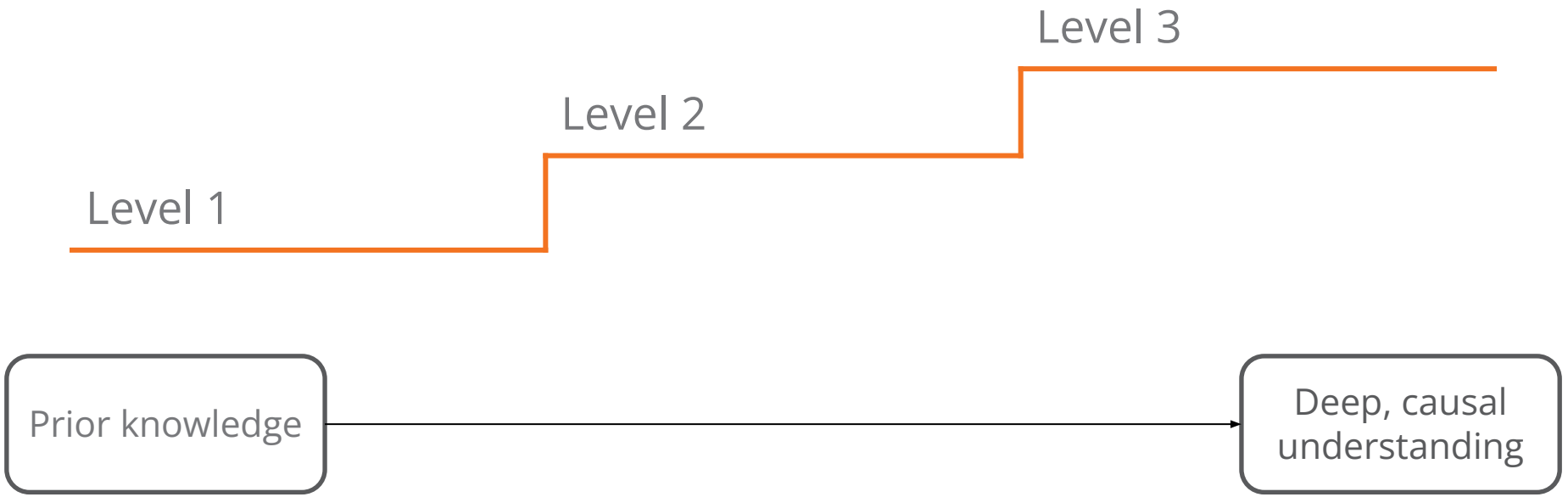
In their role as **plant scientists**, students work to figure out why there are no new chalta trees growing in the Bengal Tiger Reserve, which is part of a broadleaf forest.





Progress Build A unit-specific learning progression

Assumed prior knowledge (preconceptions): Students are likely to understand that some animals eat plants for food and that plants need water and sunlight to grow.. However, it is not expected that students have considered the interdependence of plants and animals.



Plant and Animal Relationships Progress Build

Level 1

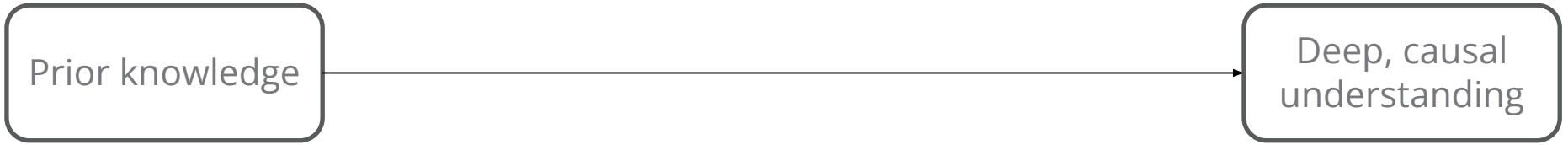
Plants make seeds, which can sprout and grow into new plants only if they get enough sunlight and water.

Level 2

In order to grow, seeds need space to get sunlight on their leaves and to spread their roots to get water.

Level 3

Some plants depend on animals to disperse their seeds, and some animals depend on these plants for food.



Plant and Animal Relationships Progress Build

What new ideas are added at Level 2?

What new ideas are added at Level 3?

Level 1

Plants make seeds, which can sprout and grow into new plants only if they get enough sunlight and water.

Level 2

In order to grow, seeds need space to get sunlight on their leaves and to spread their roots to get water.

Level 3

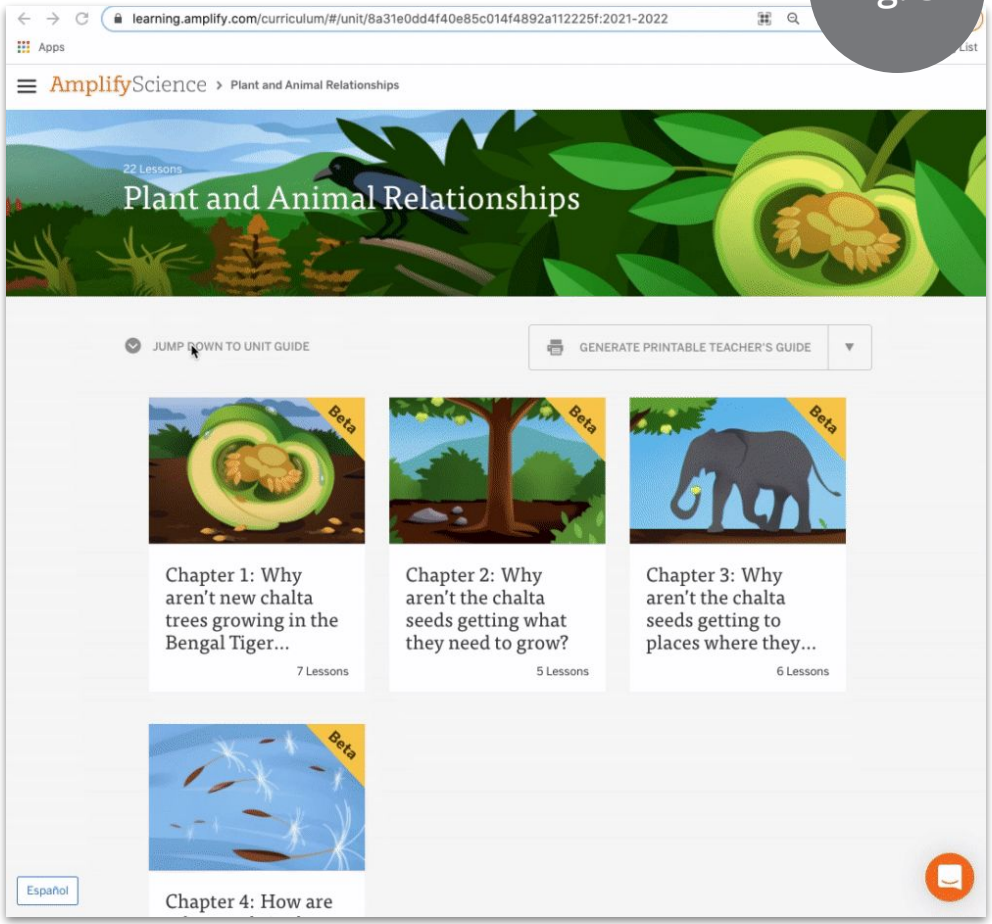
Some plants depend on animals to disperse their seeds, and some animals depend on these plants for food.

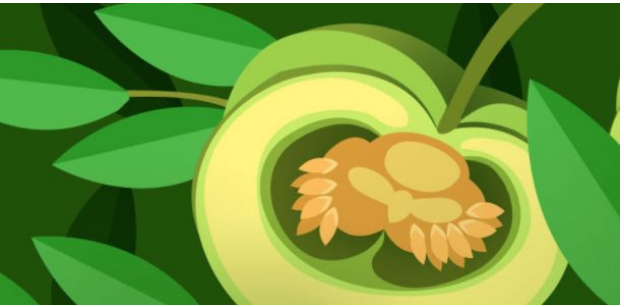
Prior knowledge → Deep, causal understanding

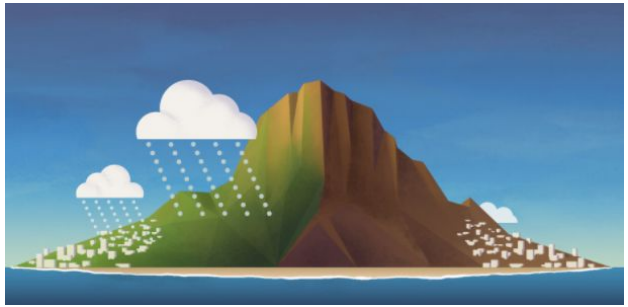
Progress Build analysis

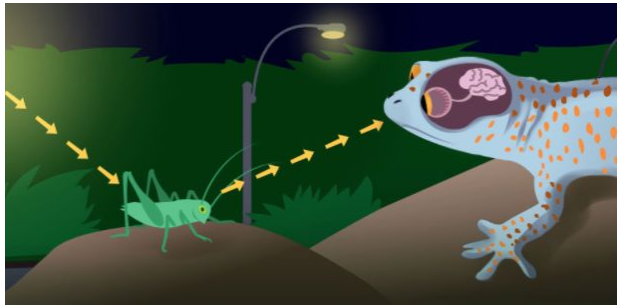
Work time

Read and analyze your unit's Progress Build.









