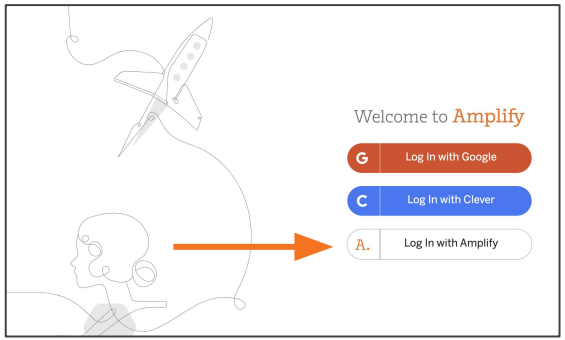
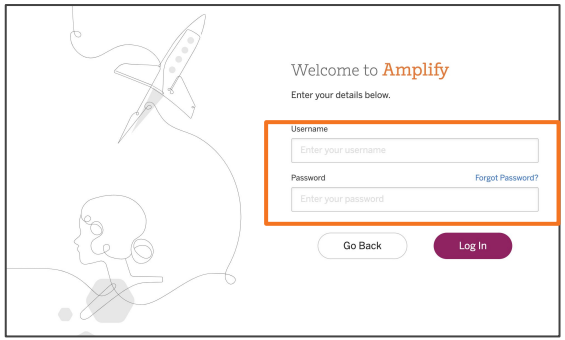
Part of the Day	Timing (min)	*PLS use only* Plan for the day
Welcome	35 min	• Welcome (10) • Review key aspects of the approach (10) • Introduce unit phenomenon (10) • Opening reflection (5)
Unit-Specific	85 min	• Unit Map (5) • Unit storyline overview (5) • Break (15) • Experiencing and analyzing chapter 1 (35) • Analyzing chapter 2 (25)
Remote/Hybrid resources	40 min	• Guided introduction/review (15) • Discussions around challenges & planning (25)
Closing	20 min	• Reflection (5) • Additional resources (10) • Survey (5)

Welcome to Amplify Science!

Do Now





1. Go to **learning.amplify.com**
2. Select **Log in with Amplify**
3. Enter teacher demo account credentials
   - xxxxxxx@pd.tryamplify.net
   - Password: xxxx

While you wait for others:

- **Can you find the coherence flowchart?**
- **Can you find the Progress Build?**

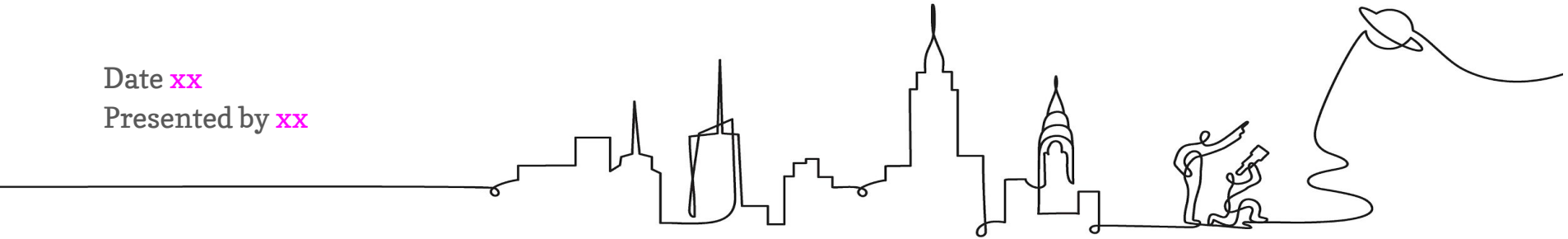
Amplify Science
New York City

Understanding the Unit Storyline & Coherence

Grade 2: Properties of Materials

Date xx

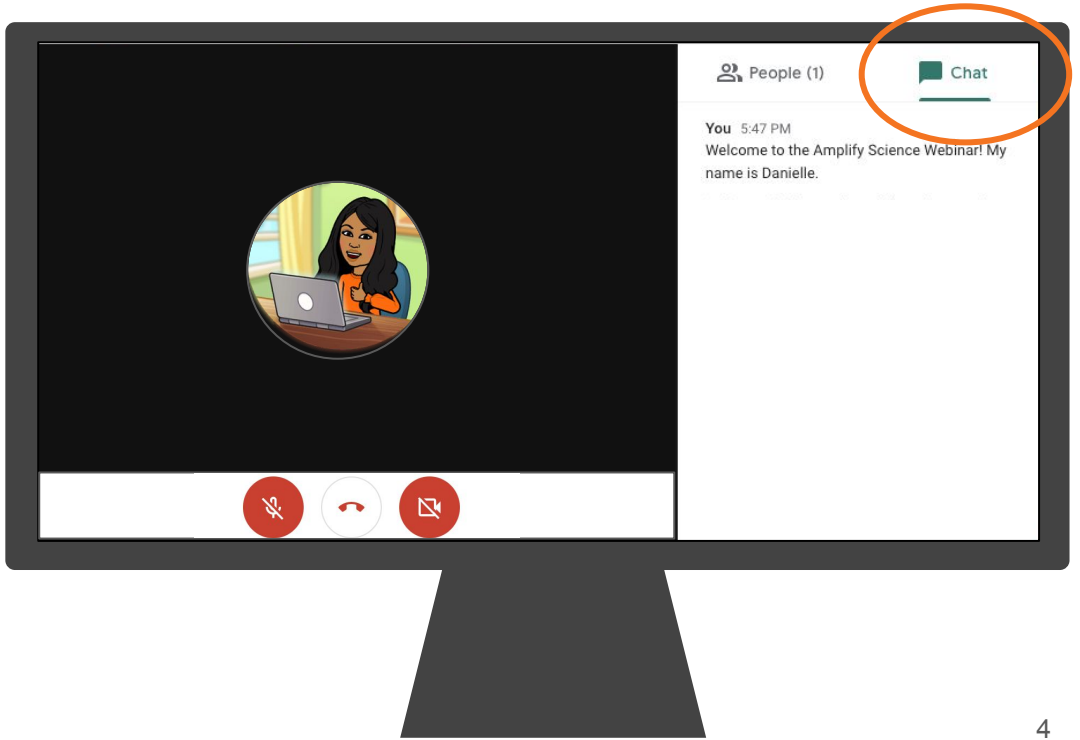
Presented by xx



Introductions!

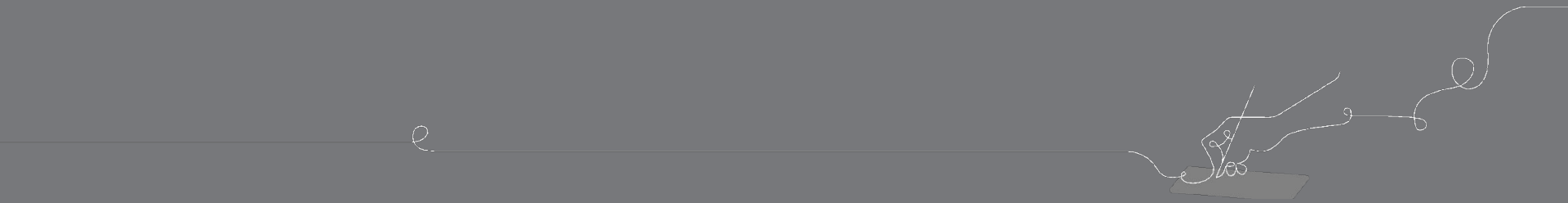
Please introduce yourself in the chat

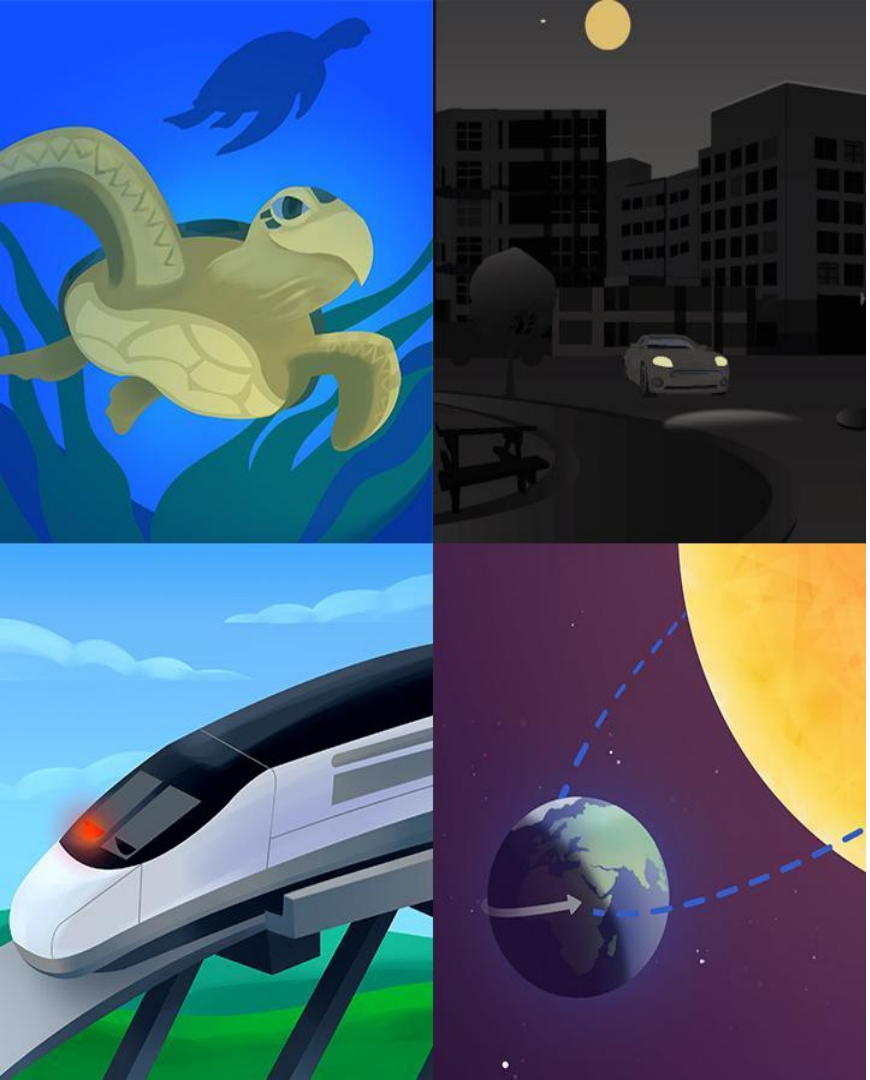
- Share a success or challenge you've had in implementing Amplify Science.
- Then, share a solution to a challenge posted by a colleague.



Overarching goals

- Understand the unit 2 storyline
- Plan for using Amplify Science@Home resources utilizing coherence as a design principle
- Collaboratively problem-solve with colleagues





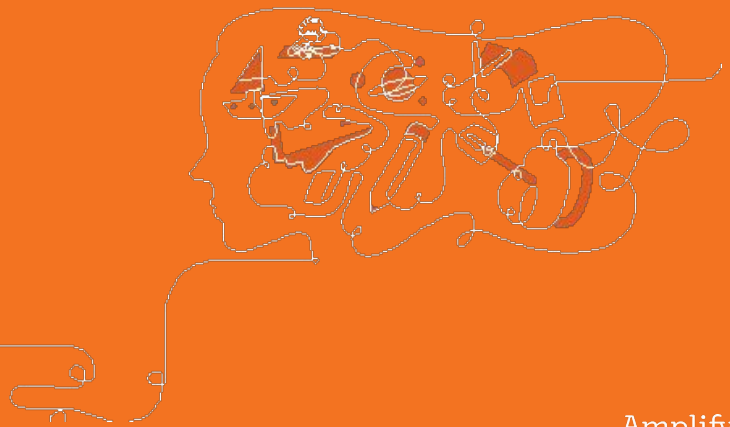
Plan for the day

- Welcome
- Unit storyline
  - Anchor phenomenon
  - Storyline summary
  - Break
  - Model activity
  - Evidence source analysis
- Remote and hybrid resources
  - Reviewing the resources
  - Collaborative planning
- Reflection and closing

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.

