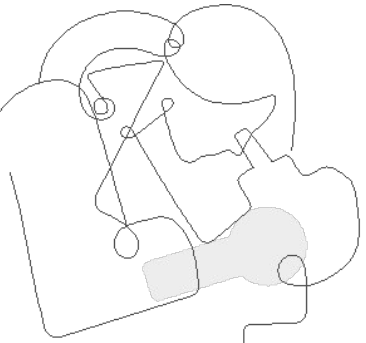
Amplify Science

The Assessment System

Grade 2, Unit 2: Properties of Materials

Part 3

Strengthen 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.**

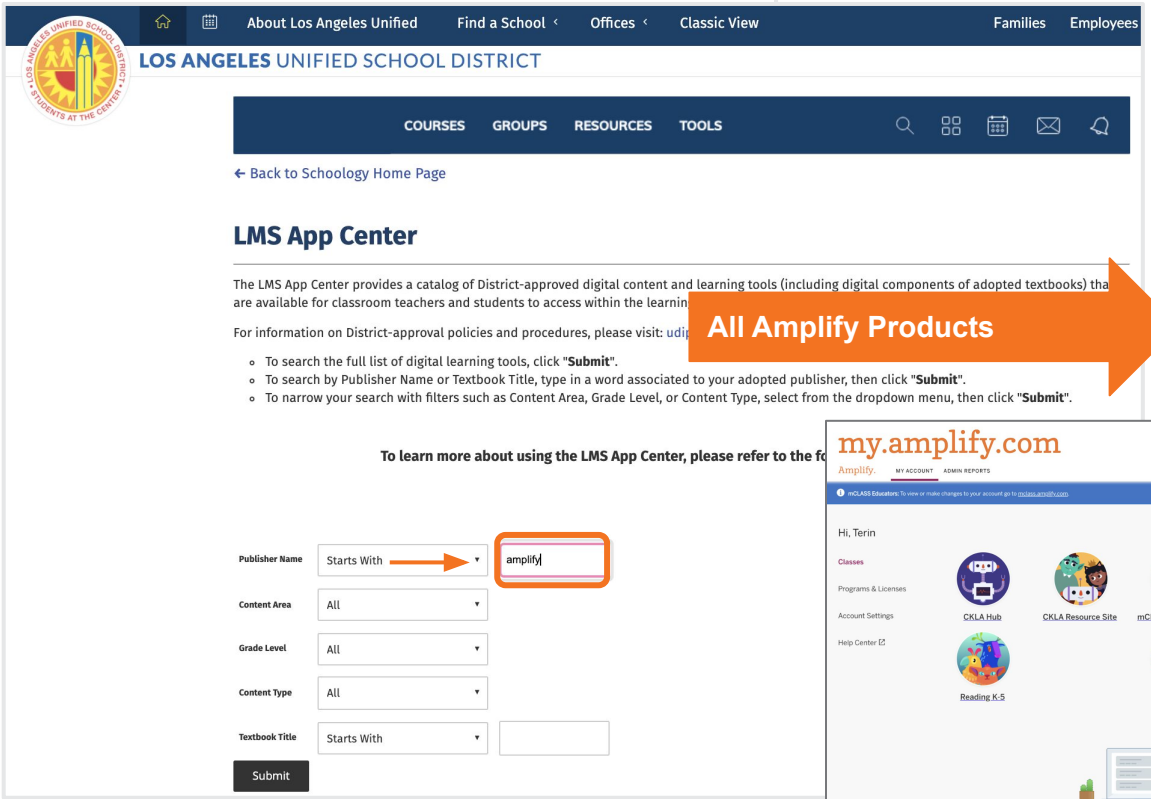
We are in your corner – extending your reach, saving you time, and enhancing your understanding of each student.

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

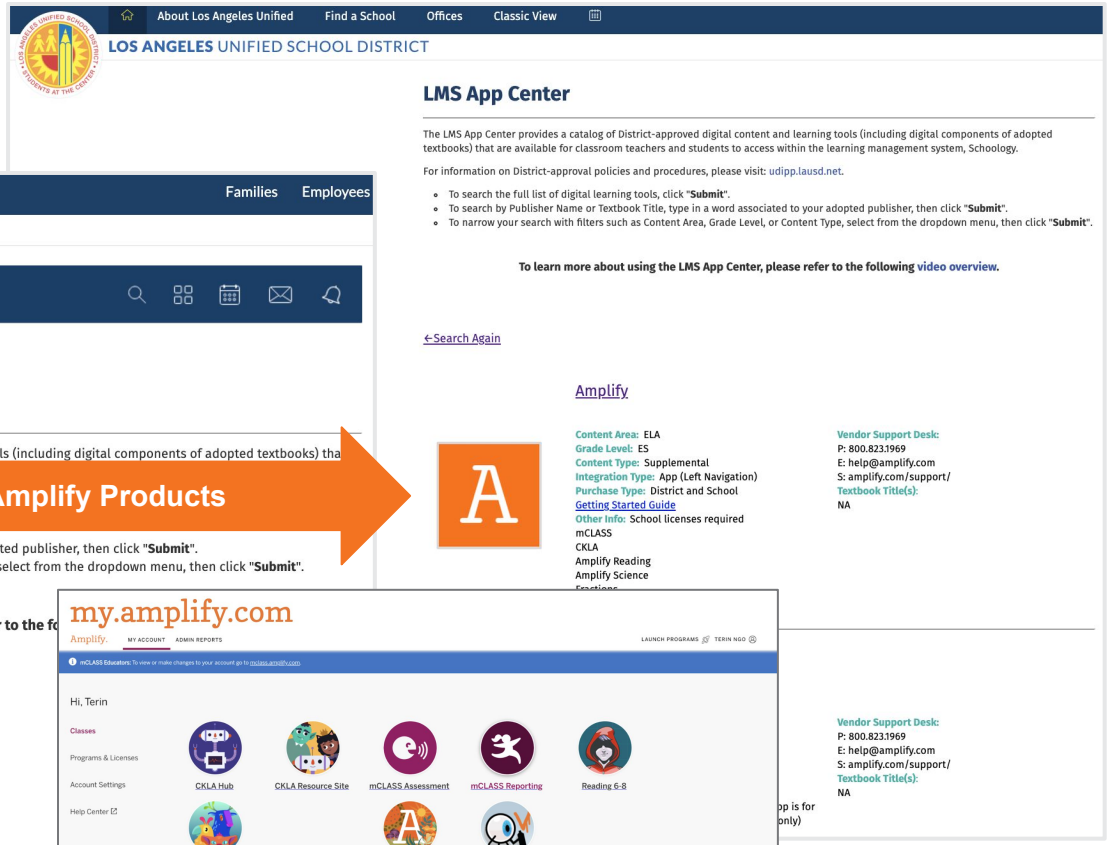
We share your goal of **inspiring all students to think deeply, creatively, and for themselves.**

Sincerely,
Amplify

Schoology



All Amplify Products



Join Amplify Science Schoology Group

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

Navigation Temperature Check

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

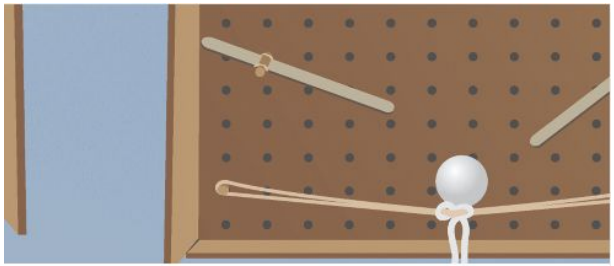
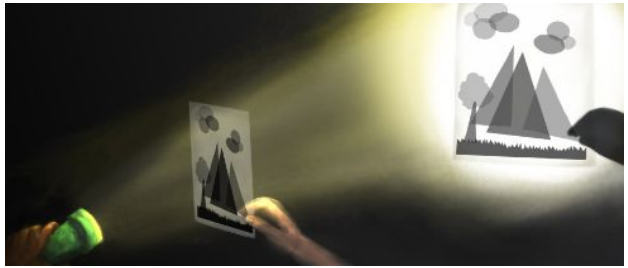
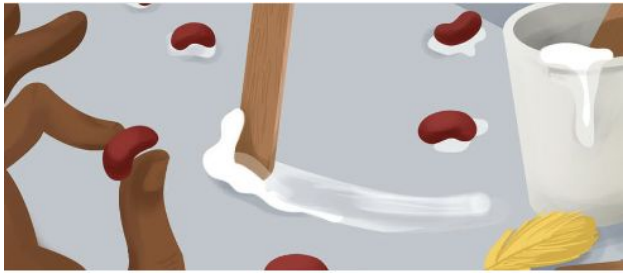
1 = Extremely Uncomfortable

2 = Uncomfortable

3 = Mild

4 = Comfortable

5 = Extremely Comfortable

Plan for the day

- Introduction
- Assessment System
- Progress Build
- Assessments
- Model Lesson
- Planning
- Closing

Overarching goals

- Describe the structure and purpose of the Amplify Science Assessment System
- Plan for the strategic use of assessment resources to analyze and respond to student work

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?

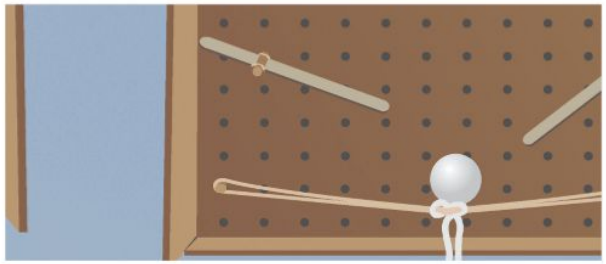
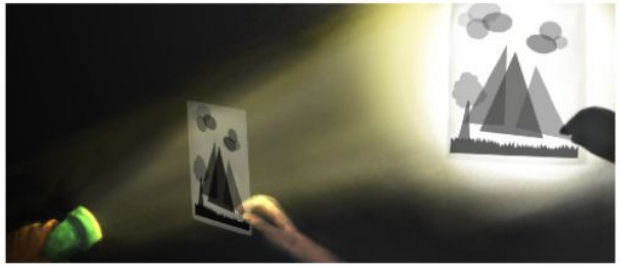
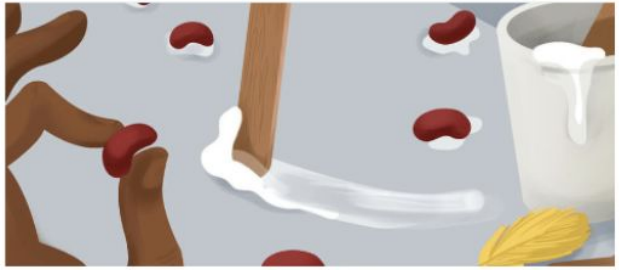
Participant Notebook

https://bit.ly/3Ph1T9Z

Opening Reflection: Assessment

Why do we assess our students?

Why do we assess our students?

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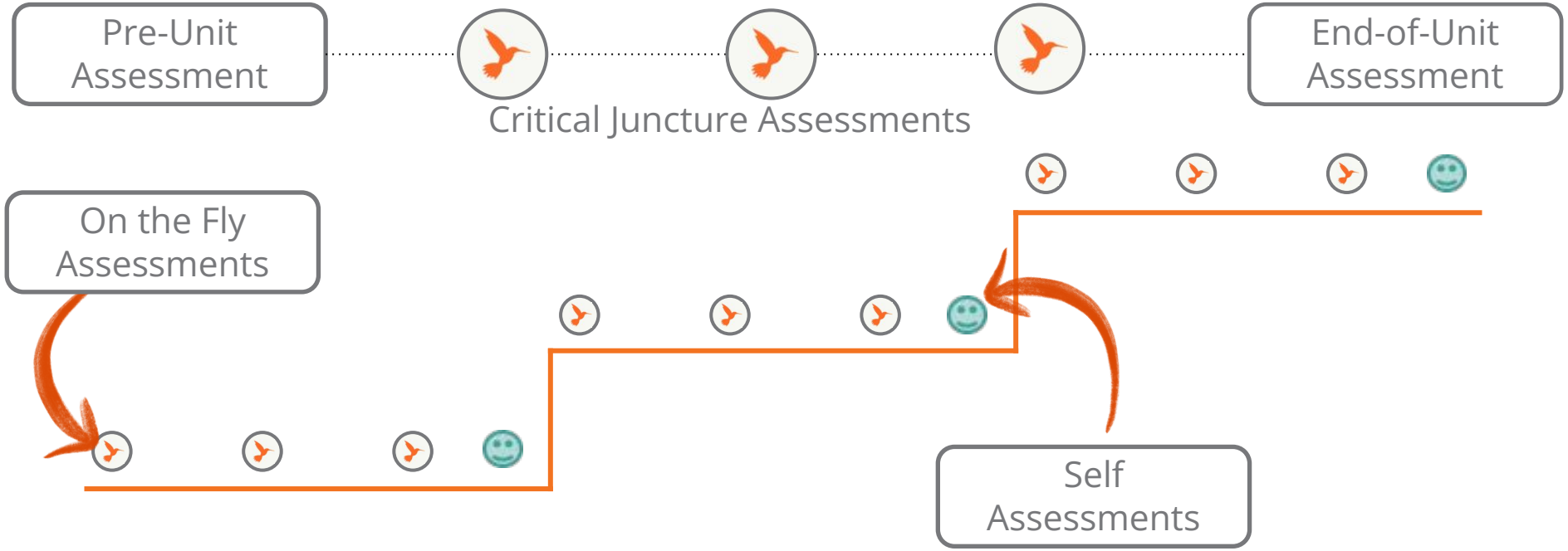
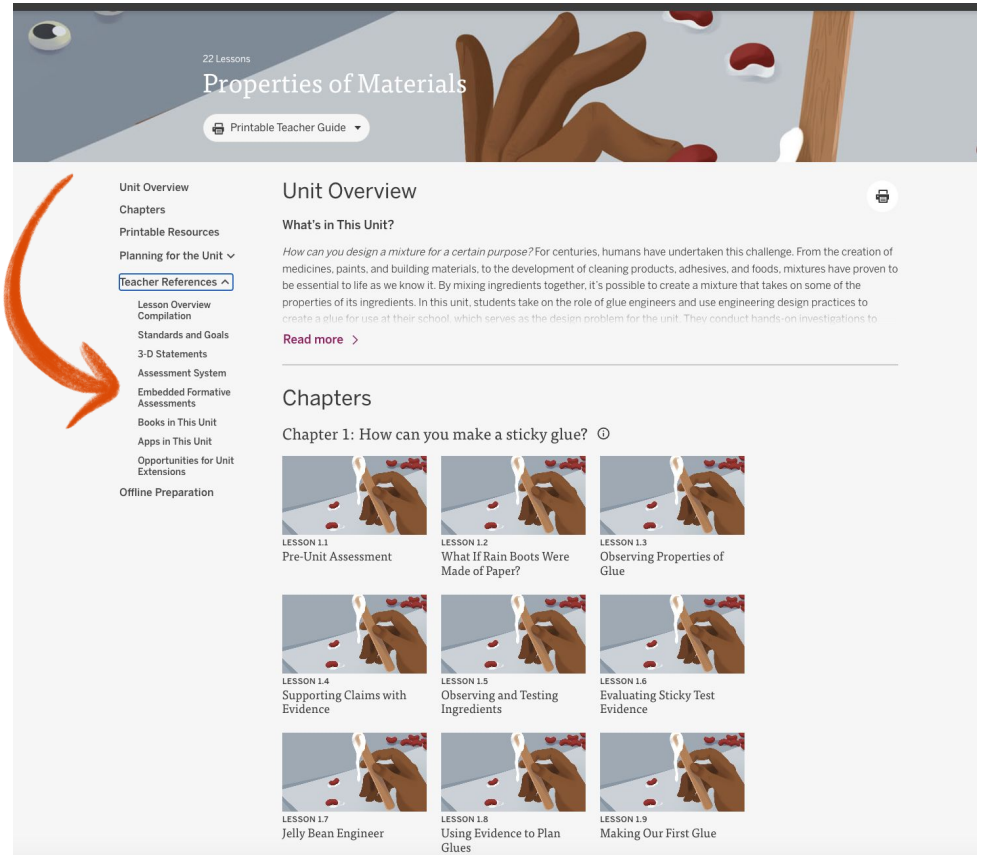
K-5 Assessment System

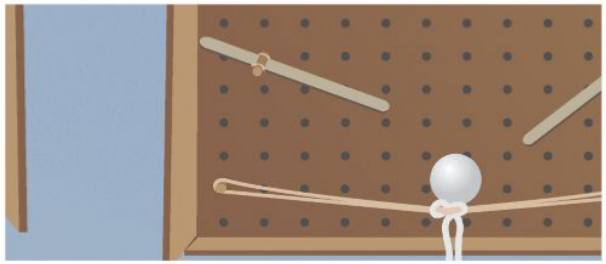
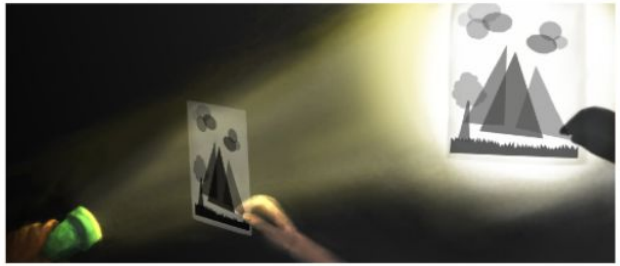
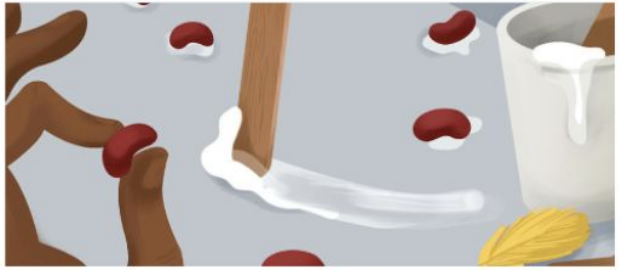


Assessment System Document

Properties of Materials



Questions?

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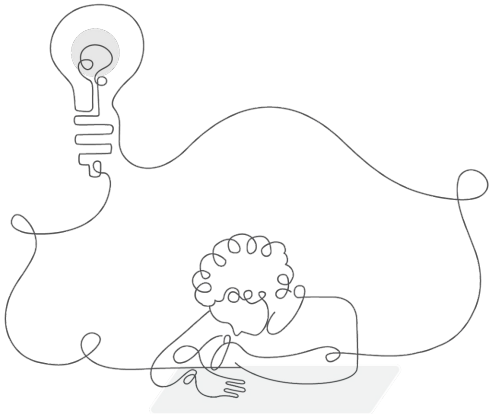
Reviewing the unit phenomenon

Properties of Materials

Amplify Science units are designed around complex phenomena that drive student learning through the unit.



Properties of Materials

Problem: How can we design a glue mixture that is better than what the school uses now?

Role: Glue engineers

As glue engineers, students are challenged to create a glue for use at their school that meets a set of design goals. Students present an evidence-based argument stating why their glue mixture would solve their school's need for a better glue.

Properties of Materials

Unit Question

How can we design a glue mixture that is better than what the school uses now?

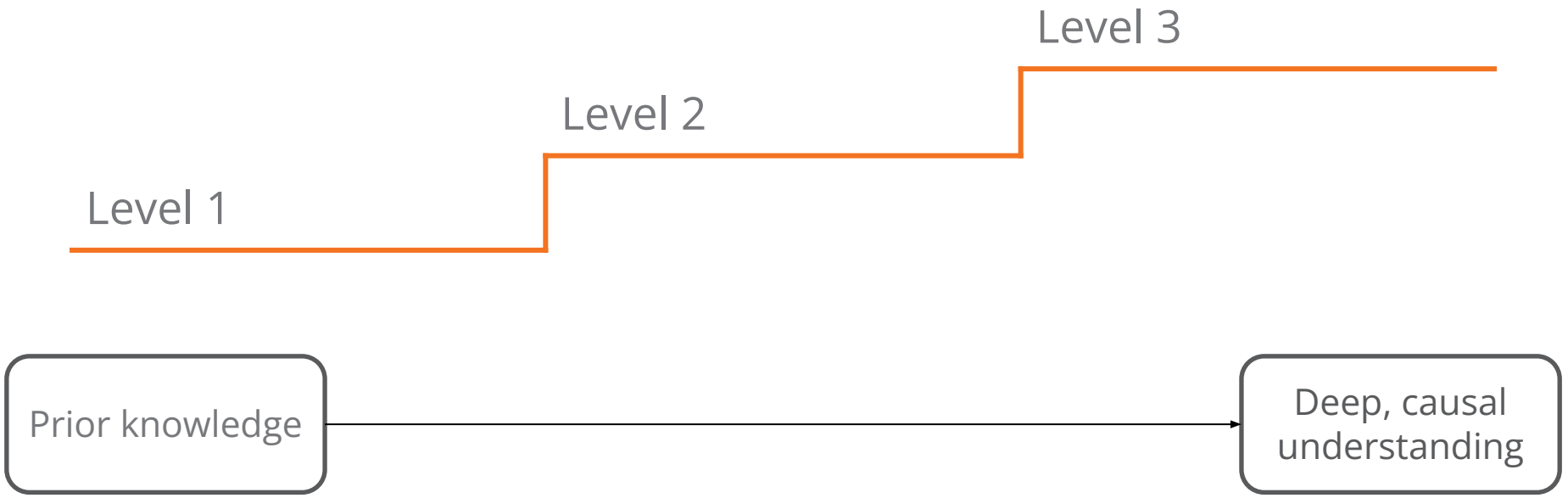
Students conduct hands-on investigations to observe properties of a variety of possible glue ingredients and learn how certain materials respond to heating and cooling. Students conduct tests that yield quantifiable results, graph their data, analyze and interpret results, and then use that evidence to iteratively design a series of glue mixtures, each one better than the one before. Students are able to speak knowledgeably about their choices and argue for how a particular glue mixture best meets their design goals, with evidence from a variety of sources.