Plan for the day

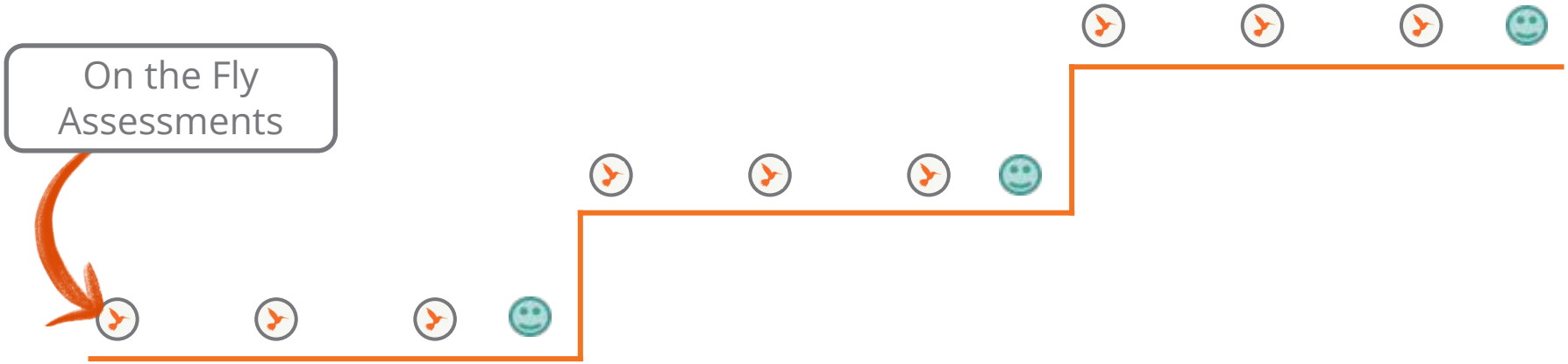
- Introduction
- Progress Builds
- **Formative Assessment**
- Pre and end of unit assessment
- Closing

Formative assessment

A cycle of eliciting, interpreting, and taking action on information about student learning

K-5 Assessment System

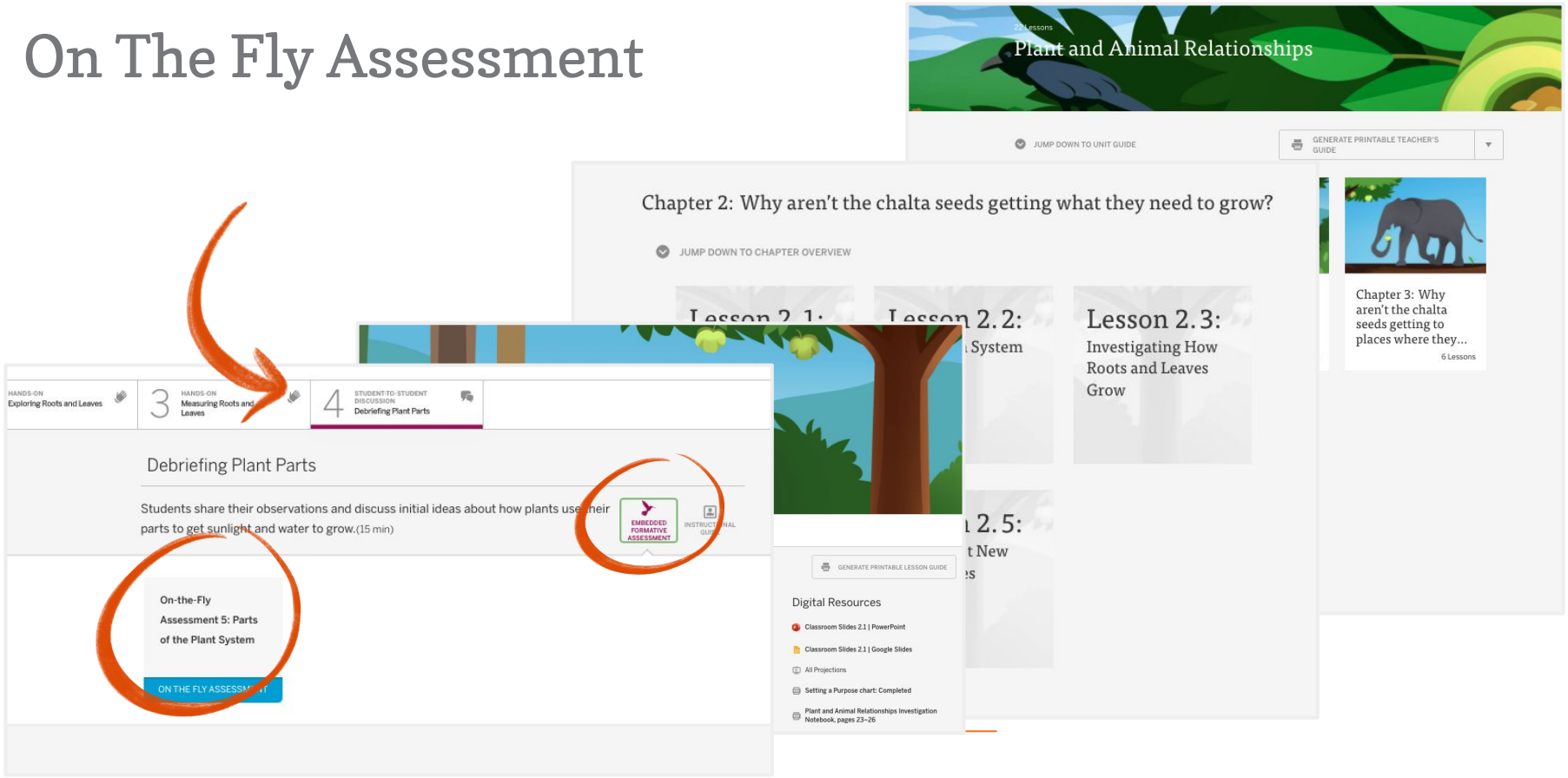
On the Fly Assessments



On-the-Fly Assessments

- Track student progress within a Progress Build level
- Embedded into instruction
- Assessment resource includes “Look for” and “Now what”

On The Fly Assessment



Formative Assessment Resource

Lesson 2.1, Activity 4

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

Look for: As students work, circulate and look at students' drawings, and listen to students sharing with partners. Listen for how well students are able to express the idea that a plant is a system made up of different parts (leaves, stems, roots), and that each of these parts has a unique role so that the plant can live and grow. This activity helps students to construct understanding of the Crosscutting Concepts of Structure and Function and Systems and System Models.

Now what? It is okay if students are unsure of the function of each plant part within the plant system. Students will investigate plant part functions in Lesson 2.2 as they read and discuss the book *A Plant Is a System*. However, make note of what your students already know, don't know, or have alternate conceptions about with regards to plant part function. Build on these ideas in the next lesson.

NGSS connection: This formative assessment reveals student knowledge and use of the crosscutting concept of Systems and System Models, and the crosscutting concept of Structure and Function.

Name: _____ Date: _____

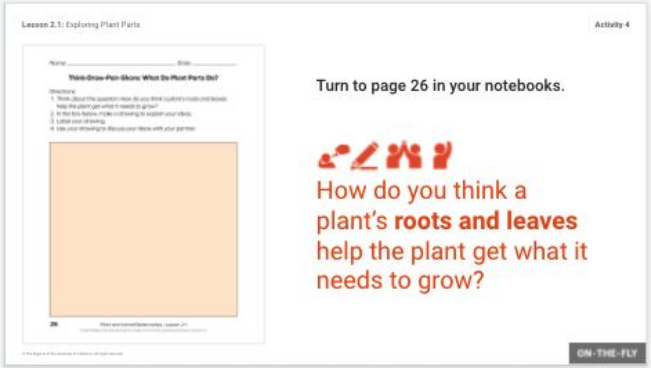
Think-Draw-Pair-Share: What Do Plant Parts Do?

Directions:

1. Think about the question: *How do you think a plant's roots and leaves help the plant get what it needs to grow?*
2. In the box below, make a drawing to explain your ideas.
3. Label your drawing.
4. Use your drawing to discuss your ideas with your partner.

Turn to page 26 in your notebooks.

How do you think a plant's **roots and leaves** help the plant get what it needs to grow?



👉**Teacher action:**
Use the Think-Draw-Pair-Share routine to discuss this question. Circulate among the pairs and listen as they share ideas. After partners have discussed, call on several students to share their ideas with the class.

On-the-Fly Assessment 5:
Parts of the Plant System
Look for: As students work, circulate and look at students' drawings, and listen to students sharing with partners. Listen for how well students are able to express the idea that a plant is a system made up of different parts (leaves, stems, roots), and that each of these parts has a unique role so that the plant can live and grow. This activity helps students to construct understanding of the Crosscutting Concepts of Structure and Function and Systems and System Models.
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💬**Suggested teacher talk:**
Next, we will learn more about these plant parts and the jobs they do.

Plant and Animal Relationships Progress Build

On-the-Fly Assessment

Level 1

Plants make seeds, which can sprout and grow into new plants only if they get enough sunlight and water.

Level 2

In order to grow, seeds need space to get sunlight on their leaves and to spread their roots to get water.

Level 3

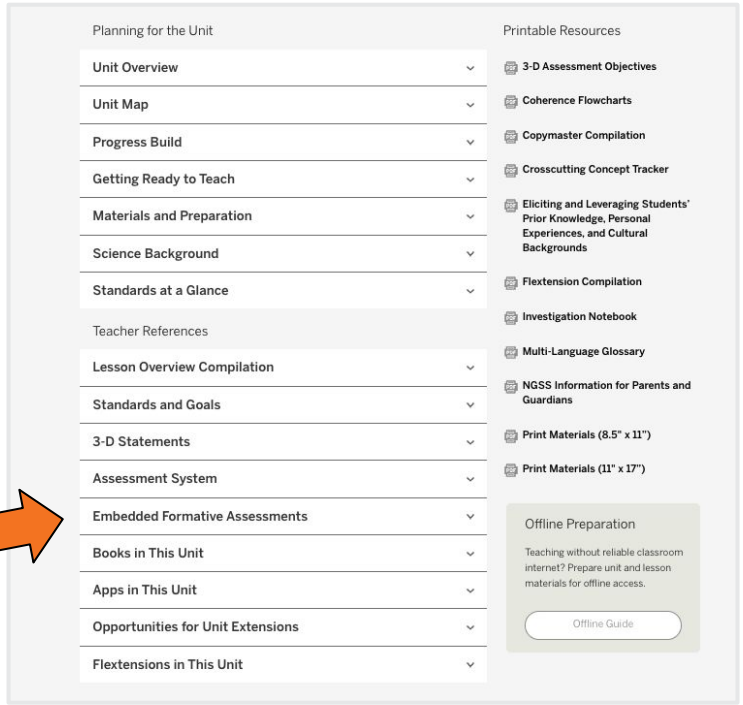
Some plants depend on animals to disperse their seeds, and some animals depend on these plants for food.