Key aspects of the Amplify Science approach

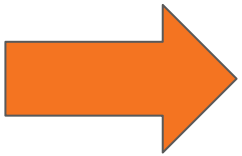


Phenomenon-based instruction

A shift in science instruction

from learning about

(like a student)



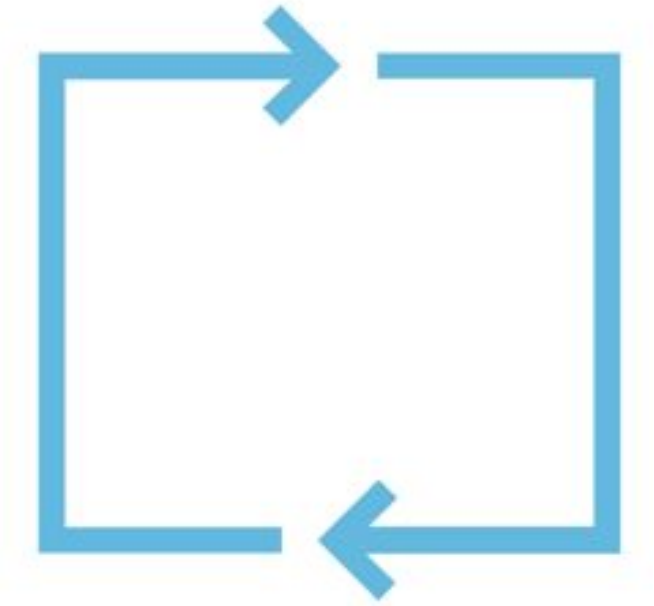
to figuring out

(like a scientist)

Scientific phenomenon: An observable event in the natural world you can use science ideas to explain or predict

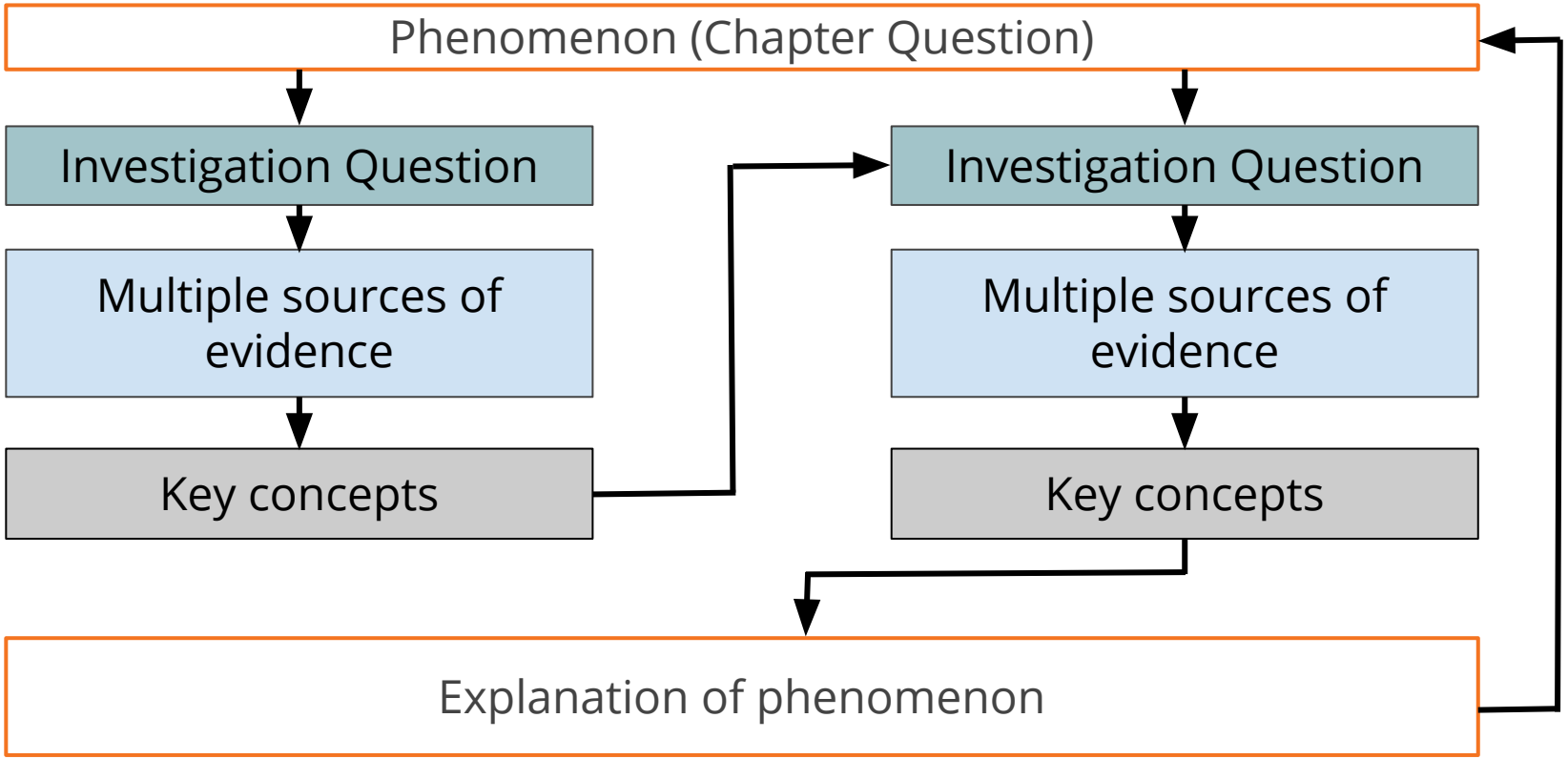
Multimodal learning

Gathering evidence over multiple lessons



Do,
Talk,
Read,
Write,
Visualize

Coherent storylines

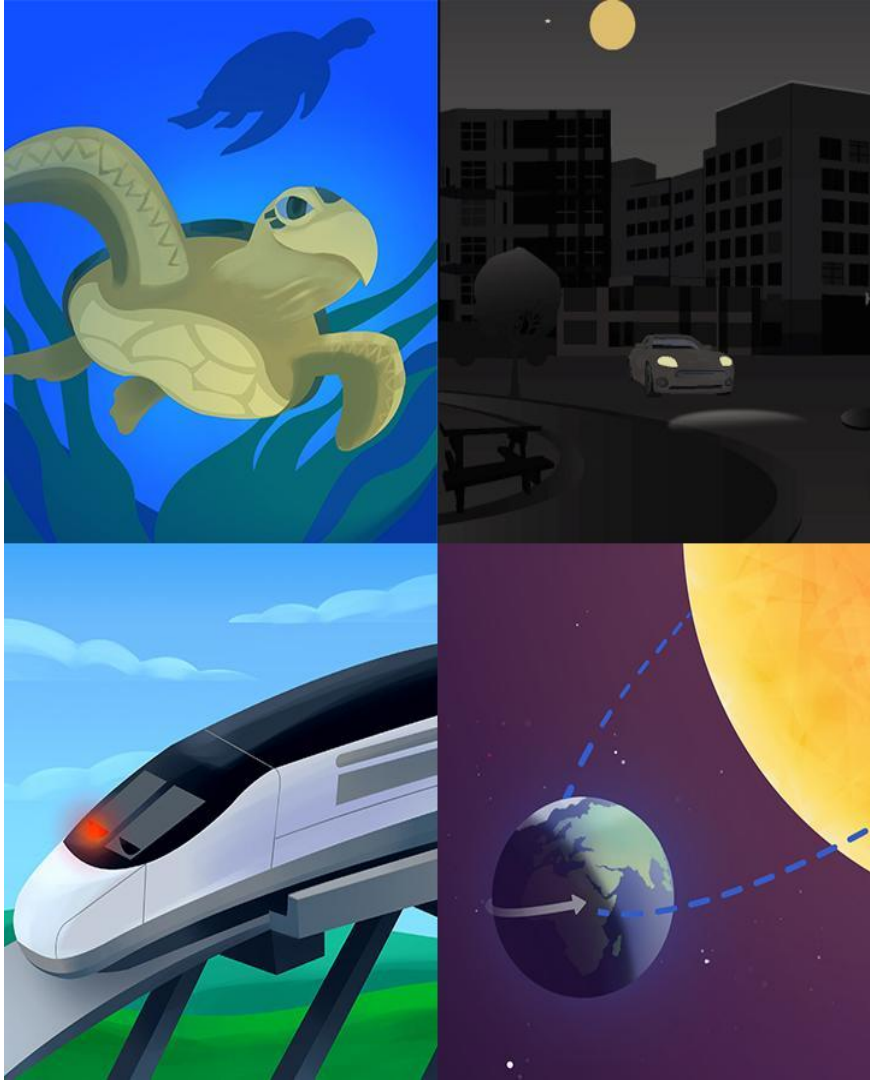


Opening reflection

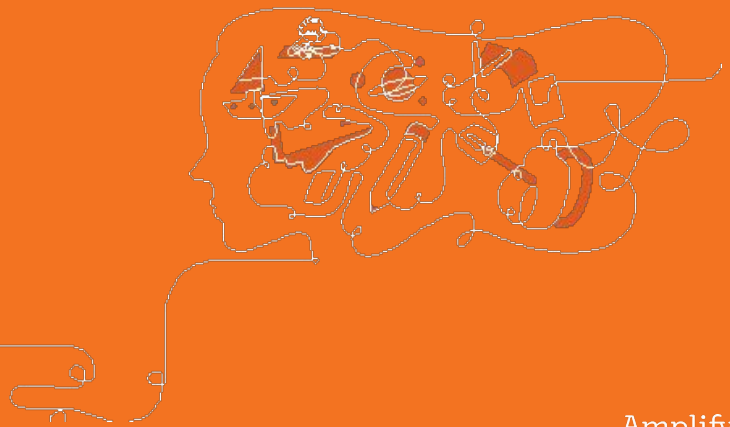
Stop and jot

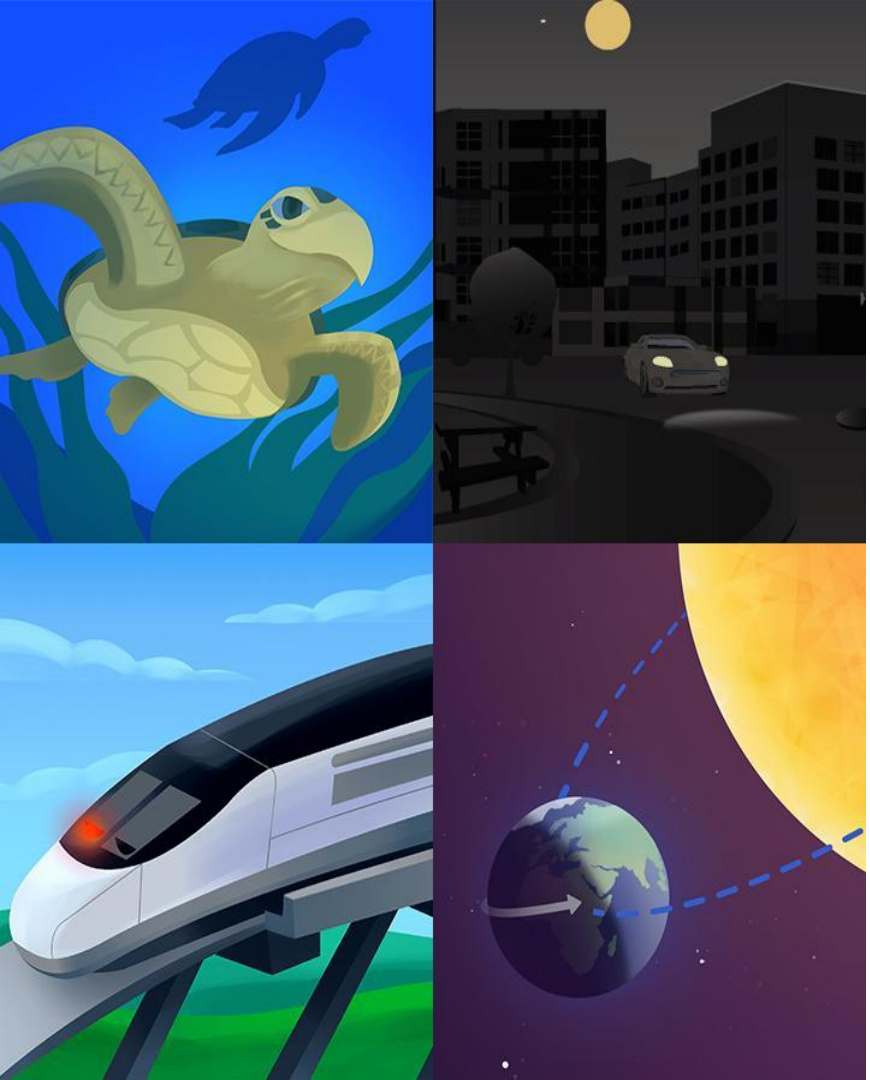
Amplify Science units are designed around **storylines**.

What does this mean for the **student experience**?