Explaining the phenomenon: Science Concepts

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

Progress Build

A unit-specific learning progression

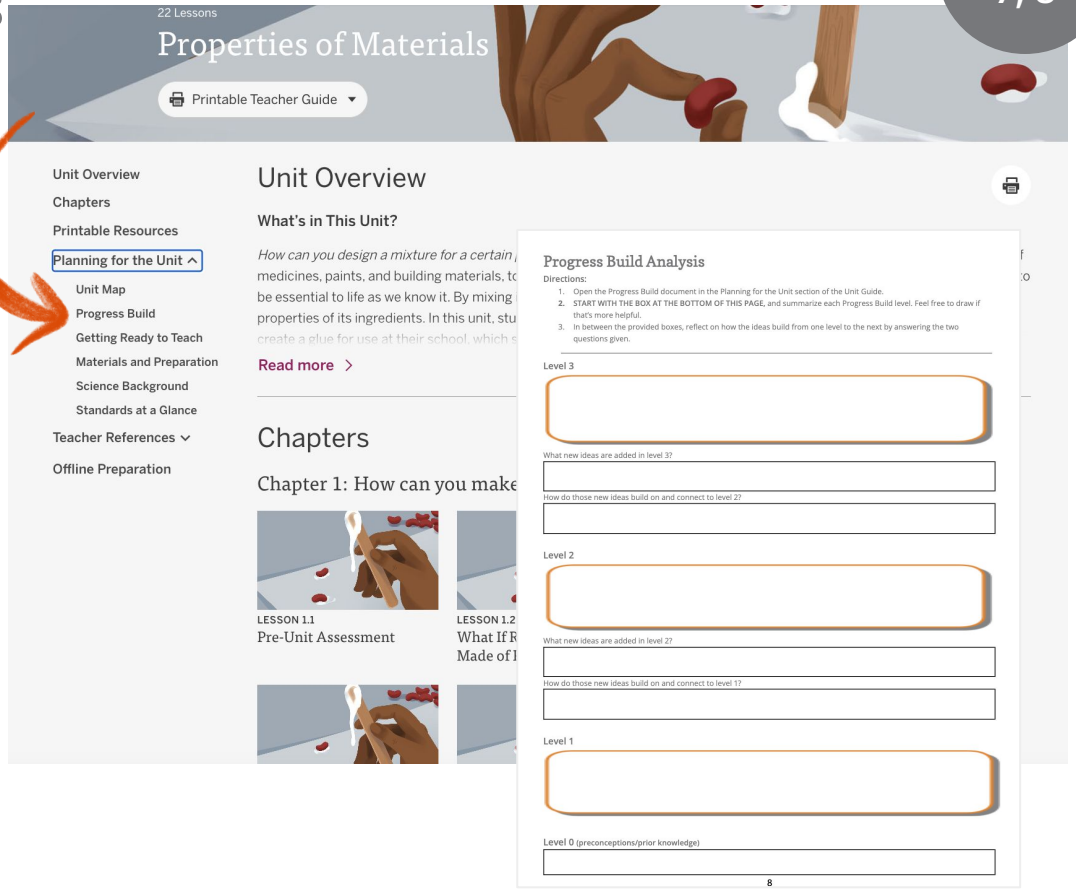


Progress Build analysis

Work time

Read and analyze your unit's Progress Build.

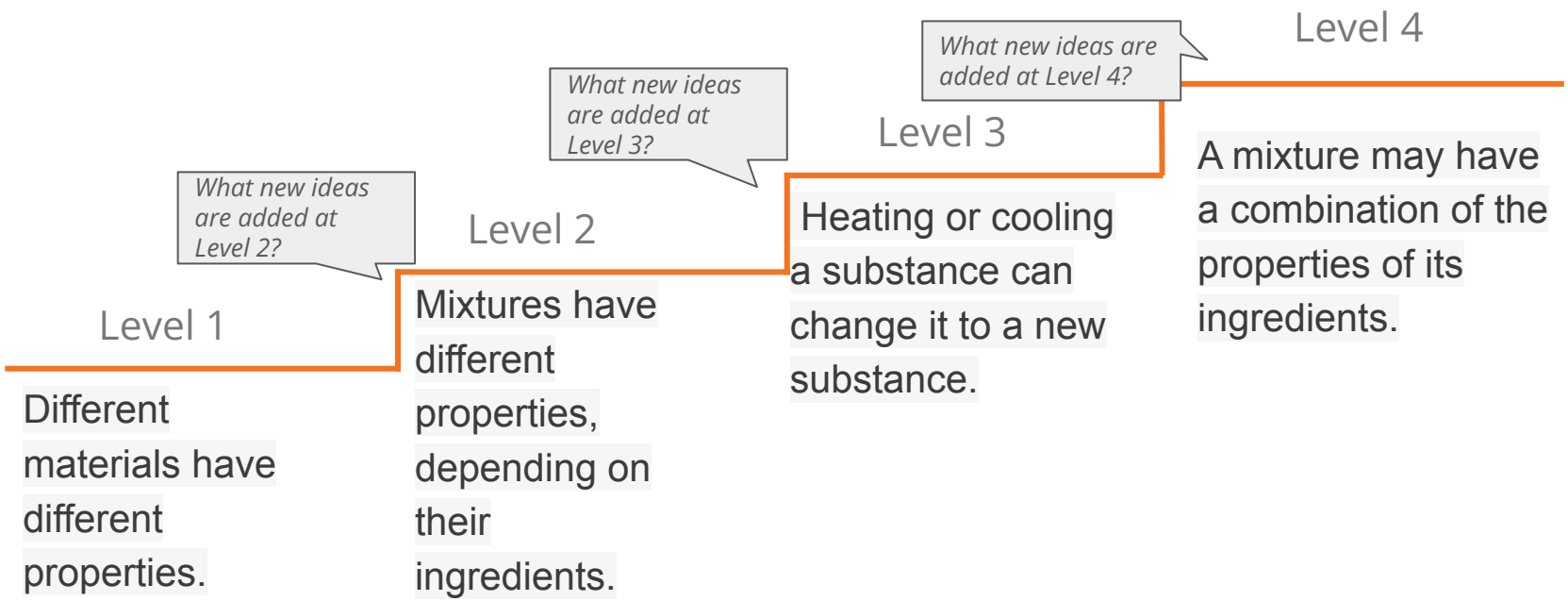
Pg. 7, 8



Progress Build

Properties of Materials

Assumed prior knowledge (preconceptions): It is expected that students will have a basic familiarity with the idea that stuff is made from other stuff (chocolate milk is made from milk and chocolate sauce; a desk is made of wood and metal; a toy is made of metal and plastic).

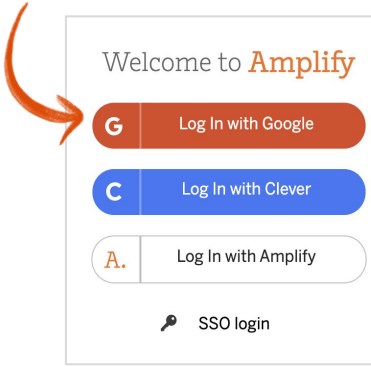


Logging in (demo account)

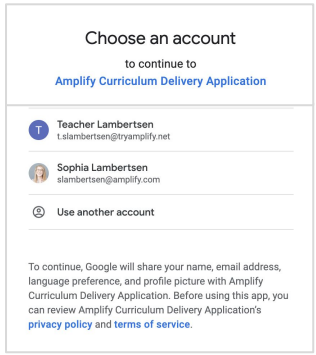
Safari or Chrome

1. Go to **learning.amplify.com**
2. Select **Log in with Google**
3. If you're already logged in with other Google accounts, click **Use another account**
4. Enter teacher demo account credentials
   - xxxxxxx@pd.tryamplify.net
   - Password: xxxx

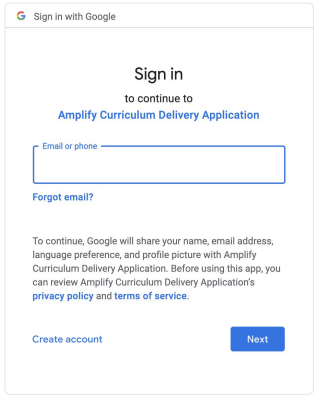
Steps 1-2

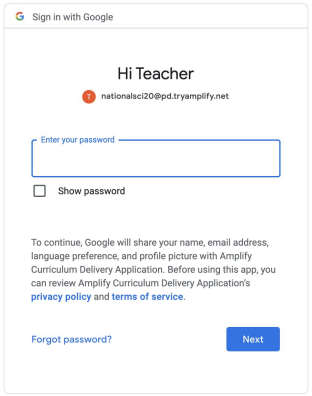


Step 3



Step 4





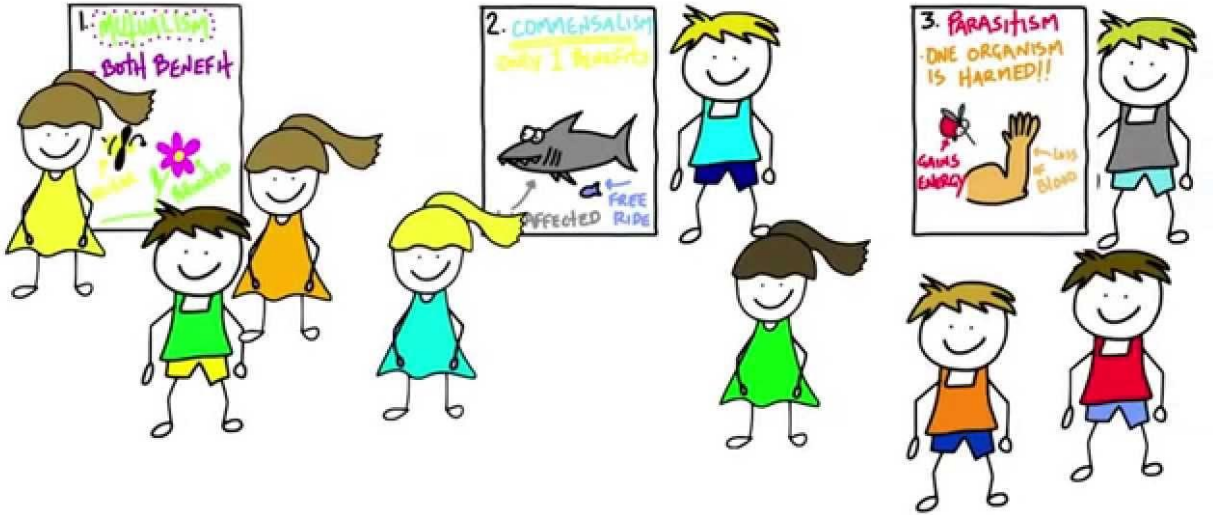
Progress Build analysis

Group work time

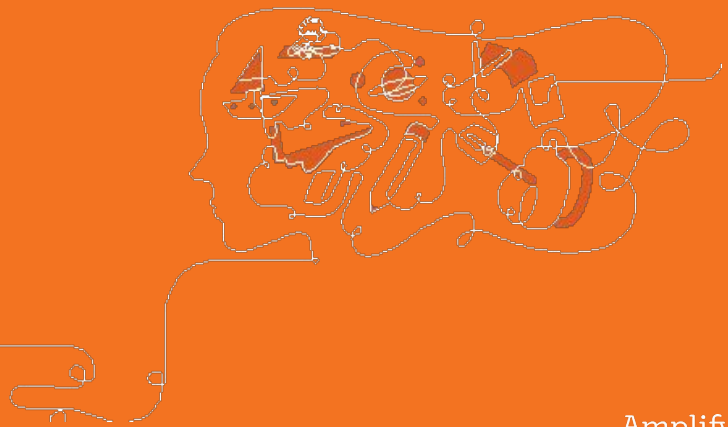
- With your group or partner, create a visual representation of one level of the progress build.

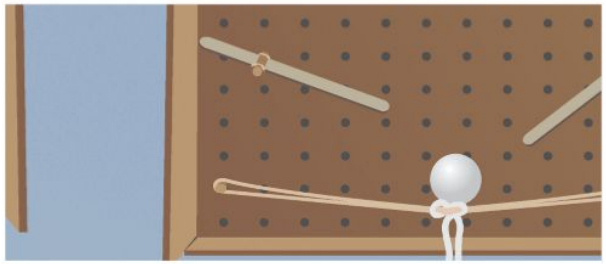
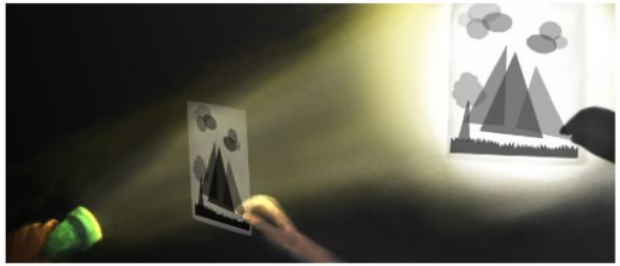
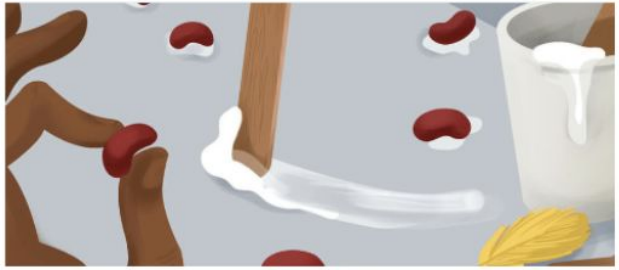
Progress Build analysis

Gallery Walk



Break



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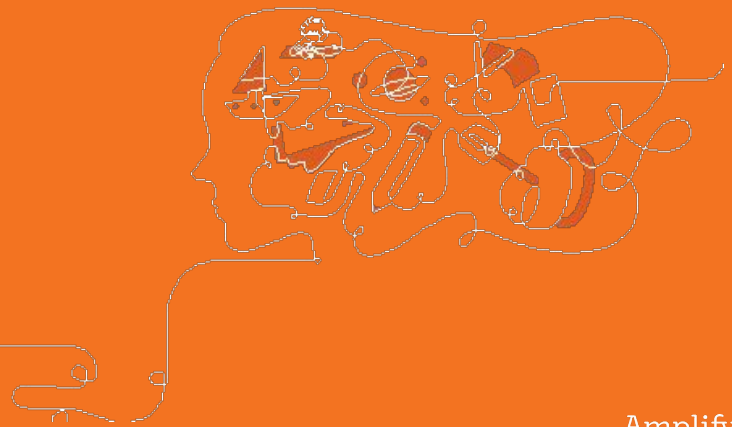
Pre-Unit Assessment



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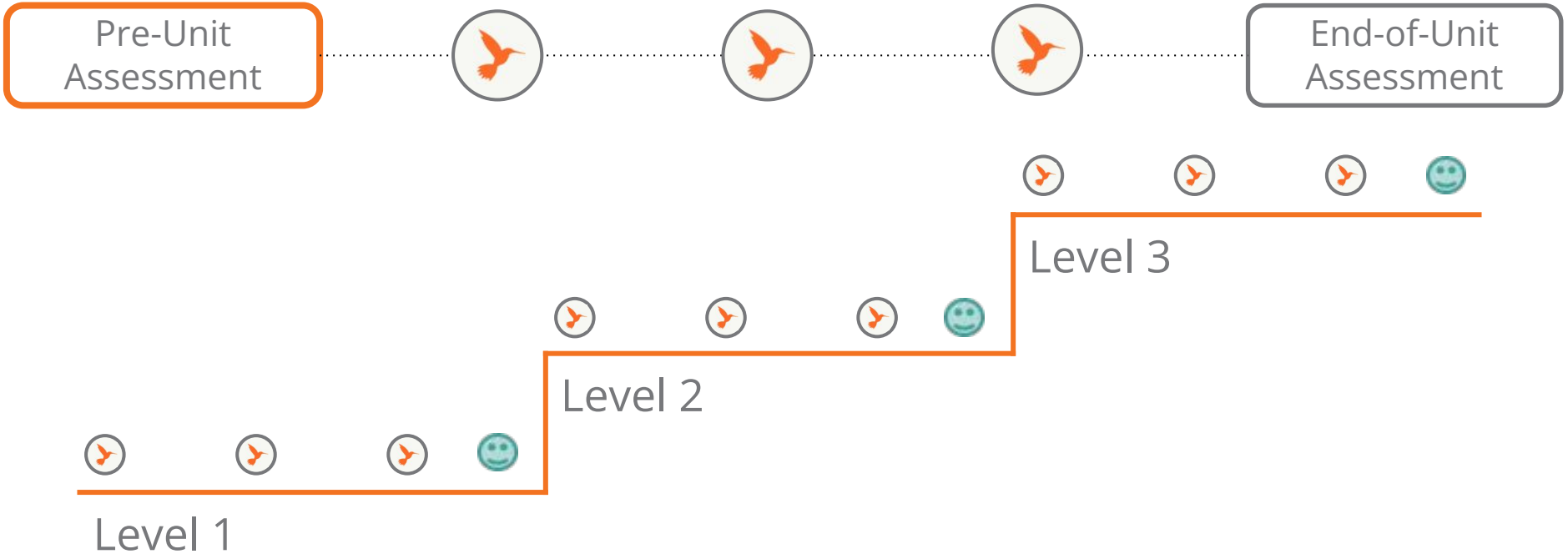