Prior knowledge → Deep, causal understanding

On the Fly Assessment

Work time

- Explore the On the Fly Assessments

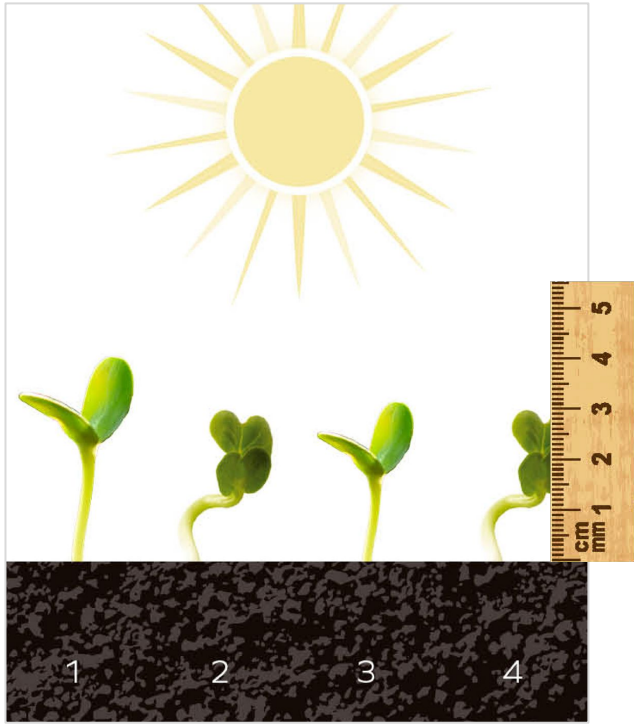


Additional formative assessment information

On-the-Fly Assessments

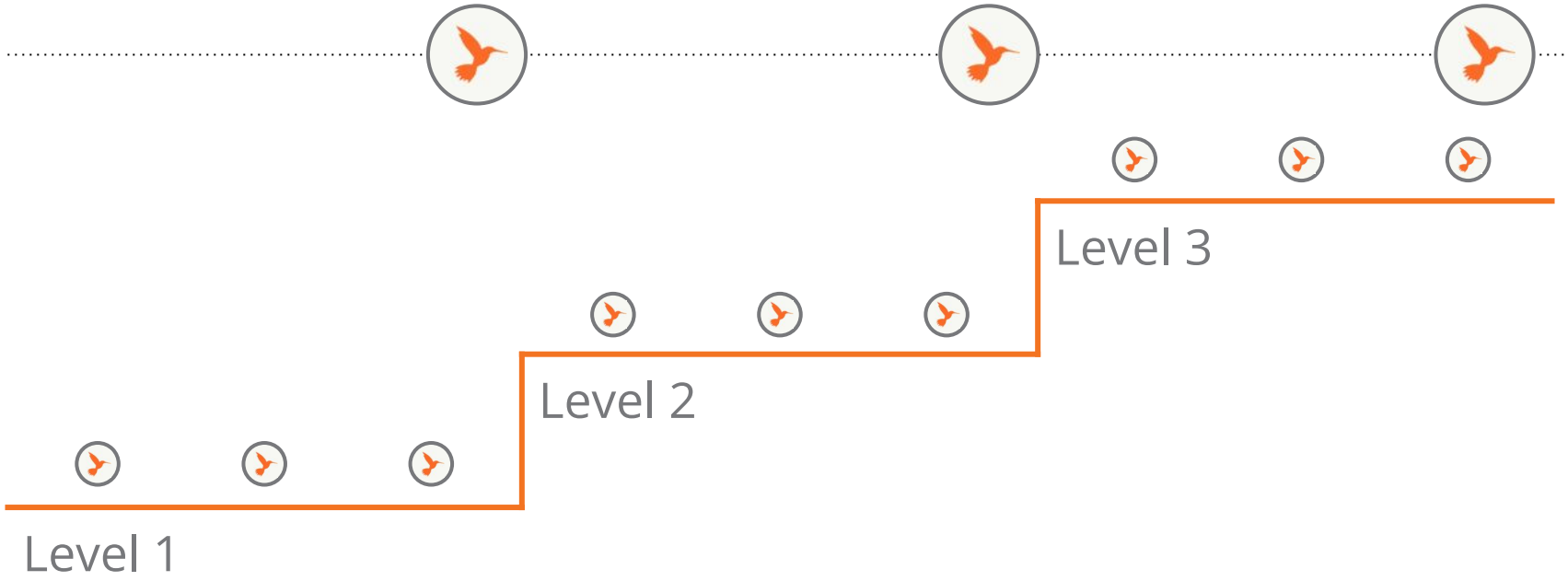
In addition to assessing concepts in the Progress Build, some On-the-Fly Assessments provide data about:

- Science and Engineering Practices
- Crosscutting Concepts
- Literacy skills
- Student collaboration



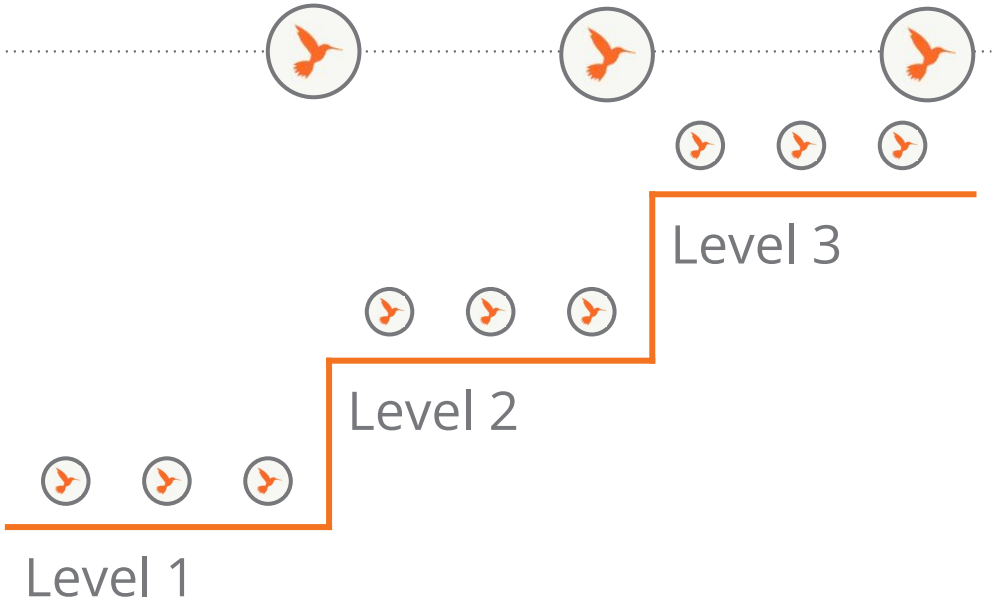
Questions?

Critical Juncture Assessments

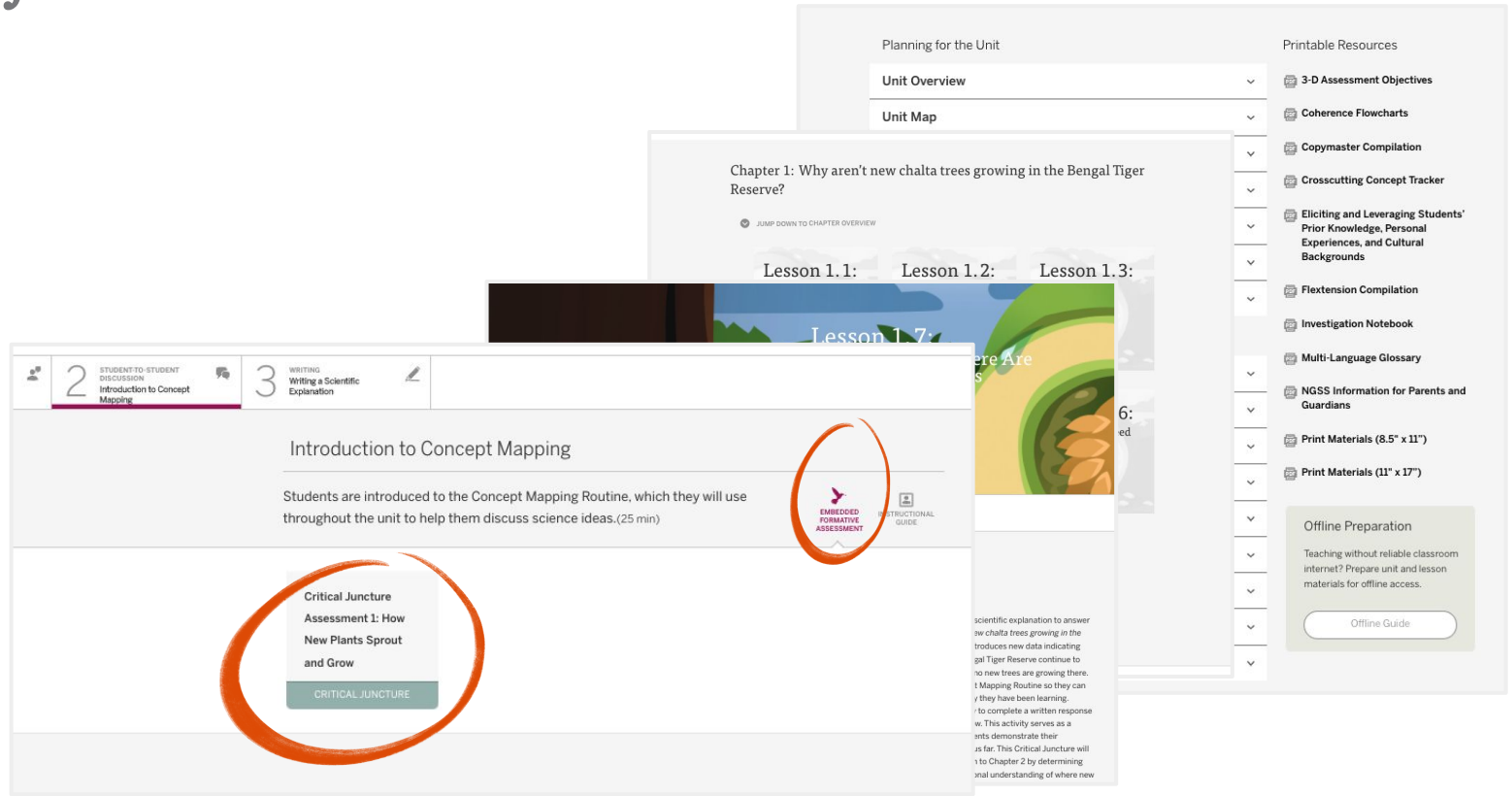


Critical Juncture Assessments

- Track student progress between Progress Build levels
- Embedded into instruction
- Assessment resource includes “Assess Understanding” and “Tailor Instruction”



Critical Juncture Assessment



Name: _____ Date: _____

Using Science Words to Write About How Plants Grow

Directions:
1. Read each question below.
2. Use science words to write an answer to each question.

Where do new plants come from?

_____

_____

_____

What do seeds need to grow into full-grown plants?

_____

_____

_____

Plant and Animal Relationships—Lesson 1.7 **21**

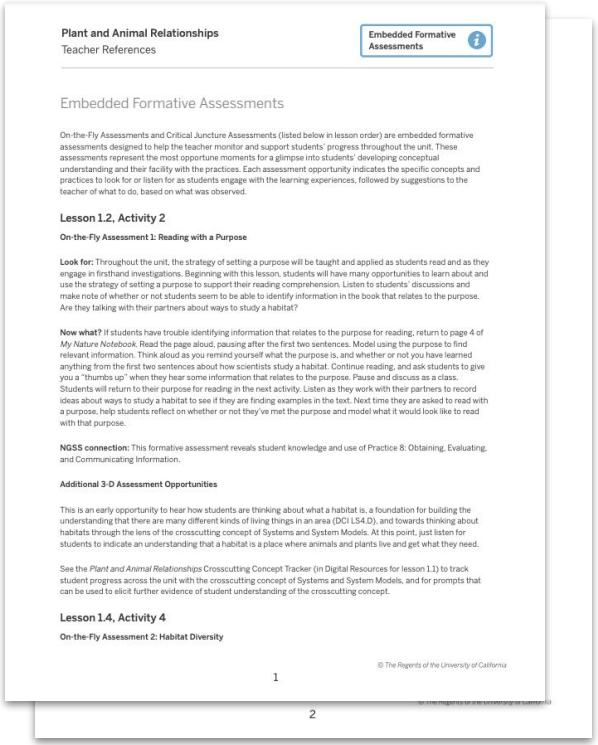
Turn to page 21 in your notebooks.