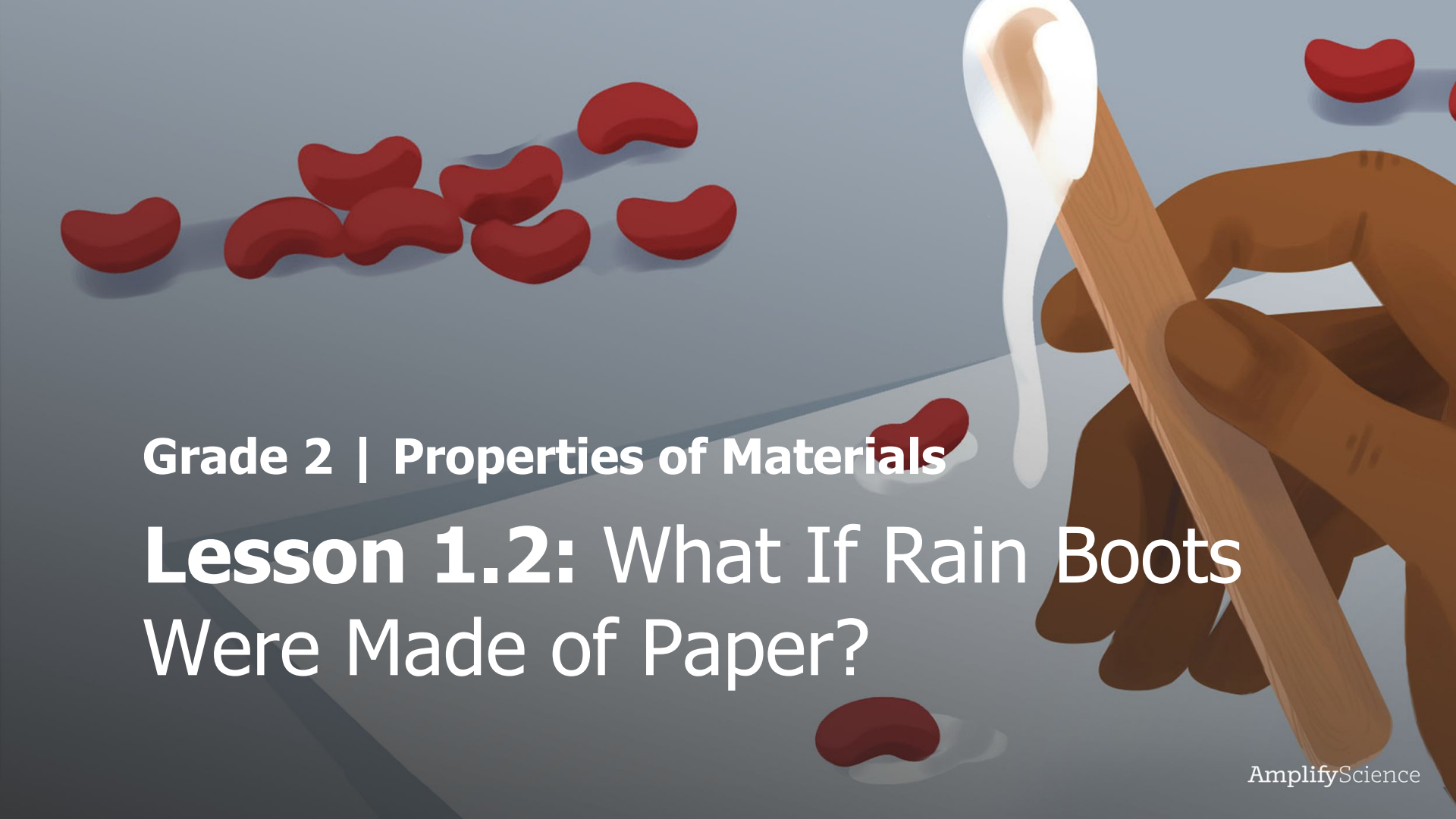
Questions





Plan for the day

- Welcome
- **Unit storyline**
  - Anchor phenomenon
  - Storyline summary
  - Break
  - Model activity
  - Evidence source analysis
  - Breakout groups
- Remote and hybrid resources
  - Reviewing the resources
  - Collaborative planning
- Reflection and closing



Grade 2 | Properties of Materials

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

AmplifyScience

Activity 1

Introducing the Design Challenge

Unit Question

How can you design a mixture for a certain purpose?

The principal heard that we're starting the *Properties of Materials* unit and thinks we can **help the school** with a **problem**.

I'll read a letter that the principal wrote us. As I read, think about **what the problem is** and **what we will send the principal** at the end of the unit.

Dear Second Grade Students,

Teachers have told me they are worried about some of the supplies at our school. One of the supplies we need to improve is our glue. I talked with a few teachers, and we decided that your second grade class will take on the challenge of designing a new glue for our school.

For the next few weeks, you will become glue engineers. You will make a new glue that can be shared with other classrooms. You will need to learn about glue and the ingredients needed to make glue. You will create your own glue recipes and test them. After that, you will use the evidence from your tests to make your glue even better.

Once you have a final recipe, you will share the recipe with your teacher and me. Thank you so much for your help!

Sincerely,

Your Principal

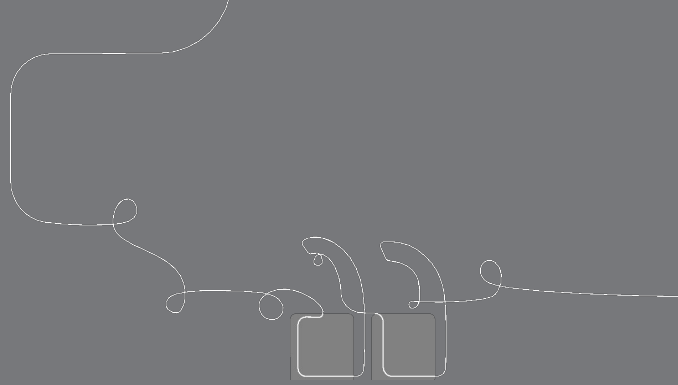
An **engineer** is a person who uses science knowledge to design something in order to **solve a problem**.

The problem we need to solve is **how to make a glue for our school**. We will take on the role of **glue engineers** as we design the glue.

Vocabulary

design

to try to make something new that solves a problem



Explaining the phenomenon piece by piece

Properties of Materials storyline

Look for

As you listen to the storyline summary, **consider the student experience.**

What will it be like for students to work through the unit storyline?

Properties of Materials

Chapter 1

Chapter Question: How can you make a sticky glue?

Explanation: 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.

Properties of Materials

Chapter 2

Chapter Question: Can heating a substance (and returning it to its original temperature) make a better glue?

Explanation: When water is heated and returned to room temperature, the properties go back to the way they were, but the properties of some other materials change after heating and going back to room temperature. For example, when a mixture of cornstarch and water is heated and then returned to room temperature, it has different properties than it had before.

Properties of Materials
Chapter 3

Chapter Question: What ingredients can be used to make a glue that is sticky and strong?

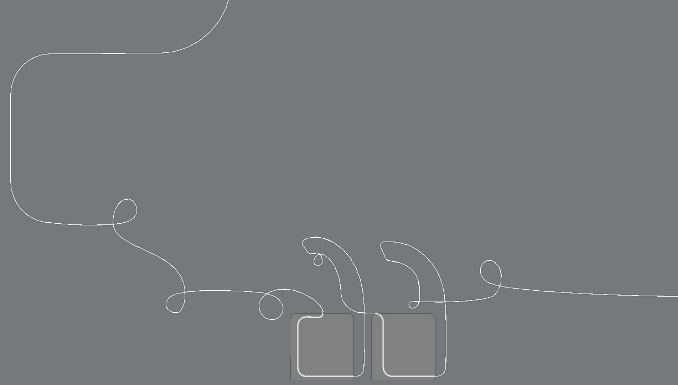
Explanation: Sometimes, the properties of glue are a combination of the properties of the substances that make up that glue, such as a flour-water combination. Ingredients can be combined to create different glues that have different properties. For example, baking soda, which is smooth, and flour, which is sticky, can be combined to make smooth and sticky glue.

Properties of Materials

Chapter 4

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

Explanation: Students can conduct tests of their glue recipes and evaluate the results of their tests to determine how well their glues meets the design goals. They can use evidence from their tests to iterate on their glue recipes to better meet design goals.



Would you like to add anything to your opening reflection?

Make any updates, then take a break!

Welcome back

Please respond in the chat

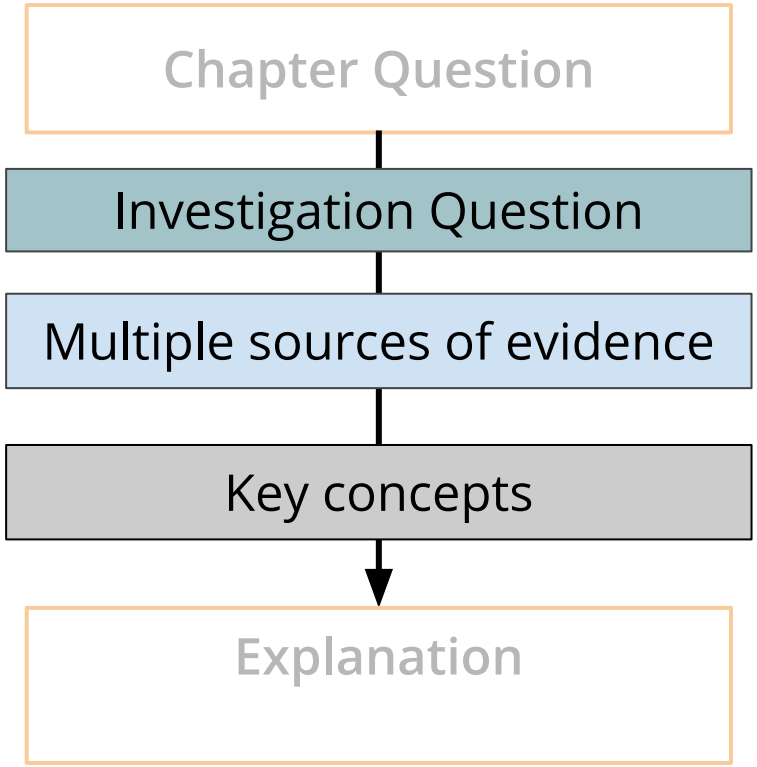
How do students get from the **question** at the beginning of the chapter to the **explanation** at the end of the chapter in Amplify Science?

Chapter Question: How can you make a sticky glue?

Explanation: 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.

Constructing science knowledge

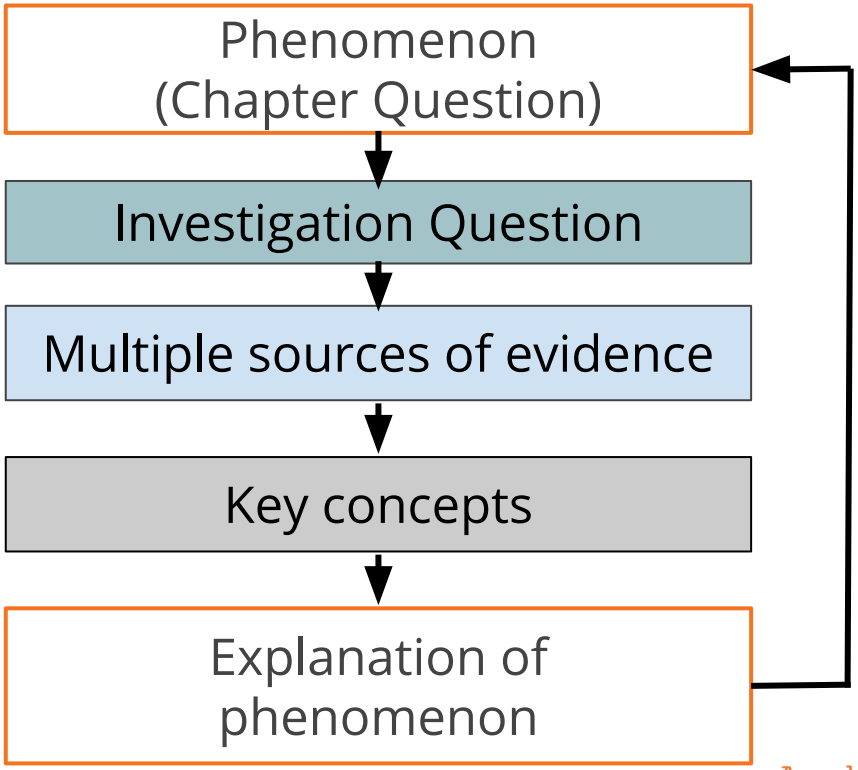
In order to progress through a unit storyline, students figure out general science ideas they can use to explain the phenomenon.



Coherence flowchart

Respond in the chat

Share your **prior knowledge** about the coherence flowchart, and how you've used it as a tool in your planning and teaching.



Properties of Materials: Designing Glue

Unit Design Problem

Problem students work to solve

We want to make a glue mixture that is better than what the school uses now.
How can we design a glue mixture that is better than what the school uses now?