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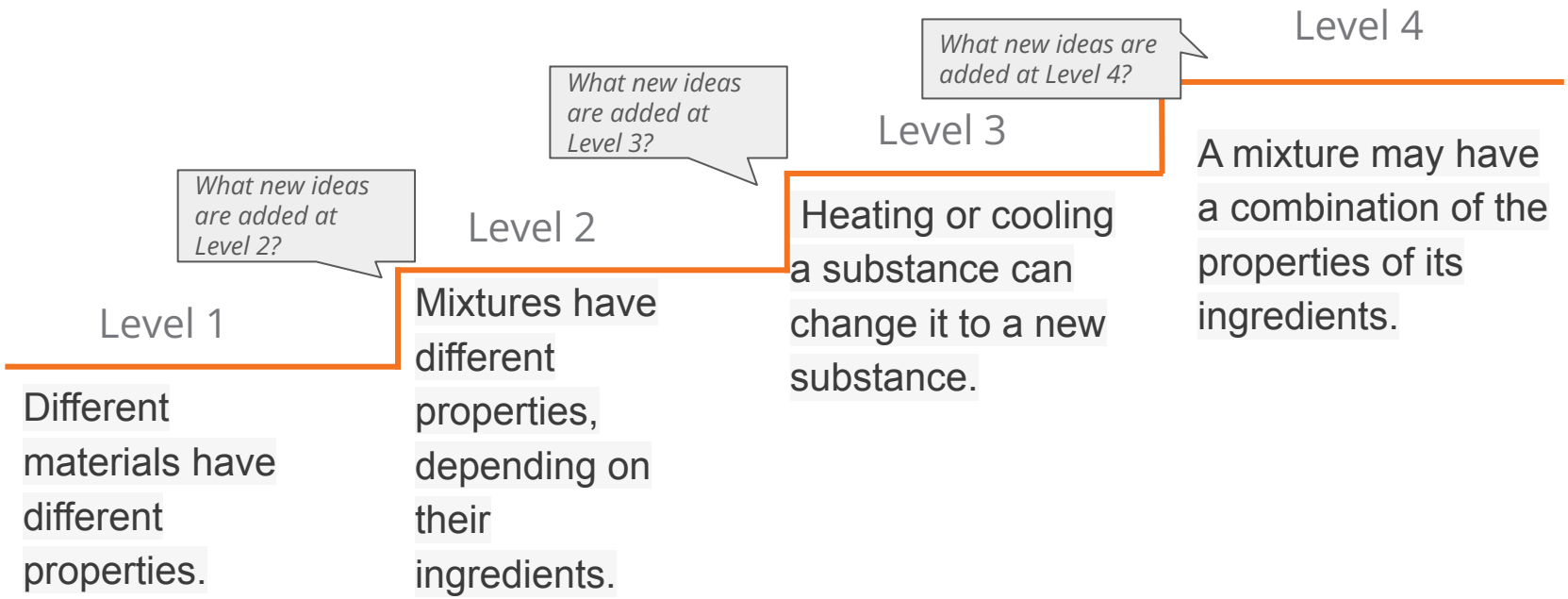
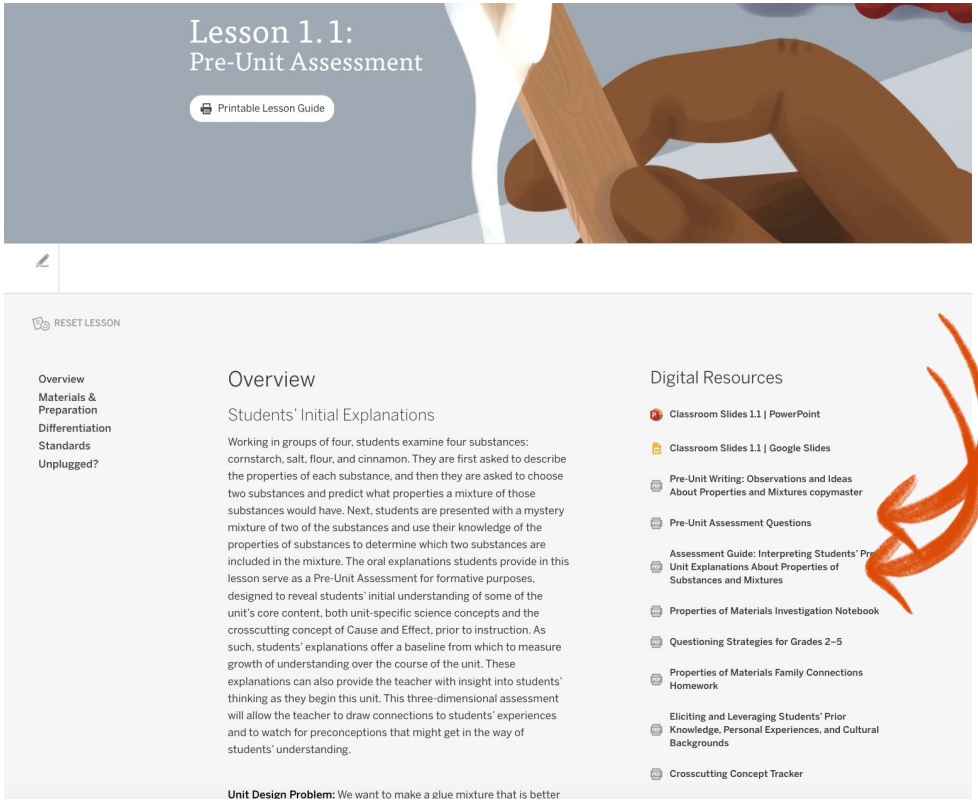


Pre-Unit Assessment

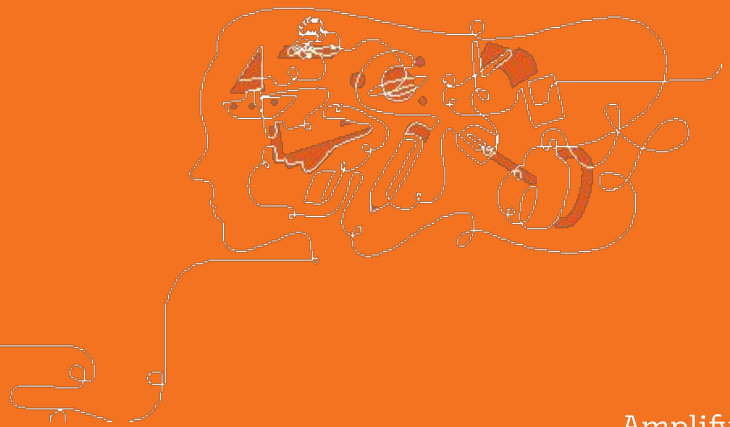
Lesson 1.1

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.



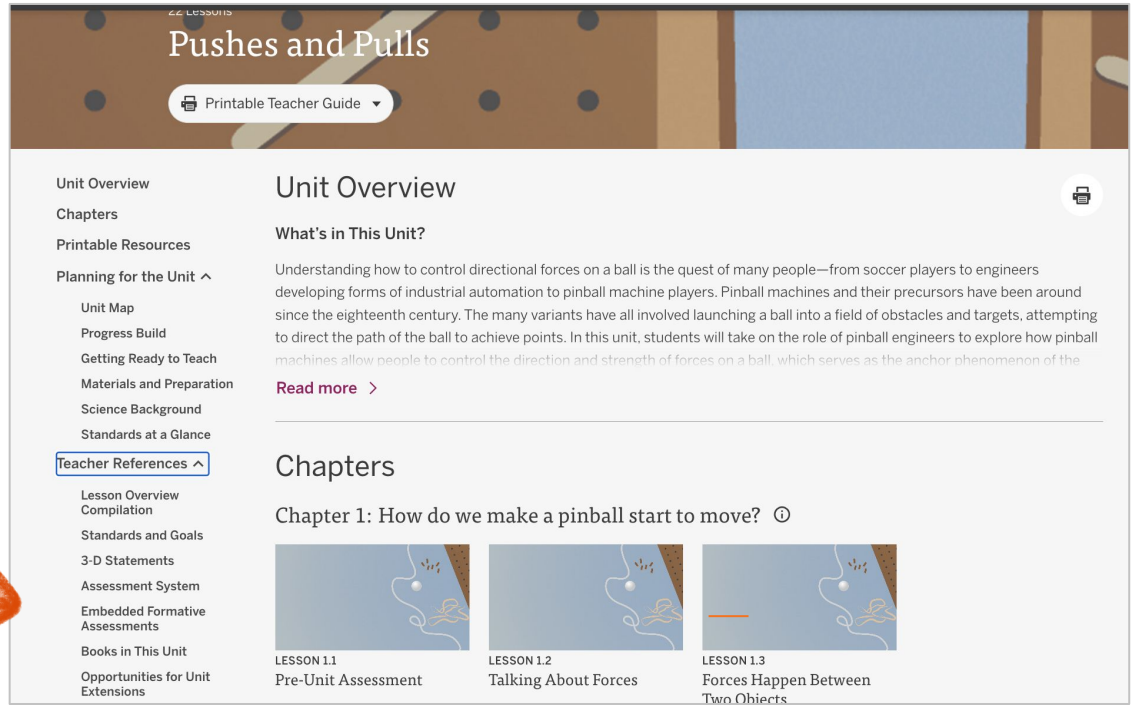
Formative Assessments



K-5 Assessment System

Formative Assessment Document

Properties of Materials



On-the-Fly Assessments

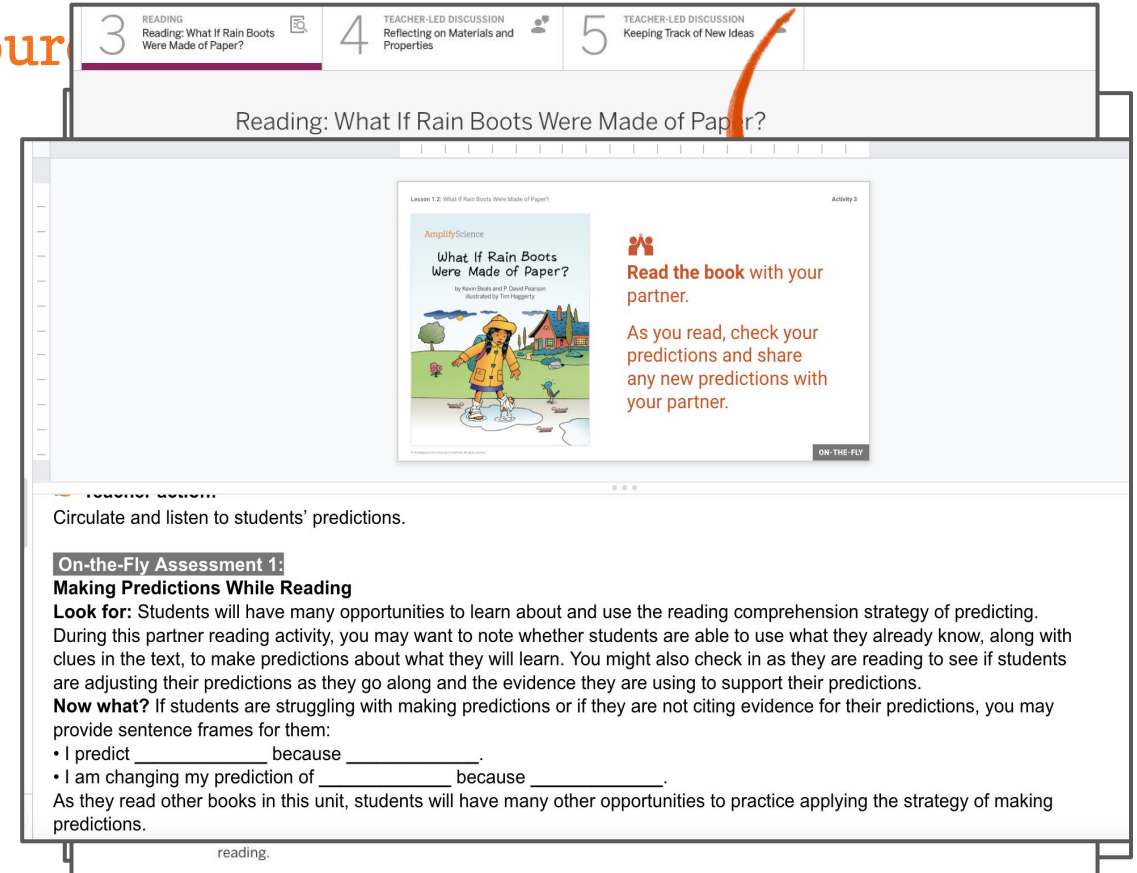
- Track student progress within a Progress Build level
- Embedded into instruction
- Assessment resource includes “Look for” and “Now what”
- Incremental build towards the Critical Juncture

Formative assessment information

Locating assessment resour

Full text of assessment

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



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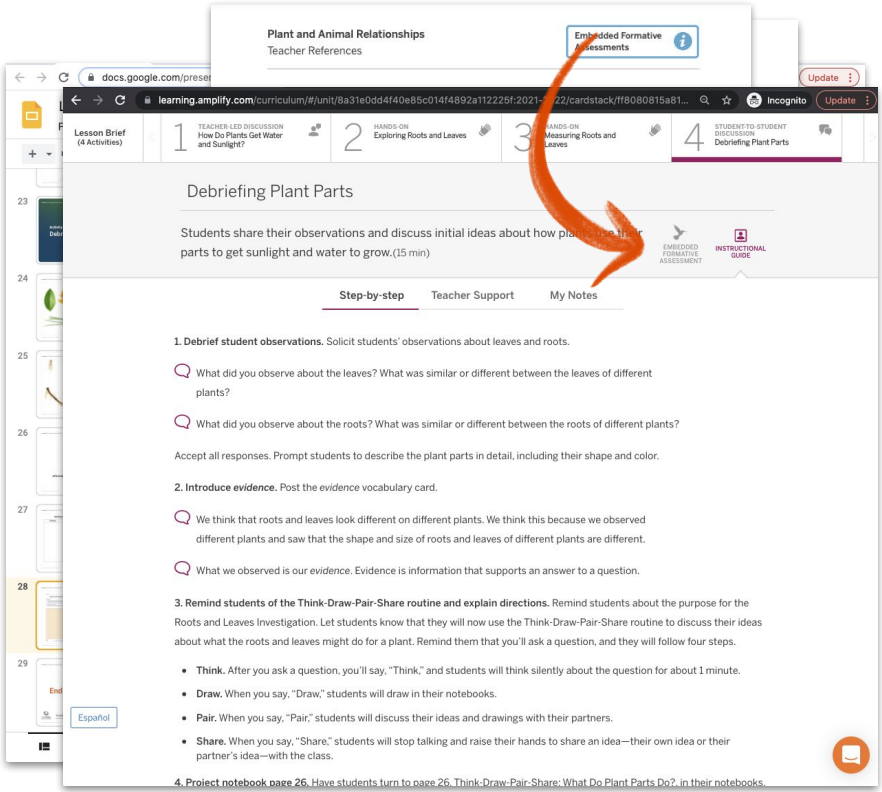
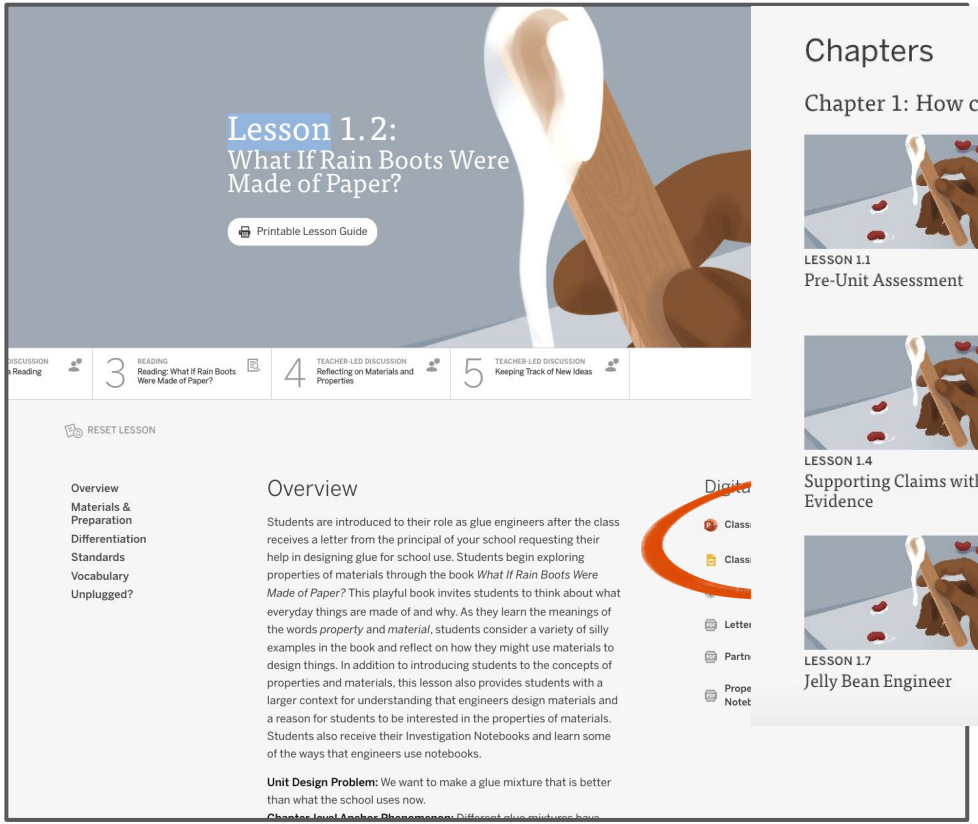
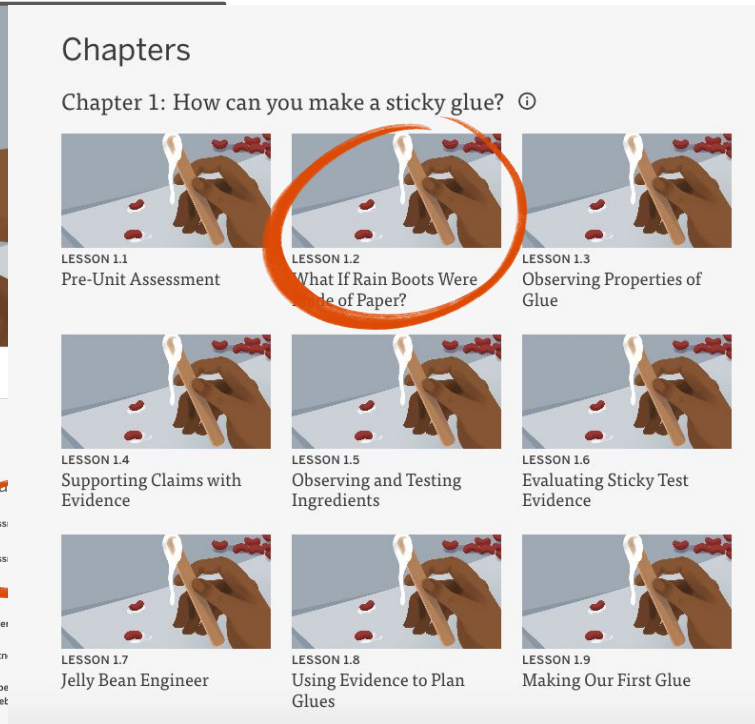
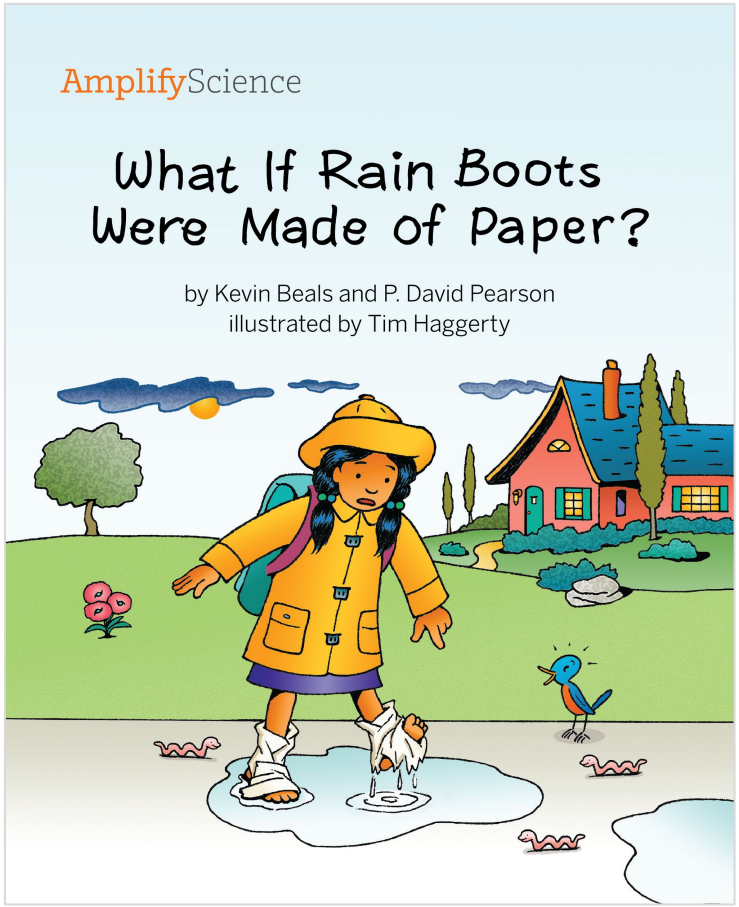


Classroom slides

Lesson 1.2







Read the book with your partner.

As you read, check your predictions and share any new predictions with your partner.

ON-THE-FLY

Circulate and listen to students' predictions.

On-the-Fly Assessment 1:

Making Predictions While Reading

Look for: Students will have many opportunities to learn about and use the reading comprehension strategy of predicting. During this partner reading activity, you may want to note whether students are able to use what they already know, along with clues in the text, to make predictions about what they will learn. You might also check in as they are reading to see if students are adjusting their predictions as they go along and the evidence they are using to support their predictions.

Now what? If students are struggling with making predictions or if they are not citing evidence for their predictions, you may provide sentence frames for them:

- I predict _____ because _____.
- I am changing my prediction of _____ because _____.

As they read other books in this unit, students will have many other opportunities to practice applying the strategy of making predictions.

Embedded Formative Assessment
On-the-Fly, Lesson 1.2

On-the-Fly Assessment 1:

Making Predictions While Reading

Look for 2

Look for 1

Look for: Students will have many opportunities to learn about and use the reading comprehension strategy of predicting. During this partner reading activity, you may want to note whether students are able to use what they already know, along with clues in the text, to make predictions about what they will learn. You might also check in as they are reading to see if students are adjusting their predictions as they go along and the evidence they are using to support their predictions.

