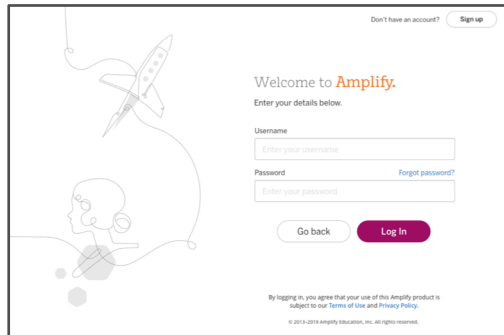
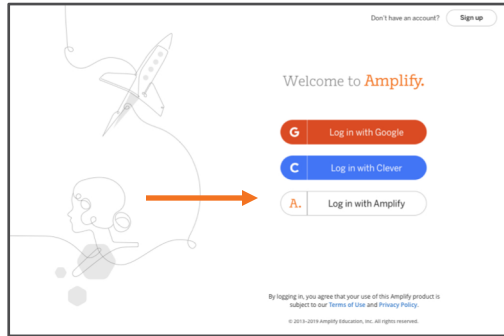


Welcome to Amplify Science!

Do now: Name tent and login



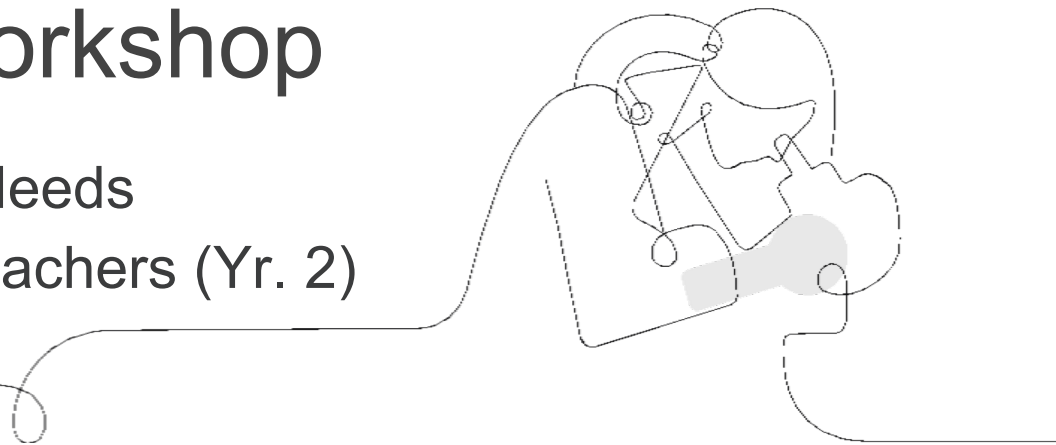
1. Make a name tent
2. Go to learning.amplify.com
3. Select **Log in with Amplify**
4. Enter teacher demo account credentials
 - XXXX@tryamplify.net
 - Password: AmplifyNumber1
5. Explore as we wait to begin

Amplify Science

Grade 2: Properties of Materials Implementation workshop

Supporting Diverse Learner Needs
New York City Elementary Teachers (Yr. 2)

NYC DOE
November 5, 2019
Presented by Your Name



Reflecting on Unit 1:

Where are you on the implementation continuum?

- Reflect on the overall implementation of unit 1 and determine where you would rate your implementation on the continuum.
- On a sticky note, write why you chose that location on the continuum.
- Place your sticky note on the continuum chart.



**Implementation
Not Yet Started**

**Effective
Implementation**

Sharing Ideals and Solutions

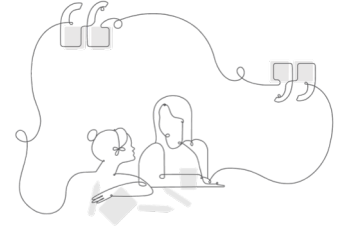
- Move to right side if you feel confident in the implementation area.
- Move to the left side if you feel less confident in the implementation area.
- On cue, form groups of two (confident / less confident ratings) to discuss the implementation area.
- Each rotation will be 1 minute.

Implementation Areas:

- Tips for Navigating platform and locating digital materials
- Tips for Multi-modal Instruction
- Tips for Managing print materials, kits and/or devices
- Tips for Utilizing Formative and/or Summative Assessments
- Tips for Planning and Pacing

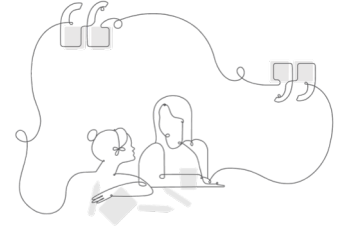
Plan for the day

- Reflections and Framing the Day
- Defining Diverse Learners
- Understanding Opportunities for Supporting Diverse Learners
- Analyzing Formative Assessment Data and Embedded Differentiation strategies
- Planning to Teach
- Closing



Plan for the day

- **Reflections and Framing the Day**
- Defining Diverse Learners
- Understanding Opportunities for Supporting Diverse Learners
- Analyzing Formative Assessment Data and Embedded Differentiation strategies
- Planning to Teach
- Closing



Elementary school course curriculum structure

Grade K

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

Grade 1

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

Grade 2

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

Grade 3

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

Grade 4

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

Grade 5

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

AmplifyScience

authored by



THE LAWRENCE
HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

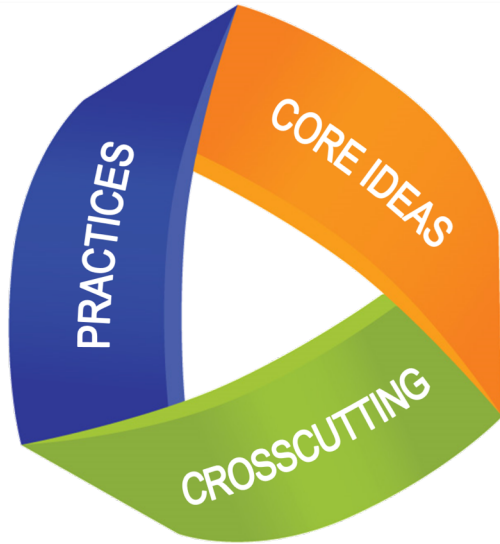
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Problem-based deep dives

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



Thinking three dimensionally



Disciplinary Core Ideas

- Refer to the key concepts

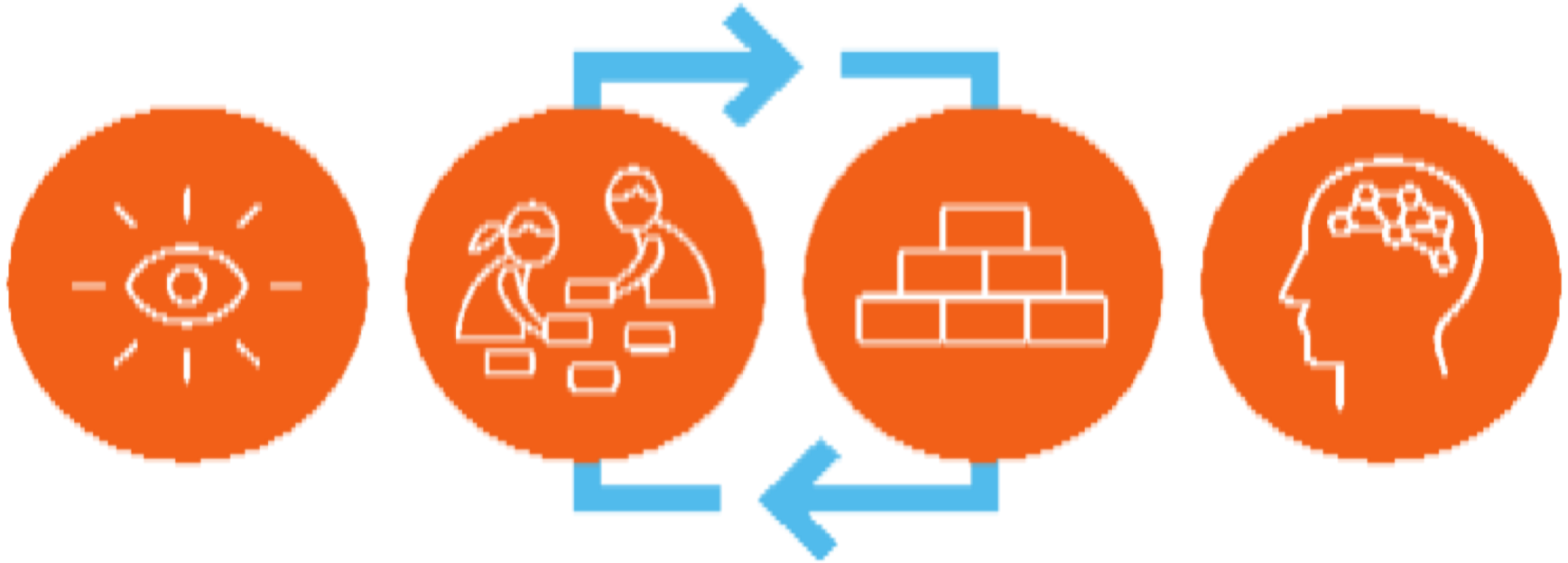
Science and Engineering Practices

- Which practices did you use to figure out these ideas?

Crosscutting Concepts

- Which crosscutting concepts were useful to make sense of what you figured out?