Chapter-level Anchor Phenomenon
Chapter 1 Question

Different glue mixtures have different properties. Some are stickier than others.
How can you make a sticky glue? (introduced in 1.3)

Investigative Phenomena
Investigation Questions

There are different materials in the world with different properties.
What can be noticed about different materials? (1.2-1.3)

Different materials and substances act differently from each other when tested.
How can you tell if substances are different? (1.4)

Properties of mixtures can change.
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 whether 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 *Jelly Bean 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 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)
- Engineers test their designs to find out whether they meet their design goals. (1.7)

Investigative Phenomena
Investigation Questions

Different ingredients result in different properties of a mixture
*Which ingredients should we use (or not use) in our glue? (1.8-1.9)**

Application of key concepts to problem

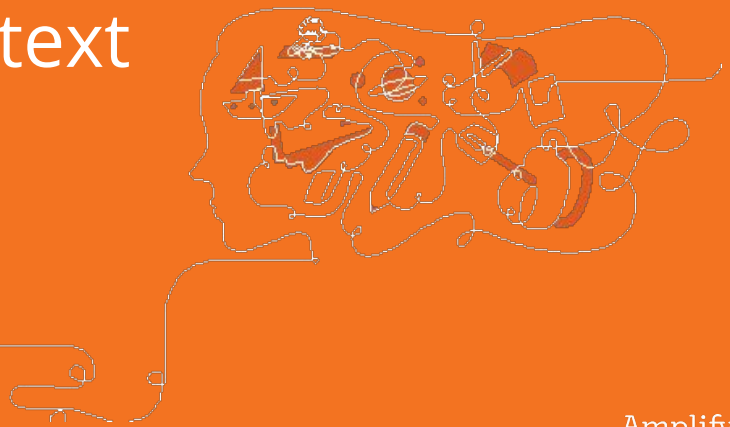
- Write design arguments for the ingredients that make the best glues (1.8)
- Make Glue #1 (1.9)
- Write a comparison of partners' glues (1.9)

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.

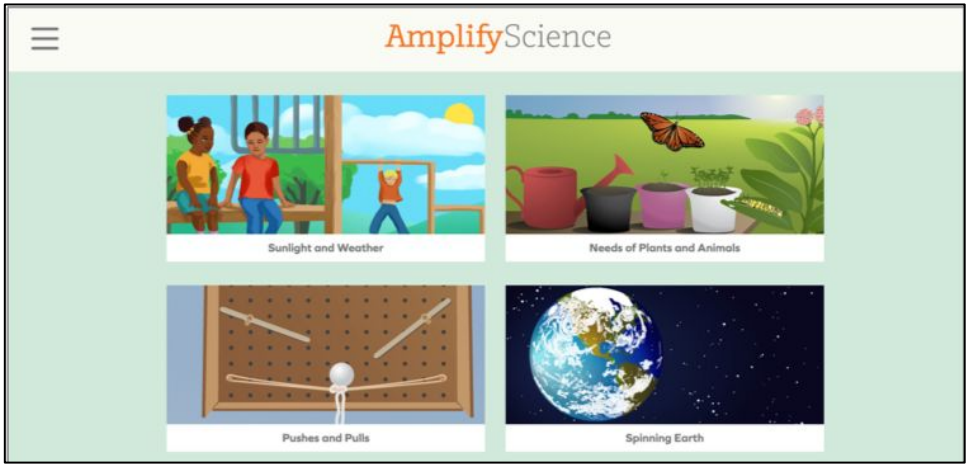
Example evidence source

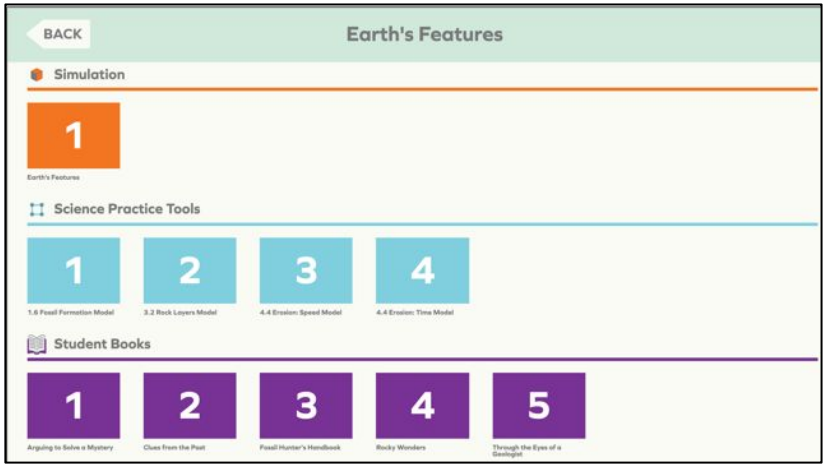
Model Lesson with text



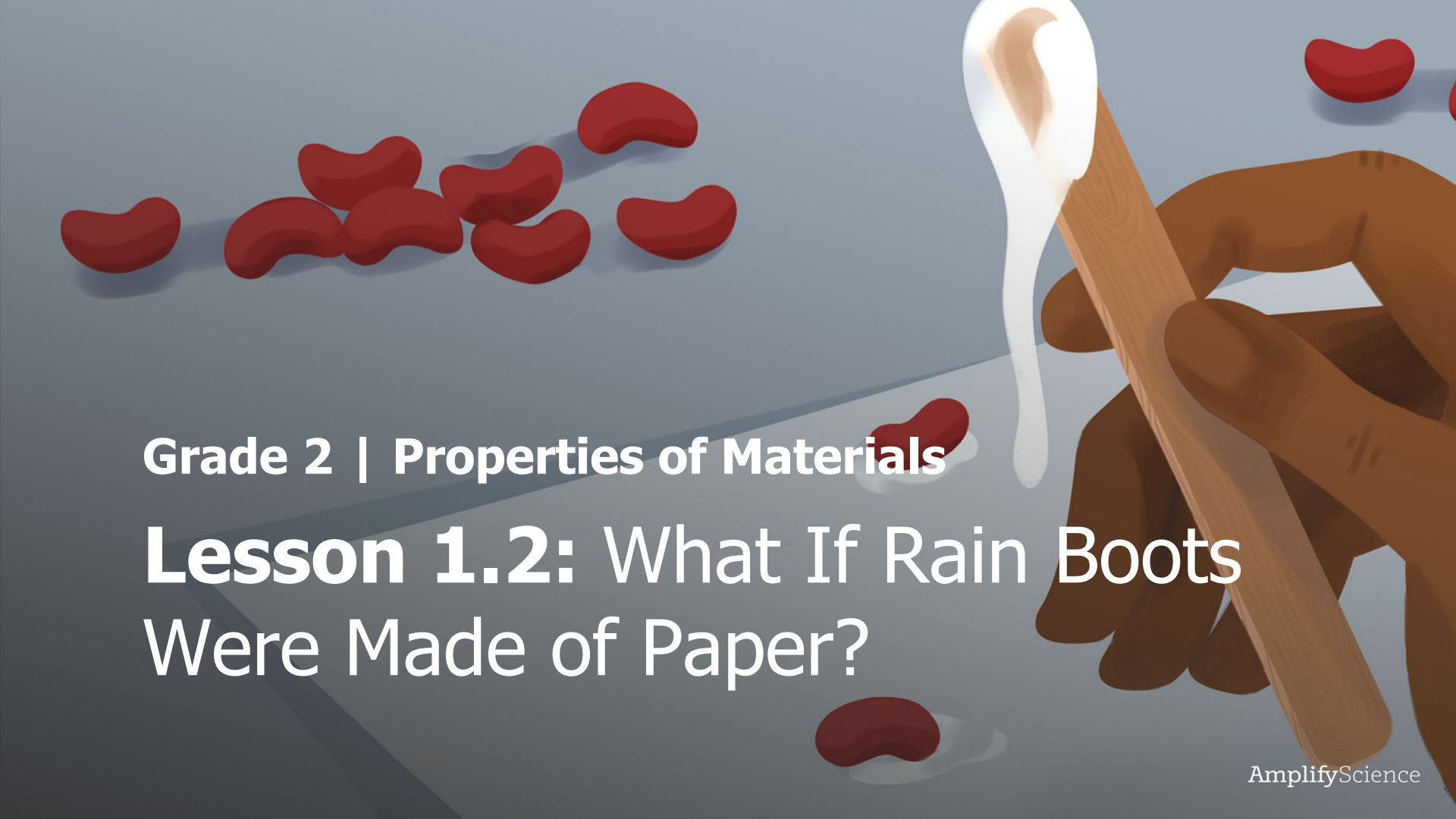
Students app page to access books

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





Student volunteers



Grade 2 | Properties of Materials

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

AmplifyScience

Activity 2

Predicting as a Reading Strategy

We will investigate this question over the next few lessons:

What can be noticed about different materials?

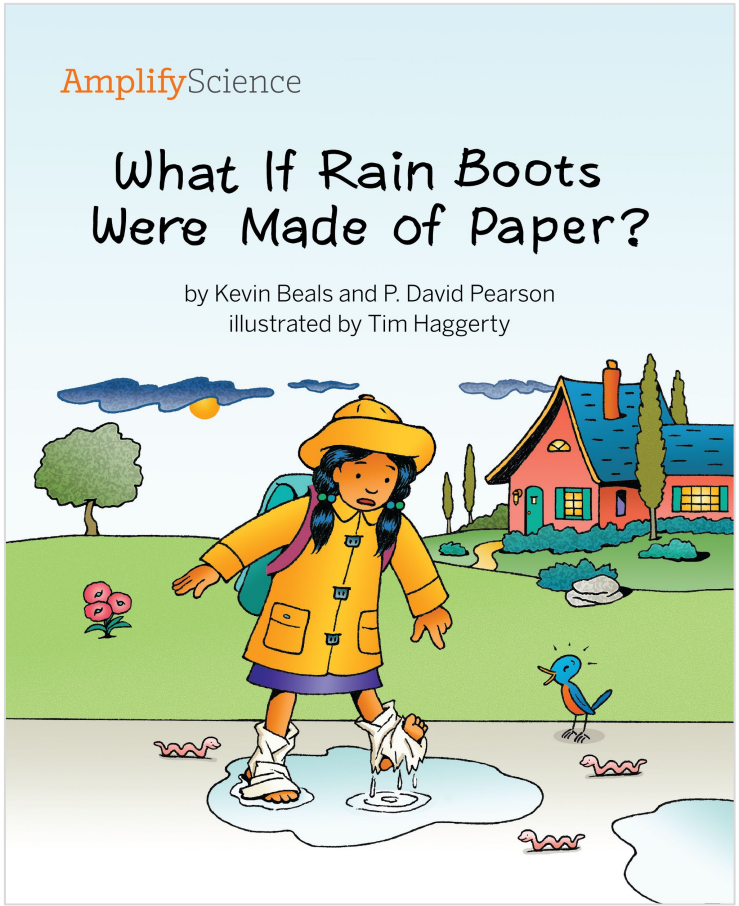
In this lesson, we will be **reading** about **different materials**.

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

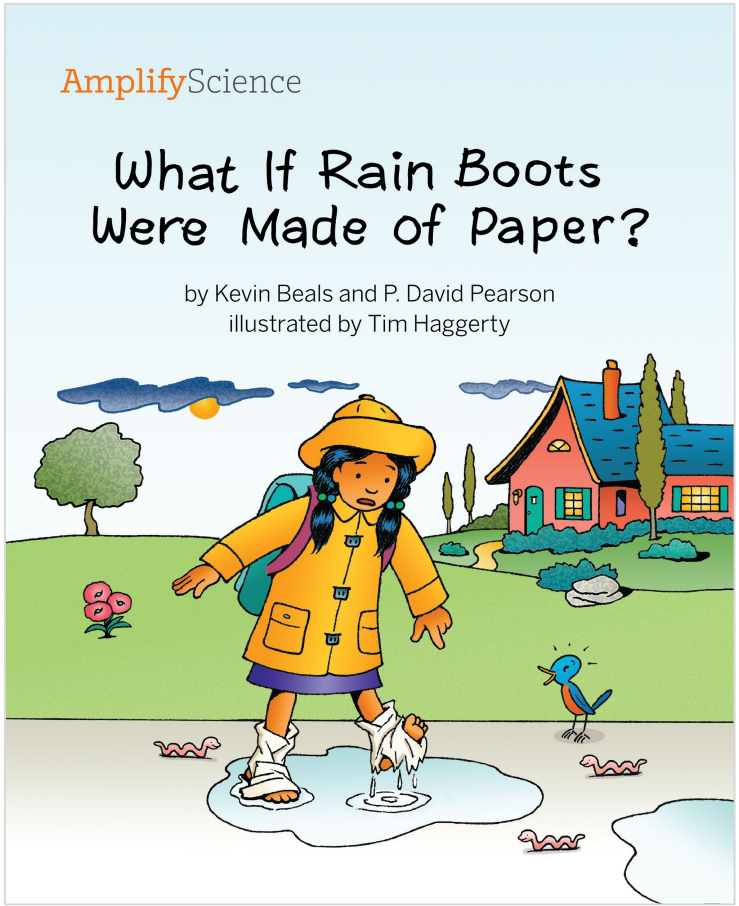
predict

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



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 do you **predict** that the book might be about?

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!