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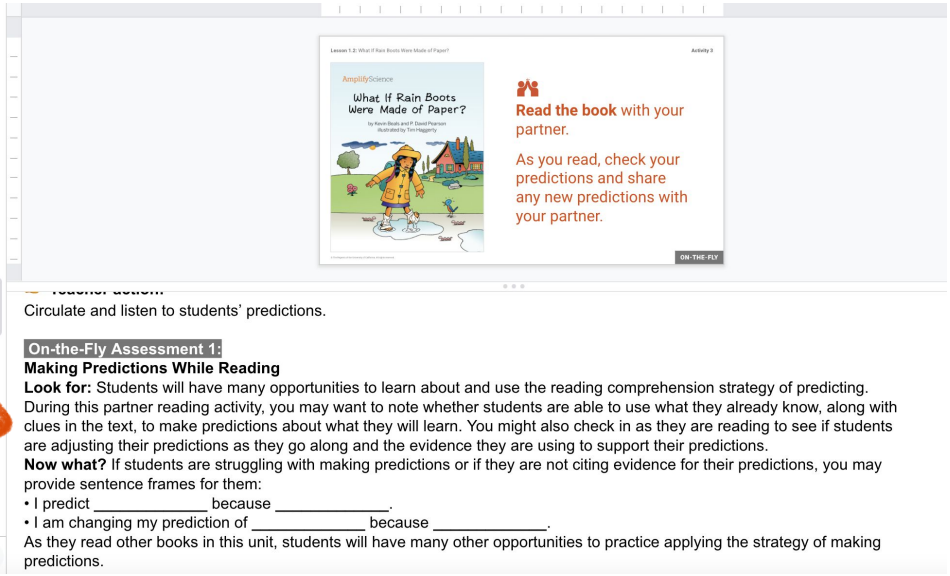
As they read other books in this unit, students will have many other opportunities to practice applying the strategy of making predictions.

On the Fly Assessment

Work time

- Explore the On-the-Fly Assessment you have been assigned
- Go the slide deck for that lesson
- Create a chart about the On-the-Fly:
  - What is the activity?
  - What is the look for?
  - How will you address the Now What?



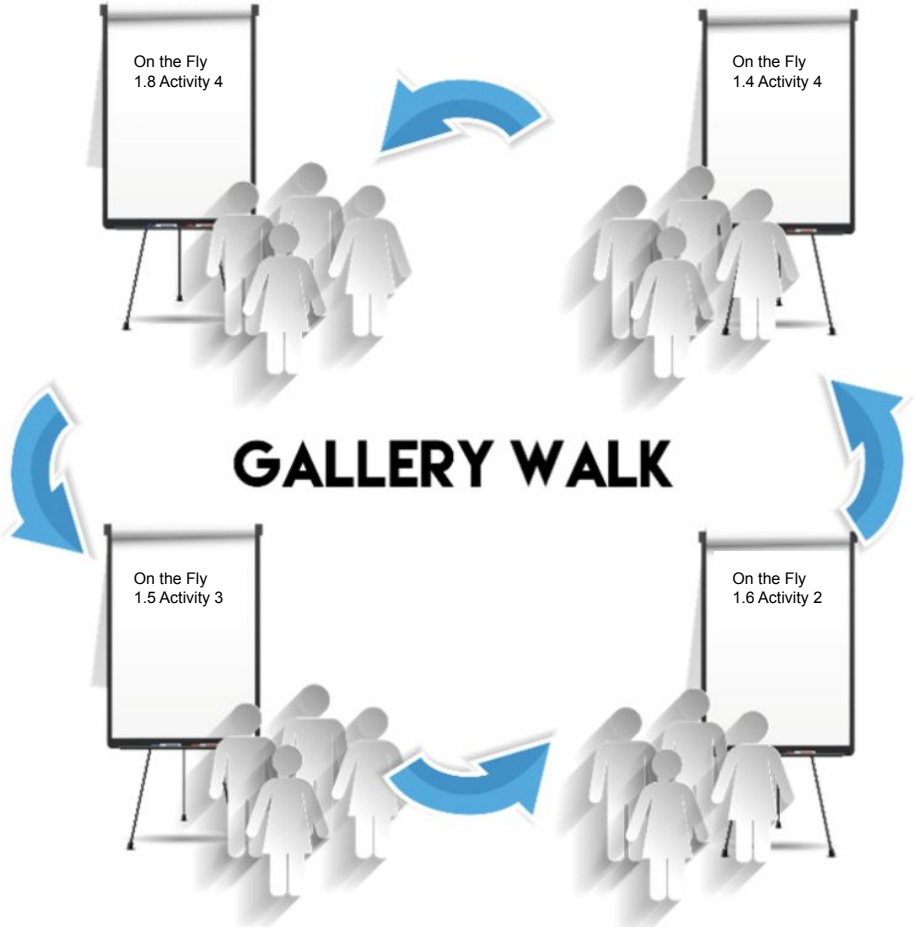
Group 1 - 1.4 Activity 4
Group 2 - 1.5 Activity 3
Group 3 - 1.6 Activity 2
Group 4 - 1.8 Activity 4

Gallery Walk

Group Share Out

Group 1 - 1.4 Activity 4
Group 2 - 1.5 Activity 3
Group 3 - 1.6 Activity 2
Group 4 - 1.8 Activity 4

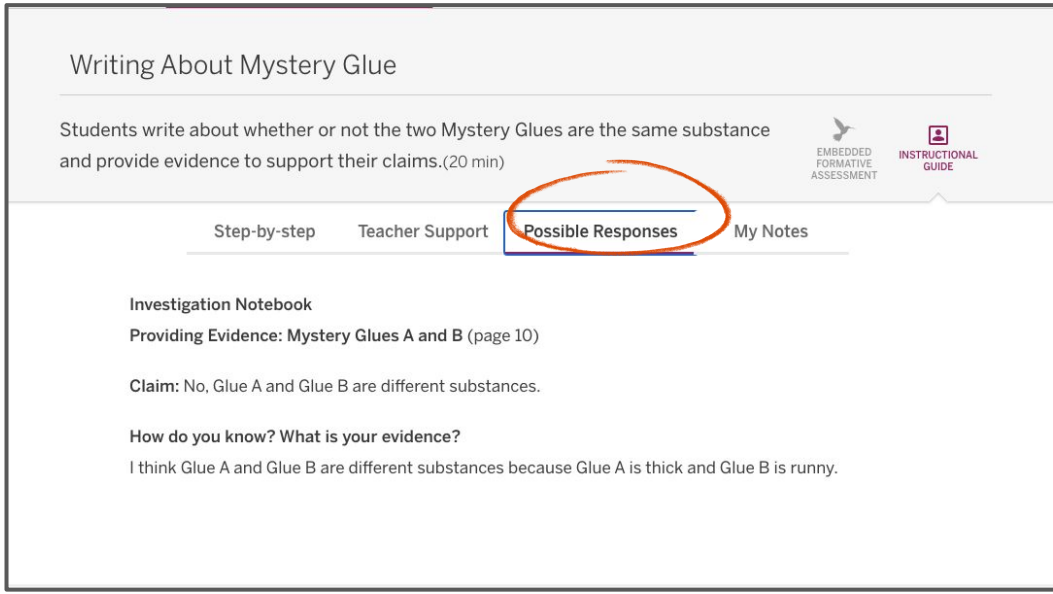
What are your takeaways?



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

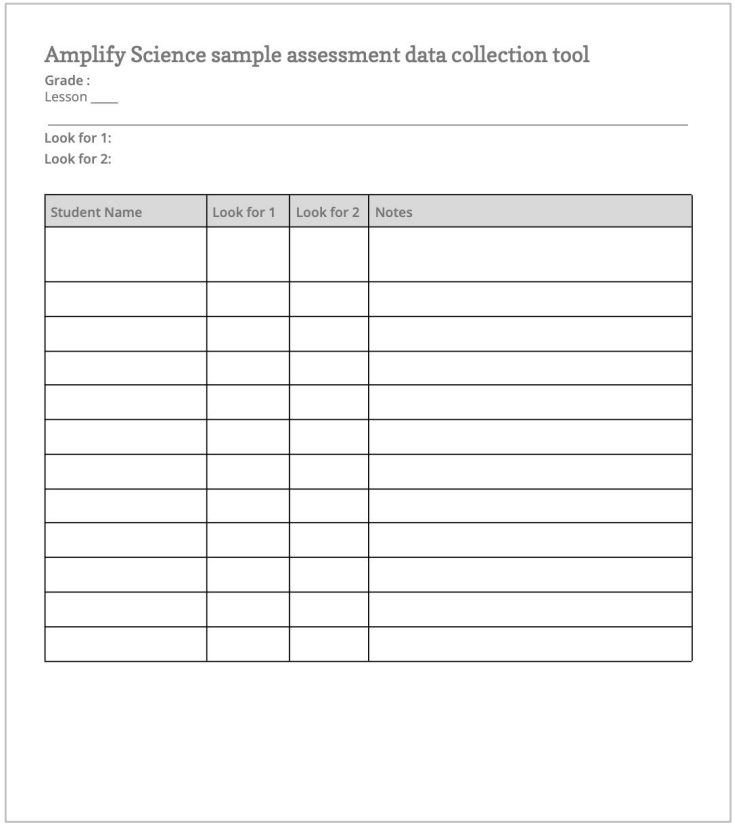


Classroom connection

Collecting formative assessment data

Plan ahead for what you're looking and listening for.

Create a system that's easy for you to use.



Amplify Science sample assessment data collection tool

Grade :
Lesson ____

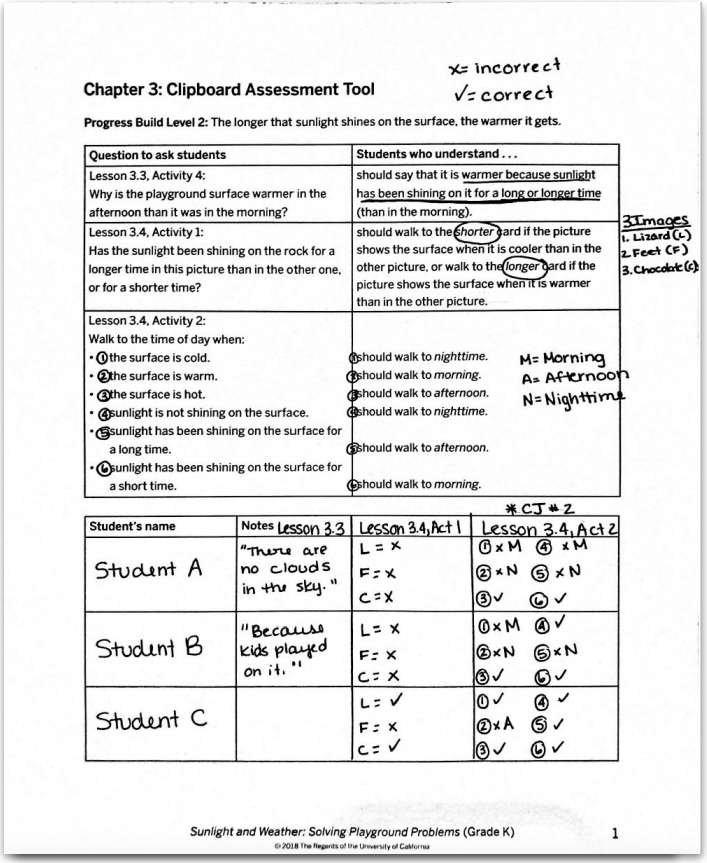
Look for 1:
Look for 2:

Student Name	Look for 1	Look for 2	Notes

Pgs. 14-15

K-1 Clipboard Assessment Tool

The Clipboard Assessment Tool offers a support for collecting data for the On-the-Fly and Critical Juncture Assessments that align to each Progress Build level in the unit.



x= incorrect
✓= correct

Chapter 3: Clipboard Assessment Tool

Progress Build Level 2: The longer that sunlight shines on the surface, the warmer it gets.

Question to ask students	Students who understand . . .
Lesson 3.3, Activity 4: Why is the playground surface warmer in the afternoon than it was in the morning?	should say that it is warmer because sunlight has been shining on it for a long or longer time (than in the morning).
Lesson 3.4, Activity 1: Has the sunlight been shining on the rock for a longer time in this picture than in the other one, or for a shorter time?	should walk to the *shorter* card if the picture shows the surface when it is cooler than in the other picture, or walk to the *longer* card if the picture shows the surface when it is warmer than in the other picture.
Lesson 3.4, Activity 2: Walk to the time of day when: • ① the surface is cold. • ② the surface is warm. • ③ the surface is hot. • ④ sunlight is not shining on the surface. • ⑤ sunlight has been shining on the surface for a long time. • ⑥ sunlight has been shining on the surface for a short time.	① should walk to *nighttime*. ② should walk to *morning*. ③ should walk to *afternoon*. ④ should walk to *nighttime*. ⑤ should walk to *afternoon*. ⑥ should walk to *morning*.

3 Images
1. Lizard (L)
2. Feet (F)
3. Chocolate (C)

M= Morning
A= Afternoon
N= Nighttime

* CJ # 2

Student's name	Notes Lesson 3.3	Lesson 3.4, Act 1	Lesson 3.4, Act 2
Student A	"There are no clouds in the sky."	L = x F = x C = x	① x M ④ x M ② x N ⑤ x N ③ ✓ ⑥ ✓
Student B	"Because kids played on it."	L = x F = x C = x	① x M ④ ✓ ② x N ⑤ x N ③ ✓ ⑥ ✓
Student C		L = ✓ F = x C = ✓	① ✓ ④ ✓ ② x A ⑤ ✓ ③ ✓ ⑥ ✓

Sunlight and Weather: Solving Playground Problems (Grade K) 1

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

NGSS connection: This formative assessment reveals student knowledge and use of Practice 7: Engaging in Argument from Evidence (ARG-P6: Construct an argument with evidence to support a claim.).

Additional 3-D Assessment Opportunities

To assess students on the idea that matter can be classified by its observable properties (DCI PS1.A) and on the crosscutting concept of Patterns, look for students to provide information about the properties of the two substances as evidence that the two substances are different. Look for students to describe observable properties for each substance, and to set up a comparison of them being similar or different.

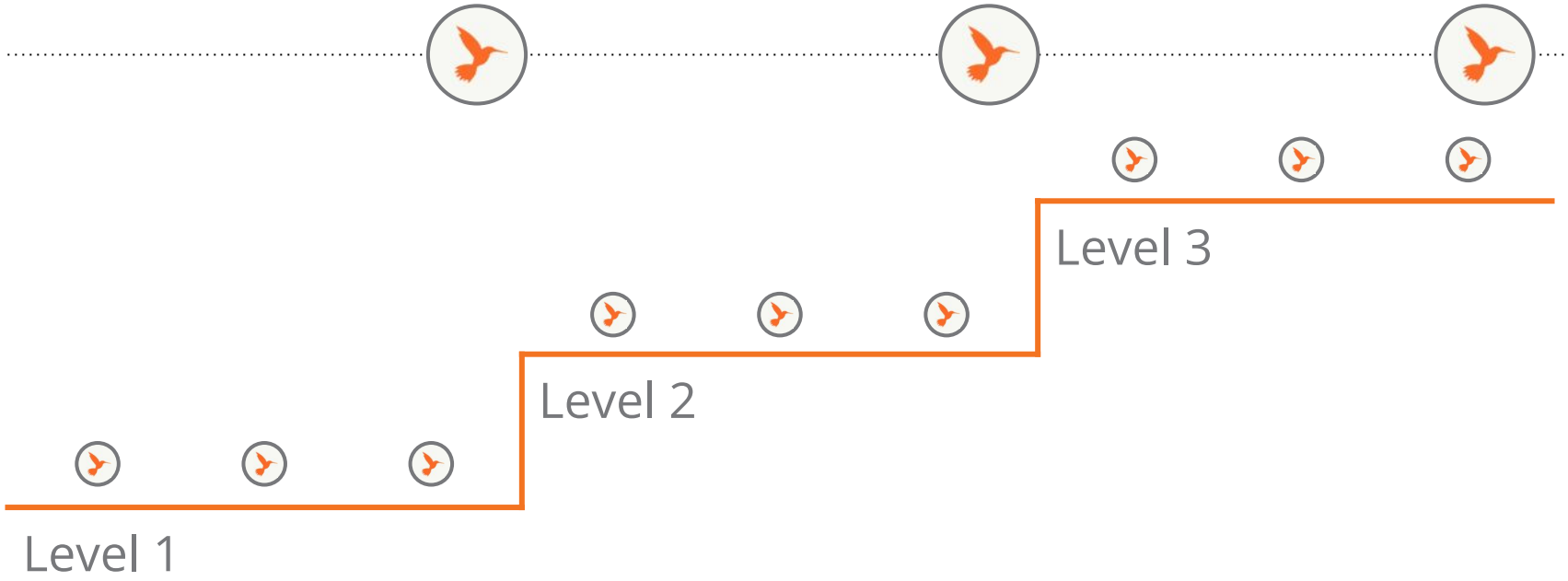
NGSS connection: This formative assessment reveals student knowledge and use of Practice 7: Engaging in Argument from Evidence (ARG-P6: Construct an argument with evidence to support a claim.).

Additional 3-D Assessment Opportunities

To assess students on the idea that matter can be classified by its observable properties (DCI PS1.A) and on the crosscutting concept of Patterns, look for students to provide information about the properties of the two substances as evidence that the two substances are different. Look for students to describe observable properties for each substance, and to set up a comparison of them being similar or different.

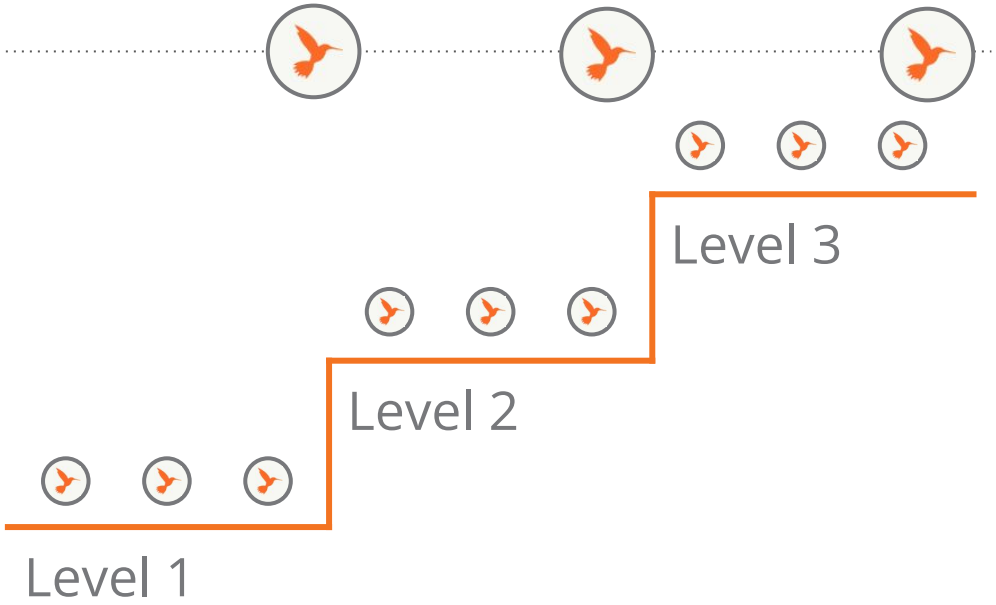
Questions?

Critical Juncture Assessments

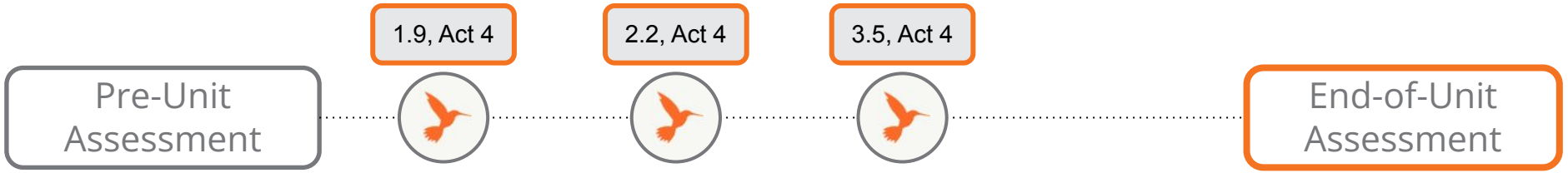


Critical Juncture Assessments

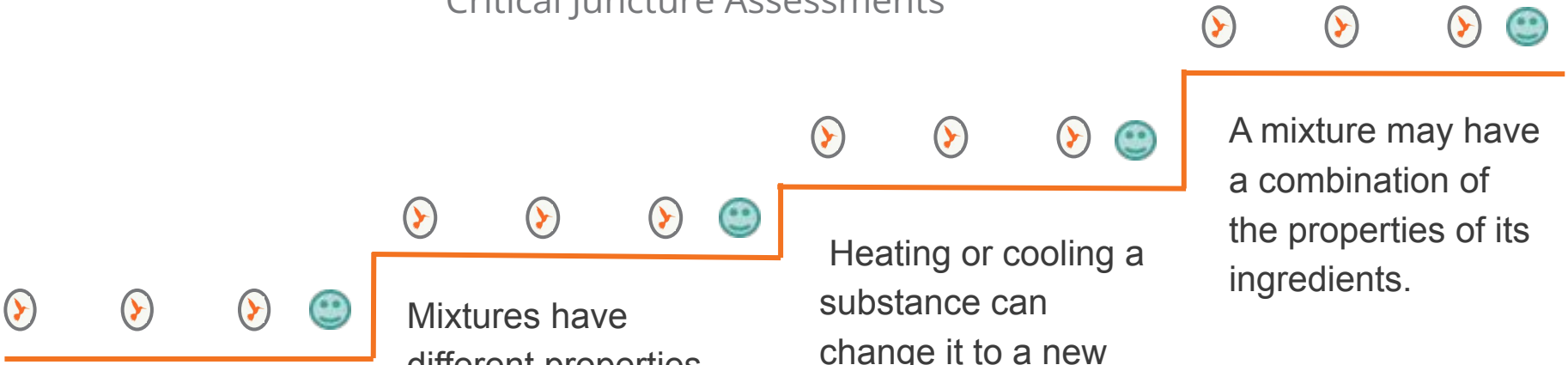
- Track student progress between Progress Build levels
- Embedded into instruction
- Assessment resource includes “Assess Understanding” and “Tailor Instruction”



K-5 Assessment System



Critical Juncture Assessments



Different materials have different properties.