Amplify Science approach



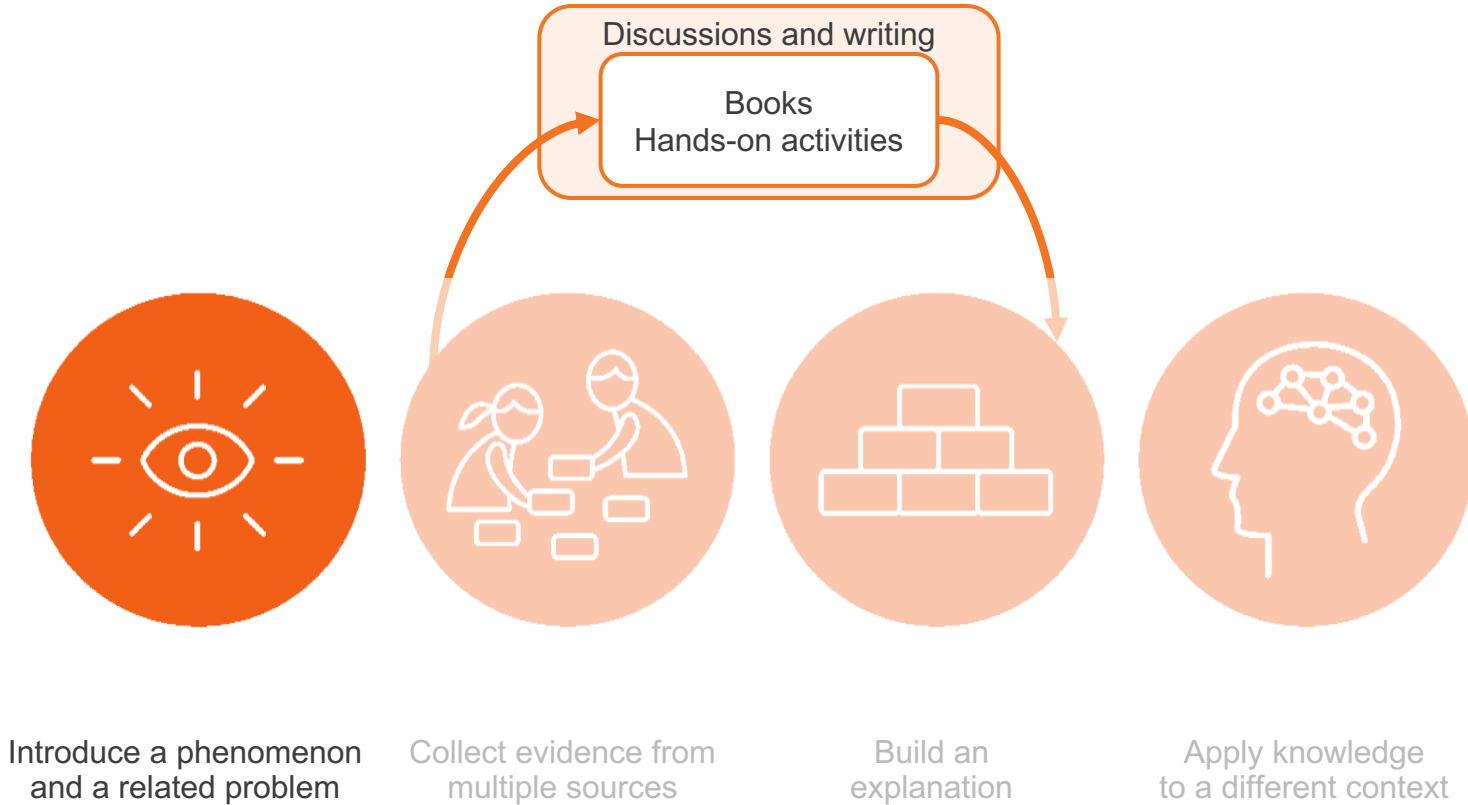
Introduce a phenomenon
and a related problem

Collect evidence from
multiple sources

Build increasingly
complex explanations

Apply knowledge
to a different context

Amplify Science approach



Workshop Title: Supporting Diverse Learner Needs

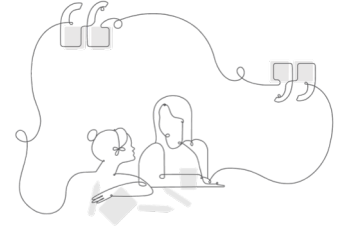
By the end of this session, K-5 participants will be able to...

Which of these outcomes are you most interested in learning more about? Why?

- Identify embedded opportunities that support diverse learner needs within the unit of study
- Understand how to utilize the embedded multimodal curricular supports (do, talk, read, write, visualize) to help all students gather sources of evidence and argue like scientists
- Articulate the critical role that language and literacy play in developing scientific understanding
- Apply the End of Unit assessment rubric to understand student expectations
- Apply strategies that support diverse learner needs when planning instructional sequences

Plan for the day

- Reflections and Framing the Day
- **Defining Diverse Learners**
- Understanding Opportunities for Supporting Diverse Learners
- Analyzing Formative Assessment Data and Embedded Differentiation strategies
- Planning to Teach
- Closing



Who are our Diverse Learners?

“Diverse learning is not based on race or dependent on a deficit model. Students who are considered gifted are also diverse learners. All students are diverse and unique, in their own right. Let’s agree that diverse learning recognizes that all students have unique learning needs and we educators must be prepared to provide multiple entry points for all learners to access the rigor of the goals and standards.”

Anonymous Educator

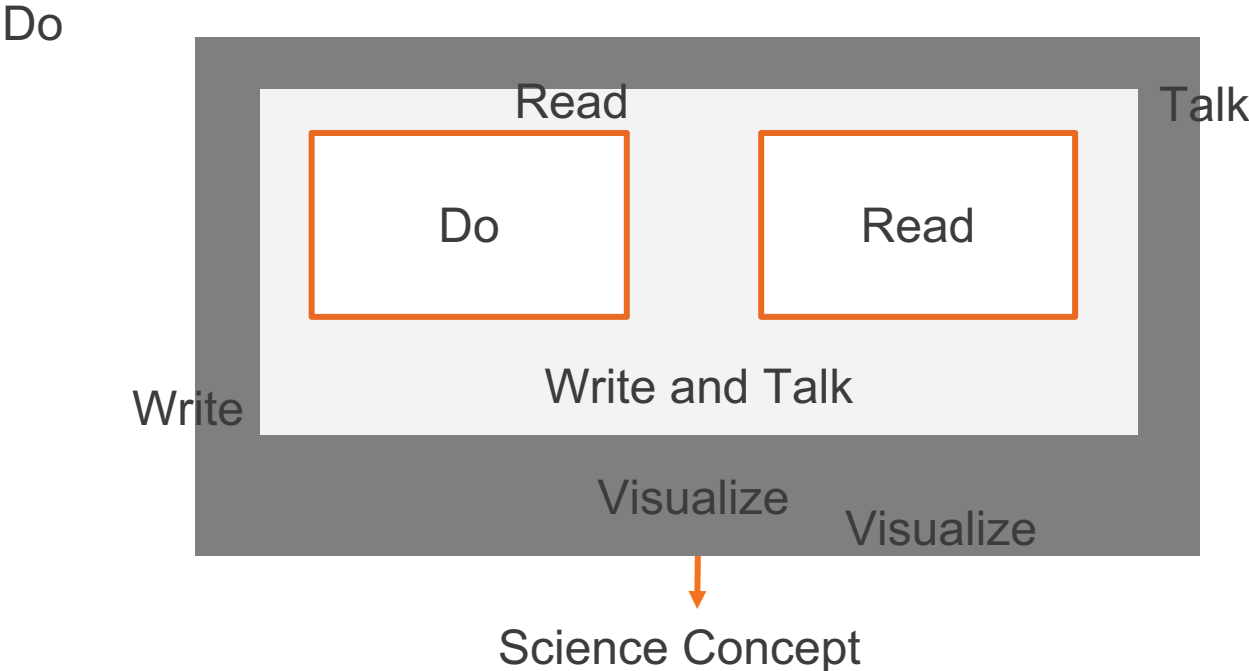
Charting Ideas from your own Teacher Toolkit?

What intuitive teacher strategies would you add to this list?

Modalities	Strategies (Solo or Collaboratively)
● Doing and completing tasks	
● Talking and adding ideas	
● Reading for information	
● Writing to convey understanding	
● Visualizing ideas	

Multimodal instruction

Do, Talk, Read, Write, Visualize



The Amplify Science Curriculum was developed with Supporting Diverse Learning Needs In Mind.



Universal Design for Learning

Universal Design for Learning (UDL) is a **research-based framework** for improving student learning experiences and outcomes by **focusing on careful instructional planning to meet the varied needs of students**. UDL is **NOT a special-education initiative**. Through the UDL framework, the **needs of ALL learners are considered** and planned for at the point of first teaching, thereby **reducing the need to reteach concepts**.

Universal Design for Learning Guidelines



Culturally and linguistically responsive teaching

Culturally and linguistically responsive teaching (CLRT) principles **emphasize validating and valuing students' cultural and linguistic heritage and creating positive and nurturing learning environments** so that learning is more effective.

Culturally and linguistically responsive teaching

Turn and talk: Where have you noticed evidence of these principles in the Amplify curriculum?

CULTURALLY AND LINGUISTICALLY RESPONSIVE TEACHING PRINCIPLES

- ∨ Promote a positive disposition toward diversity: +
- ∨ Leverage students' cultural and experiential backgrounds: +
- ∨ Value language diversity and multilingualism: +
- ∨ Cultivate students' development of the language of science: +

Differentiation Strategies

1

Menu icon

Hello Youse Garcia
t.nycmiddle@tryamplify.net

Log Out

Go To My Account ⚙️

Thermal Energy Sim

Traits and Reproductio...

Vision and Light Sim

Weather Patterns Sim

Additional Resources

Benchmark Assessments

NYC Resources

2

Science Program Guide

Help

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AmplifyScience

Amplify Science

Welcome

Program developers

Designed for the NGSS

Program components

Scope and Sequence

Phenomena, standards, and progressions

Assessments

Science and literacy

3

Access and equity

Resources

4

Access and equity

Universal Design for Learning

Culturally and linguistically responsive

Differentiation strategies

– English learners

– Students with disabilities

– Standard English learners

– Girls and young women

– Advanced learners and gifted learners

– Students living in poverty, foster children and youth, and migrant students

Lesson-level differentiation

English Learners

- **Principle 1:** Leverage and build students' informational background knowledge.
- **Principle 2:** Capitalize on students' knowledge of language.
- **Principle 3:** Provide explicit instruction about the language of science.
- **Principle 4:** Provide opportunities for scaffolded practice.
- **Principle 5:** Provide multimodal means of accessing science content and expressing science knowledge.

Language supports for English Learners in Amplify

Embedded instructional design: Many **scaffolds are embedded** within the instructional plan and are presented to teachers through the digital teacher materials and to all students as activities within the unit. Throughout the process of designing the curriculum, these scaffolds and supports were **planned, tested, and refined** to provide **rigorous yet accessible science instruction**.

Additional support: **Additional activities and specific methods for supporting English learners** are provided for use **as needed**, especially in the **Teacher Support notes within the lessons**.