Use the science words you just worked with—*seeds*, *water*, *sunlight*, *full-grown*, and *sprout*.

Embedded formative assessments

On-the-Fly and Critical Juncture Assessments

Use the Embedded Formative Assessments document to get familiar with the Critical Juncture Assessments in your unit.



Plant and Animal Relationships
Teacher References

Embedded Formative Assessments

Embedded Formative Assessments

On-the-Fly Assessments and Critical Juncture Assessments (listed below in lesson order) are embedded formative assessments designed to help the teacher monitor and support students' progress throughout the unit. These assessments represent the most opportune moments for a glimpse into students' developing conceptual understanding and their facility with the practices. Each assessment opportunity indicates the specific concepts and practices to look for or listen for as students engage with the learning experiences, followed by suggestions to the teacher of what to do, based on what was observed.

Lesson 1.2, Activity 2

On-the-Fly Assessment 1: Reading with a Purpose

Look for: Throughout the unit, the strategy of setting a purpose will be taught and applied as students read and as they engage in firsthand investigations. Beginning with this lesson, students will have many opportunities to learn about and use the strategy of setting a purpose to support their reading comprehension. Listen to students' discussions and make note of whether or not students seem to be able to identify information in the book that relates to the purpose. Are they talking with their partners about ways to study a habitat?

Now what? If students have trouble identifying information that relates to the purpose for reading, return to page 4 of *My Nature Notebook*. Read the page aloud, pausing after the first two sentences. Model using the purpose to find relevant information. Think aloud as you remind yourself what the purpose is, and whether or not you have learned anything from the first two sentences about how scientists study a habitat. Continue reading, and ask students to give you a "thumbs up" when they hear some information that relates to the purpose. Pause and discuss as a class. Students will return to their purpose for reading in the next activity. Listen as they work with their partners to record ideas about ways to study a habitat to see if they are finding examples in the text. Next time they are asked to read with a purpose, help students reflect on whether or not they've met the purpose and model what it would look like to read with that purpose.

NGSS connection: This formative assessment reveals student knowledge and use of Practice 8: Obtaining, Evaluating, and Communicating Information.

Additional 3-D Assessment Opportunities

This is an early opportunity to hear how students are thinking about what a habitat is, a foundation for building the understanding that there are many different kinds of living things in an area (DCI LS4.D), and towards thinking about habitats through the lens of the crosscutting concept of Systems and System Models. At this point, just listen for students to indicate an understanding that a habitat is a place where animals and plants live and get what they need.

See the *Plant and Animal Relationships* Crosscutting Concept Tracker (in Digital Resources for lesson 1.1) to track student progress across the unit with the crosscutting concept of Systems and System Models, and for prompts that can be used to elicit further evidence of student understanding of the crosscutting concept.

Lesson 1.4, Activity 4

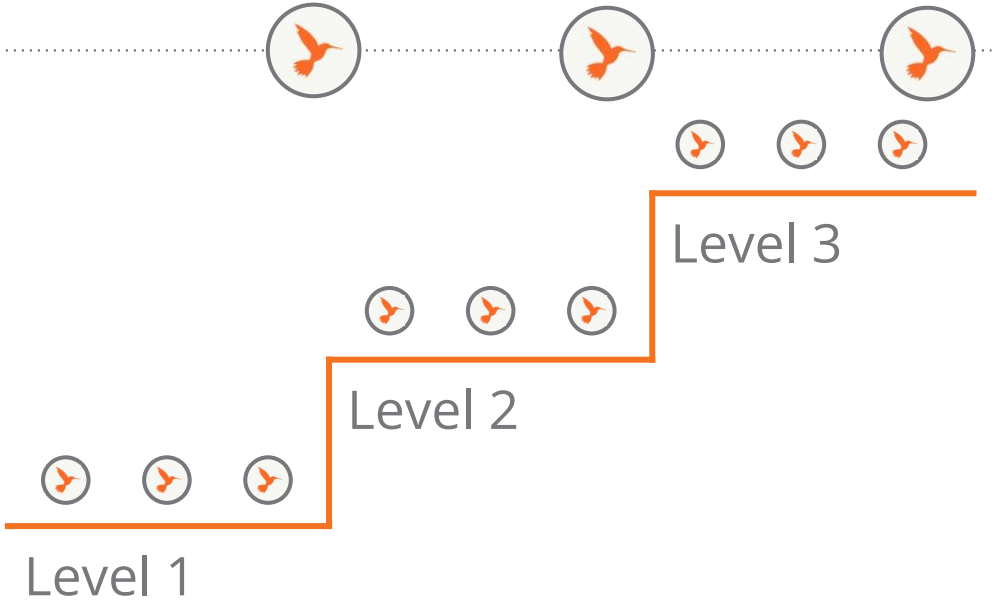
On-the-Fly Assessment 2: Habitat Diversity

Embedded formative assessments

Reflection

In 1-2 sentences, describe the relationship among:

- Progress Build
- On-the-Fly Assessments
- Critical Juncture Assessments



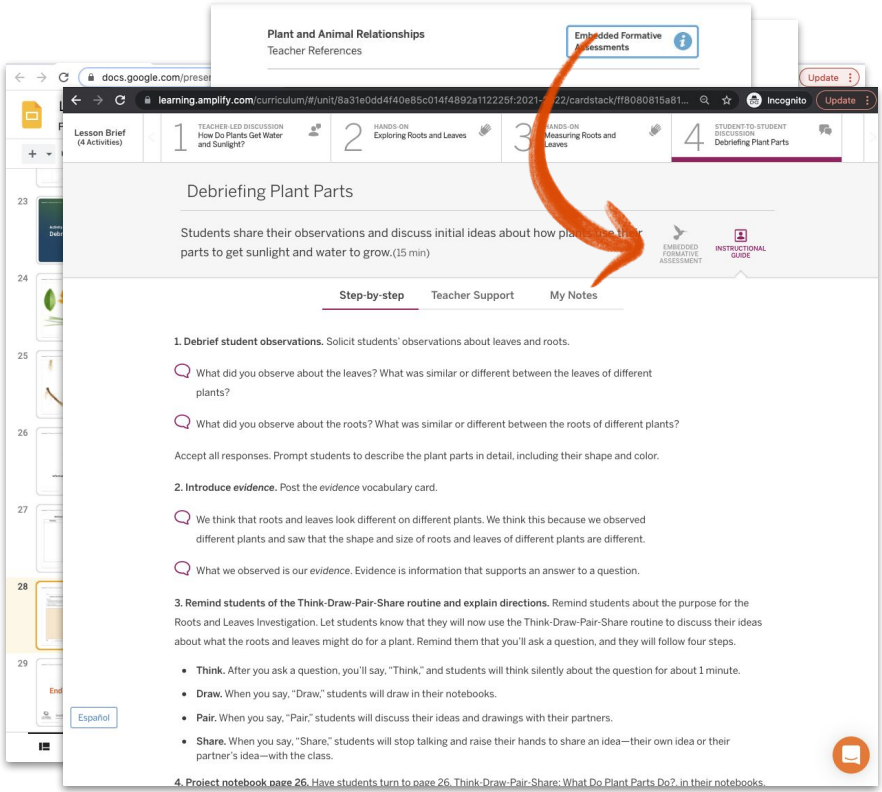
Questions?

Additional formative assessment information

Locating assessment resources

Full text of assessment

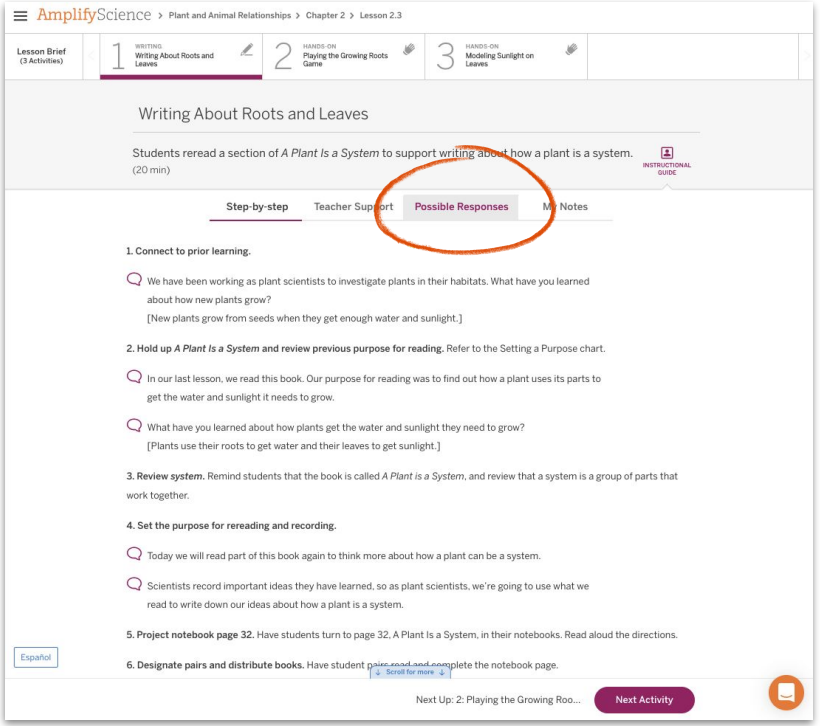
- Embedded Formative Assessments document
- Instructional guide
- Classroom Slides notes