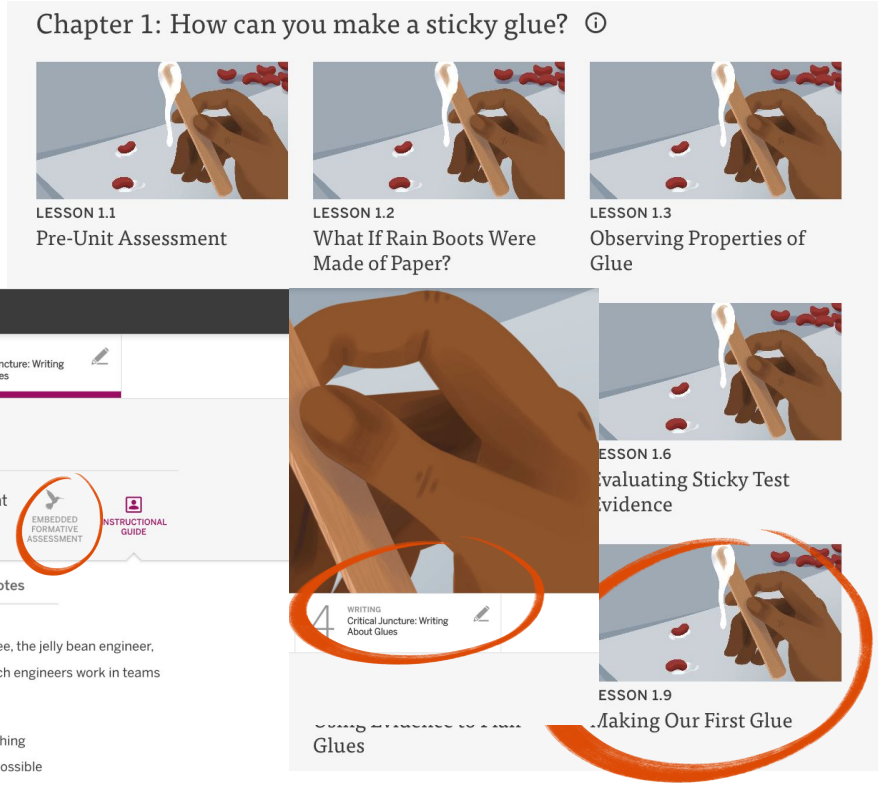
Mixtures have different properties, depending on their ingredients.

Heating or cooling a substance can change it to a new substance.

A mixture may have a combination of the properties of its ingredients.

Critical Juncture Assessment

Lesson 1.9, Activity 2



Embedded Formative Assessment

Critical Juncture Lesson 1.9

Tailor instruction: The following are instructional suggestions for students who don't yet understand that **different mixtures may have different properties, depending on their ingredients:**

• **Compare more mixtures:** Have students choose another partner to work with and repeat the same task. Ask students to discuss the similarities and differences between the properties of both glue mixtures. Then, ask students to determine if the glues are the same or different. Ask students to compare the ingredients they used when answering the next question: What makes your glue mixtures the same or different?

• **Review students' understanding of mixtures with the Word Relationships routine.** Remind students of the Word Relationships routine. Explain to students that they will have cards with the following vocabulary words: *properties*, *observe*, *ingredients*, *mixtures*, and *different*. (Create new Word Relationships Cards with the words *mixture* and *different*. Reuse the *properties*, *observe*, and *ingredients* cards from Word Relationships Set 1 and Set 2.) Point out that students can use these words to help them answer questions. Invite students to form pairs. Pass out a new set of word cards to each pair. Have students take turns answering each question, using the word cards. Write each of the following questions on the board and read it out loud.

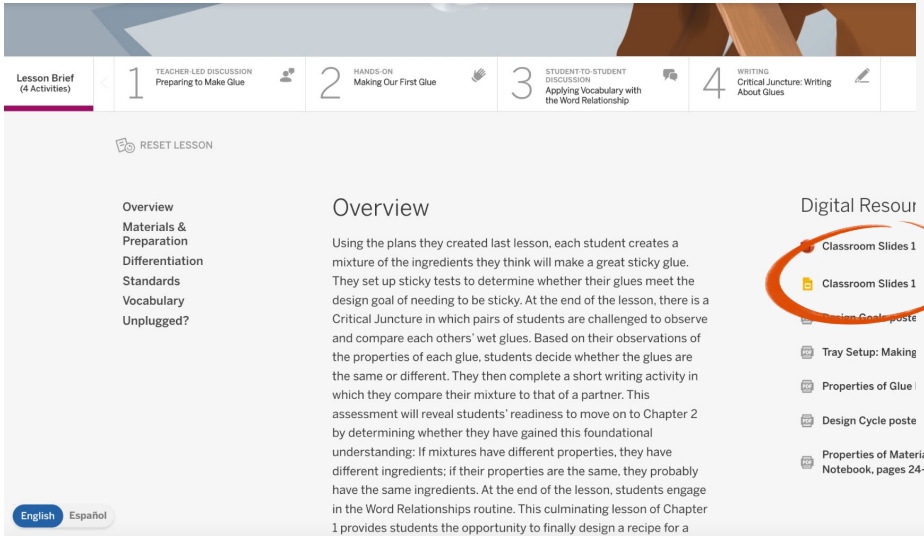
1) "What can you observe with your senses about the mixtures?" [I can observe the properties.]
2) "How do you make a mixture?" [You make a mixture by adding ingredients together.]
3) "How can you tell mixtures apart?" [Different mixtures have different properties.]

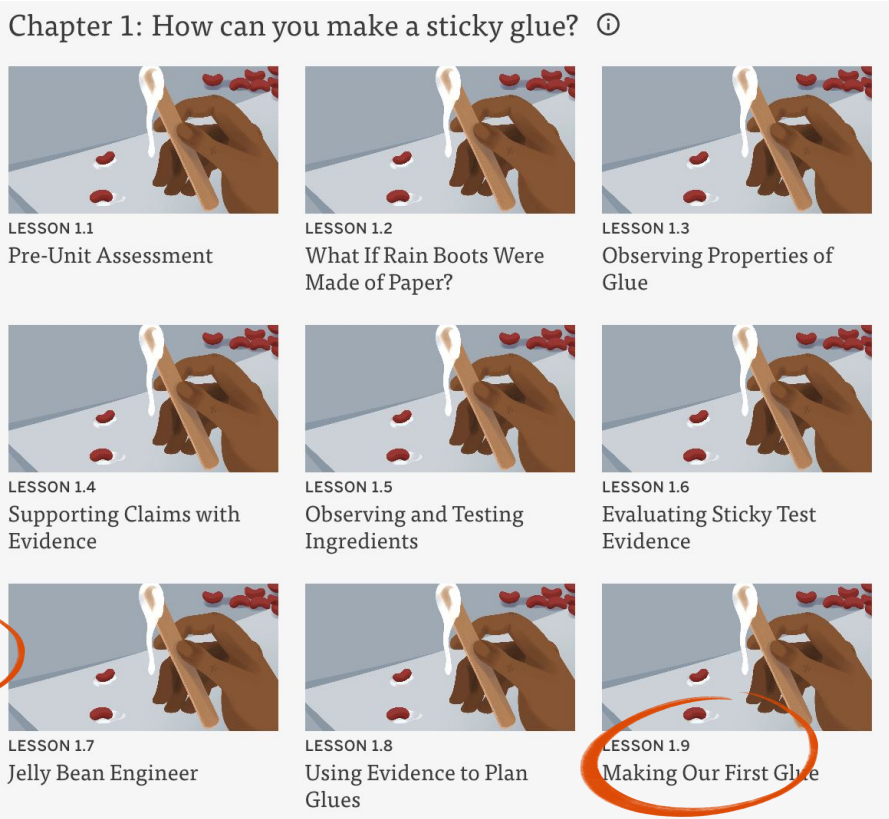
Circulate and check for understanding. It is important that students begin to generalize their ideas about why certain mixtures would be the same or different. Students should conclude that if the mixtures are different, the ingredients that were combined to make the mixtures were different.

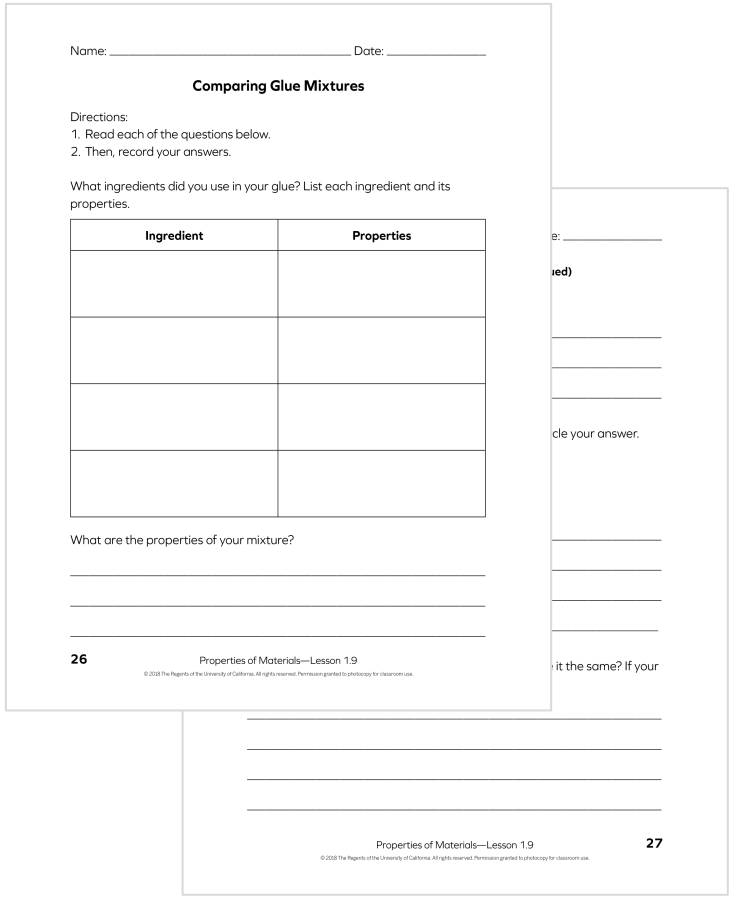
• **Reference *Jelly Bean Engineer*:** Remind students how Ambrose Lee, the jelly bean engineer, used a variety of ingredients in his jelly bean mixtures to create different jelly bean flavors and textures. Sometimes Ambrose's jelly beans needed to have specific properties and he had to add different ingredients to make his jelly beans have these properties. Ask students to think about some of the ways that Ambrose used ingredients to change the properties of his jelly bean flavors and textures. Students might point out the following: different ingredients are used to make jelly beans softer, flavored syrups and sugar are used to coat the jelly beans to make the shells shiny, and oils from limes are used to flavor lime jelly beans.

Critical Juncture Assessment

Lesson 1.9, Activity 4







Name: _____ Date: _____

Comparing Glue Mixtures

Directions:
1. Read each of the questions below.
2. Then, record your answers.

What ingredients did you use in your glue? List each ingredient and its properties.

Ingredient	Properties

What are the properties of your mixture?

_____

_____

_____

26

Properties of Materials—Lesson 1.9

e: _____

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cle your answer.

it the same? If your

Properties of Materials—Lesson 1.9 27

Complete the Comparing Glue Mixtures writing activity.

Tailor instruction: The following are instructional suggestions for students who don't yet understand that **different mixtures may have different properties, depending on their ingredients:**

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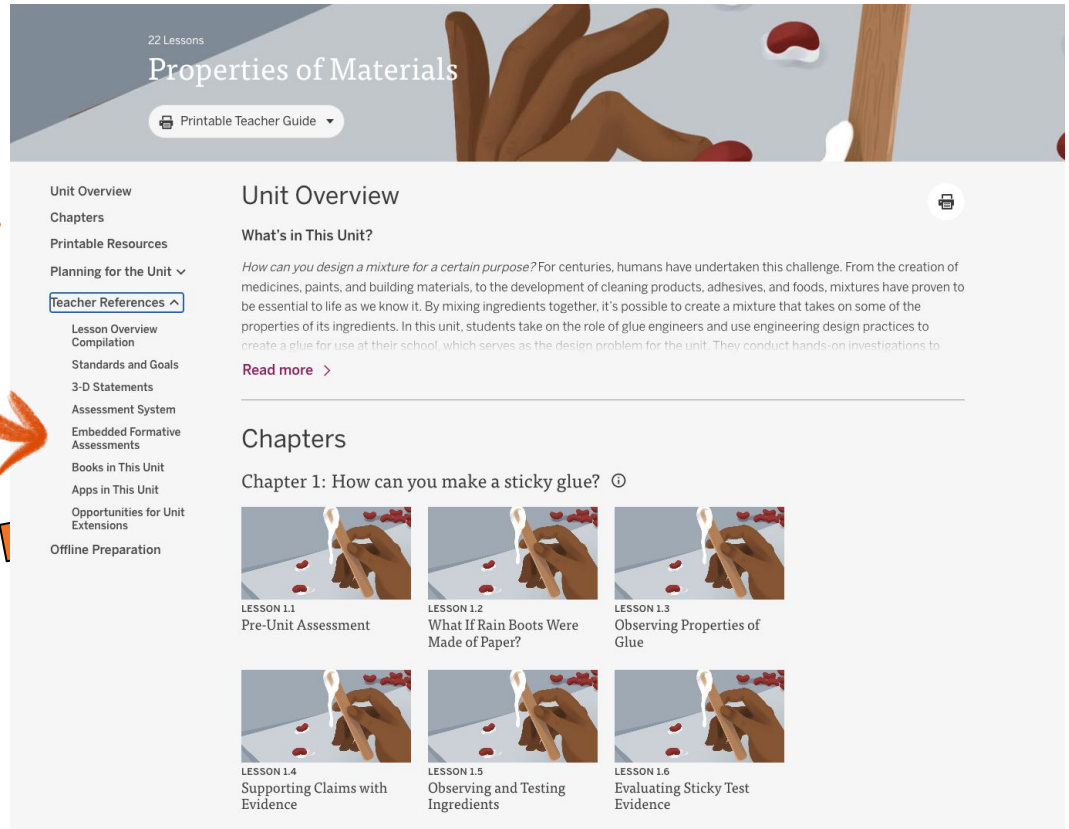
1) "What can you observe with your senses about the mixtures?" [I can observe the properties.]

Formative Assessments

Work time

- Explore the Critical Juncture Assessments

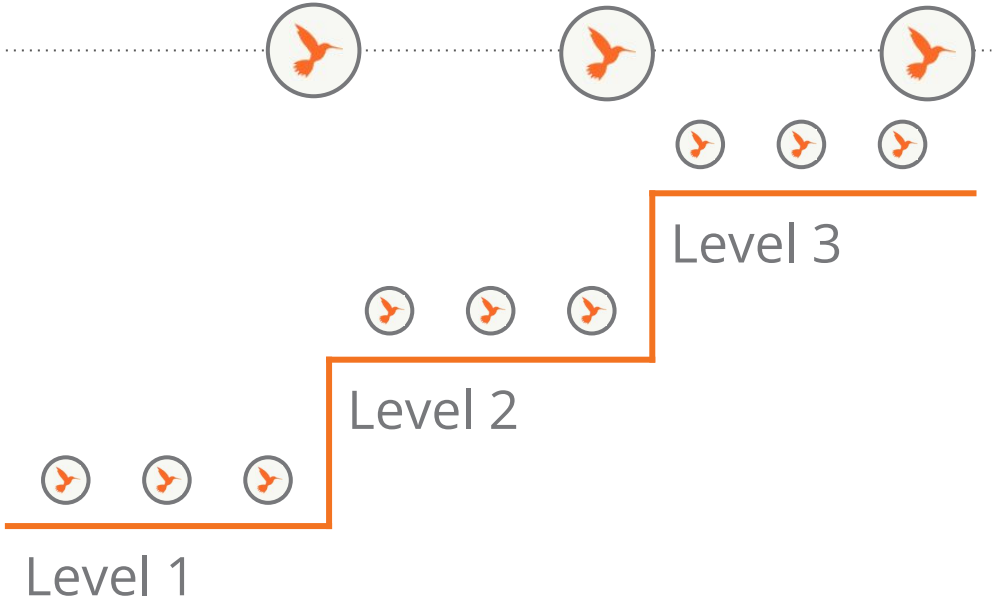


Embedded formative assessments

Reflection

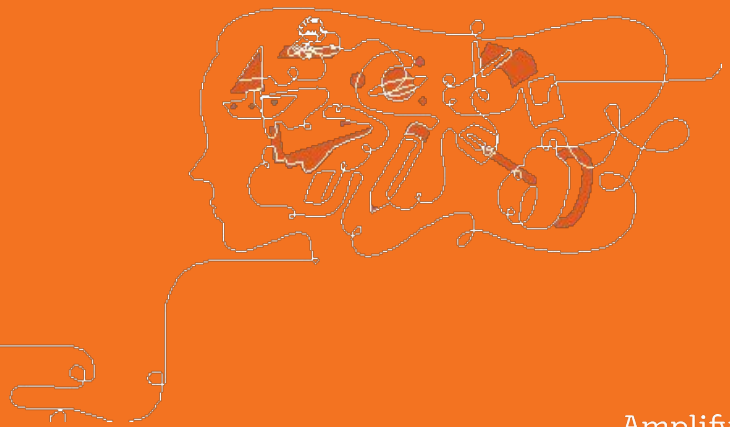
In 1-2 sentences, describe the relationship among:

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

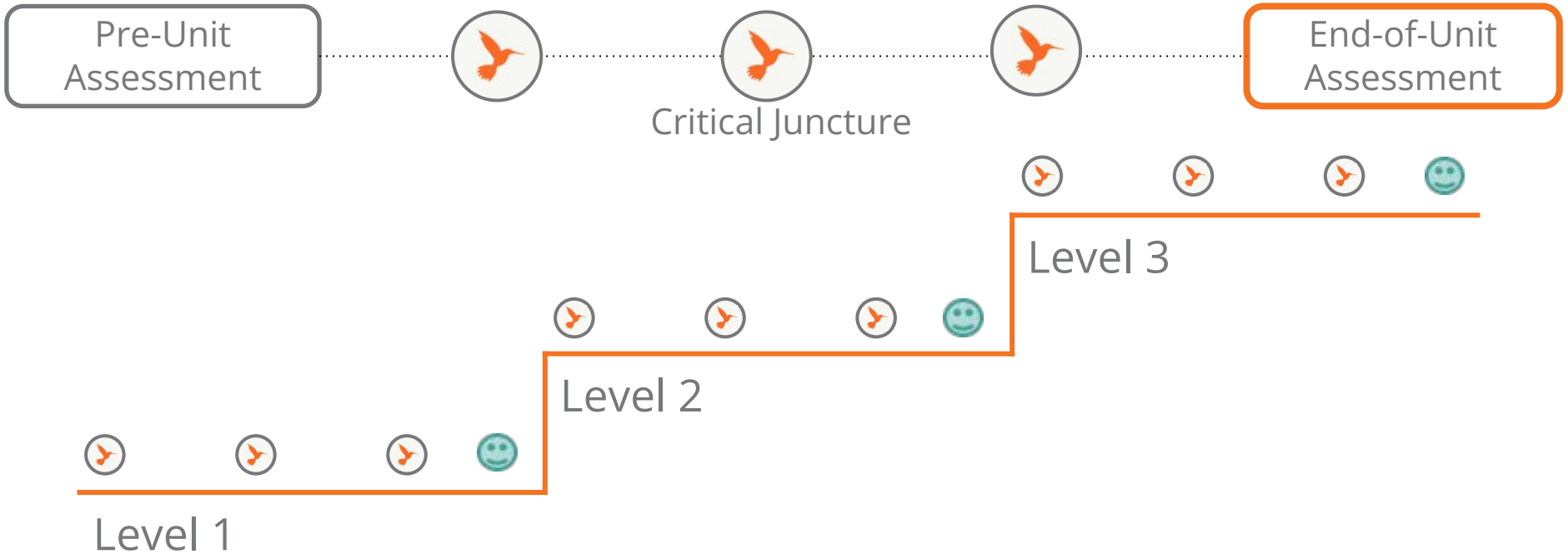


Questions?

End-of-Unit Assessment



K-5 Assessment System



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 Assessments

What are students being asked to do?