English Learners jigsaw

- **Principle 1:** Leverage and build students' informational background knowledge.
- **Principle 2:** Capitalize on students' knowledge of language.
- **Principle 3:** Provide explicit instruction about the language of science.
- **Principle 4:** Provide opportunities for scaffolded practice.
- **Principle 5:** Provide multimodal means of accessing science content and expressing science knowledge.

DIRECTIONS

- Read your assigned principle
- Be ready to **share out how your principle appears in the Amplify curriculum.**

Students with disabilities meet the criteria under one of the following categories:

- Autism
- Deafness
- Deaf-blindness
- Emotional disturbance
- Hearing impairment
- Intellectual disability
- Multiple disabilities
- Orthopedic impairment
- Other health impairment
- Specific learning disability
- Speech or language impairment
- Traumatic brain injury
- Visual impairment (including blindness)

Standard English learners

Students who are Standard English Learners (SELs) are **ethnic minority students and primary English speakers who speak a dialect of English** in their home communities that is different from the “standard” dialect of English used in schools. **The goal for SELs** is to become bidialectal by **maintaining their home dialect of English while mastering standard English (SE) across the disciplines**, including science.

Girls and young women

Historically, girls and young women have had **fewer opportunities** to participate in and benefit from **deep science and engineering learning**. To help combat this issue, Amplify Science aids teachers in **positioning girls and young women as powerful science and engineering learners**.

Advanced learners and gifted learners

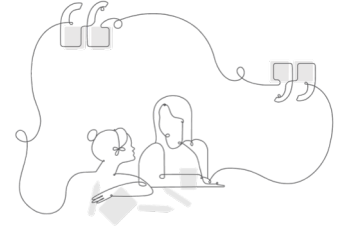
Advanced learners and gifted learners, who **may be formally or informally identified**, show the **capacity for performance that is significantly higher than their age peers**. This group of students require their teachers to **focus on adding depth and complexity** in the science topics under study (as opposed to merely adding more work, additional topics, or skipping content or grade levels).

Students living in poverty, foster children and youth, and migrant students

Children and youth who experience **disruptions to their education** or are **living in potentially stressful situations** lack equal access to **quality science and engineering learning experiences**, and are **disproportionately negatively impacted in science academic outcomes**.

Plan for the day

- Reflections and Framing the Day
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- Closing





Grade 2: Properties of Materials

Anchor phenomenon: Different glue recipes result in glues that have different properties.

Role of the Student: 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 of why their glue mixture will be good for their school to use.

Student preconceptions in this unit

▼ JUMP DOWN TO UNIT GUIDE

Read to find out about expected preconceptions.

Share: What preconceptions do you expect students to come in with? How will you address them throughout the unit?

<p>Planning for the Unit</p> <ul style="list-style-type: none">Unit Overview ▼Unit Map ▼Progress Build ▼Getting Ready to Teach ▼Materials and Preparation ▼<li style="border: 2px solid gray;">Science Background ▼Standards at a Glance ▼ <p>Teacher References</p> <ul style="list-style-type: none">Lesson Overview Compilation ▼▼▼▼▼▼ <p>Books in This Unit ▼</p> <p>Apps in This Unit ▼</p>	<p>Printable Resources</p> <ul style="list-style-type: none"> Coherence Flowcharts Copymaster Compilation Investigation Notebook Multi-Language Glossary NGSS Information for Parents and Guardians Print Materials (8.5" x 11") Print Materials (11" x 17") <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;"><p>Offline Preparation</p><p>Teaching without reliable classroom internet? Prepare unit and lesson materials for offline access.</p><div style="text-align: center; margin-top: 10px;"><p>Offline Guide</p></div></div>
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Unit Level 3-D Statement

Key

Practices

Disciplinary Core Ideas

Crosscutting Concepts

Unit Level

Students **investigate** and then **analyze and interpret data** to determine **different properties of materials** (**patterns, cause and effect**). This informs the **design** of a **glue mixture with a combination of desired properties** that make it best suited for classroom use.



Unit Map

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

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.

Chapter 1: How can you make a sticky glue?

Students figure out: Glue is a mixture of several ingredients such as flour, water, and cornstarch, and depending on the properties of those ingredients and how they are combined, you can create different glues. Some glues might be stickier or stronger than others. By understanding materials and observing and testing different recipes, you can choose the ingredients that provide the properties you are seeking.

How they figure it out: To set context, students gather evidence about materials and their properties by reading a book about everyday things and what they are made of. They investigate the properties of two mystery glues and make scientific arguments about whether they are the same or different glues. The class goes on to observe and test possible glue ingredients for their sticky properties, graph test data, and search for information about ingredients in the unit's reference book. Using all the gathered evidence, students plan, make, and test their own glue recipes.

Chapter 1: How can you make a sticky glue?

☑ JUMP DOWN TO CHAPTER OVERVIEW

Lesson 1.1:
Pre-Unit Assessment

Lesson 1.2:
What If Rain Boots
Were Made of Paper?

Lesson 1.3:
Observing Properties
of Glue

Lesson 1.4:
Supporting Claims
with Evidence

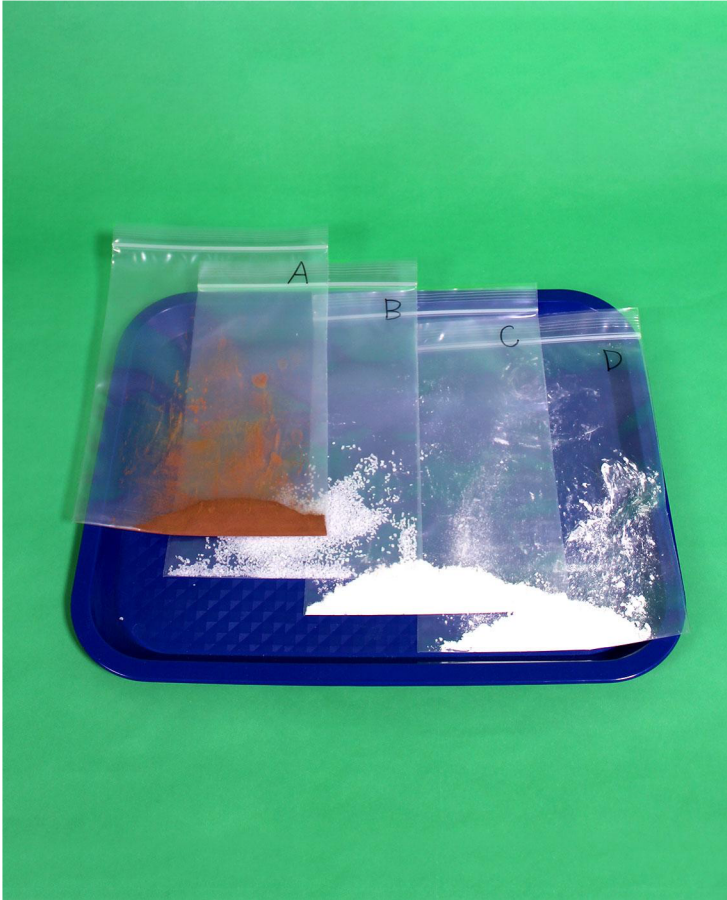
Lesson 1.5:
Observing and
Testing Ingredients

Lesson 1.6:
Evaluating Sticky
Test Evidence

Lesson 1.7:
Jelly Bean Engineer

Lesson 1.8:
Using Evidence to
Plan Glues

Lesson 1.9:
Making Our First
Glue



Inside each of these bags is a **material**. We'll see what we can notice about each material.

We'll use the letters on the bags to name the materials.

Chapter 1: How can you make a sticky glue?

☑ JUMP DOWN TO CHAPTER OVERVIEW

Lesson 1.1:
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Plan Glues

Lesson 1.9:
Making Our First
Glue

We will investigate this question over the next few lessons:

What can be noticed about different materials?

In this lesson, we will be **reading** about **different materials**.

Readers often use a **strategy** called **predicting** to help them understand what they are about to read. Predicting is a strategy that you probably use a lot.

Vocabulary



predict

to use what you already know to decide
what you think might happen

AmplifyScience

What If Rain Boots Were Made of Paper?

by Kevin Beals and P. David Pearson
illustrated by Tim Haggerty



Before we read this book, let's practice **predicting** what the book will be about or what we'll learn.

We can use the **title**, **pictures**, **text**, **format**, and **story elements**.

What if rain boots were made of paper?

Would they rip when we put them on?

Would they fall apart in the rain?

Would our feet get wet?



I'll read page 3 out loud.

As I read, I'll think about ways I might change my prediction.



Paper rain boots would be a problem. That's why rain boots are made of **rubber**.

- Rubber bends, so it's easy to slip rain boots on our feet.
- Rubber is strong, so it lasts a long time.
- Rubber keeps out water, so our feet stay dry.

Rubber is a great **material** for making rain boots. Maybe we should make everything out of rubber!

Now I'll read page 4.

Let's think about what we are learning as we read and make a new prediction.

Predicting helps readers understand new ideas and think about what they are going to learn or what might happen next.

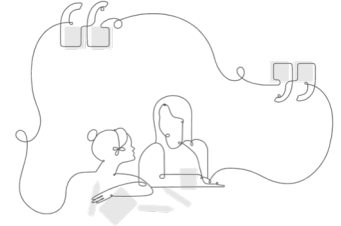
Readers don't just predict before they read. They continue to **make and adjust their predictions** as they go along.

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.

Plan for the day

- Reflections and Framing the Day
- Defining Diverse Learners
- Understanding Opportunities for Supporting Diverse Learners
- **Analyzing Formative Assessment Data and Embedded Differentiation strategies**
- Planning to Teach
- Closing



Unpack and Analyze the Embedded Formative Assessment Data

What do you notice about each diverse learner needs?

What connections can you make to each learner's profile?

How would you use the **Now What** strategies to support each learner?