Additional formative assessment information

Possible student responses

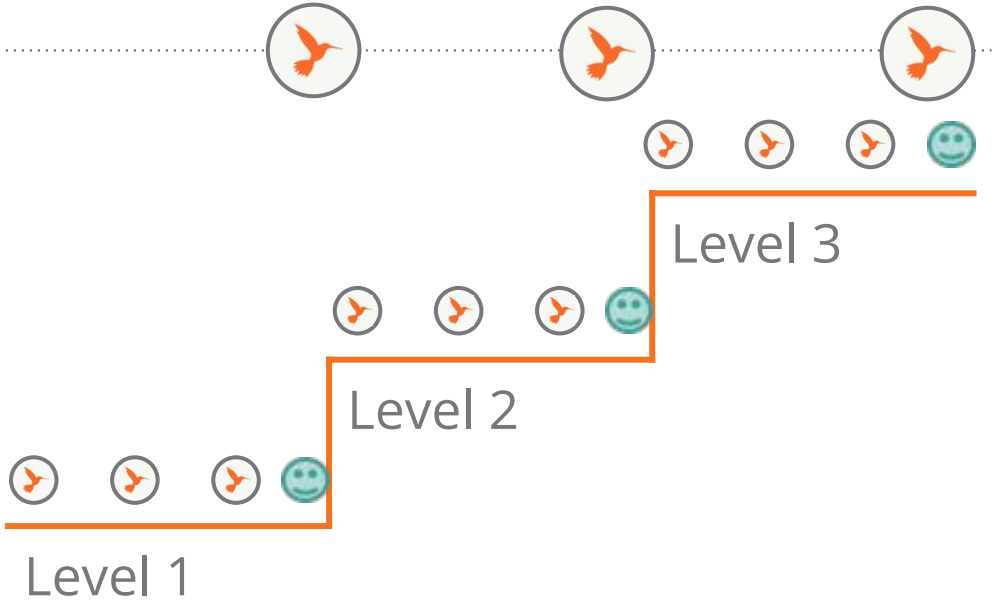
- Within assessments:
  - “Look fors” (OtF)
  - “Assess Understanding” (CJ)
- Possible responses within the Instructional Guide
- Digital resources
  - Assessment Guides
  - Teacher References

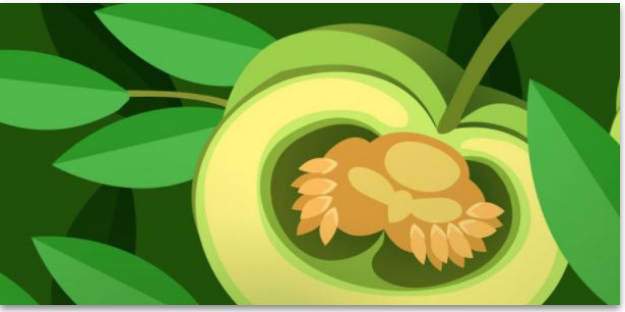
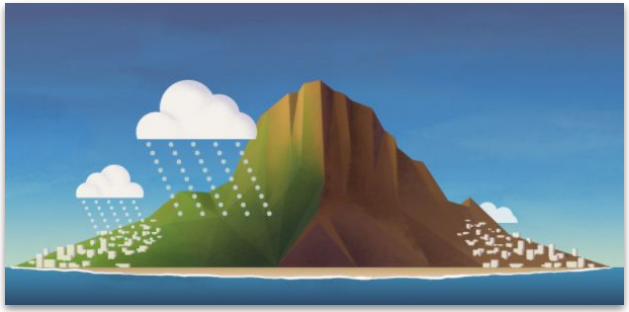
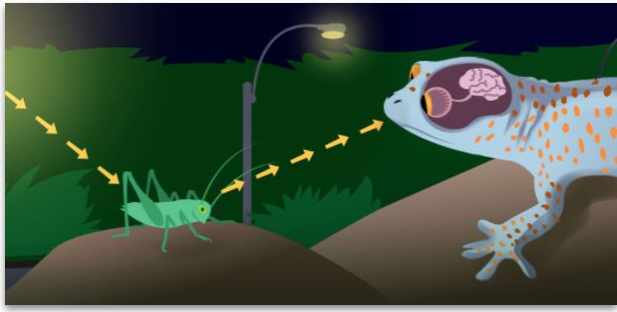


Additional formative assessment information

Student Self-Assessments

- End of each chapter
- Grades K-1: Pair Share activity
- Grades 2-5: Independent Investigation Notebook activity



Plan for the day

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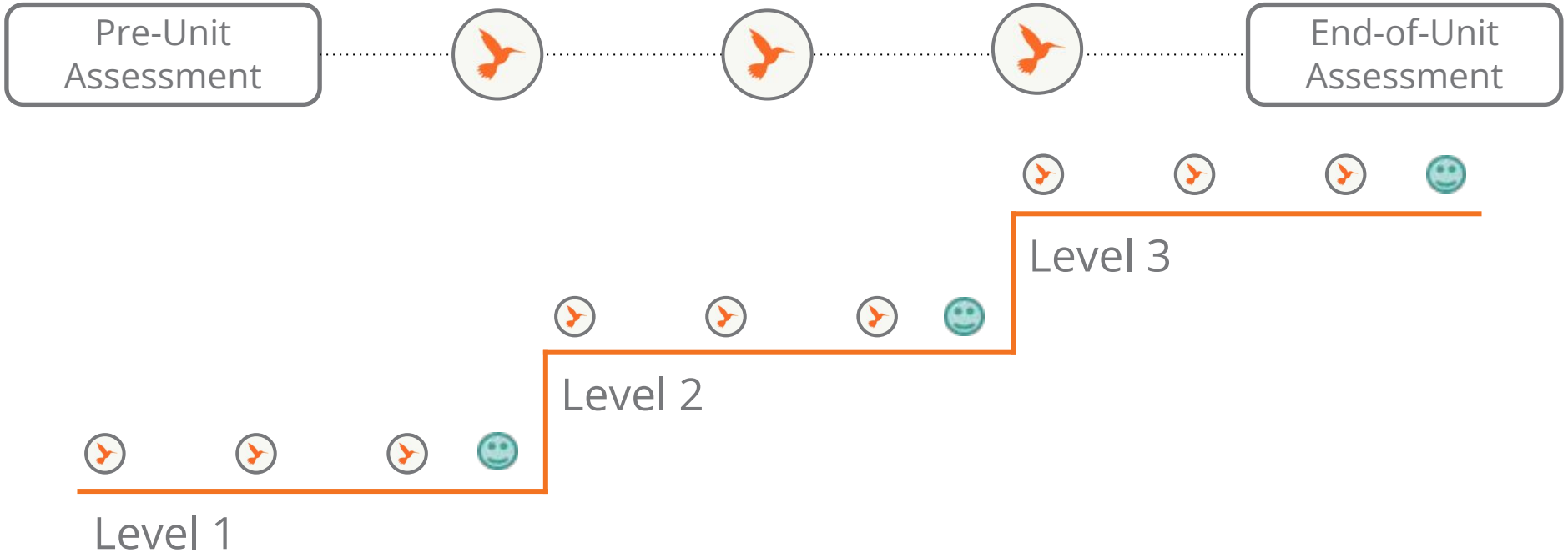
- Formative assessment
- **Pre and end of unit assessment**
- Closing

Pre and End-of-Unit Assessment

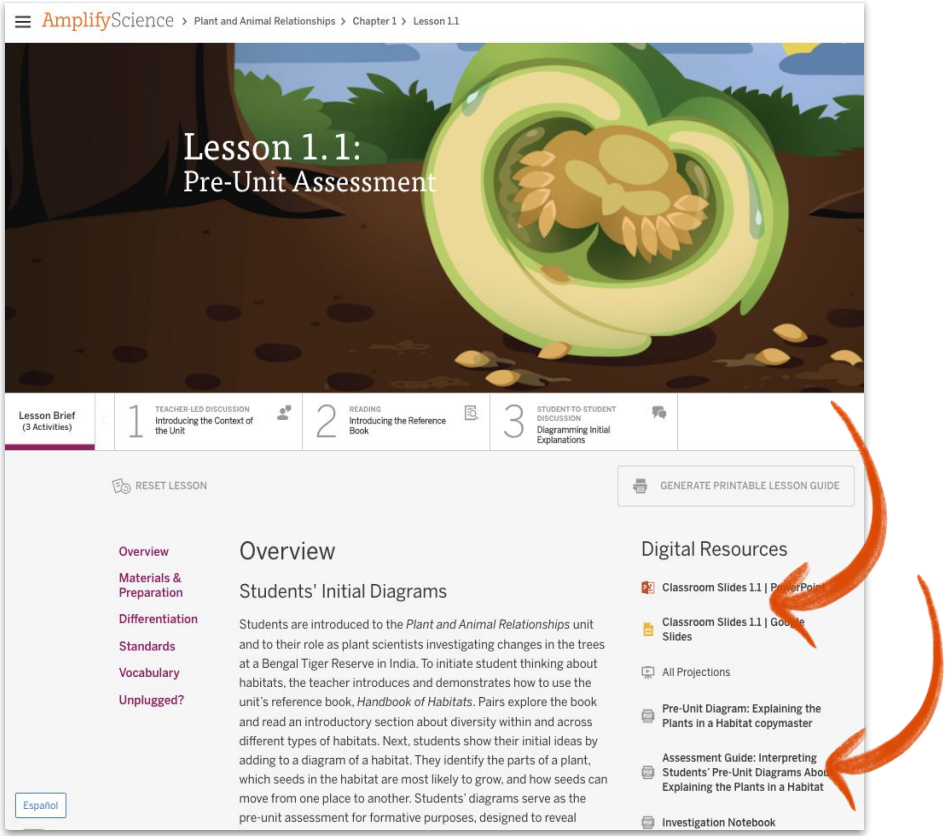


Pre-Unit Assessment

Lesson 1.1

Locate the Assessment Guide in Lesson 1.1 of your unit and skim it.

Open up the classroom slides and see how the pre-unit assessment is embedded in the lesson.

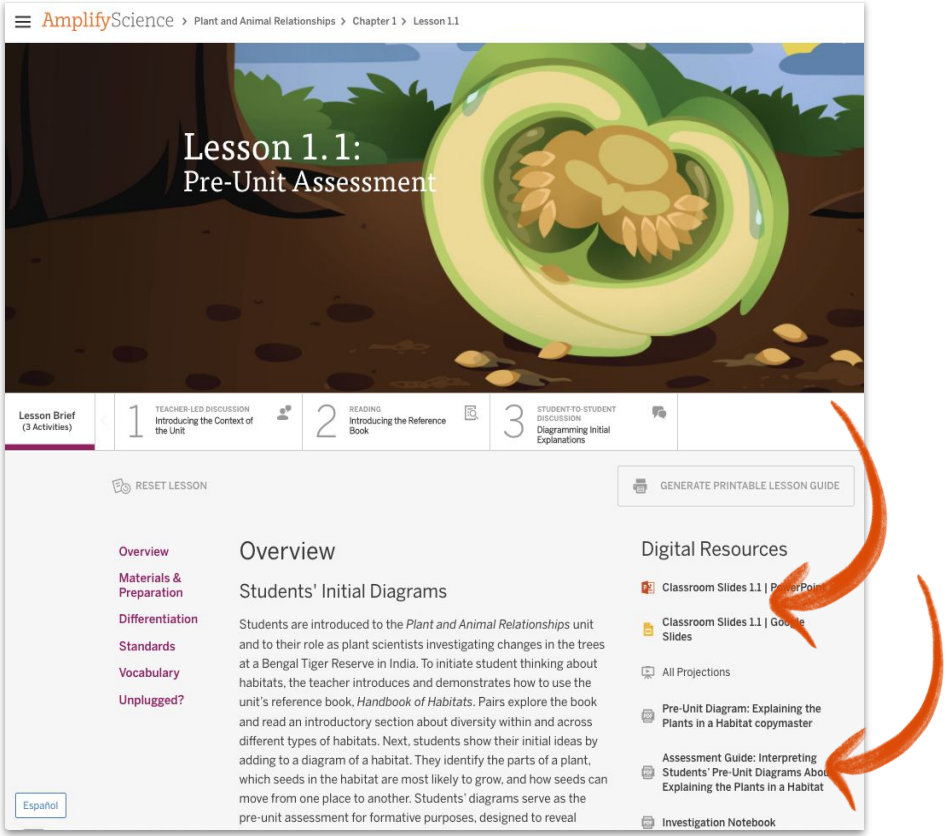


Pre-Unit Assessment

Work Time

Locate the Assessment Guide in Lesson 1.1 of your unit and skim it.