Students write their final design arguments as a letter to the school principal about which glue recipe best meets a set of design goals.

3 Dimensional Learning

End of Unit Assessment Guide

Science and Engineering Practices

- Practice 7: Engaging in Argument from Evidence
  - ARG-P6: Construct an argument with evidence to support a claim.

Disciplinary Core Ideas

- PS1.A: Structure and Properties of Matter:
  - PS1.A-P1: Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties.
  - PS1.A-P2: Different properties are suited to different purposes.
- ETS1.A: Defining and Delimiting Engineering Problems:
  - ETS1.A-P1: A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions.
  - ETS1.A-P2: Asking questions, making observations, and gathering information are helpful in thinking about problems.

Crosscutting Concept

- Cause and Effect
  - CE-P1: Simple tests can be designed to gather evidence to support or refute student ideas about causes.

End of Unit Assessment Rubric

Pg..
12=-16

Rubric 1: Assessing Students' Performance of the Practice of Constructing Design Arguments

Criteria	Description of level	Level
Responsive Does the argument propose a claim that addresses how the solution meets each design goal?	No claim is proposed, or proposed claim does not describe how the solution best meets the design goals (e.g., claim is off-topic). Possible feedback: *What are the design goals for the glue? Why do you think your ingredients are the best ones for meeting these design goals?*	0
	The argument provides a claim that describes how the solution best meets the design goal.	1
Supported Is evidence connected to each design goal in a way that is likely to convince the audience that the proposed solution is the best one?	Argument does not support the claim with any of the available information. Possible feedback: *How could you convince your audience that the your proposed solution meets the goals?*	0
	The argument cites evidence in support of some of the design goals. Possible feedback: *You included evidence that supports how your solution meets some of the design goals, but how can you convince your audience that your solution meets the other design goals?*	1
	The argument cites evidence in support of all of the design goals. Possible feedback: *Does all the available information support your claim that your ingredients are best? Does any available information support another claim?*	2
Clear and well-organized Is the argument structured in a way that clearly communicates to the audience why the proposed solution is best?	Questions to guide review of student's writing: In assigning a level for this criterion, take into consideration the writing supports and expectations emphasized in your classroom. We suggest a score from 0–2 but you may adjust the scale according to your instructional priorities. Note that not all questions below may be relevant for your classroom and/or you may choose to add your own. • If you ask, can the student describe how he tried to make his argument appropriate to the audience (the school principal)? • Does the argument use appropriate vocabulary from the unit (e.g., *design*, *ingredient*, *mixture*)?	0–2

Rubric 2: Assessing Students' Understanding of Science Ideas Encountered in the Unit

Rubric 2 considers whether students' arguments are consistent with the relevant science ideas that students have encountered in the unit. This rubric may be used summatively by tallying the points for each science idea demonstrated, as described below.

Rubric 2: Assessing Students' Understanding of Science Ideas Encountered in the Unit

Criteria	Questions to keep in mind	Score
Consistent with accepted science ideas and available data Does the argument include the relevant science ideas and data?	Does the student show understanding that materials have properties that are inherent to the material? (1 point) Evidence could include: • The argument accurately describes the observable properties of the proposed glue's ingredients. • The argument accurately describes the observable properties of the proposed glue, such as being sticky, strong, white, clear, etc.	
	Does the student show understanding that the properties of a mixture are determined by the particular combination of materials that make it up? (1 point) Evidence could include: • The argument connects the properties of the chosen ingredients to the properties of the proposed glue.	
	Total (0–2)	

Rubric 3: Assessing Students' Understanding of the Crosscutting Concept of Cause and Effect

Rubric 3 considers how well students are able to apply the crosscutting concept of Cause and Effect to a specific phenomenon. This rubric may be used summatively by tallying the points for each application demonstrated, as described below.

Rubric 3: Assessing Students' Understanding of the Crosscutting Concept of Cause and Effect

Criteria	Questions to keep in mind	Score
Grounded in evidence Does the argument rely on the idea that causes generate observable patterns?	Does the argument use the idea that the properties of the ingredients will cause the mixture to have predictable properties? (1 point)	
	Total (0–1)	

Possible Student Responses

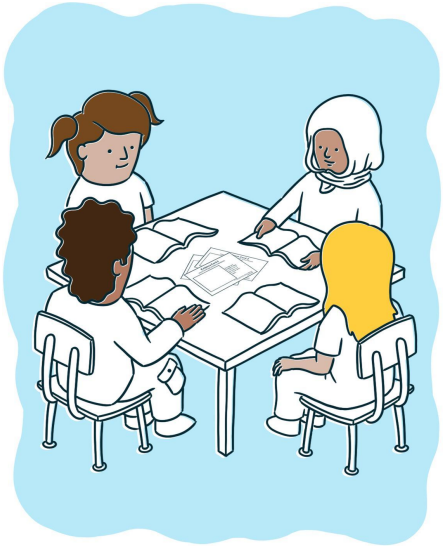
Relevant to all three rubrics, possible student responses are provided to illustrate a response to the prompt that meets all four criteria: responsive, supported, clear and well-organized, and consistent with accepted science ideas and available data. Also provided is a response that meet some criteria but not others. This response shows one possible set of criteria, but note that students may have chosen a different final criterion.

Criteria	Possible student responses
Response that meets **all criteria**	*I chose these ingredients because* I wanted my glue to be sticky, strong, smooth, and spreadable. I chose ingredients that were sticky, strong, smooth, and spreadable so that my mixture would also be sticky, strong, smooth, and spreadable. *I know that my glue meets my design goals because* My glue is good at meeting the design goals of being sticky, strong, smooth, and spreadable. I know my glue is sticky and strong because my glue worked really well to hold my picture frame together. I know it is smooth because it dried smooth when I did my strength test. I know it is spreadable because I spread it to make my picture frame.
Response that is **responsive** but **not supported**	*I chose these ingredients because* I wanted my glue to be sticky, strong, smooth, and spreadable. I chose ingredients that were sticky, strong, smooth, and spreadable so that my mixture would also be sticky, strong, smooth, and spreadable. *I know that my glue meets my design goals because* My glue is good at meeting the design goals of being sticky, strong, smooth, and spreadable.

End-of-Unit Assessment

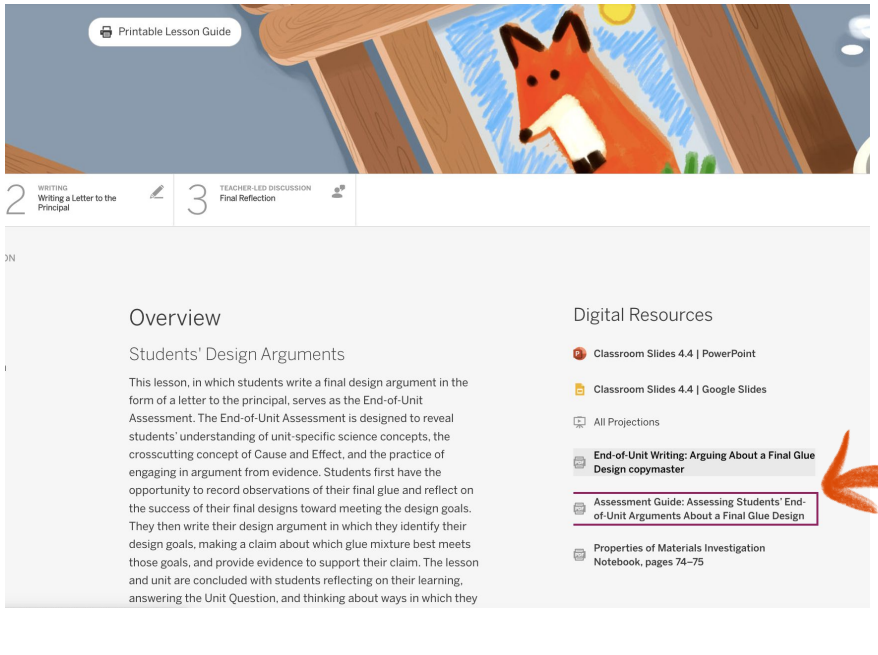
Work time

- Open your Participant Notebook to page 12.
- Score the three student responses (page 16) with rubric 2 only (science ideas).
- Come together with your group and discuss your scores.
- Share out



End-of-Unit Assessment

- Go to the The **End-of-Unit Writing** and the **End-of Unit Assessment Guide** on the lesson page
- Compare your scores with the student responses in the guide.
- Discuss with your group if there were any differences.

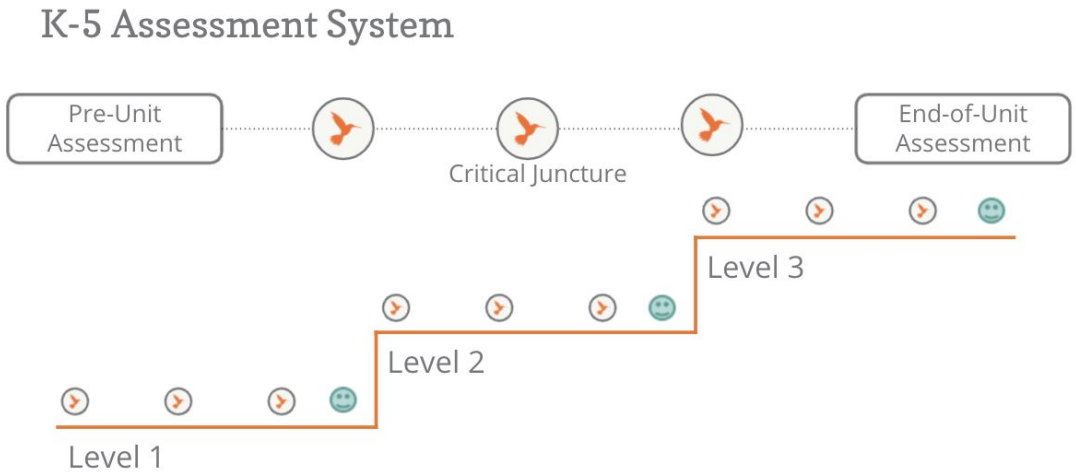


Assessment System

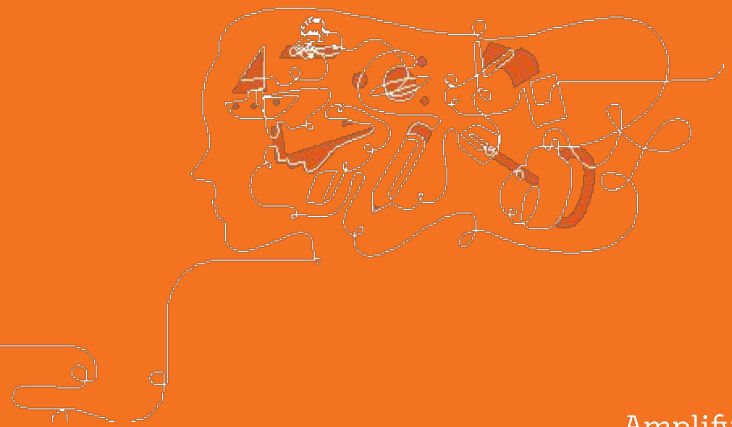
Reflection

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

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



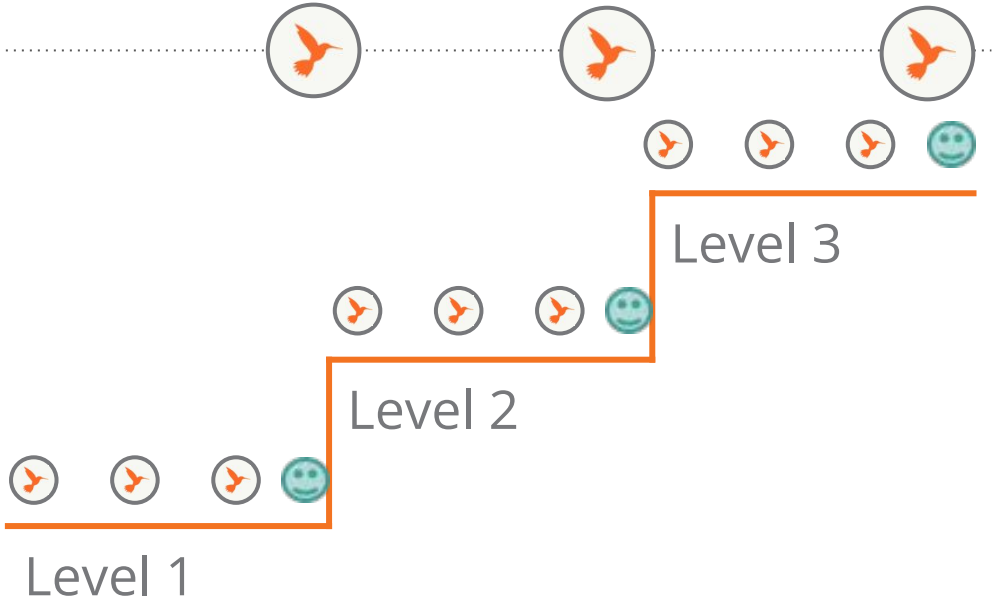
Lunch Break



Additional formative assessment information

Student Self-Assessments

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

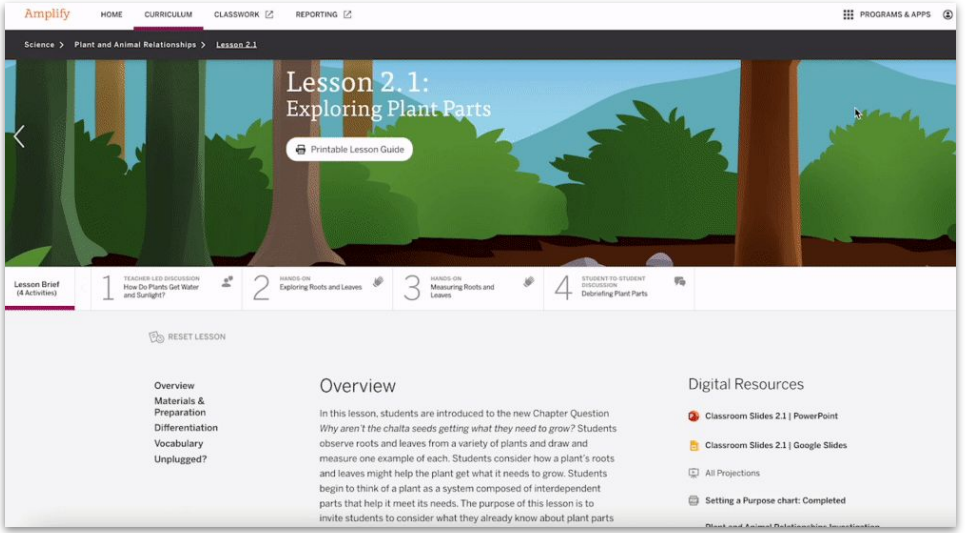


Questions?

Resources for NGSS progress monitoring

NGSS Benchmark assessments

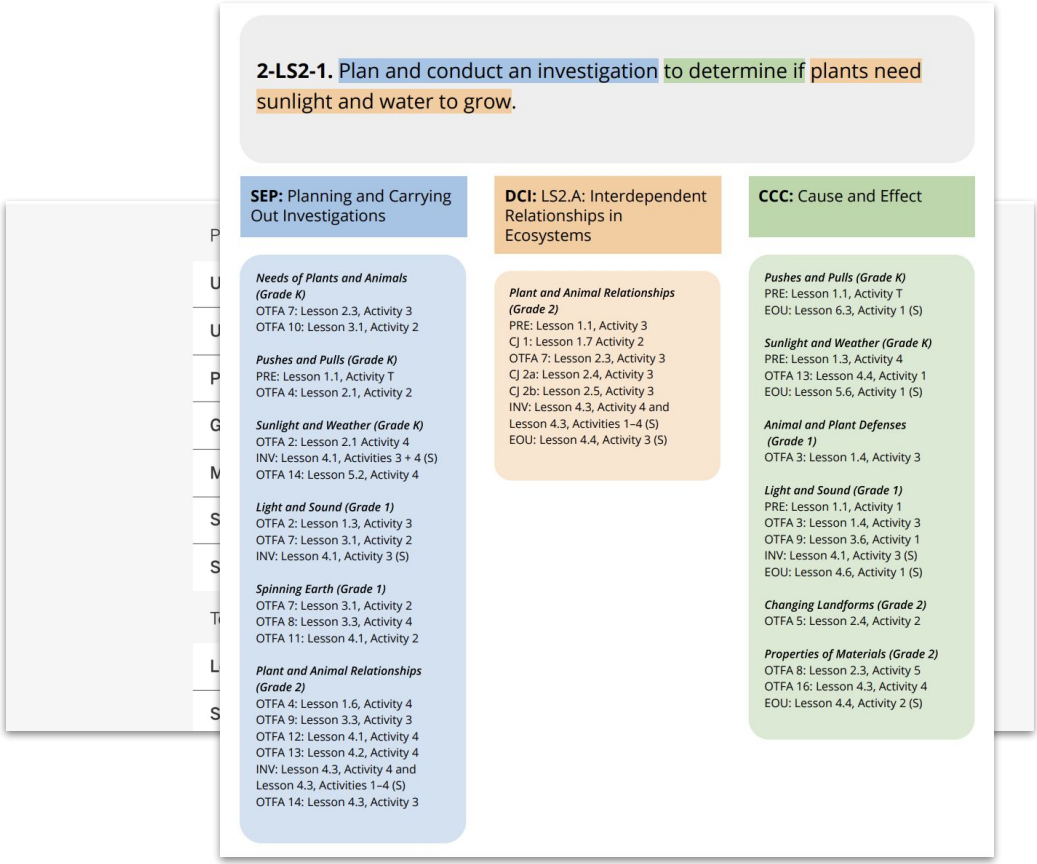
- Accessible in the Global Navigation menu
- Grades 3-5
- 4 assessments per grade



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)

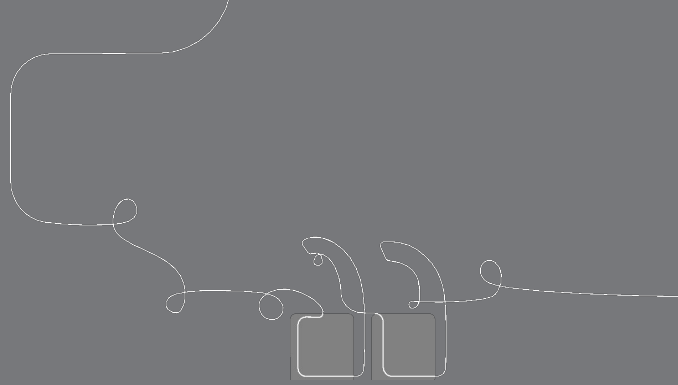
Generating grades

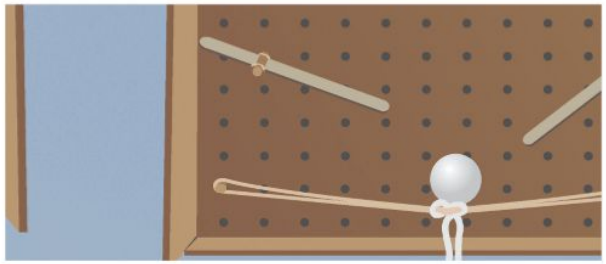
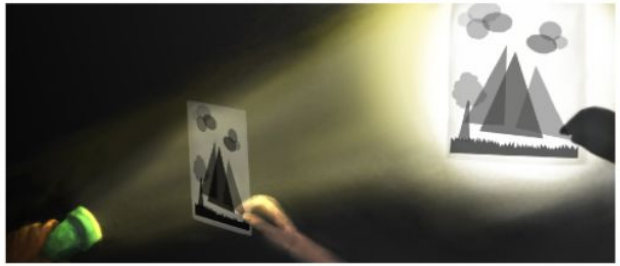
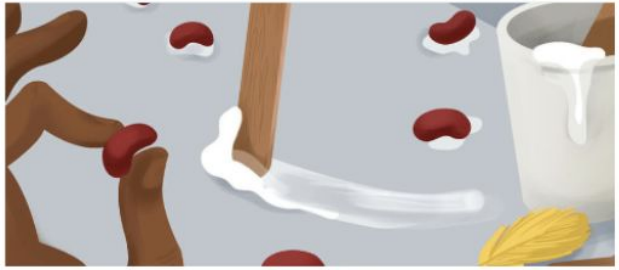
Group collaborative discussion

What are your district's grading requirements for science?

How will you use Amplify Science assessments to generate grades?

Questions?



Plan for the day

- Introduction
- Assessment System
- Progress Build
- Assessments
- Model Lesson
- Planning
- Closing

Properties of Materials

Problem: How can we design a glue mixture that is better than what the school uses now?

Role: Glue engineers

As glue engineers, students are challenged to create a glue for use at their school that meets a set of design goals. Students present an evidence-based argument stating why their glue mixture would solve their school's need for a better glue.

Properties of Materials

Coherent Storylines

How can you make a sticky glue?