Amplify Science

[On-The- Fly Status of the Class Data Organization Tool]

Teacher: Mr. Saturn

Unit Name: Properties of Materials

Grade Level : 2

Chapter: 1

Date: 8 /2018

Lesson: 1.2, Act. 3

A.) Determine the "Look For's" for the On the Fly Assessment

On-the-Fly Assessment 1: Making Predictions While Reading

B.) Rate the Look -Fors

'3' if student demonstrates a **strong understanding**

'2' if student demonstrates **some understanding**

'1'- if student demonstrates **no understanding**

Look Fors	Learner A	Learner B	Learner C	Learner D
Look for #1: Student participates in the Partner reading activity.	3	3	2	2
Look for #2: Student uses prior knowledge (what they already know) to make predictions about what they will learn.	2	1	1	3
Look for #3: Student is able to use clues in the text to make predictions about what they will learn.	2	2	2	2
Look for #4: Student adjusts predictions as they go along and the evidence used to support their predictions.	3	1	2	2
Look for #5: Student is able to elaborate when asked "What makes you think that?" or "Explain why you predict that may happen."	1	1	2	2

C.) After data are collected for the OTF, analyze the student needs and refer to the **NOW WHAT** section for ideas on how to respond to your students' needs.

Sample Classroom Profile

Learner A: Enjoys science and math. Loves to tell stories about her many travels and enjoys figuring out phenomena presented. While she finds verbal explanations to be sufficient, she does not find it necessary to elaborate on her ideas through written explanation or written argument. She often shuts down when pushed to provide supporting details in writing.

Learner B: Enjoys reading and writing. When provided a written assignment, he is anxious to provide lengthy written and verbal explanations. Although, this learner enjoys reading, writing and speaking he is challenged by sentence structure, spelling and staying on topic.

Learner C: This new student enjoys expressing himself through art and drawings. He is not a strong reader, yet, as English is his second language. This student has strong comprehension skills and has adapted to using the classroom artifacts to help him construct written explanations.

Learner D: Enjoys solving critical thinking problems and has rich science vocabulary. She works best when provided independent tasks and does not work well in collaborative group settings. She relies on step by step teacher validation and is not likely to complete a task without making sure her answer affirmed by an adult in the room.

Let's see what students will need to know and be able to do in the upcoming lesson?

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?

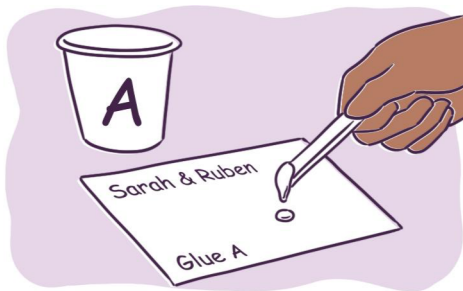
Vocabulary



test

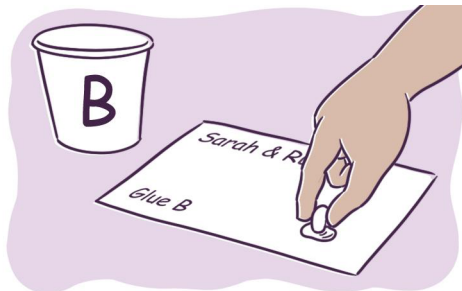
to try something and find out what happens

Mystery Glue Sticky Test



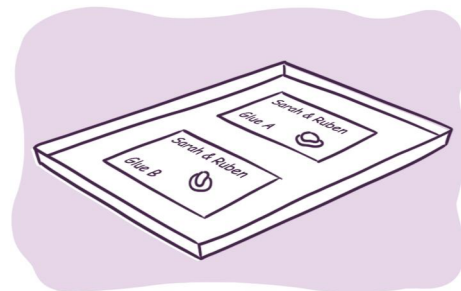
Step 1

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.

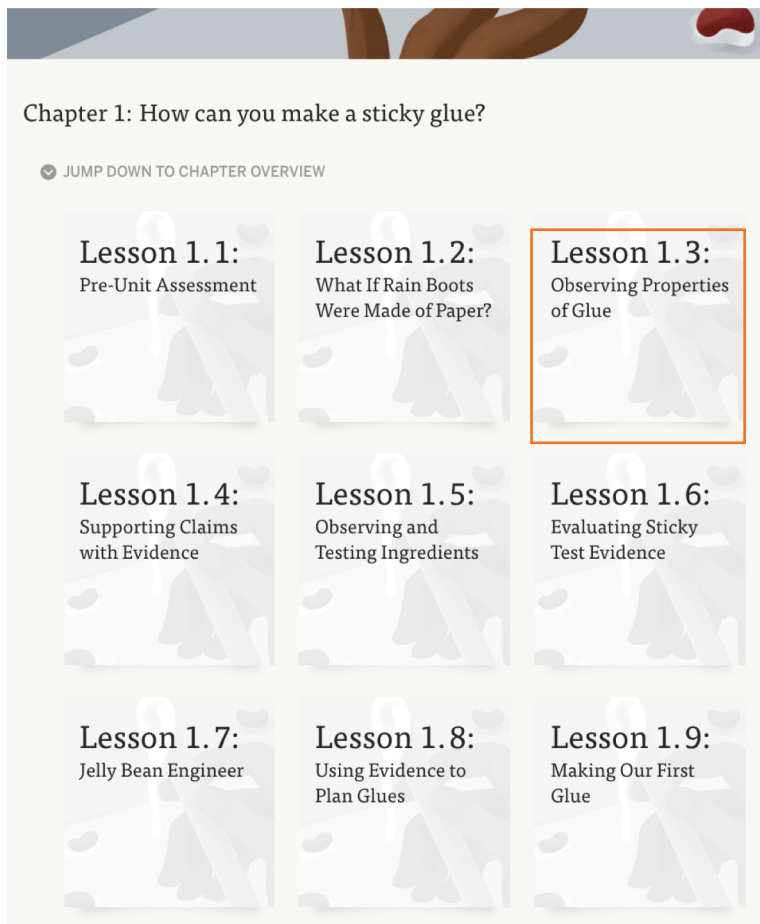


Step 3

Leave the cards flat on the tray to dry overnight.

Turn and Talk

If the preconceptions, misconceptions and/or academic behaviors are not addressed, what challenges might the teacher anticipate the following lesson?



Chapter 1: How can you make a sticky glue?

▼ JUMP DOWN TO CHAPTER OVERVIEW

Lesson 1.1: Pre-Unit Assessment	Lesson 1.2: What If Rain Boots Were Made of Paper?	Lesson 1.3: Observing Properties of Glue
Lesson 1.4: Supporting Claims with Evidence	Lesson 1.5: Observing and Testing Ingredients	Lesson 1.6: Evaluating Sticky Test Evidence
Lesson 1.7: Jelly Bean Engineer	Lesson 1.8: Using Evidence to Plan Glues	Lesson 1.9: Making Our First Glue

Chapter 1: How can you make a sticky glue?

☑ JUMP DOWN TO CHAPTER OVERVIEW

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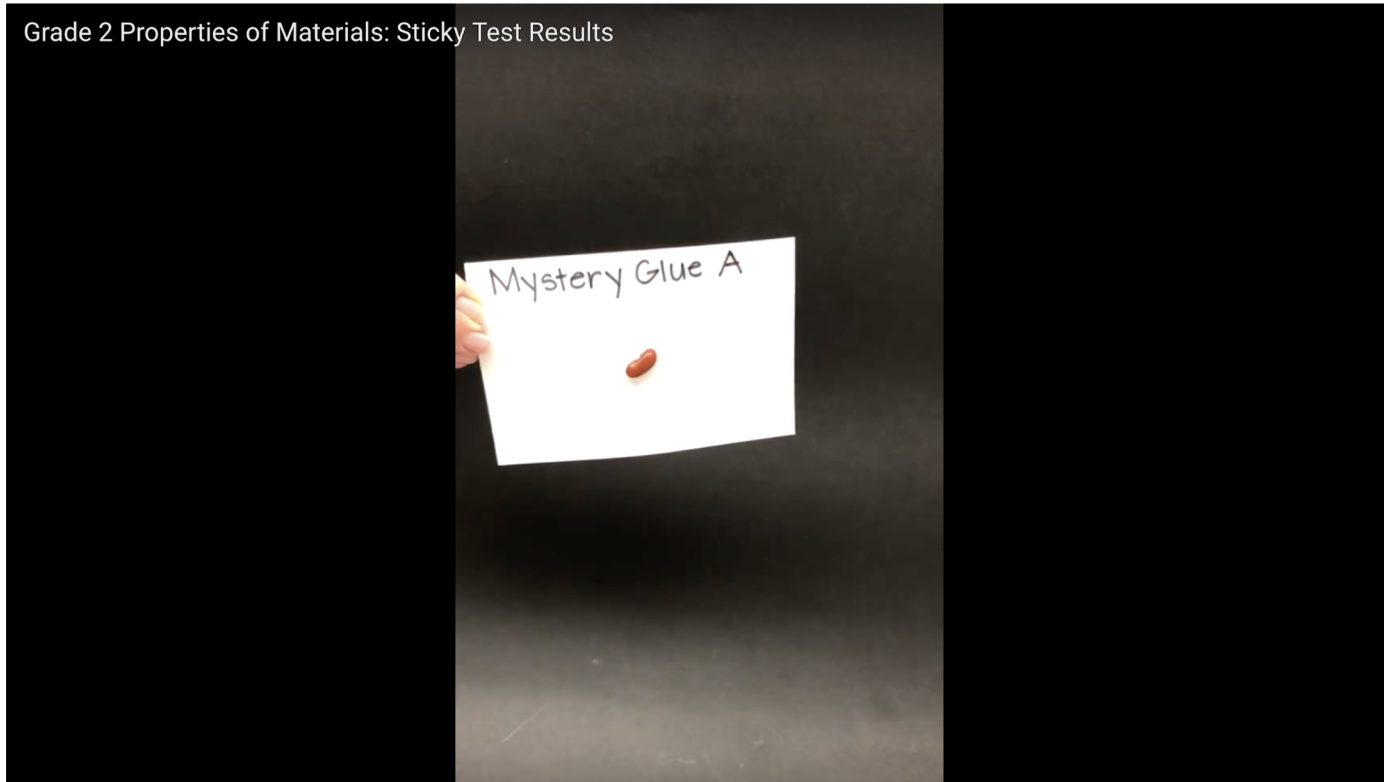
Lesson 1.6:
Evaluating Sticky
Test Evidence