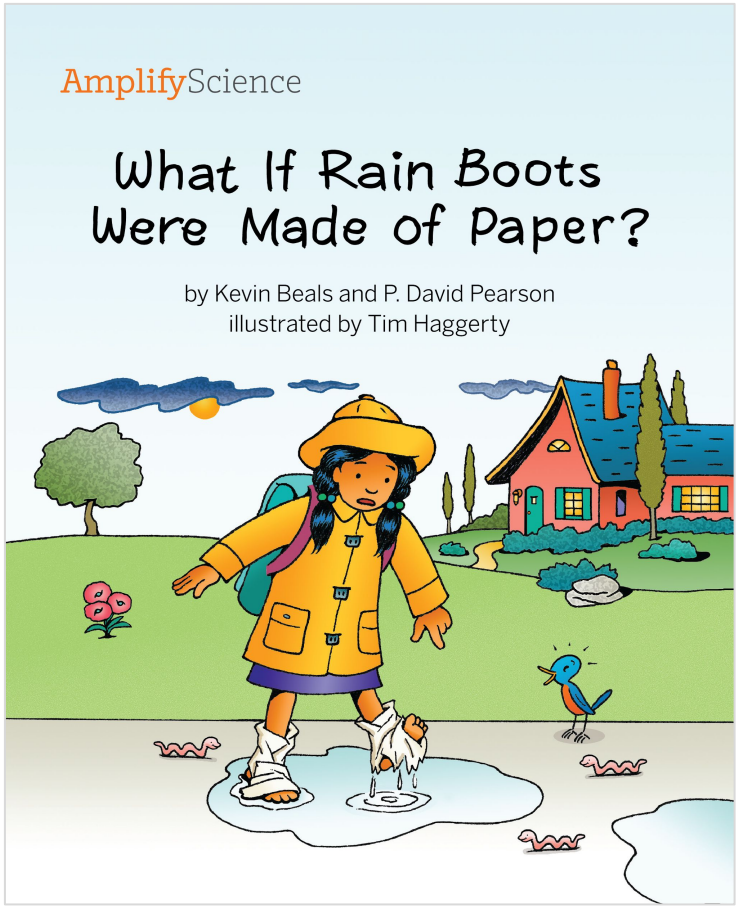
4

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.



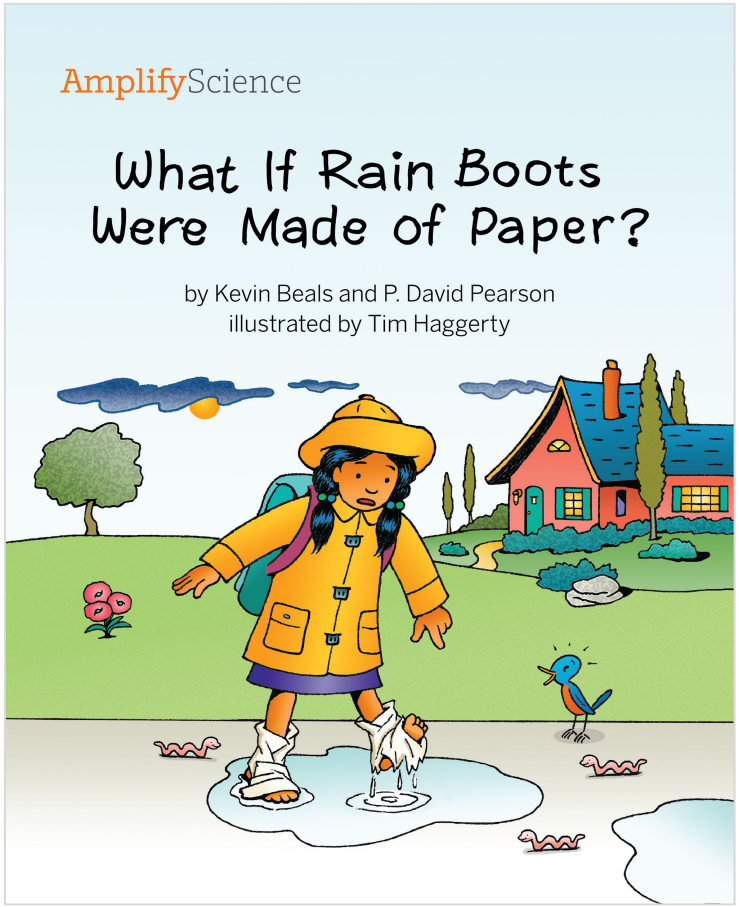
What do you **predict** the book will be about?

Activity 3

Reading: What If Rain Boots Were Made of Paper?

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.



Read the book with a partner.

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

Turn to page 3 and follow along as we reread the book.

I'll call on students to share the reading as we go along.

We'll stop and talk about the book as we read.

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!

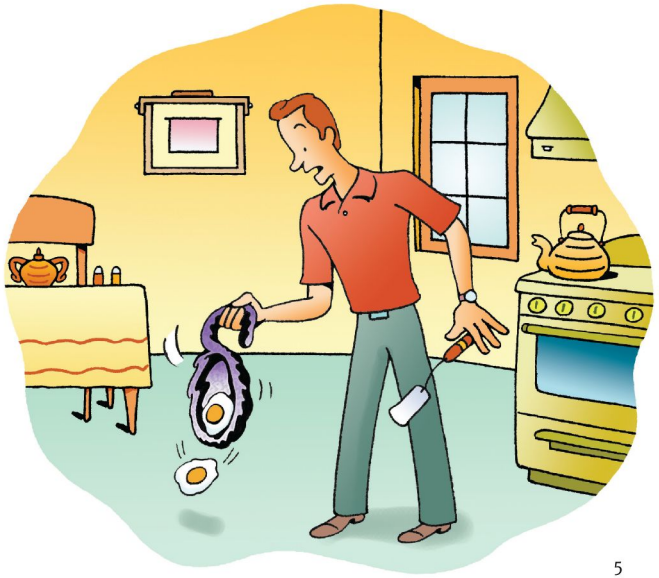
4

What if pans were made of rubber?

Would food bounce out onto the floor?

Would the pans melt?

Would our food ever get cooked?



5

Maybe rubber pans are not such a great idea.
That's why pans are made of metal.

- Metal is usually hard and strong.
- Metal won't melt or burn on a stove.
- Metal cooks our food just right.

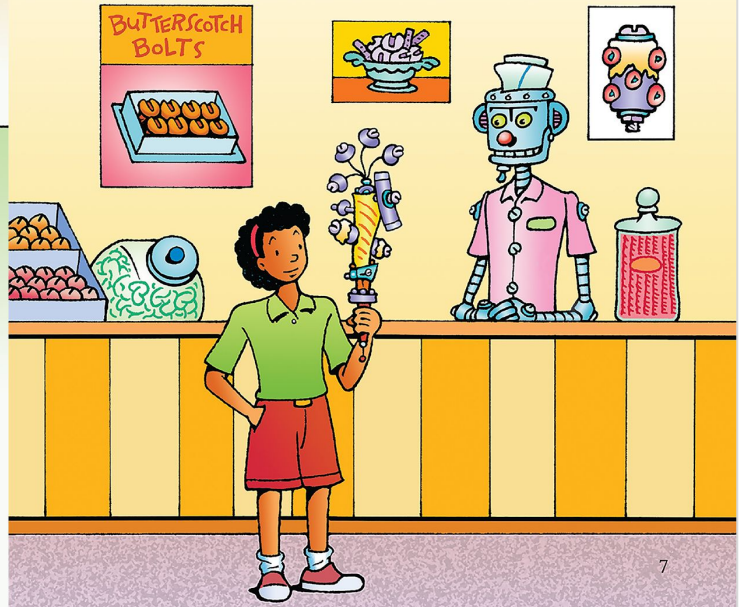
Metal is a great material for making pans. Maybe we should make everything out of metal!

What if candy were made of metal?

Would we be able to chew it?

Would it taste like a car?

Would it **rust** inside our bellies?



Maybe metal candy is not such a great idea.
That's why candy is made of sugar.

- Sugar isn't good for our teeth, but eating sugar is better than biting metal!
- Sugar tastes sweet.
- Sugar breaks apart in our mouths and in our bellies.

Sugar is a great material for making candy. Could sugar be the best material for making everything?

What if books were made of sugar?

Could we write in them?

Would the pages stick together?

Could we turn the pages without breaking them?

Would your little brother try to eat them?

Maybe sugar books are not such a great idea!
I guess that's why books are made of paper.

- It's easy to write on paper.
- Paper pages don't stick together.
- Paper is thin but strong, so we can turn the pages without breaking them.
- Your little brother would not like to eat a paper book.

Paper is a great material for making books. Maybe we should make everything out of paper!

Maybe we should make rain boots out of paper. Wait!
We already thought about that.

- Paper is not good for making boots, but rubber is.
- Rubber is not good for making pans, but metal is.
- Metal is not good for making candy, but sugar is.
- Sugar is not good for making books. What is?

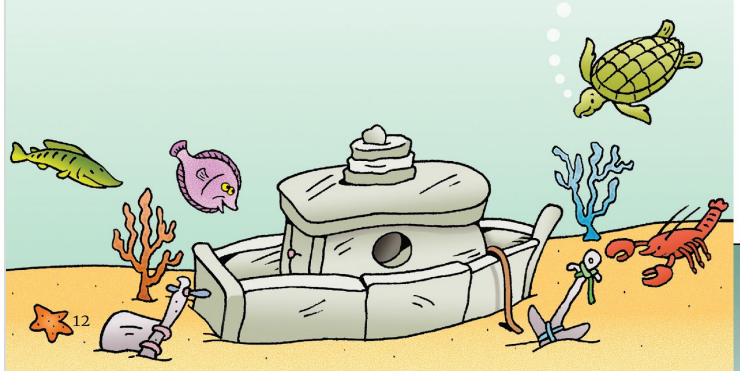
When you **design** something, it's important to pick a material that will work.

Some materials are just right for making certain things.

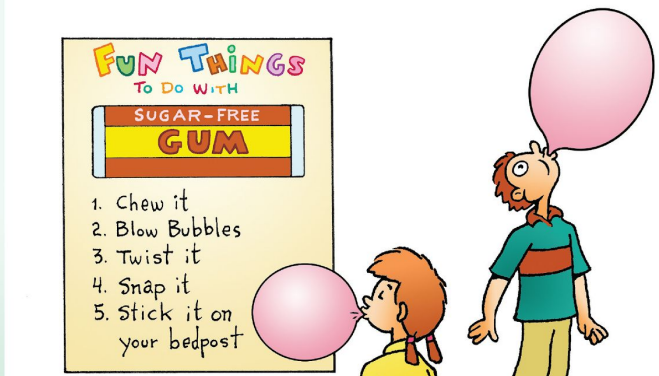
- Glass makes good windows.
- Cloth makes good hats.
- Wood makes good tables.
- Brick makes good houses.

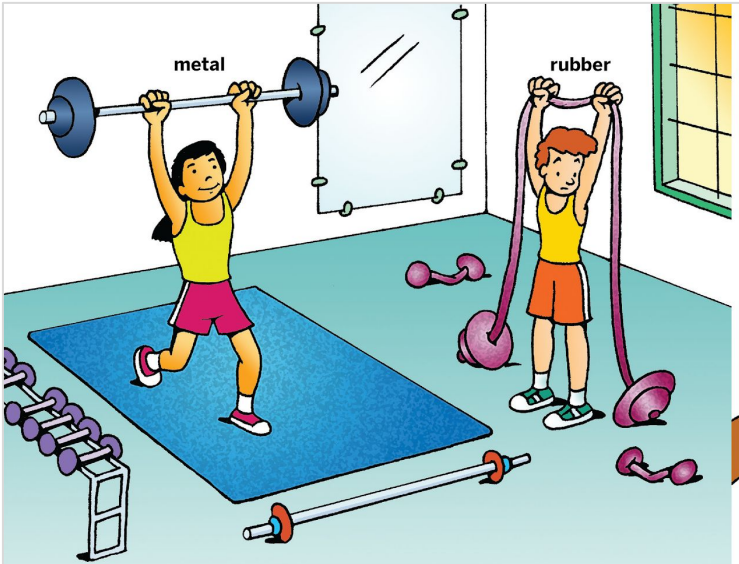
Some materials are silly for making certain things.

- You wouldn't use stone to make boats.
- You wouldn't use clay to make food.
- You wouldn't use cloth to make cars.
- You wouldn't use milk to make clothes.



Sometimes things sound silly, but they work really well.
Rubber candy sounds silly, but maybe it isn't so silly.
A long time ago, people did use rubber for making candy.
They designed gum!





Every material has different **properties**. Properties include how materials look, feel, smell, taste, sound, and mix with other materials.

Hardness is a property of most kinds of metal. Being able to bend easily is a property of rubber.

A material's properties make it great for some uses . . . and not so good for other uses.

What if you were an **engineer**?