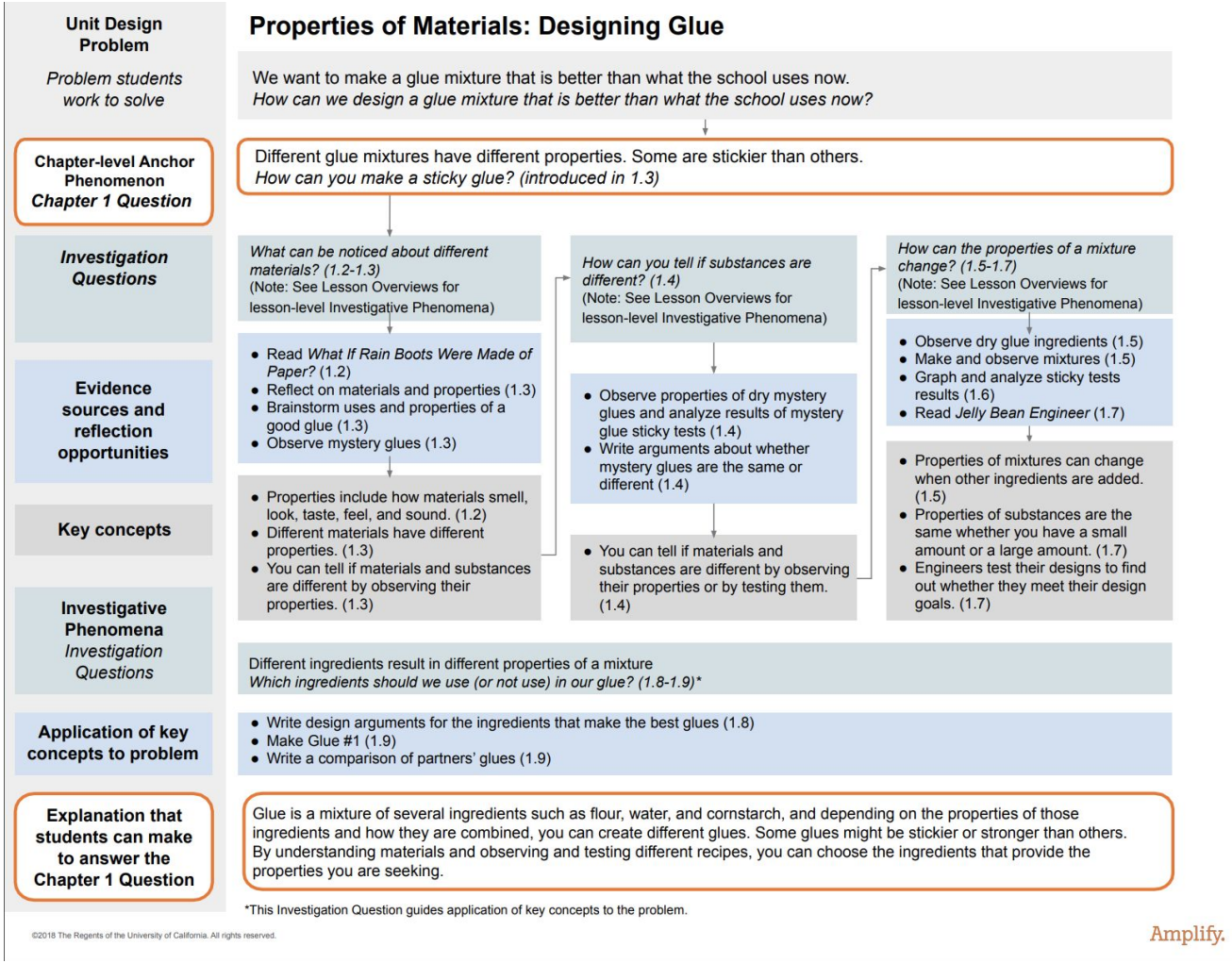
Can heating an ingredient make a better glue?

What ingredients can be used to make a glue that is sticky and strong/

What is the glue recipe that best meets our design goals?

Coherence Flowchart

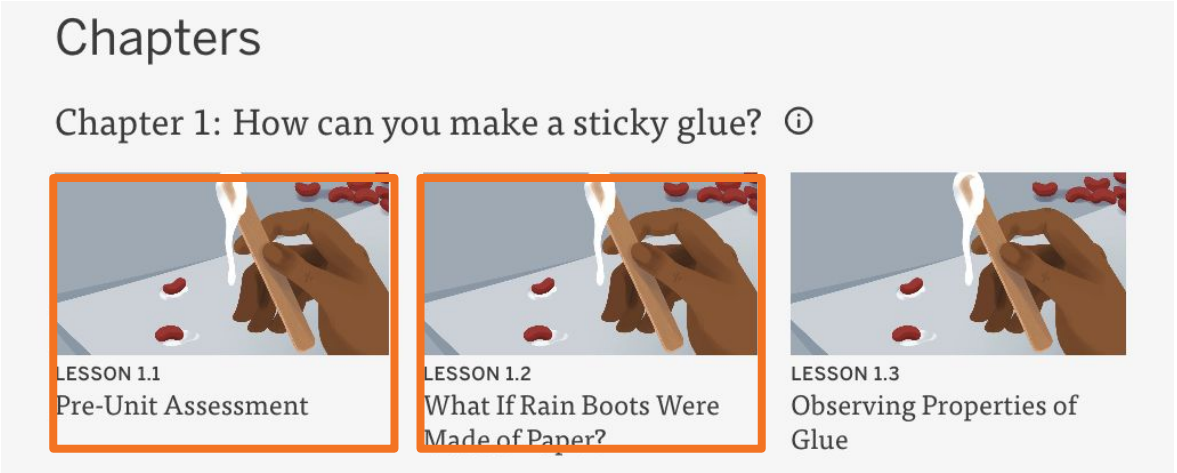
Chapter 1



Amplify.

Modeling Matter

Leading up to our model lesson

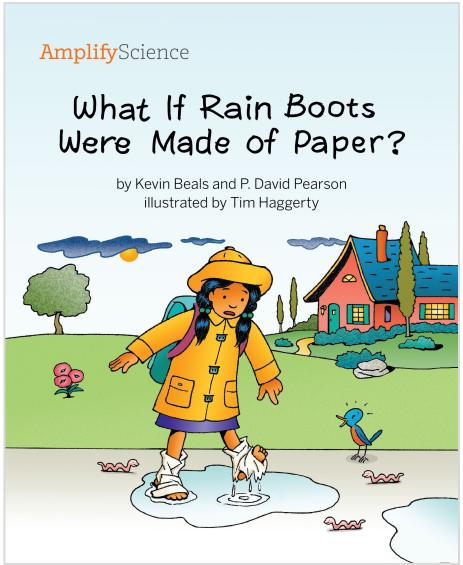


Lesson 1.1

Observe substances using their senses of touch, smell, and sight

Observe your Mystery Mixture and **record** your observations and ideas.

Lesson 1.2



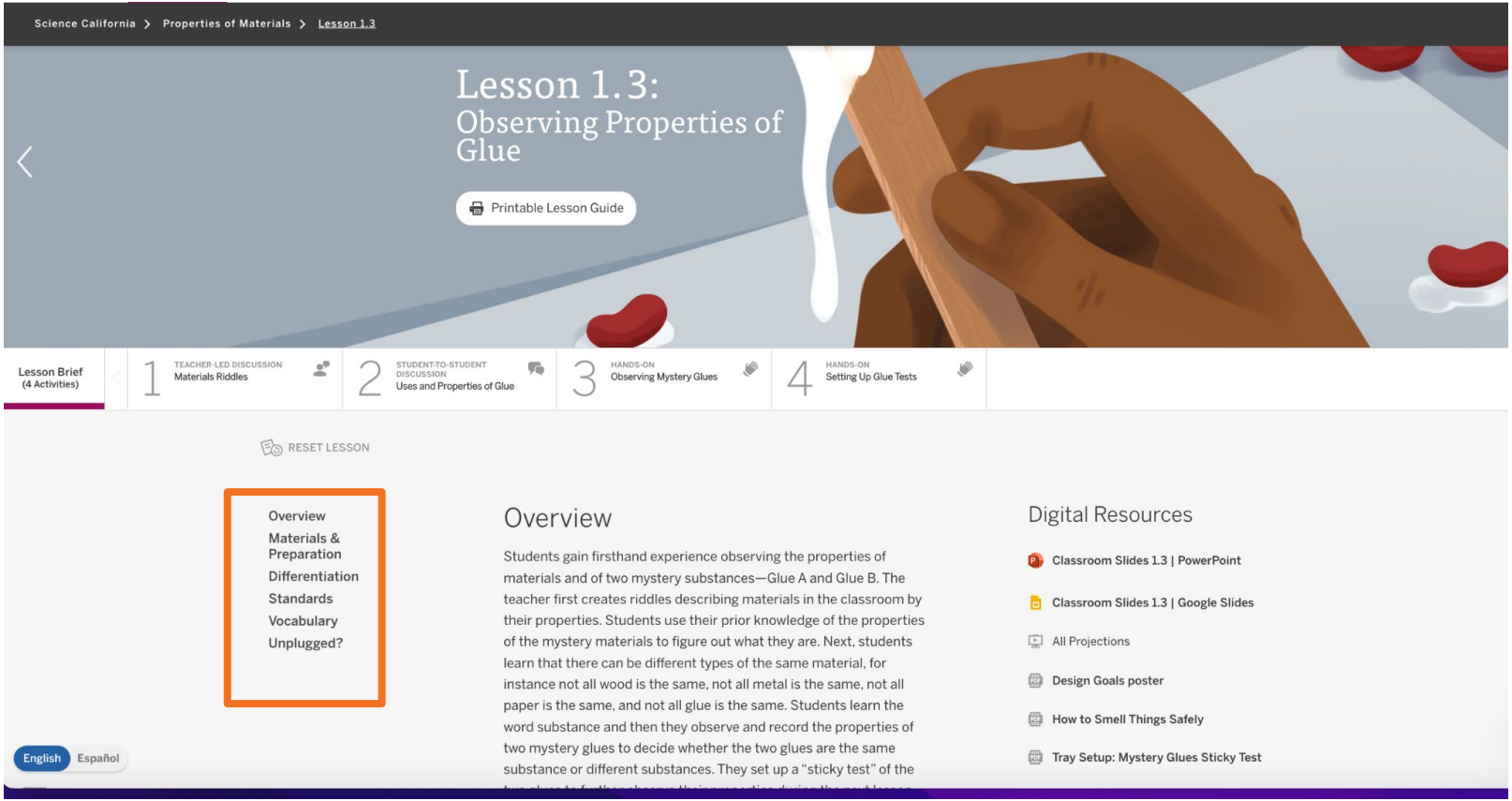
Read using this strategy of predicting

Key Concepts

Properties include how materials smell, look, taste, feel, and sound.

Properties include how materials smell, look, taste, feel, and sound.

The Lesson Brief



Properties of Materials

Materials for Lesson 1.3

For the Class

- 1 container of school glue, white, non-toxic*
- 1 container of craft glue, tacky, non-toxic*
- 3–4 glues, assorted*
- 18 3-ounce paper cups
- 18 craft sticks, small
- 38 index cards
- 36 paper plates*
- dried beans
- 9 labels: Glue A
- 9 labels: Glue B
- 1 sheet of chart paper*
- 9 trays*
- 36 safety goggles*
- masking tape*
- marker*
- optional: Chapter 1 Home Investigation: Observing Your Favorite Drink copymaster

Each Group of Four Students

- 1 tray of investigation materials

For Each Student

- safety goggles*
- optional: 1 copy of the Chapter 1 Home Investigation: Observing Your Favorite Drink student sheet
- *Properties of Materials* Investigation Notebook (pages 6–7)

Properties of Materials

Classroom Wall

Partner Reading Guidelines

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

Grade 2 | Properties of Materials

Lesson 1.3: Observing Properties of Glue

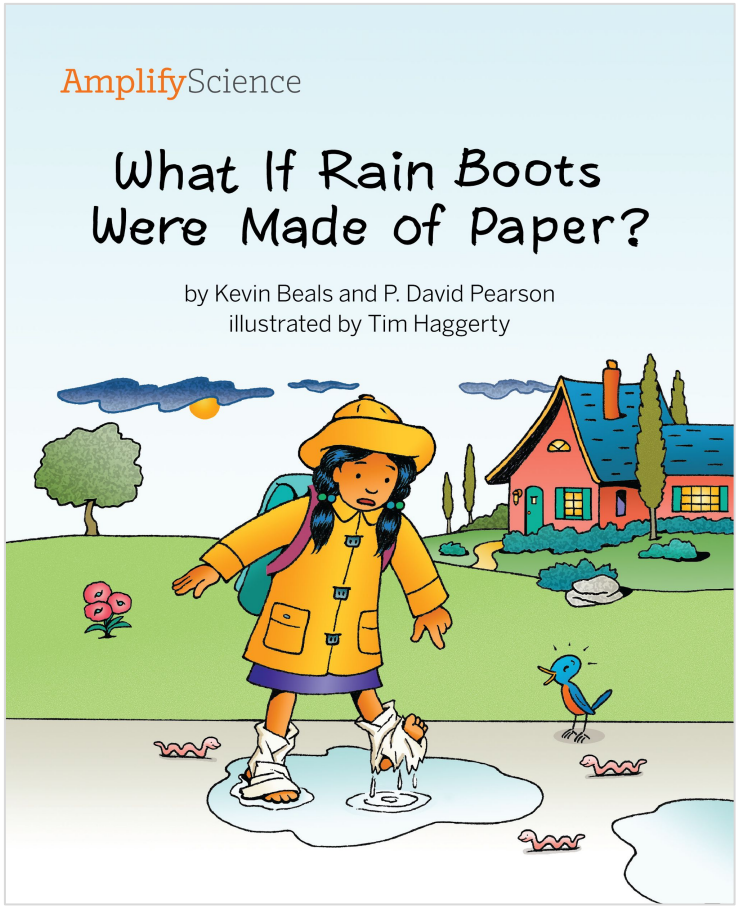
AmplifyScience

Activity 1

Materials Riddles

Remember that we are investigating this question:

What can be noticed about different materials?



We learned that things are made from different kinds of materials.

What **kinds of materials** did we read about in the book?

What are the **properties of paper** that make it a **bad material** for making rain boots? What are the **properties of rubber** that make it a **better choice**?

What is another “what if” material from the book and its properties?

We’re going to solve some **Materials Riddles**.

I will **think of a material** used in our classroom and **describe its properties** without saying what it is.

You’ll think about the properties I list and try to figure out what material I’m describing.

Now I'll give you some Materials Riddles.

Put your thumb up if you know the material I am thinking of.

Keep your answers to yourselves so your classmates have a chance to solve the riddle.

How were you able to **solve the riddles**?

Vocabulary

observe

to use any of the five senses to gather information about something

Notice is an everyday word. **Observe** is a science word. I'll replace the word "noticed" with "observed" in the question we have been investigating.

Key Concept

Different materials have different properties.

Activity 2

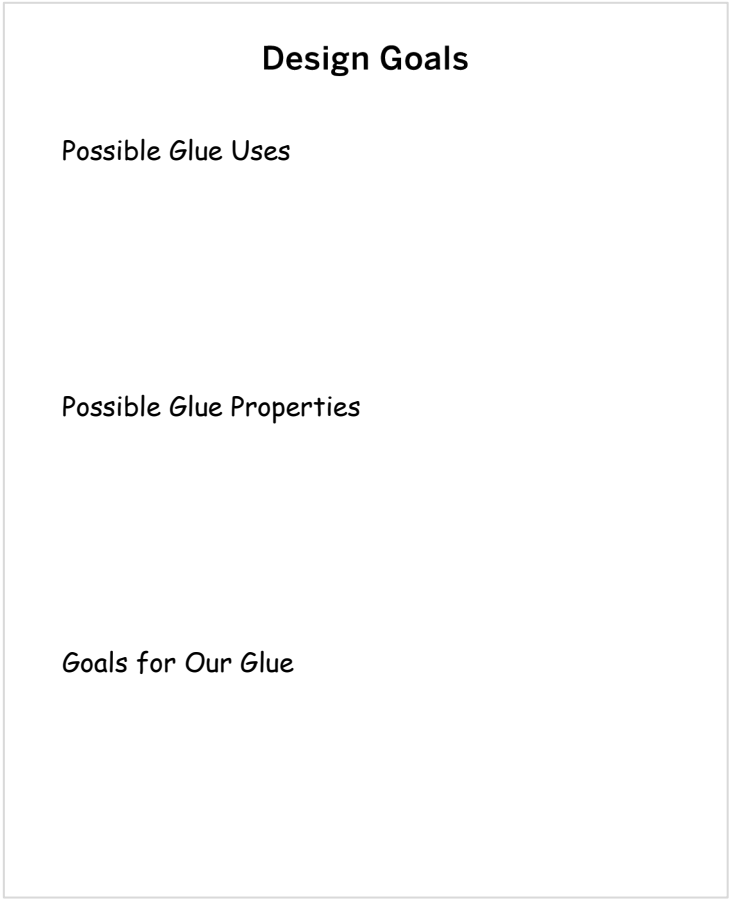
Uses and Properties of Glue

We're working as glue engineers and will be making glue for the school.

What is the **science word** for when an engineer **solves a problem by making something new**?

Chapter 1 Question

How can you make a sticky glue?



Before designing a solution, it's important to **understand the problem**.

We'll use this poster throughout the unit to **help us plan**.

Think-Pair-Share Routine

Think

Think silently about the question.

Pair

Turn and talk to a partner about the question.

Share

Share your ideas about the question with the class.

What kinds of things is glue used for?

Design Goals

Possible Glue Uses

Possible Glue Properties

Goals for Our Glue

Let's record our ideas about uses for glue under "Possible Glue Uses."

We are designing glue for school, so which of these uses are **important for a good school glue**?

Design Goals

Possible Glue Uses

Possible Glue Properties

Goals for Our Glue

What **properties** do you think our glue should have?

What ideas do you have about what **makes glues different**?

20 MIN

Activity 3

Observing Mystery Glues

There can be **different types of the same material**. For example, wood, metal, and paper are materials, but there are different kinds of wood, different kinds of metal, and different kinds of paper.

Substance is a word that scientists use to talk about a **specific kind of material**.

Vocabulary

substance

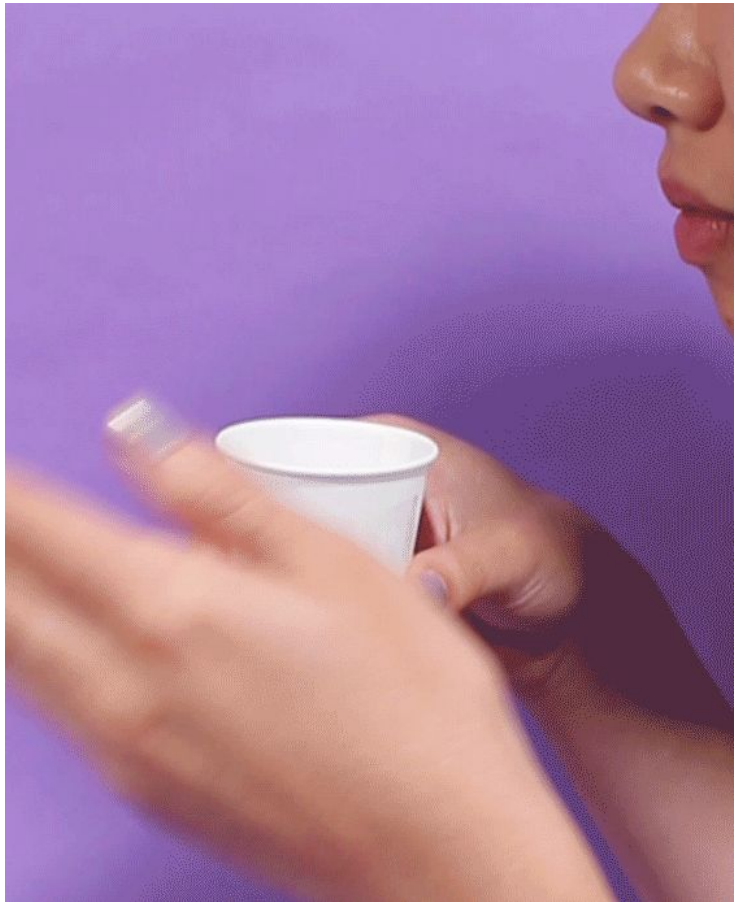
a specific kind of material

Glue is a material, but **not all glue is the same**.

Each of these glues is a substance. They are all glues, but they are different glues. They are **different substances**.

You'll observe Mystery Glues to figure out if they're the same substance.

How might you **observe the properties** of each glue?



As you **observe** the Mystery Glues, make sure you smell substances in the **special way that scientists do**.

Name: _____ Date: _____

Observing the Wet Mystery Glues

Directions:
1. Use your senses to observe each mystery glue.
2. Write the properties of each mystery glue in the table below.