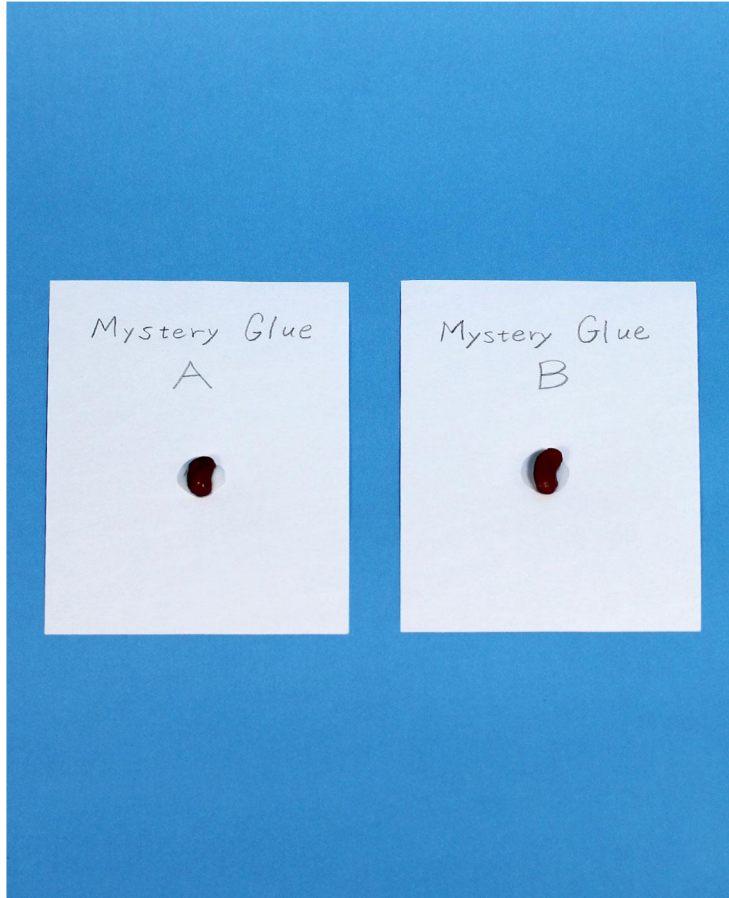
Lesson 1.7:
Jelly Bean Engineer

Lesson 1.8:
Using Evidence to
Plan Glues

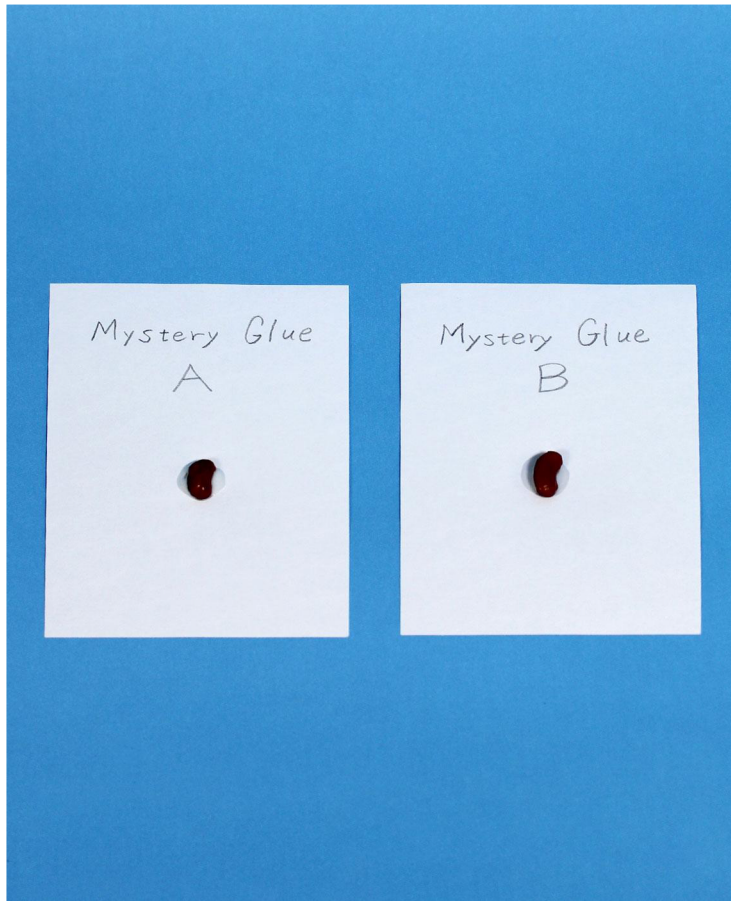
Lesson 1.9:
Making Our First
Glue

Grade 2 Properties of Materials: Sticky Test Results



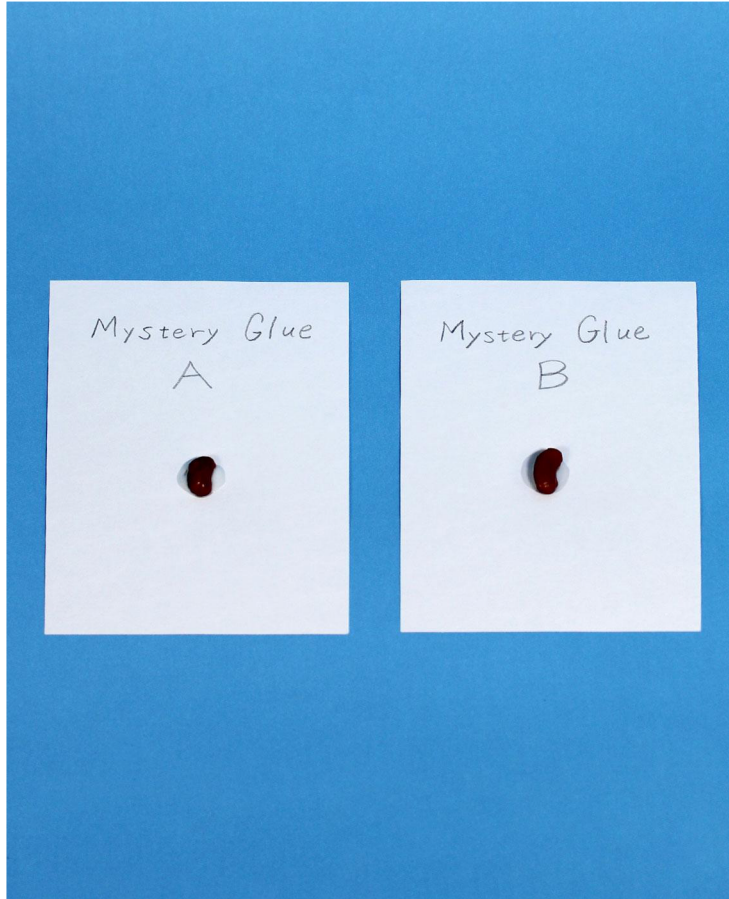


What **new properties** of these glues do you observe now?



Were the **sticky test results** the same for both Mystery Glues?

Did both glues show the **same amount of stickiness**?



Do the glues **look the same** when they are dry?

Today, we are going to investigate this question:

How can you tell if materials and substances are different?

Properties of Materials: Designing Glue

Problem students
work to solve

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

Chapter 1 Question

How can you make a sticky glue? (introduced in 1.3)

Investigation Questions

What can be noticed about different materials?
(1.2-1.3)

How can you tell if substances are
different? (1.4)

How can the properties of a mixture change?
(1.5-1.7)

Evidence sources and
reflection opportunities

- Read *What If Rain Boots Were Made of Paper?* (1.2)
- Reflect on materials and properties (1.3)
- Brainstorm uses and properties of a good glue (1.3)
- Observe mystery glues (1.3)

- Observe properties of dry mystery glues and analyze results of mystery glue sticky tests (1.4)
- Write arguments about why mystery glues are the same or different (1.4)

- Observe dry glue ingredients (1.5)
- Make and observe mixtures (1.5)
- Graph and analyze sticky tests results (1.6)
- Read *Talk to Your Engineer* (1.7)

Key concepts

- Properties include how materials smell, look, taste, feel, and sound. (1.2)
- Different materials have different properties. (1.3)
- You can tell if materials and substances are different by observing their properties. (1.3)

- You can tell if materials and substances are different by observing their properties when testing them. (1.4)

How do previous lessons prepare students to apply key concepts to a problem?

Investigation Question

Which ingredients should we use (or not use) in our glue? (1.8-1.9)*

Application of key
concepts to problem

- Write design arguments for the ingredients that make the best glues (1.8)
- Make Glue #1 (1.9)
- Write a comparison of partners' glues (1.9)

Explanation that
students can make to
answer the Chapter 1
Question

Glue is a mixture of several ingredients such as flour, water, and cornstarch, and depending on the properties of those ingredients and how they are combined, you can create different glues. Some glues might be stickier or stronger than others. By understanding materials and observing and testing different recipes, you can choose the ingredients that provide the properties you are seeking.

*This Investigation Question guides application of key concepts to the problem.