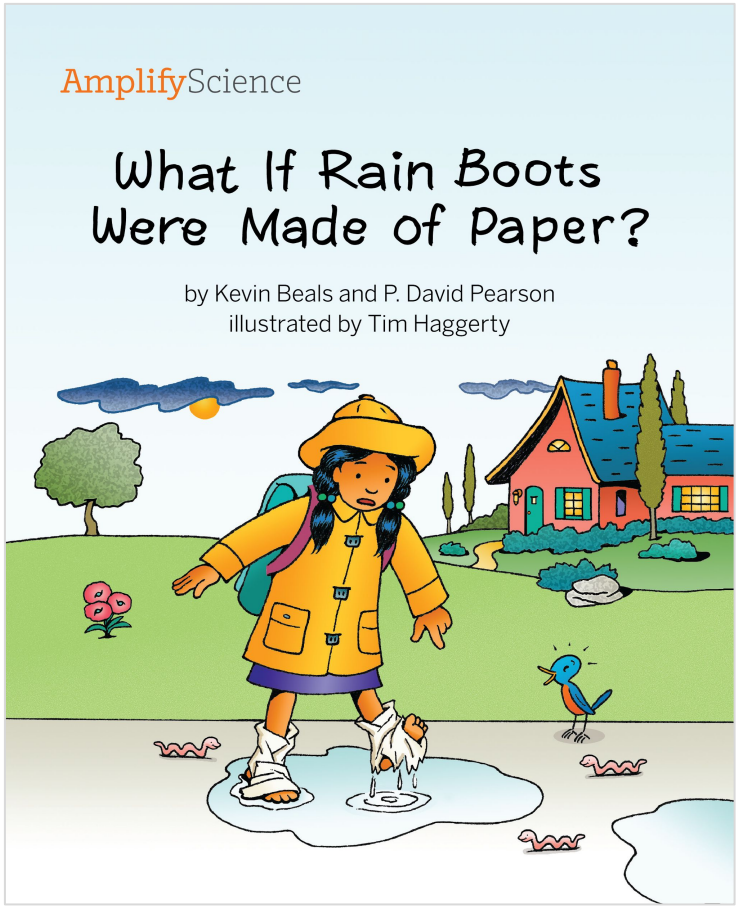
What would you design, and what materials would you use?

Just don't try to make a bike out of bananas.

Some things really are silly!

Activity 4

Reflecting on Materials and Properties



We are going to look back at a couple of **important words** in *What If Rain Boots Were Made of Paper?*

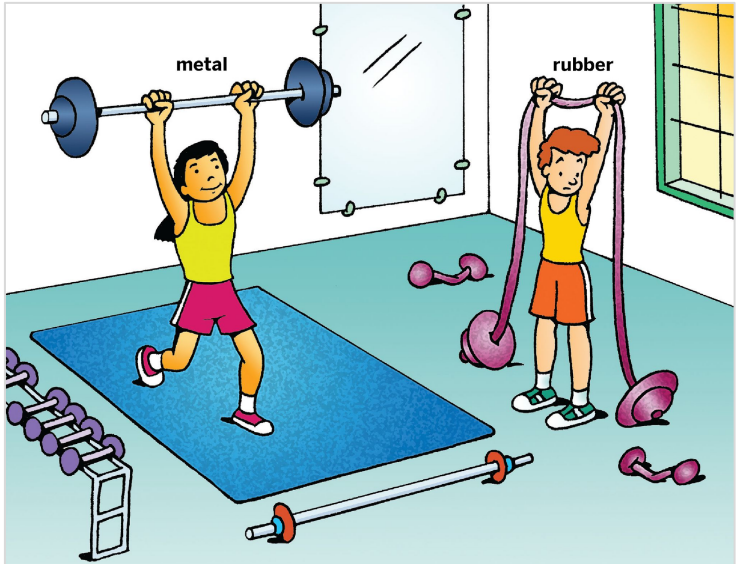
Vocabulary

material

the stuff that makes up everything

What **materials** are used to make **cars?**

What **materials** are used to make **bottles?**



Every material has different **properties**. Properties include how materials look, feel, smell, taste, sound, and mix with other materials.

Hardness is a property of most kinds of metal. Being able to bend easily is a property of rubber.

A material's properties make it great for some uses . . . and not so good for other uses.

14

Turn to page 14. Let's think about the word "properties" as we read.

What were some of the silly examples of materials we read about?

Why were they silly?

Key Concept

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

Vocabulary

property

something about a material that you can see, hear, smell, taste, or feel

What is a **material** you see used in one or more objects in the classroom?

What are the **properties** of that material?

What do its properties make that material **good for**?

Activity 5

Keeping Track of New Ideas

We will continue posting important **words**, **images**, and **ideas** to the **classroom wall**. You can refer to the wall to remember the new things we're learning.

Before we begin designing our glue, we need to **learn more about materials and their properties**.

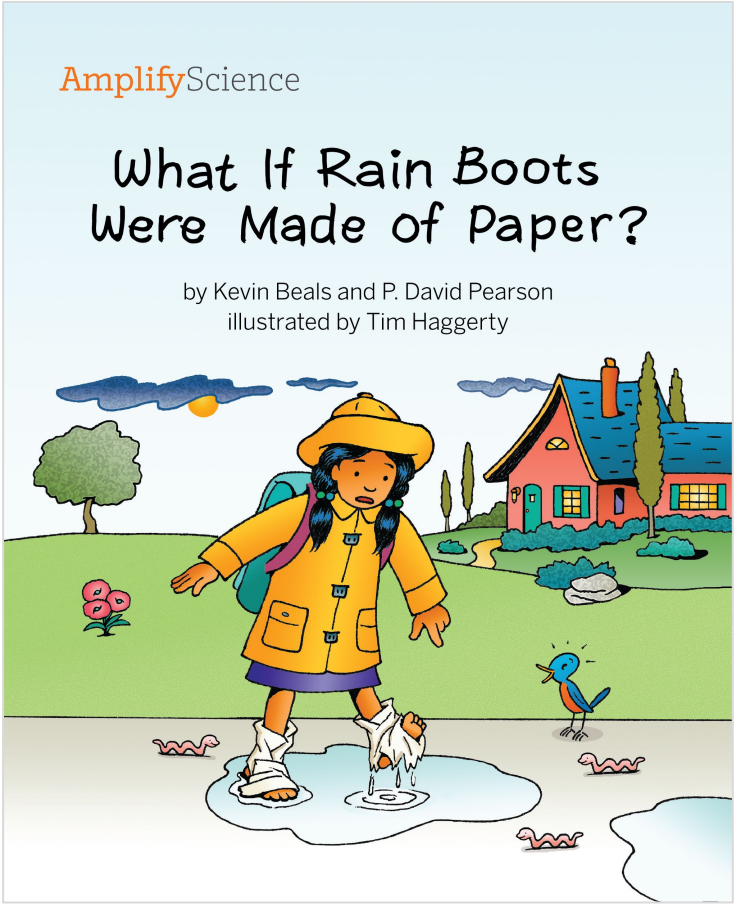
End of Lesson

THE LAWRENCE HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

Amplify.

Published and Distributed by Amplify. www.amplify.com

Evidence source analysis



Key Concept:

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

Evidence source analysis

Please respond in the chat

How did reading and discussing this text help us build our understanding of these key concepts?

Key Concept:

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

Evidence source analysis

Analyzing an activity within a chapter storyline

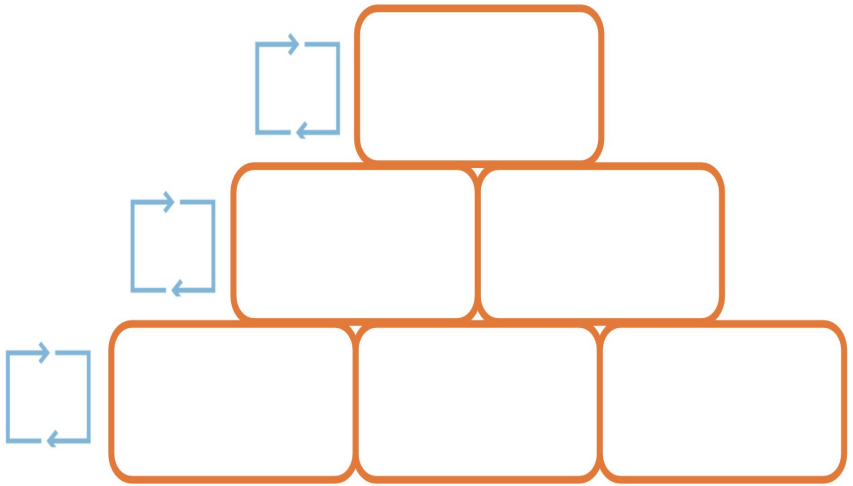
Reflecting on how an activity helps students **figure out key concepts** is a tool for planning to teach.

Resource	Useful for…
Lesson purpose *(in Lesson Brief or Classroom Slides title slide notes)*	Understanding what a lesson or activity is **designed to do for student learning**
Coherence flowchart	Considering how an activity **works together** with other parts of the chapter

Progress Build

Unit-specific learning progression

- Reflecting on where a lesson lies on the your unit's progress build is a tool for **planning** to teach, specifically for gauging student **understanding** throughout the units.
- Which **level** of the progress build does the **model lesson** align to?



Build increasingly complex explanations

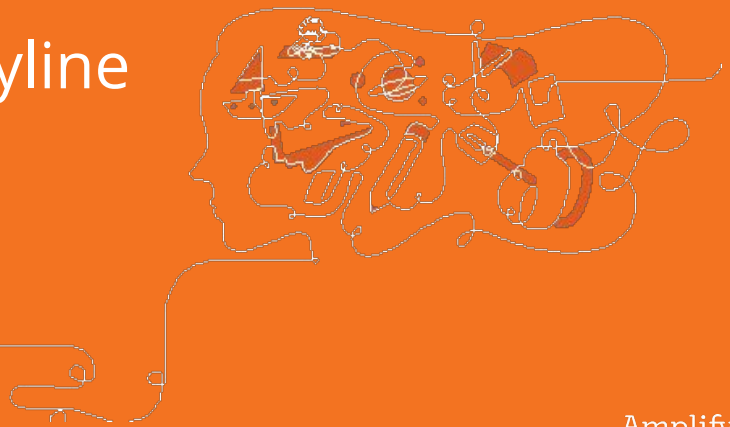
Evidence source analysis

Using evidence source analysis to prepare to teach

1. Read **lesson purpose** to consider the activity's role
2. Use the **coherence flowchart**:
    a. To analyze how it fits within the chapter storyline
    b. To consider the activity's modality and how it works with other activities (of other modalities)
3. As you plan for teaching, consider:
    a. What you'll emphasize during the activity, and what you'll expect students to do or say
    b. Implications for how you'll teach other activities in the chapter