Open up the classroom slides and see how the pre-unit assessment is embedded in the lesson.



End-of-Unit Assessment

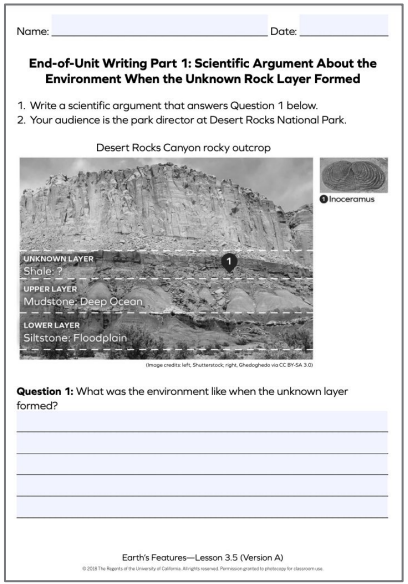
3-dimensional assessment opportunity

- Summative assessment of mastery of science concepts
- Formative assessment of Science and Engineering Practices

End of Unit Assessment for Gr. 4 Earth's Features

Two Part summative assessment

Lesson 3.5 Part 1



Name: _____ Date: _____

End-of-Unit Writing Part 1: Scientific Argument About the Environment When the Unknown Rock Layer Formed

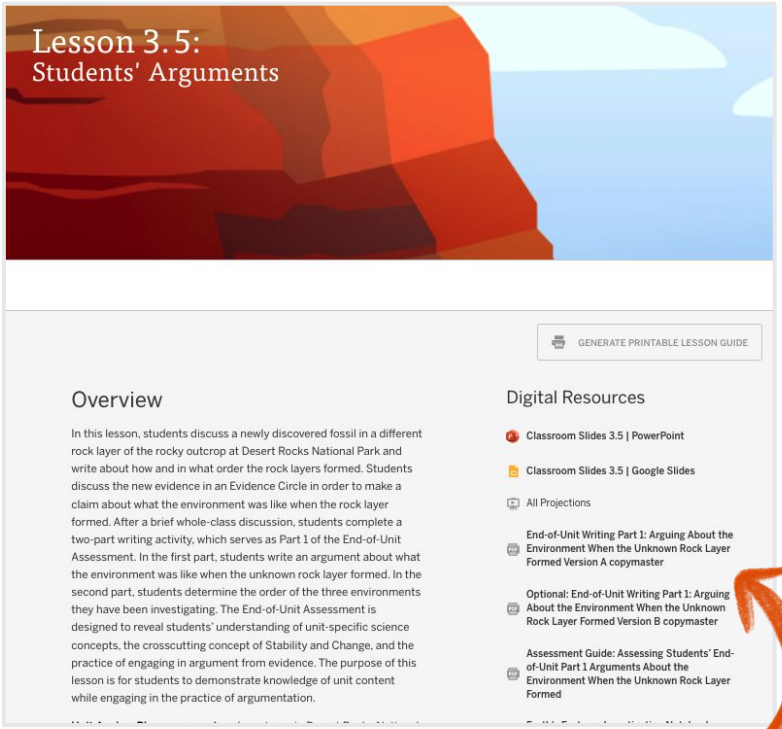
1. Write a scientific argument that answers Question 1 below.
2. Your audience is the park director at Desert Rocks National Park.

Desert Rocks Canyon rocky outcrop

(Image credits: left, Shutterstock; right, Ghedoghedo via CC BY-SA 3.0)

Question 1: What was the environment like when the unknown layer formed?

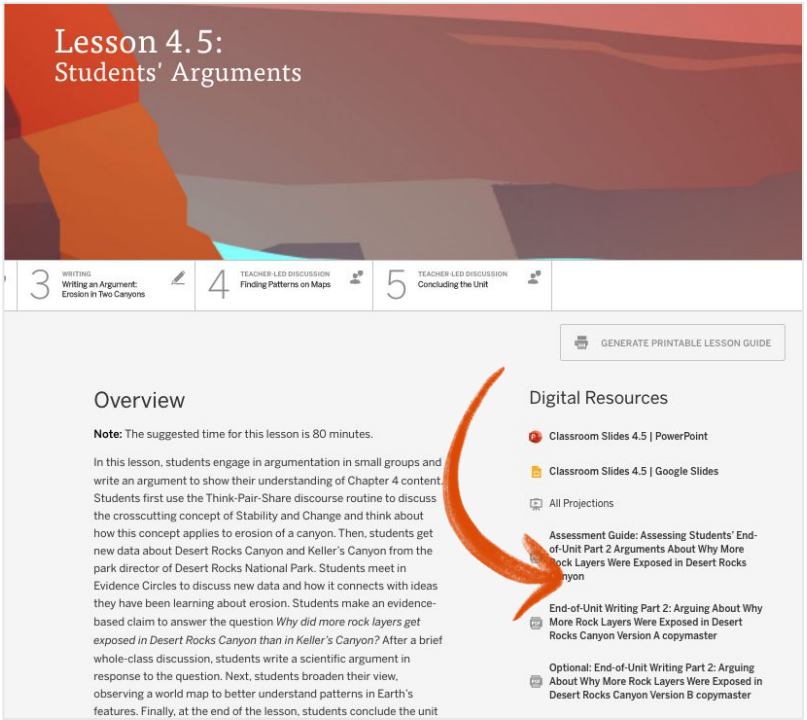
Earth's Features—Lesson 3.5 (Version A)

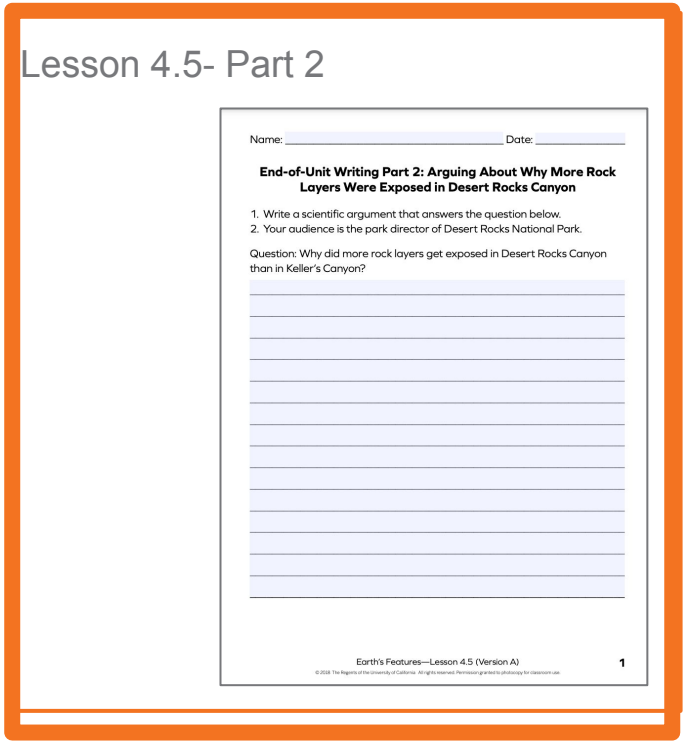


Amplify.

End of Unit Assessment for Gr. 4 Earth's Features

Two Part summative assessment (usually found in Units 3 & 4)



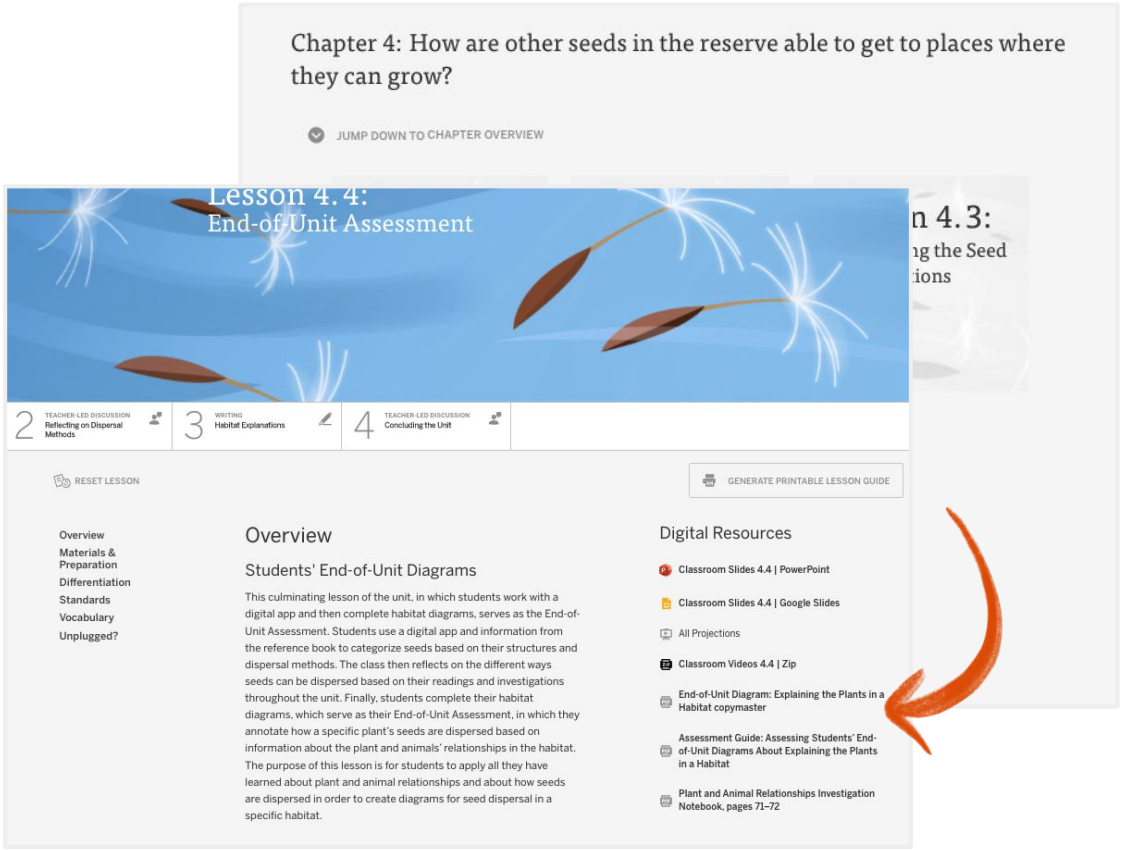


Amplify.