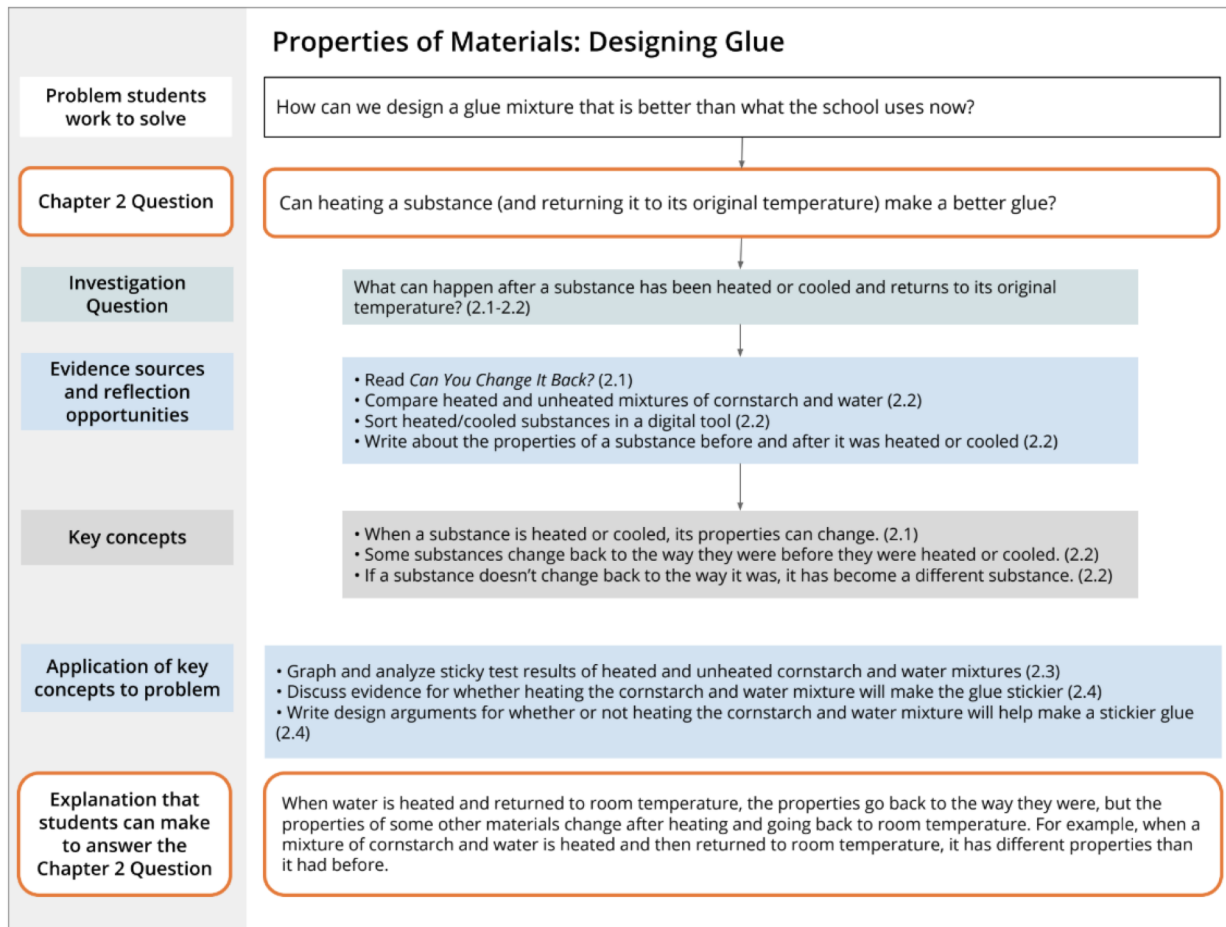
Coherence FlowCharts

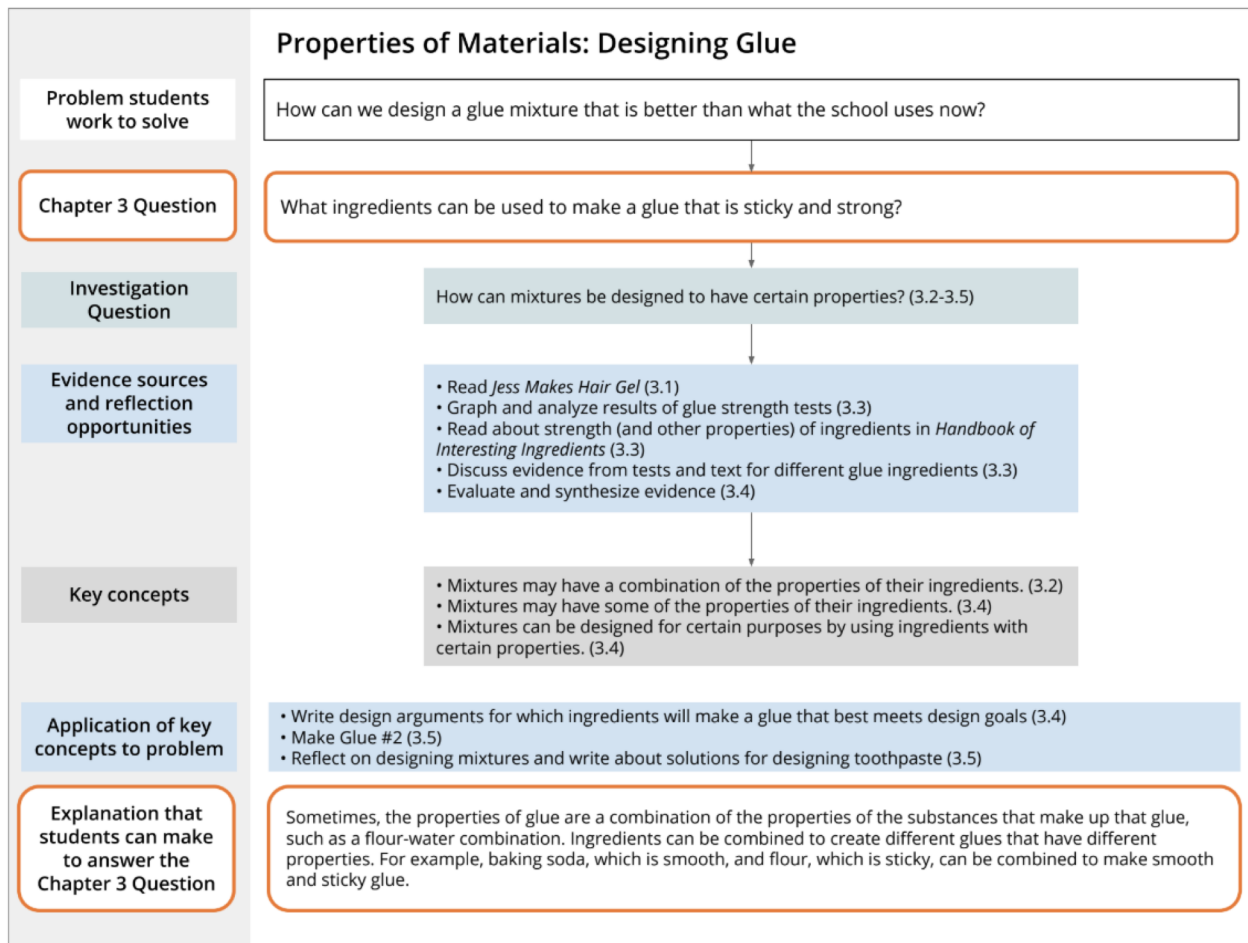
Reviewing coherence (5 mins):

- Review the Coherence Flowcharts for Chapters 2 & 3. CFs can be found on page ___ of the Participant Notebook.
 - Partner A will review Ch. 2
 - Partner B will review Ch.3
- Partners will make connections between the application of key concepts section and the differentiation Brief for their chapter. Each partner will jot down key strategies for supporting Diverse Learners.

Pair share (5 mins):

- Partner A will take up to 1 minute to share connections for Ch. 2. Then Partner B will paraphrase what he/she heard the partner share.
- Then, Partner B will take up to 1 minute to share connections for Ch. 3. Then Partner A will paraphrase what he/she heard the partner share.







A Model Lesson Experience






Grade 2 | Properties of Materials

Model Lesson 3.5




Chapter 1: How can you make a sticky glue?

9 Lessons




Chapter 2: Can heating an ingredient make a better glue?

4 Lessons



Chapter 3: What ingredients can be used to make a glue that is sticky and...

5 Lessons



Chapter 4: What is the glue recipe that best meets our design goals?

4 Lessons

Walk and Talk:

- Which learner profile would you like to focus on during the model lesson?
- What types of modifications do you think would be beneficial to this learner's needs?

Learner A: Enjoys science and math. Loves to tell stories about her many travels and enjoys figuring out phenomena presented. While she finds verbal explanations to be sufficient, she does not find it necessary to elaborate on her ideas through written explanation or written argument. She often shuts down when pushed to provide supporting details in writing.

Learner B: Enjoys reading and writing. When provided a written assignment, he is anxious to provide lengthy written and verbal explanations. Although, this learner enjoys reading, writing and speaking he is challenged by sentence structure, spelling and staying on topic.

Learner C: This new student enjoys expressing himself through art and drawings. He is not a strong reader, yet, as English is his second language. This student has strong comprehension skills and has adapted to using the classroom artifacts to help him construct written explanations.

Learner D: Enjoys solving critical thinking problems and has rich science vocabulary. She works best when provided independent tasks and does not work well in collaborative group settings. She relies on step by step teacher validation and is not likely to complete a task without making sure her answer affirmed by an adult in the room.

As you experience the Lesson...

- A. Stay in the role of the student

- A. Jot down thoughts or questions on the “Keeping Diverse Learner Needs in Mind” note-catcher (you will have time to add more thoughts to this document after experiencing the lesson)

Add Classroom Slides Here:

- **Grade K-** Model Lesson: 5.2
- **Grade 1** - Model Lesson 4.2
- **Grade 2** - Model Lesson 3.5
- **Grade 3-** Model Lesson 3.5
- **Grade 4-** Model Lesson 4.4
- **Grade 5-** Model Lesson: 2.5

It's Lunch Time



1 Hour

Reflection Part 1

Solo Time (5 minutes)

- Navigate to the model lesson:
Chapter **X** Lesson **X**
- Review the differentiation brief and jot down notes on the note-catcher “Keeping Diverse Learner Needs in Mind” to describe the supports you think would best support your diverse learner

Keeping Diverse Learner Needs in Mind Reflection Tool

Unit Name: _____ Chapter #: _____ Lesson #: _____

Circle the Selected Learner Profile: A B C D

Directions: Reflect on each lesson activity and jot down strategies to support the student you selected from the Learner Profile.

Lesson Activity	My Student May be Challenged by...	Suggestions from the Differentiation Brief	Suggestions from my own Teacher Toolkit
1			
2			
3			
4			
5			

Take a Moment: How will this activity influence your planning practices?

Keeping Diverse Learner Needs in Mind

Reflection Tool

Unit Name: _____ Chapter #: _____ Lesson #: _____

Circle the Selected Learner Profile: A B C D

Directions: Reflect on each lesson activity and jot down strategies to support the student you selected from the Learner Profile.

Lesson Activity	My Student May be Challenged by...	Suggestions from the Differentiation Brief	Suggestions from my own Teacher Toolkit
1			
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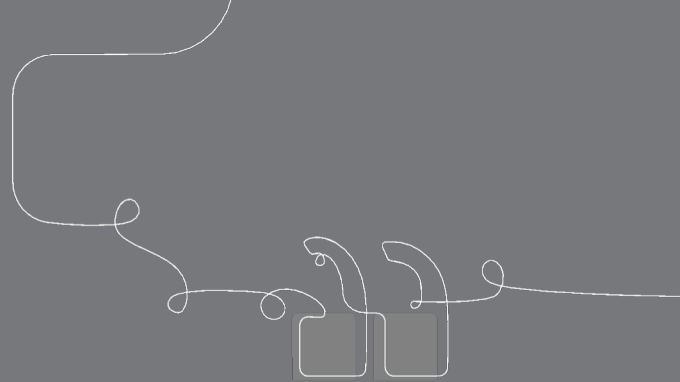
Take a Moment: How will this activity influence your planning practices?