Planning time

Chapter 2 Storyline

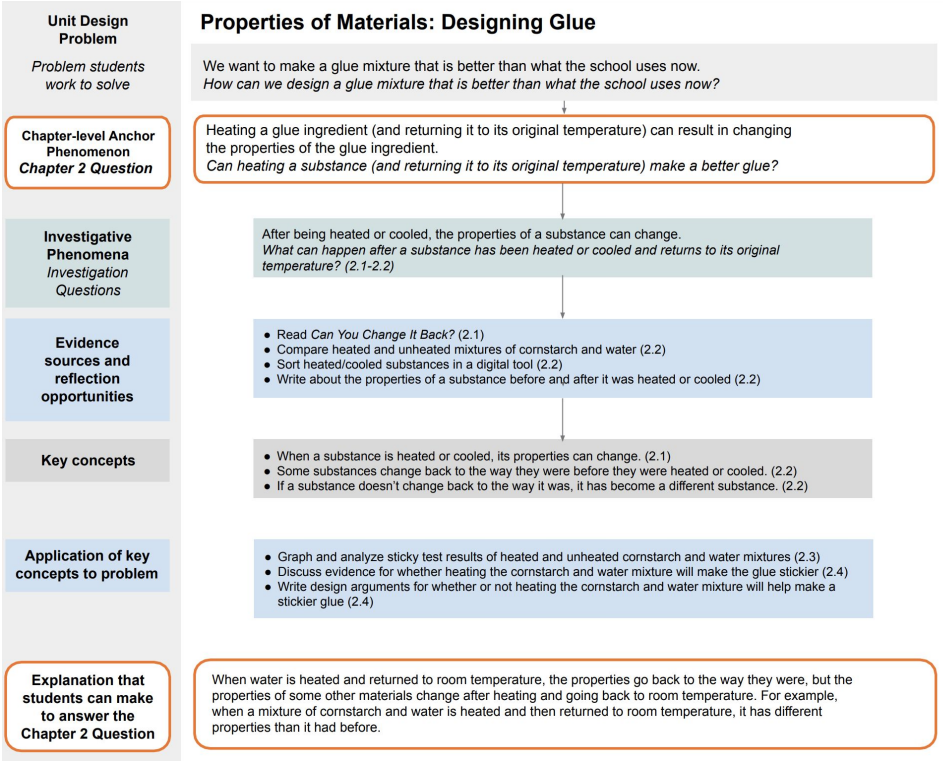


Breakout groups

Evidence source analysis

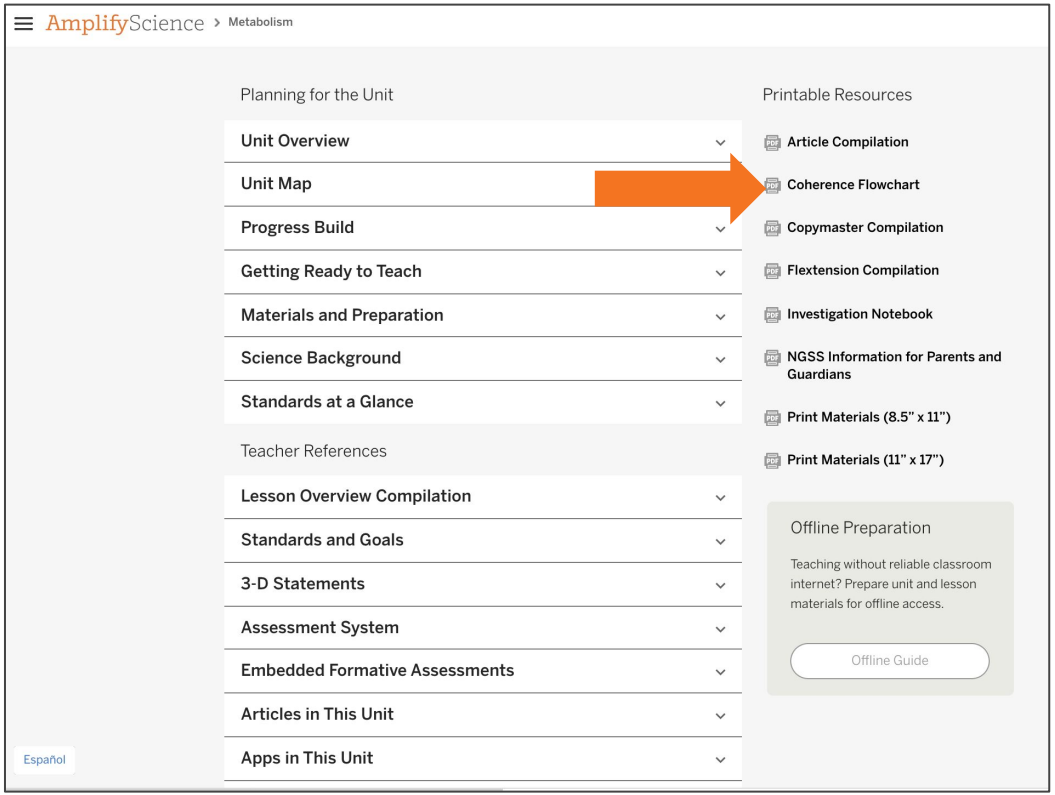
First, get familiar with the Chapter Question, Investigation Question, key concepts, and explanation.

Then, choose one evidence source and analyze its role in the Chapter 2 storyline.

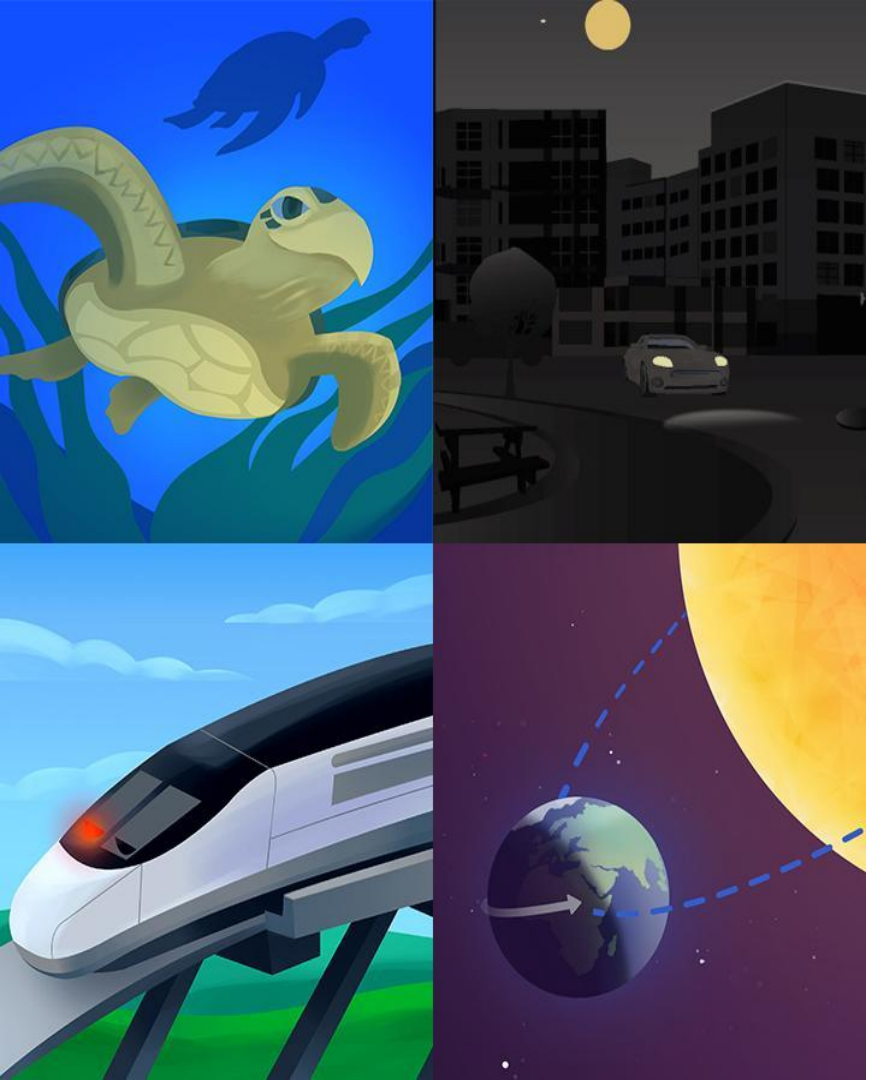


Navigate to your own coherence flowchart

1. From the Unit Landing Page, select **JUMP DOWN TO UNIT GUIDE**
2. Under Printable Resources, select **Coherence Flowchart**
3. Look over the coherence flowchart for **Chapter 1.**



Amplify.



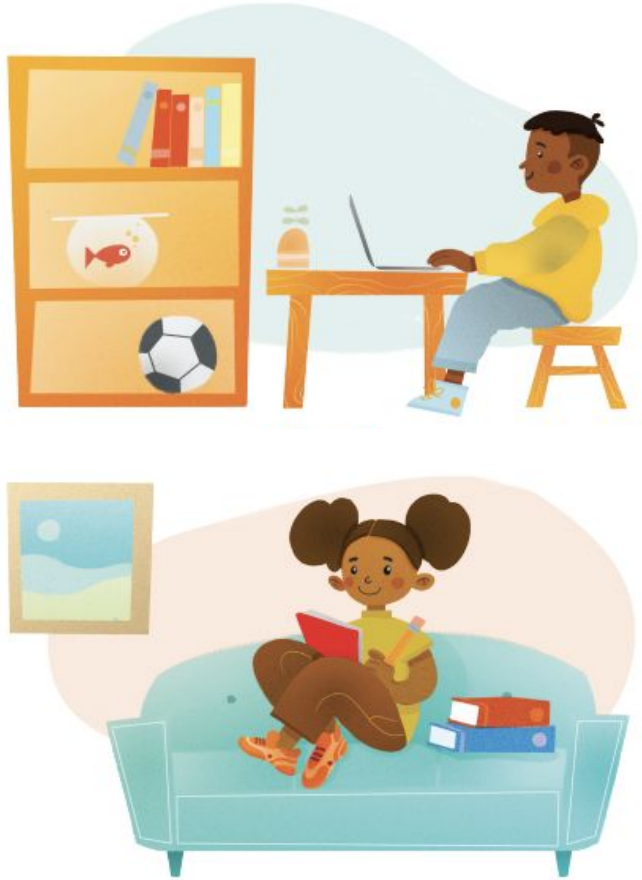
Plan for the day

- Welcome
- Unit storyline
  - Anchor phenomenon
  - Storyline summary
  - Break
  - Model activity
  - Evidence source analysis
  - Breakout groups
- **Remote and hybrid resources**
  - Reviewing the resources
  - Collaborative planning
- Reflection and closing

Amplify Science@Home

A suite of resources that...

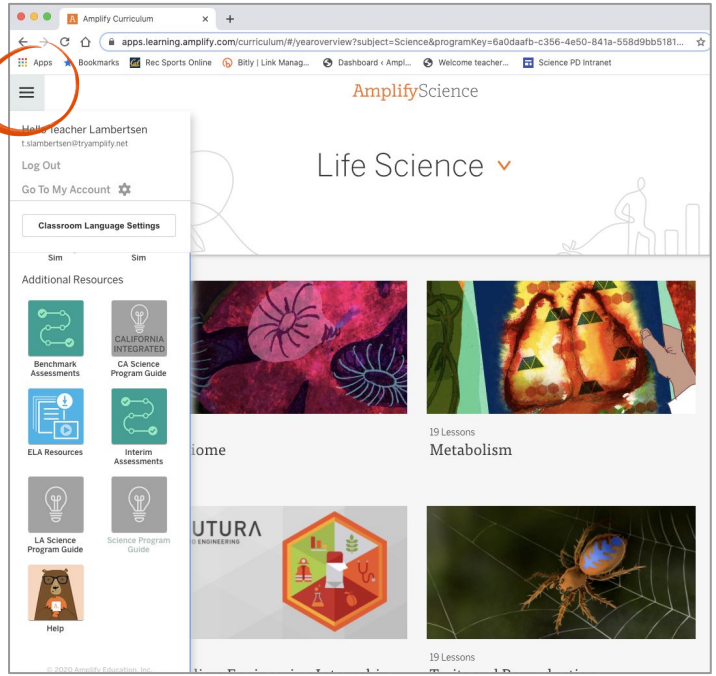
- Are designed for students to complete independently
- Require no materials except a pencil and paper
- Include digital and print-only options
- Can be leveraged in a variety of remote and hybrid instructional formats



Amplify Science Program Hub

A new hub for Amplify Science resources

- **Videos and resources to continue getting ready to teach**
- Amplify@Home resources
- Keep checking back for updates



Selecting @Home resources

Questions to consider

- How much **time** do students have to learn science in the upcoming school year?

- Do your students have **access to technology** at home, or do you need a **print-only solution**?

Amplify Science@Home

@Home Units

- Packet or slide deck versions of Amplify Science units condensed by about 50%

@Home Videos

- Video playlists of Amplify Science lessons, taught by real Amplify Science teachers

Selecting @Home Units

You might use this resource if...

- You have **less instructional time** for science than you normally would
- You need a solution for remote, asynchronous student learning some or all of the time

Two options for student access	
For students with consistent access to technology at home, use **@Home Slides**	For a print-only option, use **@Home Packets**

@Home Units example use case

Remote Asynchronous Model: Students work flexibly through content

Monday-Thursday

Assign @Home Lessons 1-2 (Packets or Slides)

Friday

Students submit work product through email, or by writing on paper and texting the teacher a photo of their work

@Home Units example use case

Hybrid Model: Teach live during in-person time





Monday-Tuesday

Remote

Assign: @Home Lesson 1 (Packet or Slides)

Wednesday

In-person

Teach: @Home Lesson 1: Ideas for synchronous or in-person instruction

Thursday-Friday

Remote

Assign: @Home Lesson 3 (Packet or Slides)

Selecting @Home Videos

You might use this resource if...

- Your students have **access to internet-connected devices** at home
- You have **about the same amount of instructional time** for science as you normally would
- You need a solution for remote, asynchronous student learning some or all of the time

@Home Videos example use case

Hybrid Model: Teach live during in-person time

Monday

Remote

Assign: Lesson 1.1 Video

Tuesday

In-person

Teach: Lesson 1.2 live

Wednesday

Remote

Assign: Lesson 1.3 Video

Thursday

Remote

Assign: Lesson 1.4 Video

Friday

In-person

Revisit: hands-on or discourse-based activities the week's lessons

@Home Videos example use case

Remote Synchronous Model: Discussions during online class

Monday

Asynchronous

Assign: Lesson 1.1 Video

Tuesday

Asynchronous

Assign: Lesson 1.2 Video

Wednesday

Synchronous

Teach: Lead class discussion to review key ideas from 1.1 and 1.2

Thursday

Asynchronous

Assign: Lesson 1.3 Video

Friday

Asynchronous

Assign: Independent written reflection about week's lessons

Navigating to @Home resources

PLS models locating @Home resources live by navigating to the Program Hub (Teacher's Guide -> Global Navigation -> Additional Resources -> Program Hub -> Teacher -> Amplify Science@Home)

Model locating @home resources

Breakout groups

Discussing the resources

Consider **challenges and successes** you are currently experiencing with remote & hybrid learning.

How might you use the @Home resources?

What are your **next steps**?

Individual planning considerations

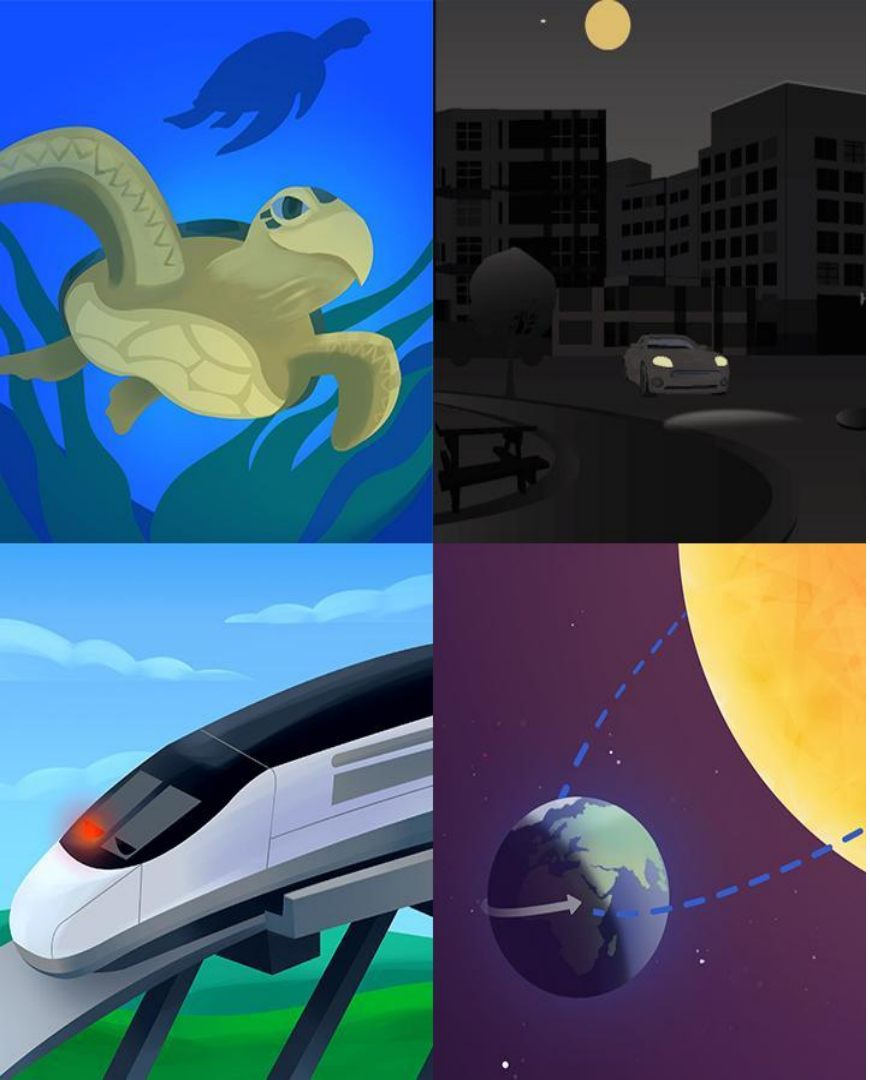
Utilizing coherence as a design principle

@Home lessons consist of a reduced set of **prioritized** activities, but still preserve a **coherent** instructional build.

Individual **work-time** & reflection:

- Open **lesson index**. Compare a lesson of your choice from Teacher's Guide with **@home lesson**.
- How can you best plan **synchronous** instruction "coherently" with your **asynchronous** lesson?
- Jot some notes, using table to right as a guide.

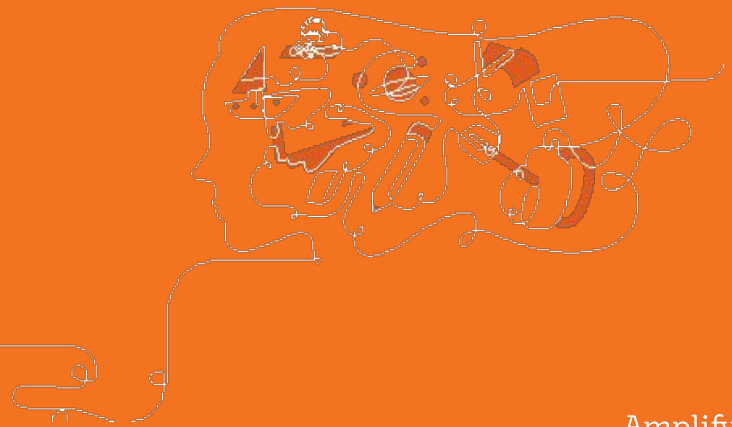
Synchronous time	
In-person	**Online class**
• Discourse routines • Class discussions • Hands-on investigations (option for teacher demo) • Physical modeling activities	• Online discussions • Sim demonstrations • Interactive read-alouds • Shared Writing • Co-constructed class charts



Plan for the day

- Welcome
- Unit storyline
  - Anchor phenomenon
  - Storyline summary
  - Break
  - Model activity
  - Evidence source analysis
  - Breakout groups
- Remote and hybrid resources
  - Reviewing the resources
  - Collaborative planning
- **Reflection and closing**

Questions



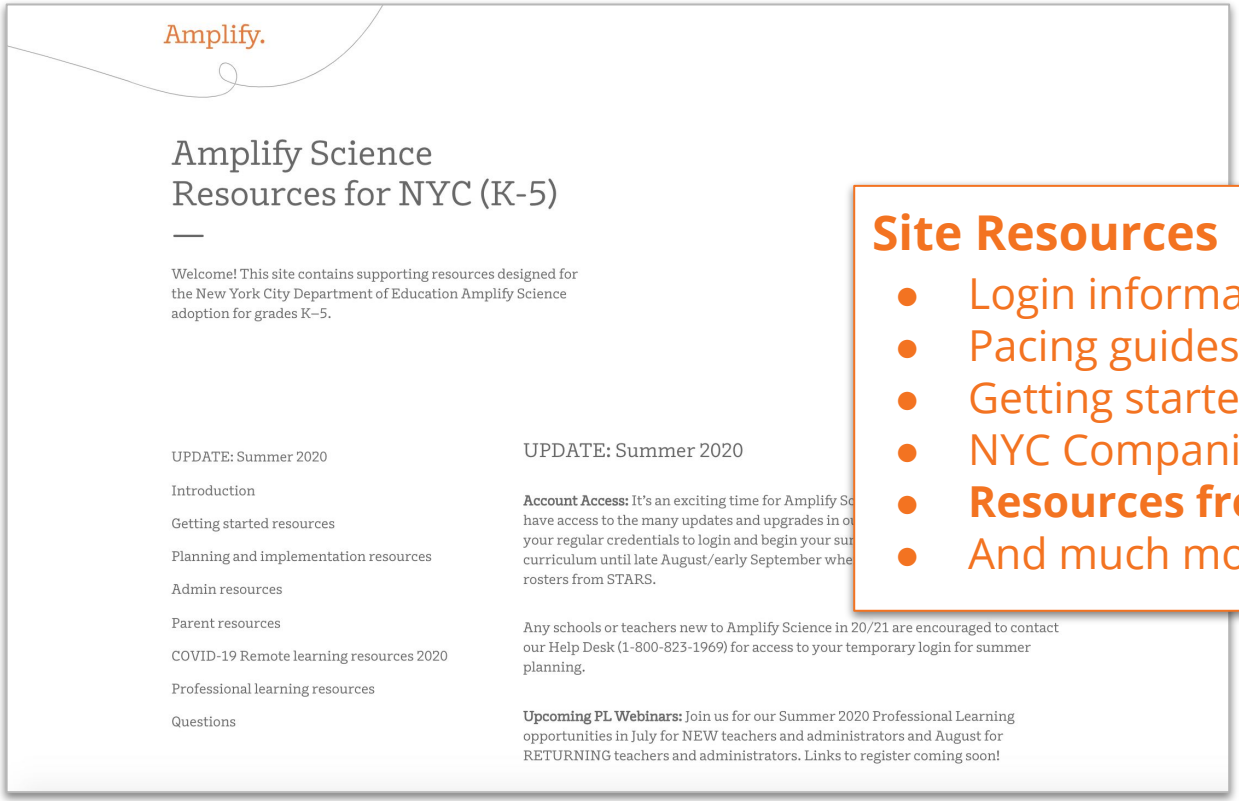
Closing reflection

Please respond in the chat

How can understanding your unit's **storyline** help you make **instructional decisions**, particularly in a remote or hybrid context?

New York City Resources Site

https://amplify.com/amplify-science-nyc-doe-resources/



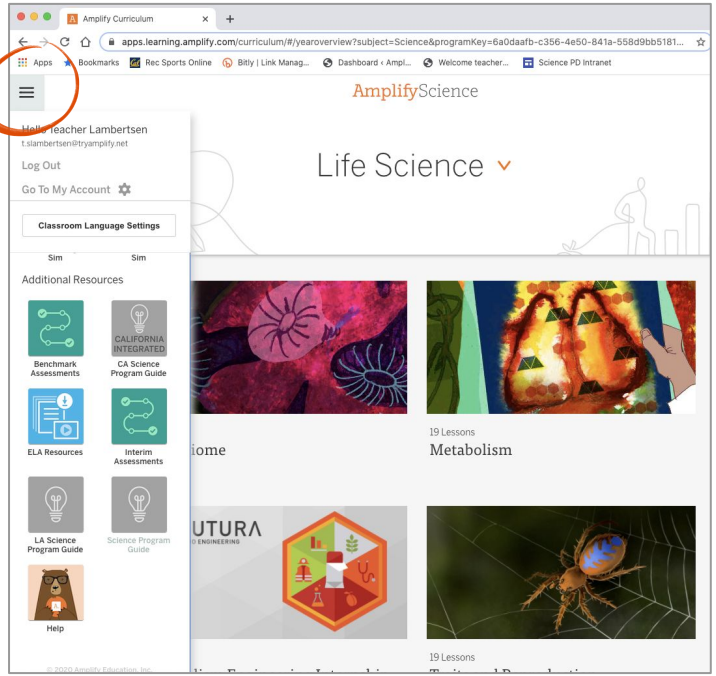
Site Resources

- Login information
- Pacing guides
- Getting started guide
- NYC Companion Lessons
- **Resources from PD sessions**
- And much more!

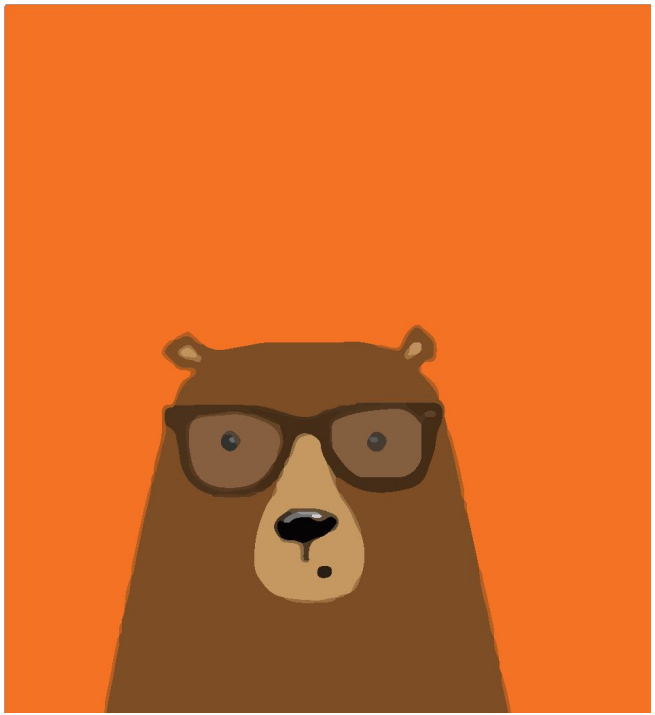
Amplify Science Program Hub

A new hub for Amplify Science resources

- **Videos and resources to continue getting ready to teach**
- Amplify@Home resources
- Keep checking back for updates



Additional Amplify resources



Program Guide

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

https://my.amplify.com/programguide/content/national/welcome/science/

Amplify Help

Find lots of advice and answers from the Amplify team.

my.amplify.com/help

Additional Amplify Support

Customer Care

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

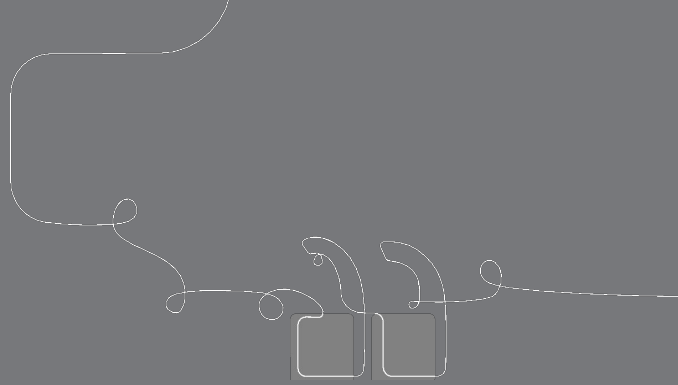
scihelp@amplify.com

800-823-1969

Amplify Chat

When contacting the customer care team:

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



Final Questions?

Please provide us feedback!

URL: https://www.surveymonkey.com/r/BY56SBR

Presenter name: XXX