Properties of Mystery Glue A	Properties of Mystery Glue B

Turn to page 7 in your notebooks.

The notes you take here will help you decide whether the Mystery Glues are **the same or different substances**.

Observing the Mystery Glues

Step 1

In your groups of four, **one pair observes Glue A while the other observes Glue B. Switch cups** so each pair gets to observe both glues.

Step 2

Use your senses to observe each glue. Look at it, smell it, pour it on the plate, and feel it with the stick.

Step 3

Record your observations in your notebooks.

Design Goals

Possible Glue Uses

Possible Glue Properties

Goals for Our Glue

Let's discuss the glues before saying whether we think they are the same.

What are some of the **properties of the glues** that you observed?

Thumbs up if you think the two glues are the **same substance**. What did you **observe** that makes you think they are the same?

Thumbs down if you think the two glues are **different substances**. What did you **observe** that makes you think they are different?

Key Concept

You can tell if materials or substances are different by observing their properties.

Vocabulary

evidence

information that supports an answer to a question

Activity 4

Setting Up the Glue Tests

Let's look at the various ways we said that glue is used.

What is the **most important property** for a glue to have in order to be used in these ways?

Vocabulary

test

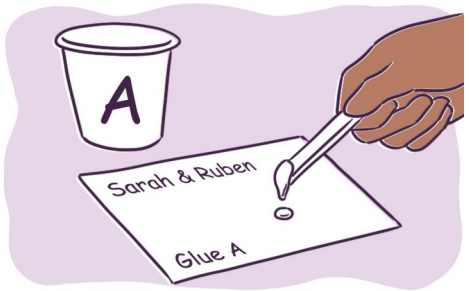
to try something and find out what happens

What would be a **good test** to see if something is **sticky**?

We'll be doing a **sticky test** for each of the Mystery Glues.

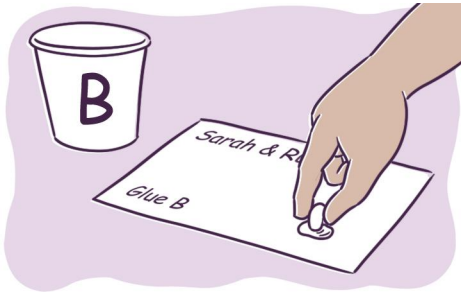
I'll show you how to set up the tests.

Mystery Glue Sticky Test



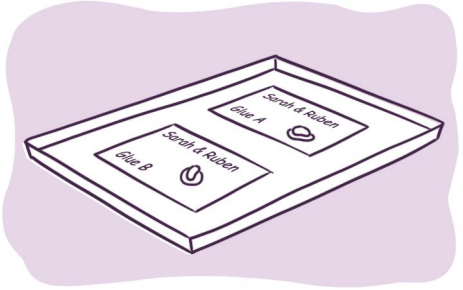
Step 1

Write your names and Glue A or Glue B on the cards. Put a **small amount of glue** on each card.



Step 2

Put a bean in the middle of each circle of glue.



Step 3

Leave the cards flat on the tray to dry overnight.

End of Lesson

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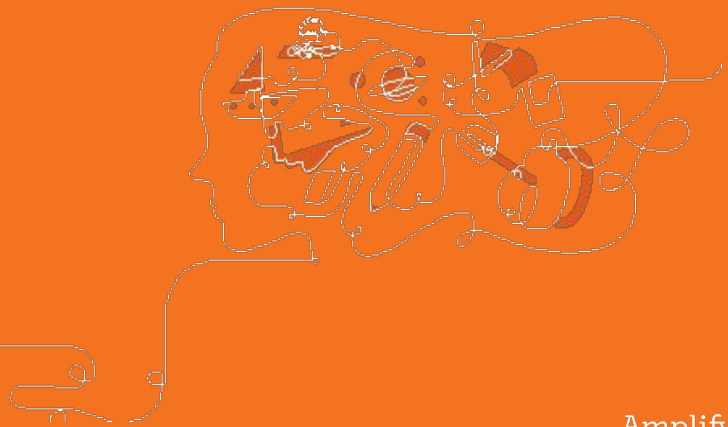
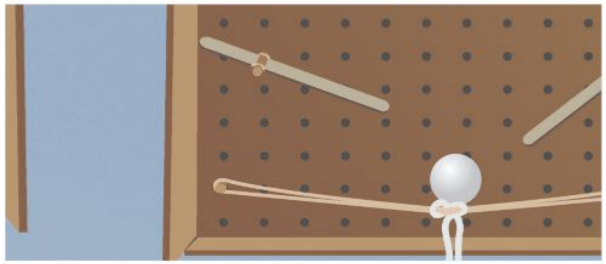
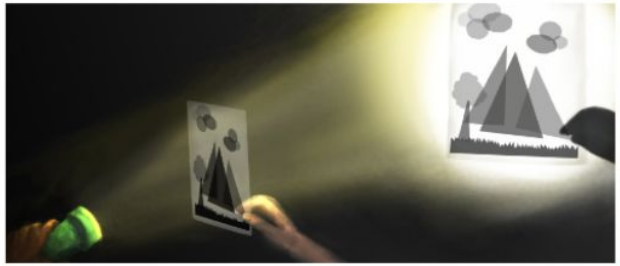
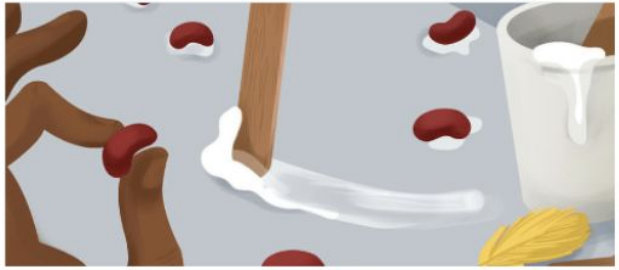
Break



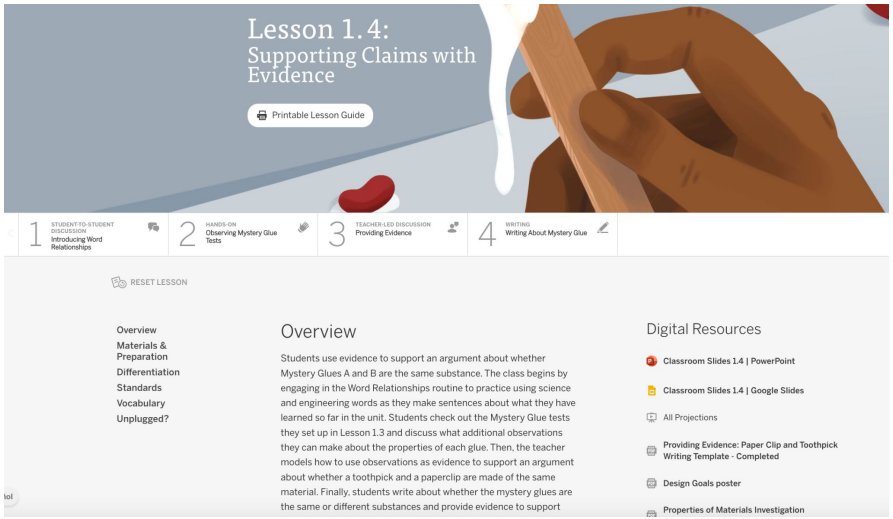




Plan for the day

- Introduction
- Assessment System
- Progress Build
- Assessments
- Model Lesson
- Planning
- Closing

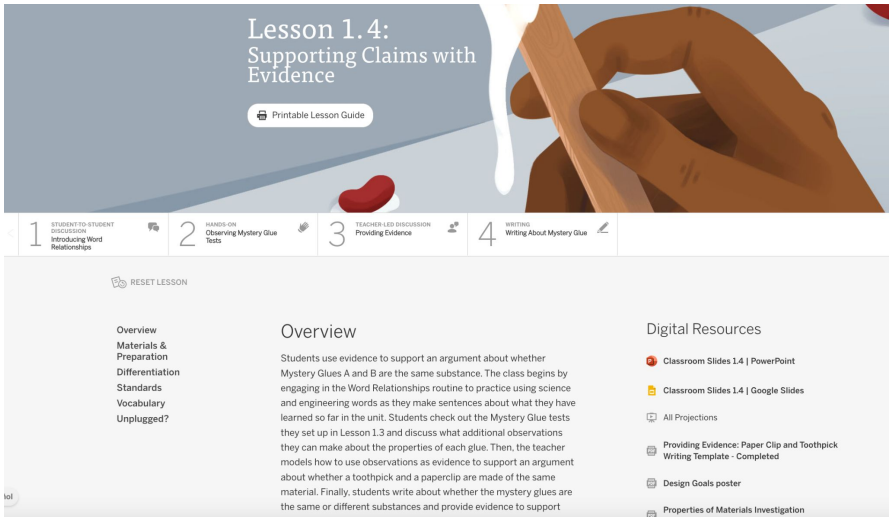
Work time - Planning

- Navigate to a lesson that you'll be teaching in the upcoming week that has a formative assessment opportunity (you might want to refer to the **Embedded Formative Assessment or Assessment System** documents on the Unit Landing Page)
- Review the assessment type and guidance



Work time - Planning

- Download and review the classroom slides
- Read the unit overview
- Read the Materials and Prep
- Read the differentiation
- Prepare any data collectors or assessment materials needed.

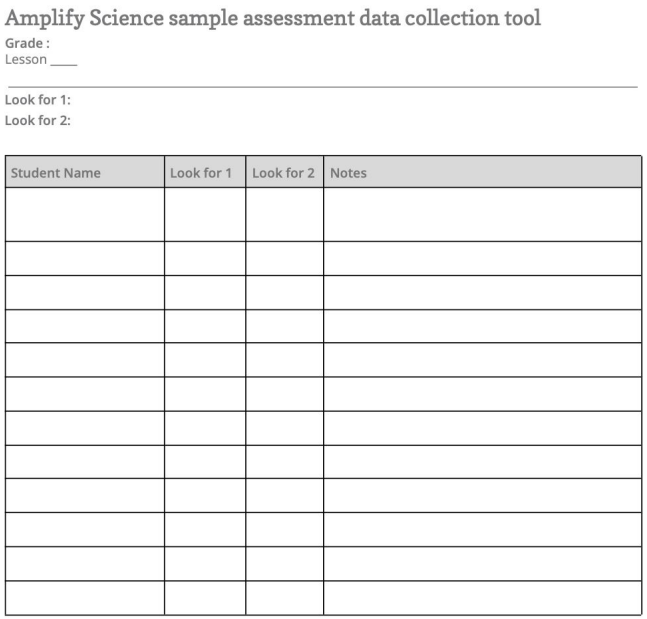


Work time - Planning

Pg. 17=18

Be prepared to share out the:

- Lesson chosen
- Type of assessment
- “Look Fors” or “Assess for Understanding”
- “Now What” or “Tailor Instruction”
- Personal observations or reflections



Amplify Science sample assessment data collection tool

Grade :
Lesson ____

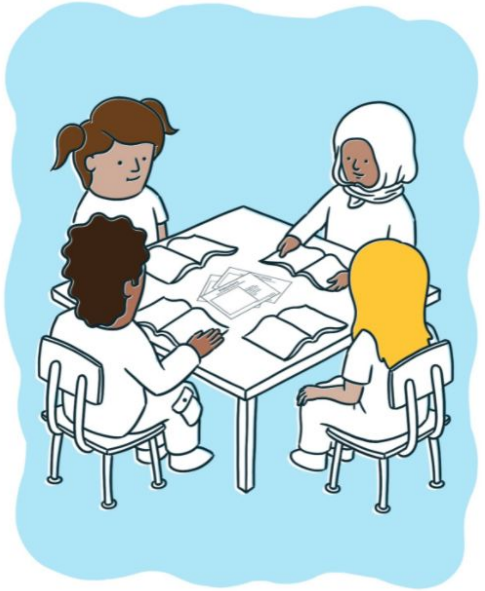
Look for 1:
Look for 2:

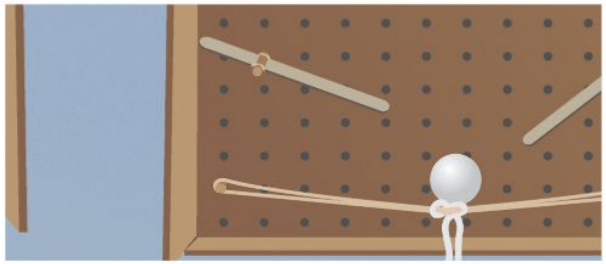
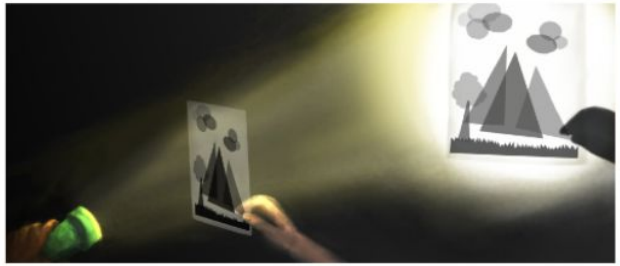
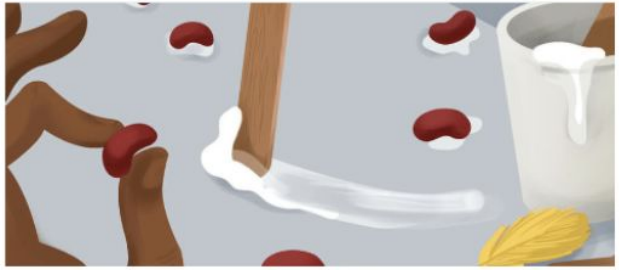
Student Name	Look for 1	Look for 2	Notes

Share Out

Share:

- Lesson chosen
- Type of assessment
- “Look Fors” or “Assess for Understanding”
- “Now What” or “Tailor Instruction”
- Personal observations or reflections



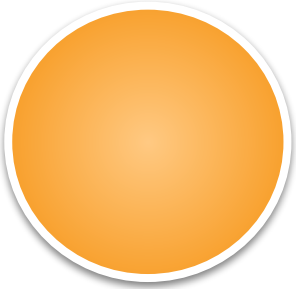
Plan for the day

- Introduction
- Assessment System
- Progress Build
- Assessments
- Model Lesson
- Planning
- Closing

Closing reflection

Based on our work today, share:

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

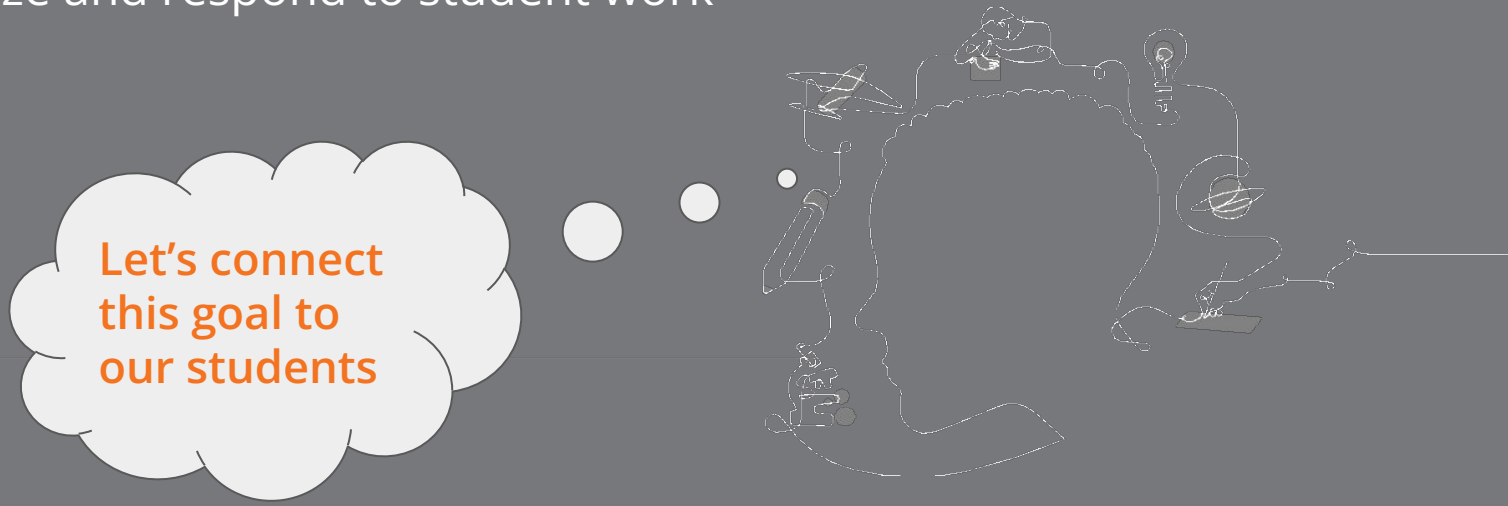


A question or topic that's still circling in your mind

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

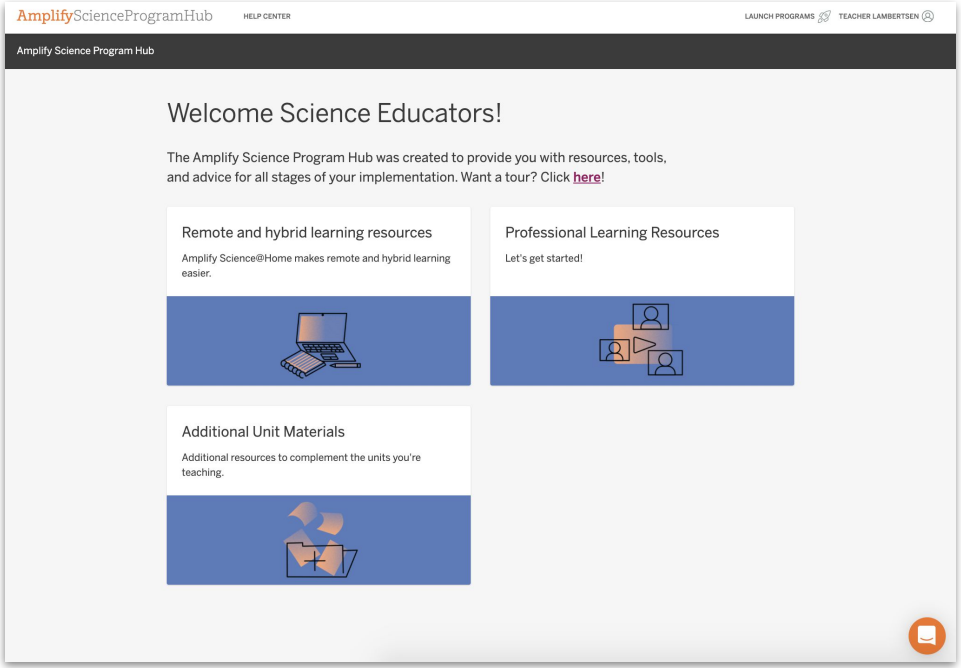
Overarching goals

- ☑ Describe the structure and purpose of the Amplify Science Assessment System
- ☑ Plan for the strategic use of assessment resources to analyze and respond to student work



Program Hub

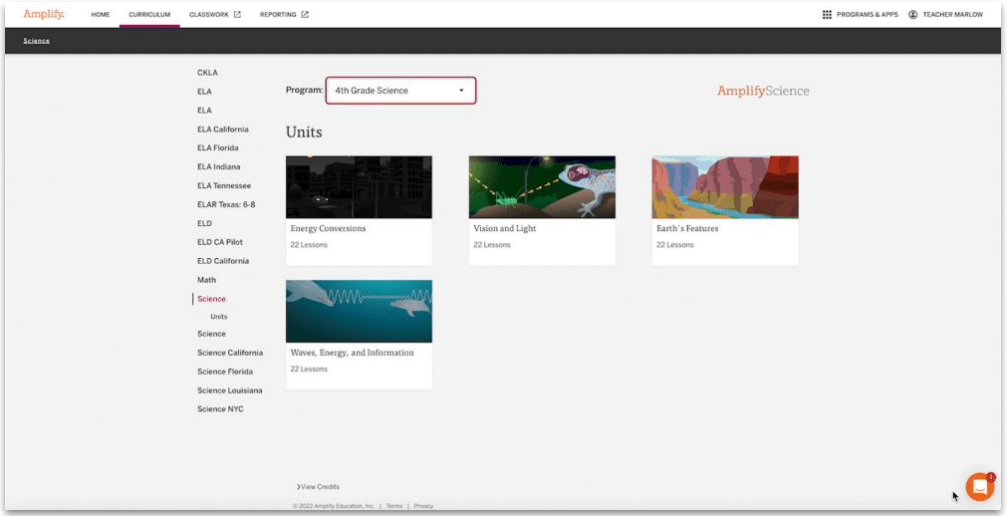
- Unit overview videos
- Planning tools
- Remote and hybrid learning resources.



Additional resources and ongoing support

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

Amplify Chat



K-2ND GRADE AMPLIFY SCIENCE PARTICIPANT FEEDBACK LINK

http://bitly.ws/xoMz