Reflection Part 2

Collaborative Group (20 minutes)

- Form Groups A - D to represent each learner profile
- Share and synthesize your reflections on chart paper
- Choose 1 person from your group to synthesize your groups thinking

Questions?

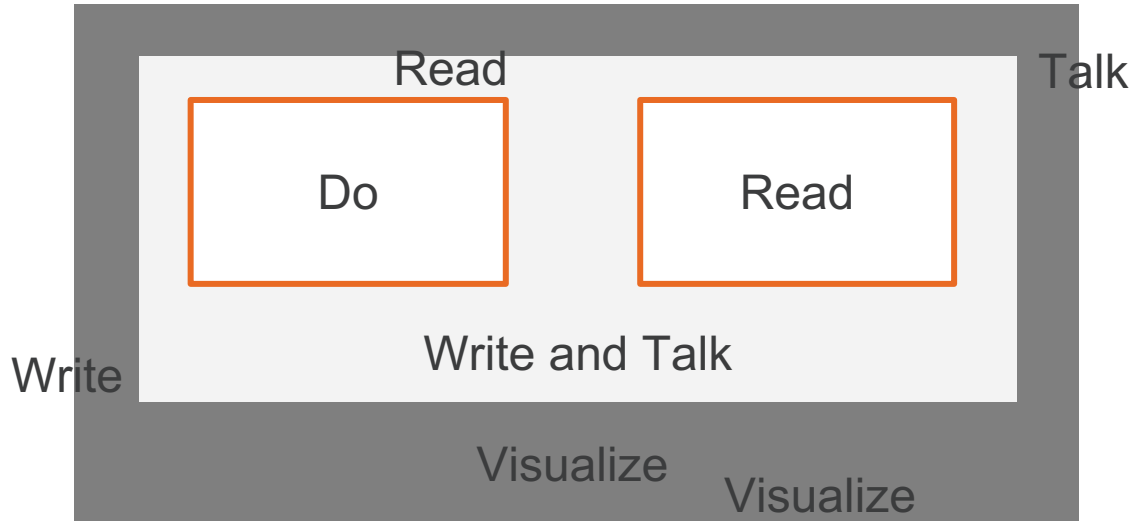


Multimodal instruction

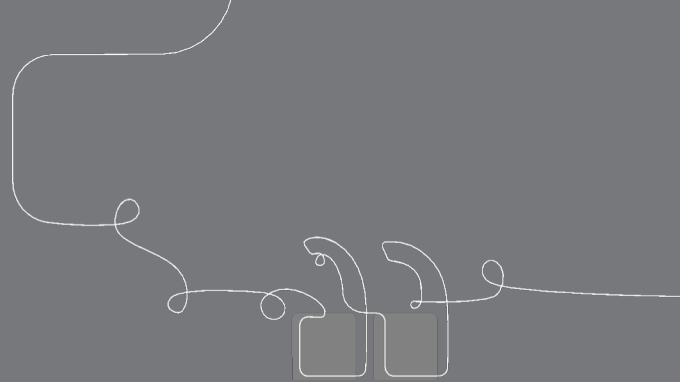
What role does language and literacy play in developing scientific understanding?

Do, Talk, Read, Write, Visualize

Do



Science Concept



Turn and talk:

- How does formalizing conceptual understanding by posting key concepts support students in solving the unit problem?



Building Complex Explanations Across the Unit

Coherence and Progress Builds

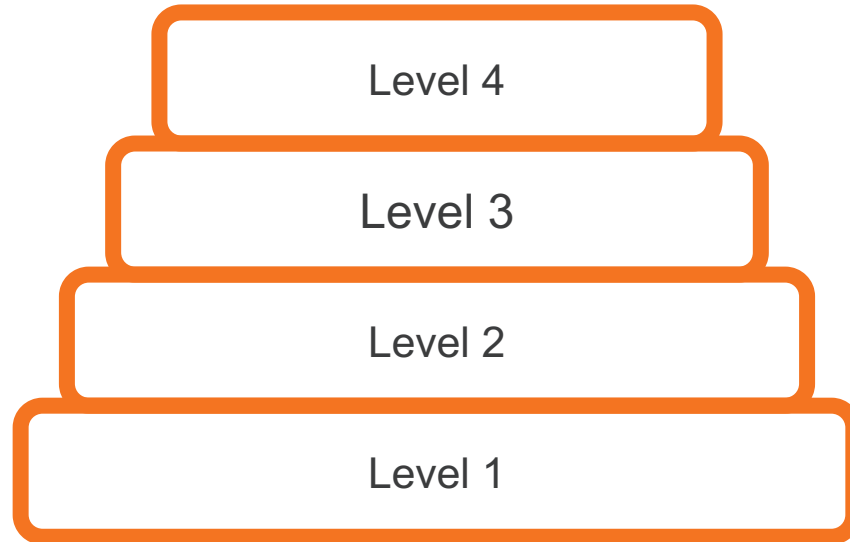
Progress Build: A unit-specific learning progression

Pg.
XX

Deep, causal
understanding



Prior
knowledge



Properties of Materials Progress Build

Deep, causal
understanding



Prior knowledge

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

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

Mixtures have different properties, depending on their ingredients.

Different materials have different properties.

Pg.
xx

Chapter 1 key concepts and design argument

How can you make a sticky glue?

Pg.
XX

Ch	Key concepts	Design argument
1	<p>Properties include how materials smell, look, taste, feel, and sound. (1.2)</p> <p>Different materials have different properties. (1.3)</p> <p>You can tell if materials and substances are different by observing their properties or by testing them. (1.4)</p> <p>Properties of mixtures can change when other ingredients are added. (1.5)</p> <p>Properties of substances are the same whether you have a small amount or a large amount. (1.7)</p>	<p>The design goal is to make a glue that is sticky. The ingredients that will best meet the design goal for my glue are flour, cornstarch, and water. I know this because the mixture of flour and water did best on the sticky test. The most beans stayed stuck to the paper. The mixture of cornstarch and water did second sticky test. That is how I know that flour, and water are the ingredients that would design goal of making sticky glue.</p>

The observable property of our glue is stickiness

Chapter 1 key concepts and design argument

How can you make a sticky glue?

Pg.
XX

Ch Key concepts

- 1 Properties include how materials smell, look, taste, feel, and sound. (1.2)
- Different materials have different properties. (1.3)
- You can tell if materials and substances are different by observing their properties or by testing them. (1.4)
- Properties of mixtures can change when other ingredients are added. (1.5)
- Properties of substances are the same whether you have a small amount or a large amount. (1.7)

Design argument

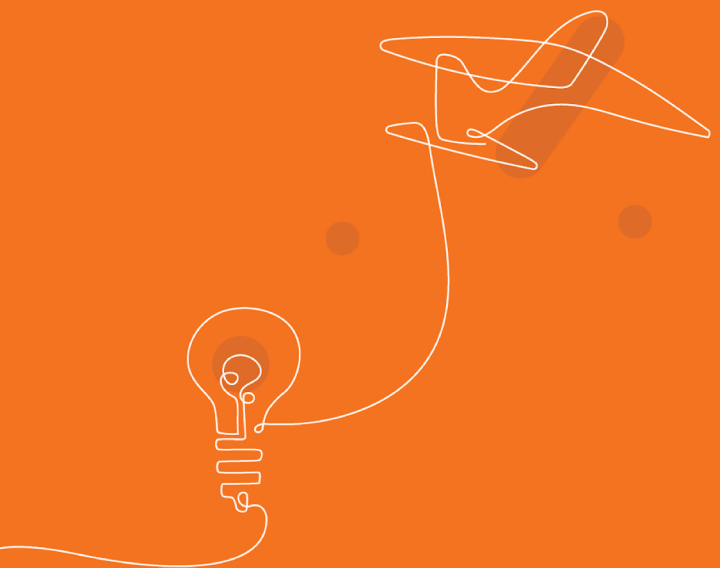
The design goal is to make a glue that is sticky. The ingredients that will best meet the design goal for my glue are flour, cornstarch, and water. I know this because the mixture of flour and water did best on the sticky test. The most beans stayed stuck to the paper. The mixture of cornstarch and water did second best on the sticky test. That is how I know that flour, cornstarch, and water are the ingredients that would best meet the design goal of making sticky glue.

Mixtures have different properties depending on their ingredients

Ch	Key concepts	Design argument
1	<p>Properties include how materials smell, look, taste, feel, and sound. (1.2)</p> <p>Different materials have different properties. (1.3)</p> <p>You can tell if materials and substances are different by observing their properties or by testing them. (1.4)</p> <p>Properties of mixtures can change when other ingredients are added. (1.5)</p> <p>Properties of substances are the same whether you have a small amount or a large amount. (1.7)</p>	<p>The design goal is to make a glue that is sticky. The ingredients that will best meet the design goal for my glue are flour, cornstarch, and water. I know this because the mixture of flour and water did best on the sticky test. The most beans stayed stuck to the paper. The mixture of cornstarch and water did second best on the sticky test. That is how I know that flour, cornstarch, and water are the ingredients that would best meet the design goal of making sticky glue.</p>
2	<p>When a substance is heated or cooled, its properties can change. (2.1)</p> <p>Some substances change back to the way they were before they were heated or cooled. (2.2)</p> <p>If a substance doesn't change back to the way it was, it has become a different substance. (2.2)</p>	<p>The design goal is to make a glue that is sticky. We should heat the mixture. I know that we should heat the mixture because I observed that when it is heated, it becomes a new stickier substance than before it was heated. I also observed that the heated cornstarch and water mixture did better on the sticky tests than the mixture that wasn't heated. I read in the <i>Handbook of Interesting Ingredients</i> that cornstarch becomes thick when heated and gets sticky when it starts to dry out. This is why I think we should heat it.</p>