End-of-Unit Assessment

Work time

Locate the End-of-Unit Assessment and Assessment Guide in your unit.



End-of-Unit Assessment

Work time

Locate, open and read your End-of-Unit Assessment Guide

Assessment Guide: Interpreting Students' Pre-Unit Explanations About the Rocky Outcrop

This pre-unit writing assessment is an opportunity for students to articulate their initial ideas about how fossils and rocks form and how they can be used to interpret the geologic history of a place. It also provides a baseline for considering student growth over the course of the unit. See the 3-D Assessment Objectives (under Printable Resources) for a summary of how summative and formative assessments across the unit, grade and grade band reveal student knowledge and use of the three dimensions to support progress toward the focal Performance Expectations for this unit.

This pre-unit assessment provides students with an opportunity to connect their background knowledge and the initial ideas they have to the concepts they will be learning about in the *Earth's Features: Mystery in Desert Rocks Canyon* unit. It can also provide insight into students' thinking as you begin this unit of instruction. This will allow you to draw connections to students' experiences and to watch for alternate conceptions that might get in the way of students' understanding. In particular, look for the following:

Connecting to students' experiences. Examples of students' experiences they might reference that you can connect to the content of lessons in the unit include the following:

- seeing fossils exhibited in a natural history museum
- hiking or visiting a national park
- seeing rocks in a river or other moving water

Building on prior knowledge. Examples of ideas that students can build on throughout the unit include the following:

- Fossils are evidence of life from the past.
- Things can build up over time.
- Rock material can be different sizes, such as boulders, pebbles, or sand.

Applying crosscutting concepts. Example of ways students could demonstrate facility with the crosscutting concept of Stability and Change:

- The environment of Desert Rocks National Park could have been different in the past (applying the idea that *some systems appear stable, but can change over long periods of time*).

Gauging students' facility with science practices. Since students write a scientific explanation for this task, it offers an entry-level assessment of student facility with this science and engineering practice. However, because students' work in response to this pre-assessment may be sparse and the unit is focused on the science and engineering practice of Engaging in Argument from Evidence, we recommend using students' first independently written arguments, and corresponding assessment guidance in Lesson 2.6 (Assessment Guide: Reviewing Students' Chapter 2 Arguments About the Environment When the Upper Layer Formed) as an entry-level assessment of this science and engineering practice. Additional entry-level assessments of science and engineering practices and

crosscutting concepts can be found in the following lessons: the science and engineering practice of Obtaining, Evaluating, and Communicating Information in Lesson 1.2 (On-the-Fly Assessment 1, Activity 4), and the crosscutting concept of Stability and Change in Lesson 2.4 (On-the-Fly Assessment 7, Activity 4).

Preconceptions, contrasted with accepted scientific understandings include the following:

- **Rock doesn't change.** Because geologic processes take so long, many students might not think that rocks ever change. However, rock on Earth is constantly changing: new rocks form and old rocks break down. Most rock transformation processes happen at times scales too long for humans to experience.
- **The environment in one place doesn't change.** Similar to rocks, environments change slowly over time, and students might not understand that one place can transition from an underwater environment to being exposed to air. However, because of sea transgressions and regressions, as well as sedimentary infilling of basins and tectonic activity, the environment in one location can change over geologic time.
- **Water or wind can't affect rock.** Rock is a very solid, while water and wind are not thought of as very strong or powerful. However, moving water or wind can move small pieces of sediment, which creates friction with existing rock and can wear the rock down over time.
- **All fossils are the same age, which is very old.** Students might think of any fossil as representing "the past," without considering Earth's nearly four-billion-year-old history of life and the range of relative ages for fossils. In fact, one fossil can be hundreds of millions of years older than another fossil, and fossils range from billions of years old to just 10,000 years old.
- **Life has always been as it is.** Some students might think that all the species that are alive now have always been alive, or that species have never gone extinct. However, new species evolve and existing species go extinct regularly over time.

The assessment task in this lesson provides an opportunity to formatively assess students' preliminary understanding of the following standards:

Science and Engineering Practice
- Practice 6: Constructing Explanations and Designing Solutions

Disciplinary Core Idea
- ESS1.C: The History of Planet Earth:
  - Local, regional, and global patterns of rock formations reveal changes over time due to earth forces, such as earthquakes. The presence and location of certain fossil types indicate the order in which rock layers were formed. (4-ESS1-1)

Crosscutting Concept
- Stability and Change

Amplify.

Questions?

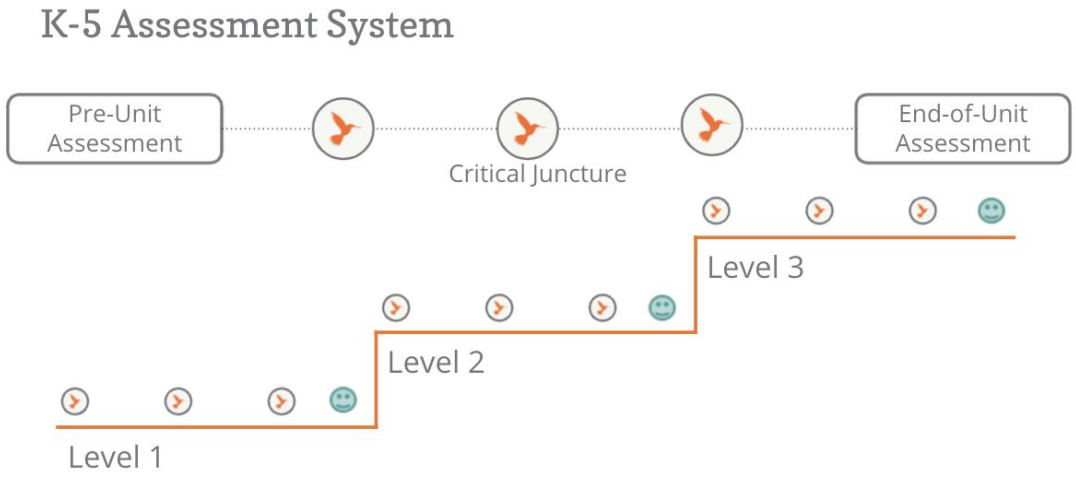
Assessment System

Reflection

How do the Progress Build and assessments work as a **system**?

What are the benefits of this system for students? For teachers?

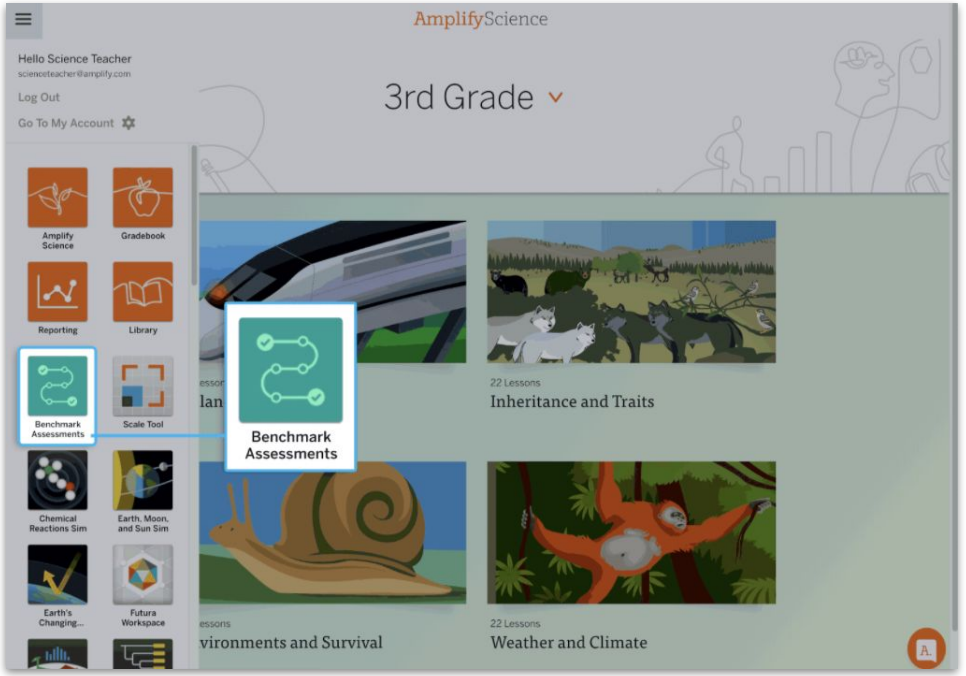
Which assessments include students engaging in authentic discourse?



Resources for NGSS progress monitoring

NGSS Benchmark assessments

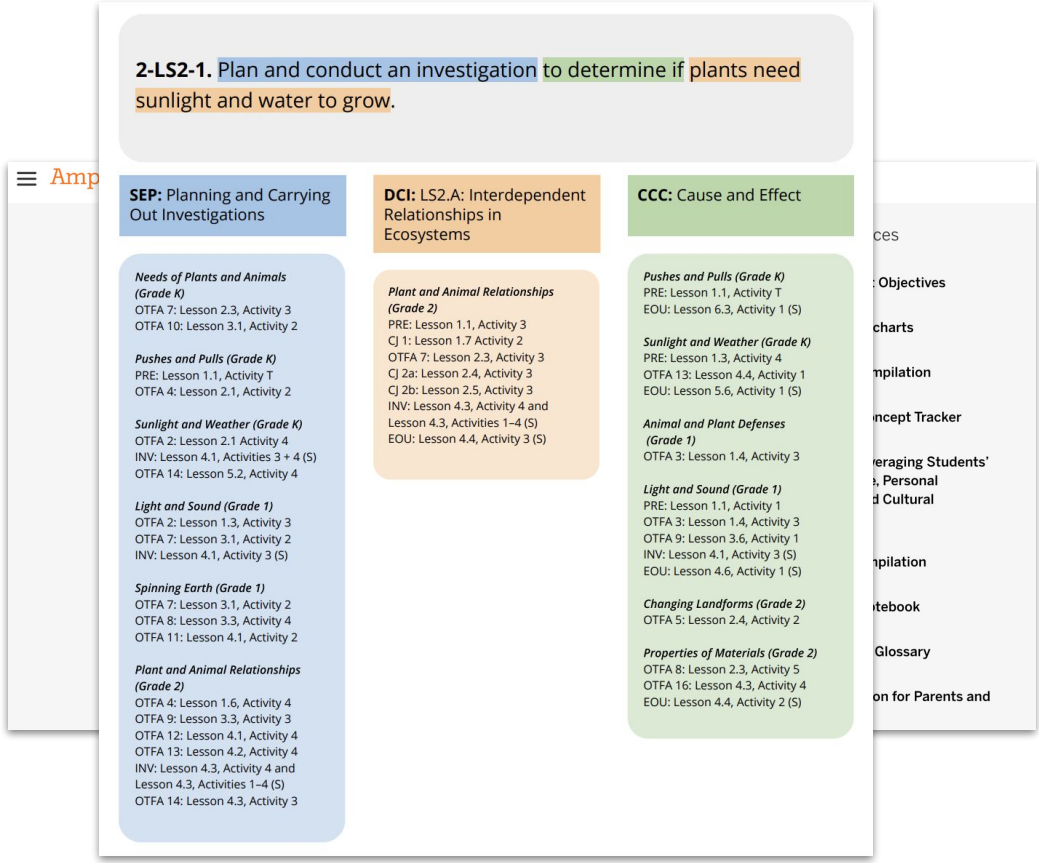
- Accessible in the Global Navigation menu
- Grades 3-5
- 4 assessments per grade



Resources for NGSS progress monitoring

3D Assessment Objectives

- Located in the Unit Guide
- Identifies where each dimension of the target Performance Expectations are assessed in the unit, in the grade, or in the grade-band.



2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow.

SEP: Planning and Carrying Out Investigations

Needs of Plants and Animals (Grade K)
OTFA 7: Lesson 2.3, Activity 3
OTFA 10: Lesson 3.1, Activity 2

Pushes and Pulls (Grade K)
PRE: Lesson 1.1, Activity T
OTFA 4: Lesson 2.1, Activity 2

Sunlight and Weather (Grade K)
OTFA 2: Lesson 2.1 Activity 4
INV: Lesson 4.1, Activities 3 + 4 (S)
OTFA 14: Lesson 5.2, Activity 4

Light and Sound (Grade 1)
OTFA 2: Lesson 1.3, Activity 3
OTFA 7: Lesson 3.1, Activity 2
INV: Lesson 4.1, Activity 3 (S)

Spinning Earth (Grade 1)
OTFA 7: Lesson 3.1, Activity 2
OTFA 8: Lesson 3.3, Activity 4
OTFA 11: Lesson 4.1, Activity 2

Plant and Animal Relationships (Grade 2)
OTFA 4: Lesson 1.6, Activity 4
OTFA 9: Lesson 3.3, Activity 3
OTFA 12: Lesson 4.1, Activity 4
OTFA 13: Lesson 4.2, Activity 4
INV: Lesson 4.3, Activity 4 and Lesson 4.3, Activities 1–4 (S)
OTFA 14: Lesson 4.3, Activity 3

DCI: LS2.A: Interdependent Relationships in Ecosystems

Plant and Animal Relationships (Grade 2)
PRE: Lesson 1.1, Activity 3
CJ 1: Lesson 1.7 Activity 2
OTFA 7: Lesson 2.3, Activity 3
CJ 2a: Lesson 2.4, Activity 3
CJ 2b: Lesson 2.5, Activity 3
INV: Lesson 4.3, Activity 4 and Lesson 4.3, Activities 1–4 (S)
EOU: Lesson 4.4, Activity 3 (S)

CCC: Cause and Effect

Pushes and Pulls (Grade K)
PRE: Lesson 1.1, Activity T
EOU: Lesson 6.3, Activity 1 (S)

Sunlight and Weather (Grade K)
PRE: Lesson 1.3, Activity 4
OTFA 13: Lesson 4.4, Activity 1
EOU: Lesson 5.6, Activity 1 (S)

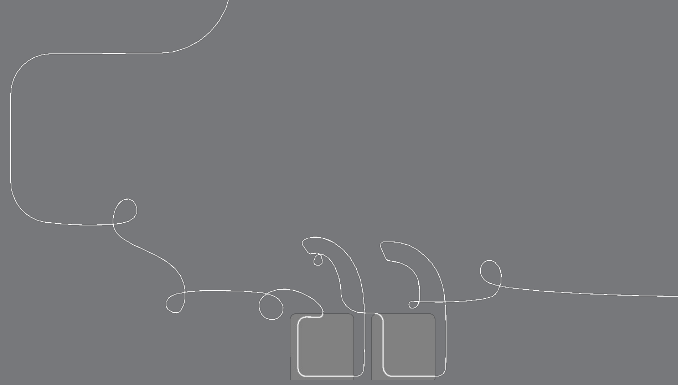
Animal and Plant Defenses (Grade 1)
OTFA 3: Lesson 1.4, Activity 3

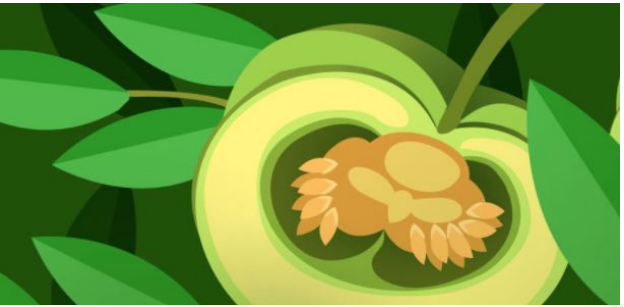
Light and Sound (Grade 1)
PRE: Lesson 1.1, Activity 1
OTFA 3: Lesson 1.4, Activity 3
OTFA 9: Lesson 3.6, Activity 1
INV: Lesson 4.1, Activity 3 (S)
EOU: Lesson 4.6, Activity 1 (S)

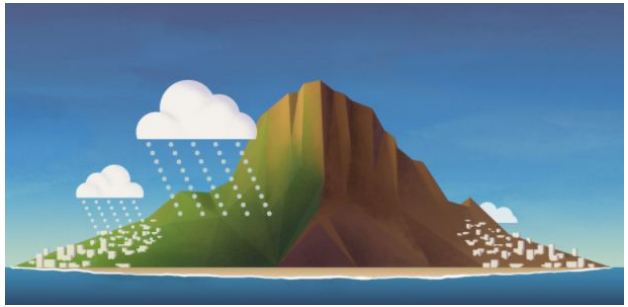
Changing Landforms (Grade 2)
OTFA 5: Lesson 2.4, Activity 2

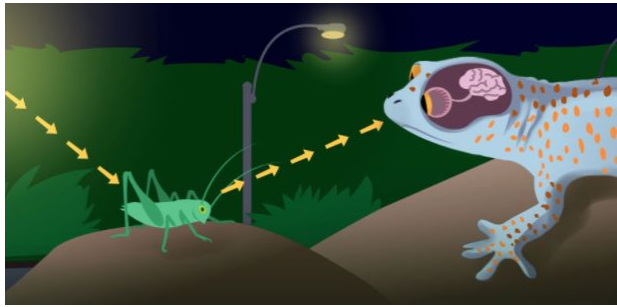
Properties of Materials (Grade 2)
OTFA 8: Lesson 2.3, Activity 5
OTFA 16: Lesson 4.3, Activity 4
EOU: Lesson 4.4, Activity 2 (S)

Questions?









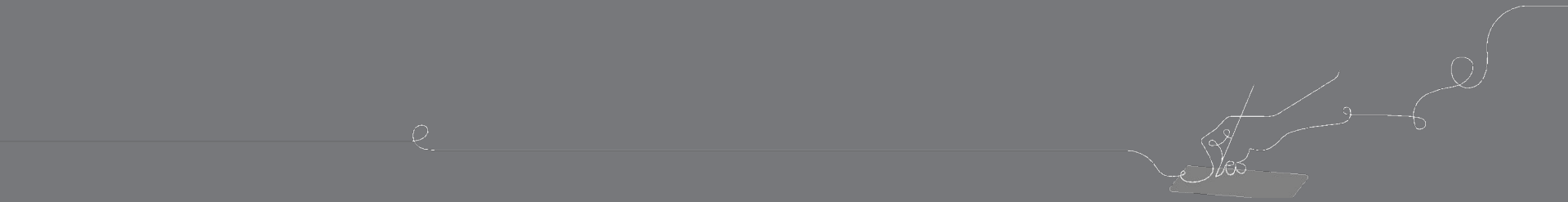
Plan for the day

- Introduction
- Progress Builds
- Formative assessment
- Pre and end of unit assessment
- **Closing**

Overarching goals

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

- ✓ Describe the overall structure of the Assessment System
- ✓ Describe the purpose of the Formative, Pre and Post Unit Assessments



Closing reflection

Based on our work today, share:

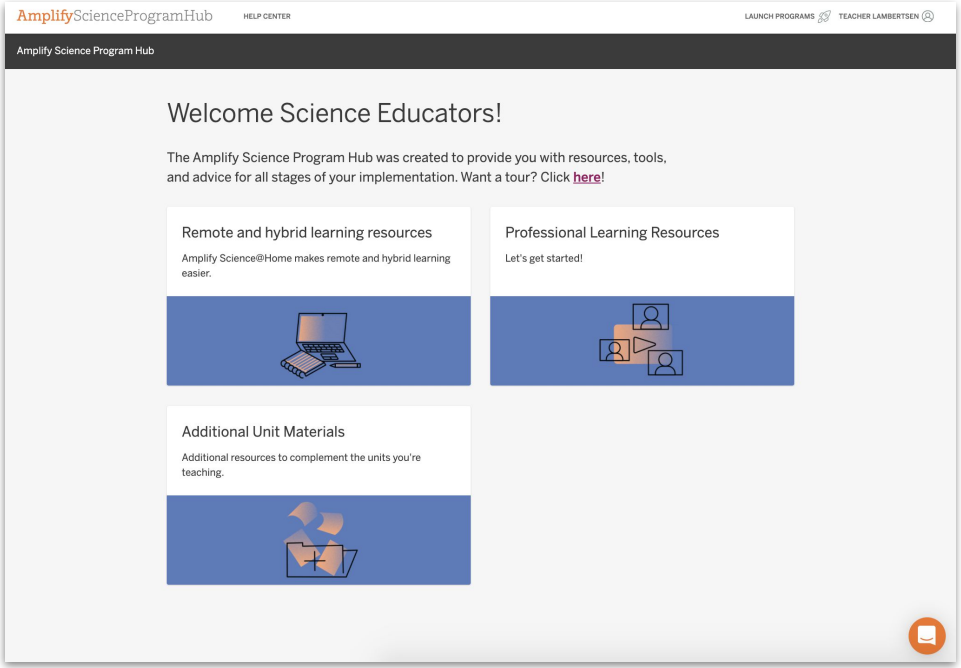
Head: something you'll keep in mind

Heart: something you're feeling

Feet: something you're planning to do

Program Hub

- Unit overview videos
- Planning tools
- Remote and hybrid learning resources.



Additional resources and ongoing support

Customer Care

Seek information specific to enrollment and rosters, technical support, materials and kits, and teaching support, weekdays 7AM-10PM EST and weekends 10AM-6PM EST.

help@amplify.com

800-823-1969

Amplify Chat