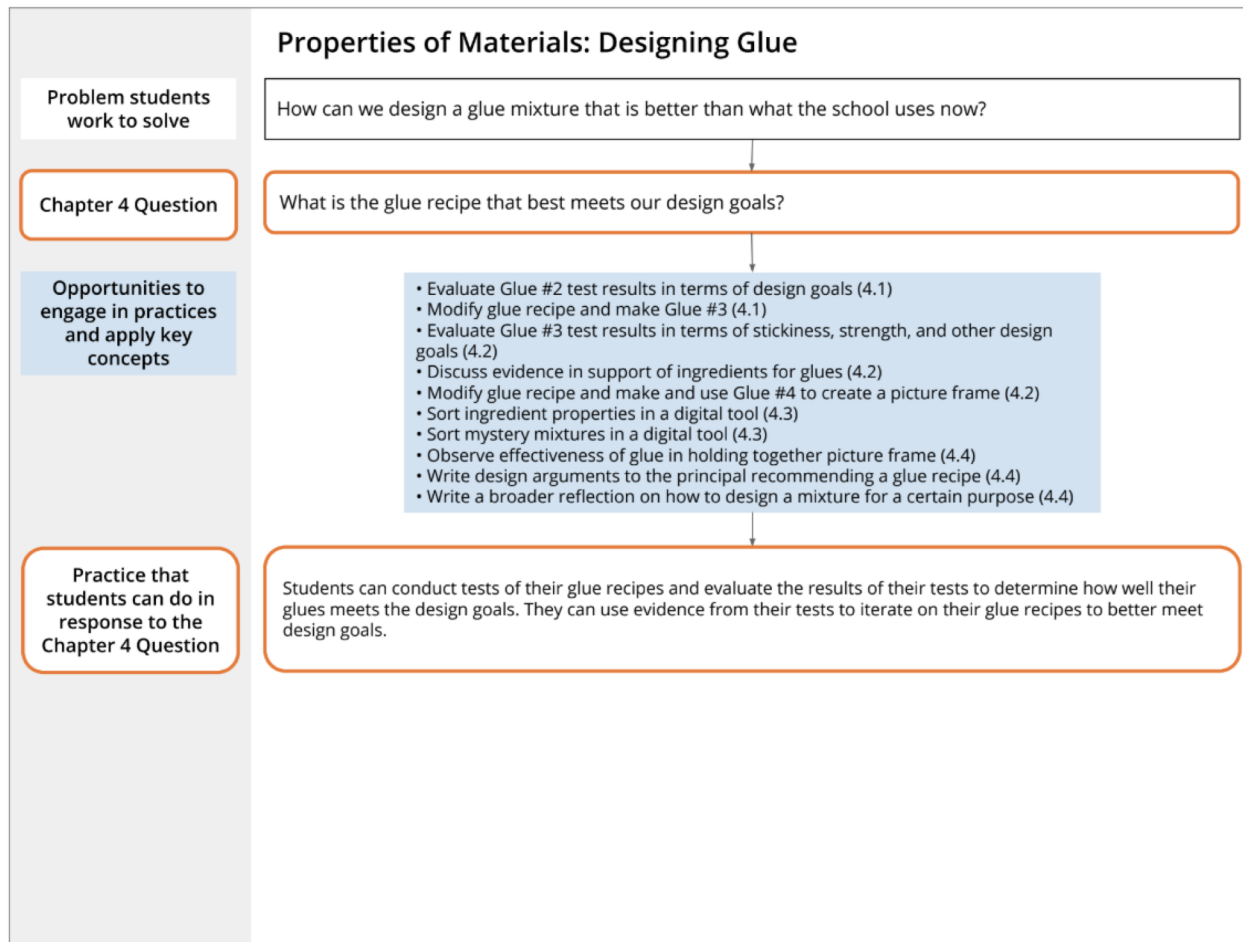
Engaging with ideas over multiple activities

- Supports all learners
- Supports making connections
- Provides different, related pieces of evidence
- Models what scientists do
- Situates concepts in a variety of contexts



End of Unit Assessment

Supporting the Diverse Learner



Progress Build and End-of-Unit Assessment

Properties of Materials

Directions:

1. Review the sample student response to the End-of-Unit Writing below. This response reflects a Level 4 understanding of the Progress Build.
2. Analyze the response to find evidence of understanding of each level of the Progress Build.
3. Record your ideas for each level in the table below.
4. If you have extra time, consider what students at Levels 1, 2, and 3 might write on this assessment.

Name: _____ Date: _____

End-of-Unit Writing: Arguing About a Final Glue Design

Directions:

Complete the sentences in the letter to the principal and in the table below.

Dear Principal Smith _____

As you know, my class has been working to create a better glue for our school. First, we chose the properties we wanted our glue to have and decided on our design goals. These are my design goals:

1. sticky _____
2. strong _____
3. thick _____
4. spreadable _____

Then, we observed and tested many ingredients. The table below shows the final glue ingredients I have chosen and their properties.

Ingredient	Properties
heated gelatin and water	strong, jiggy, smells funny
heated cornstarch and water	smooth, feels like gel, thick, spreadable, see-through
flour and water	lumpy, very sticky, not very strong

Progress Build and End-of-Unit Assessment cont.

Name: _____ Date: _____

End-of-Unit Writing: Arguing About a Final Glue Design (continued)

I chose these ingredients because _____

The properties of my final glue are _____

I know that my glue meets each design goal because _____

I hope you will use my glue recipe for our school's new glue!

Sincerely,

Pgs.
XX-XX

Analyzing the End of Unit Assessment

- Annotate the End of Unit Assessment (3 minutes)
 - Circle **vocabulary**
 - Considering the diverse learners in your classroom , **underline potential challenges**
 - **Ask questions in the left margin**
 - **Write DCI** to represent a Disciplinary Core Idea
 - **Write SEP** to represent a Science and Engineering Practice
 - **Write CCC** to represent a Crosscutting concept

- What kind of data could you gather from this EOU Assessment?
- What connections can you make between this EOU Assessment and the Coherence Flowcharts?
- What connections can you make between this EOU Assessment and to the unit's progress build?

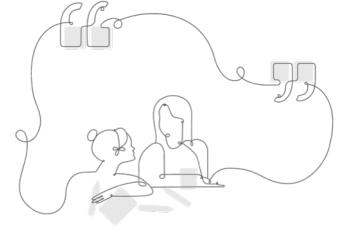
Analyzing the End of Unit Assessment

- Complete the End of Unit Assessment by providing the best possible solution (3 minutes)
- Use the 3-part rubric to score and revise your work (7 minutes)

Turn and Talk to a Partner and discuss how you used the rubric to score and revise your work.

Plan for the day

- Reflections and Framing the Day
- Defining Diverse Learners
- Understanding Opportunities for Supporting Diverse Learners
- Analyzing Formative Assessment Data and Embedded Differentiation strategies
- **Planning to Teach**
- Closing



Planning to teach

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

- Reflect on implementing Amplify Science in your classroom to select an area of growth.
- Apply learning from the session.

Planning to Teach

Teacher's Choice (20 mins)

Option # 1 Anticipating Preconceptions	Option # 2 Organizing Formative Assessment Data	Option #3 Classroom Artifacts	Option #4 Student Facing Rubrics	Option #5 End of Unit Assessment Analysis for Unit 1
Download the classroom slides for the upcoming lesson and include strategies from the Differentiation brief or your own teacher toolkit to address possible diverse learners needs.	Organize the look-fors for the the upcoming formative assessment using the Formative Assessment template (K-1, use the clipboard assessment for support)	Devise a strategy to enhance the classroom wall experience that supports diverse learner needs	Devise a student facing rubric combining the 3-dimensional rubrics from the Assessment Guide for unit 1 or 2	Devise teacher and student facing rubrics combining the 3-dimensional rubrics from the Assessment Guide

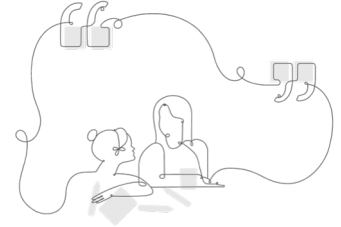


Reflecting on your plans (10 mins)

- *With your group, share which option you chose.*
- *Be prepared to share what you focused on, what you learned, and any remaining questions for the presenter.*

Plan for the day

- Reflections and Framing the Day
- Defining Diverse Learners
- Understanding Opportunities for Supporting Diverse Learners
- Analyzing Formative Assessment Data and Embedded Differentiation strategies
- Planning to Teach
- **Closing**



Workshop Title: Supporting Diverse Learner Needs

By the end of this session, K-5 participants will be able to...

Did we meet the outcomes of this session?

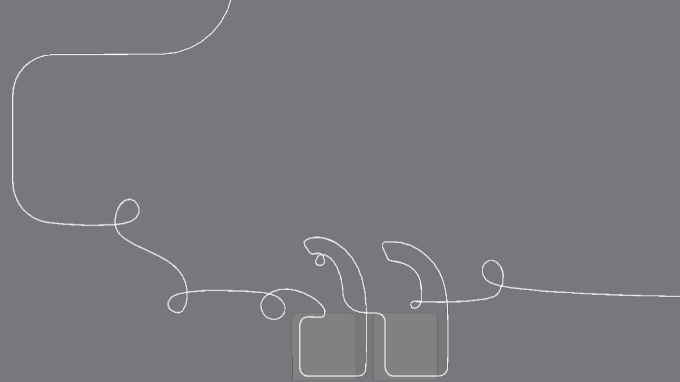
- Identify embedded opportunities that support diverse learner needs within the unit of study
- Understand how to utilize the embedded multimodal curricular supports (do, talk, read, write, visualize) to help all students gather sources of evidence and argue like scientists
- Articulate the critical role that language and literacy play in developing scientific understanding
- Apply the End of Unit assessment rubric to understand student expectations
- Apply strategies that support diverse learner needs when planning instructional sequences

Closing

- Share 1 thing, from this session, that is “Sticking with You”. (I can apply)
- Share 1 thing, from this session, you are “Stuck On”. (I still need more support before I can apply)



Questions?



NYC Resource Site

<https://www.amplify.com/amplify-science-nyc-doe-resources/>

Amplify.

Introduction

Getting started resources

Planning and implementation resources

Admin resources

Parent resources

Professional learning resources

Questions



Missing Materials

- Contact the Core Curriculum Service Center
Monday-Friday 8am-5pm

Email: curriculum@schools.nyc.gov

Phone: (718) 935-3334

Thank you for your feedback!

Presenter Name:
Workshop Title:

