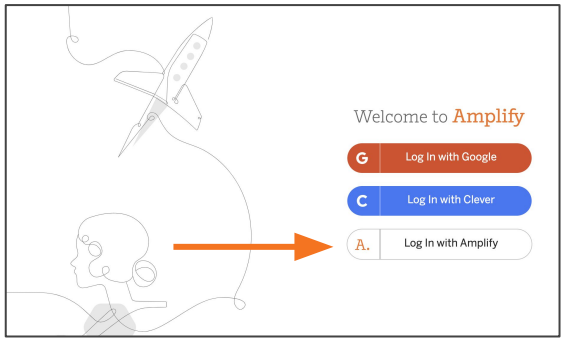
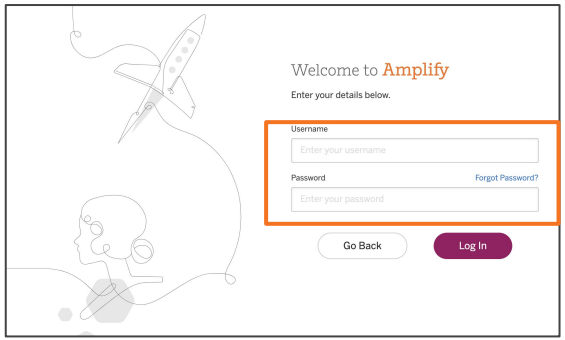
Part of the Day	Timing (min)	*PLS use only* Plan for the day
Welcome	35 min	• Welcome (10) • Review key aspects of the approach (10) • Introduce unit phenomenon (10) • Opening reflection (5)
Unit-Specific	85 min	• Unit Map (5) • Unit storyline overview (5) • Break (15) • Experiencing and analyzing chapter 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:

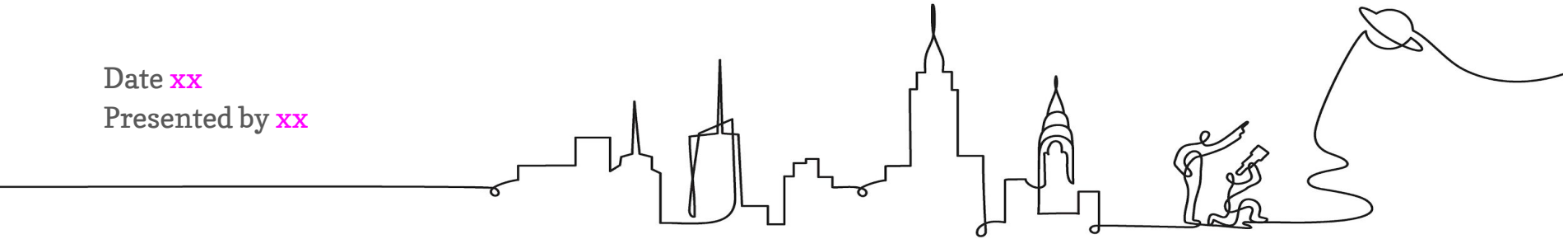
- **Can you find the coherence flowchart?**
- **Can you find the Progress Build?**

Amplify Science
New York City

Understanding the Unit Storyline & Coherence

Kindergarten: Pushes & Pulls

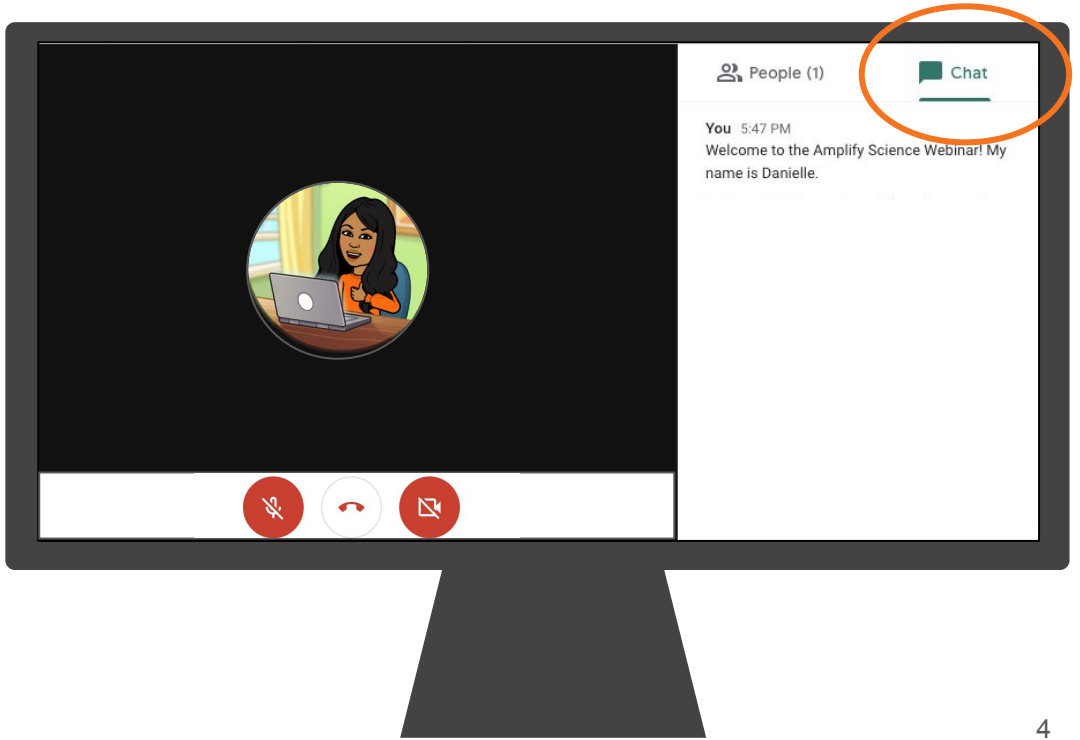
Date xx
Presented by xx



Introductions!

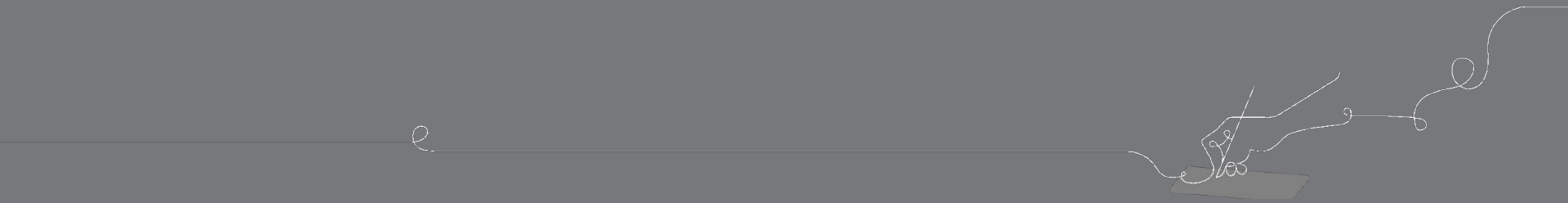
Please introduce yourself in the chat

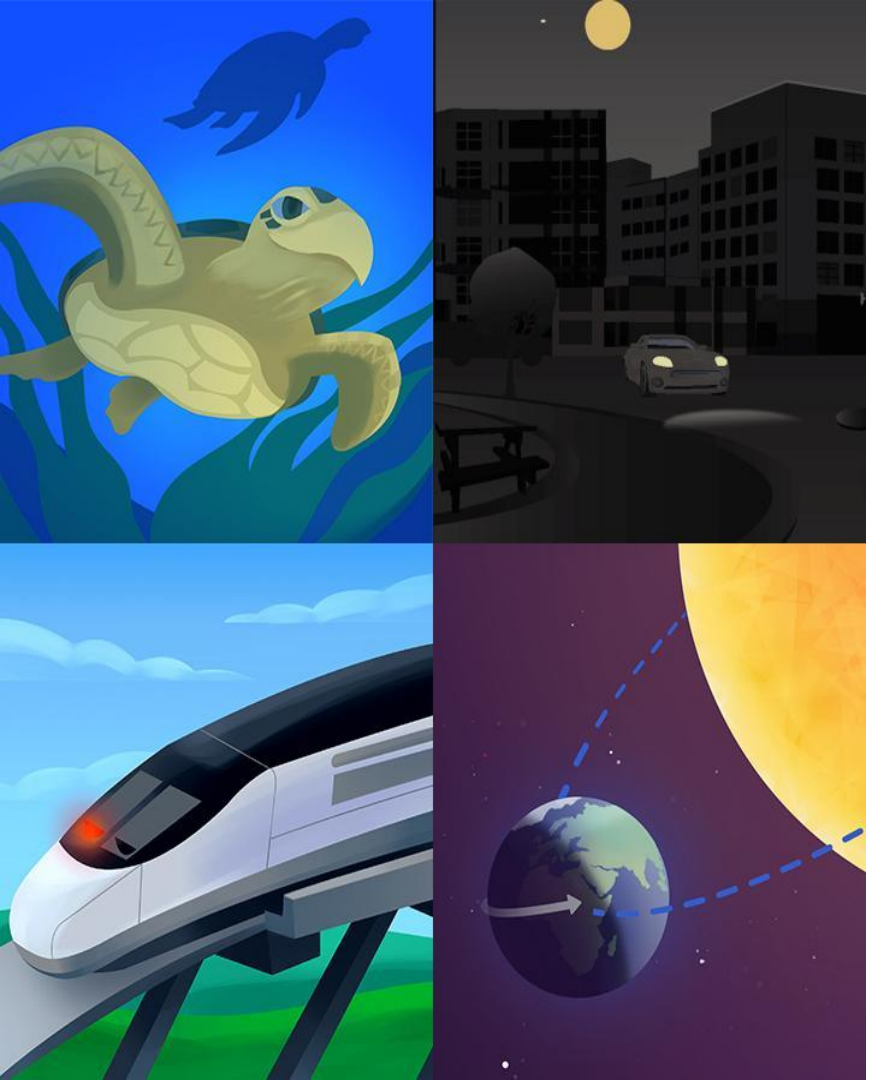
- Share a success or challenge you've had in implementing Amplify Science.
- Then, share a solution to a challenge posted by a colleague.



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





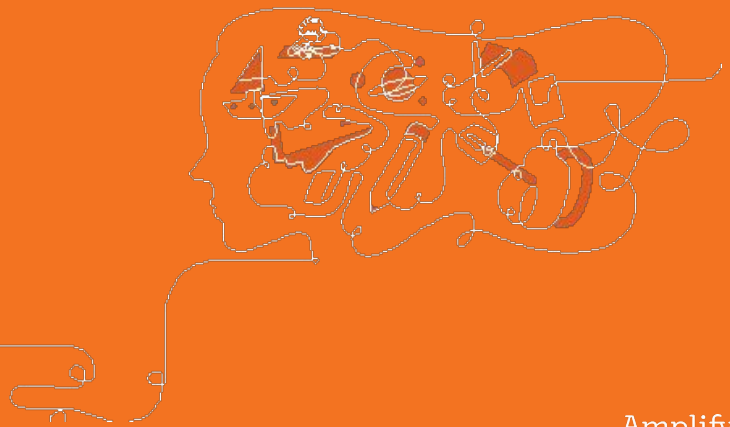
Plan for the day

- 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

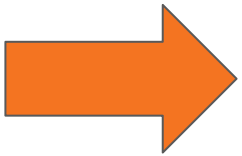


Phenomenon-based instruction

A shift in science instruction

from learning about

(like a student)



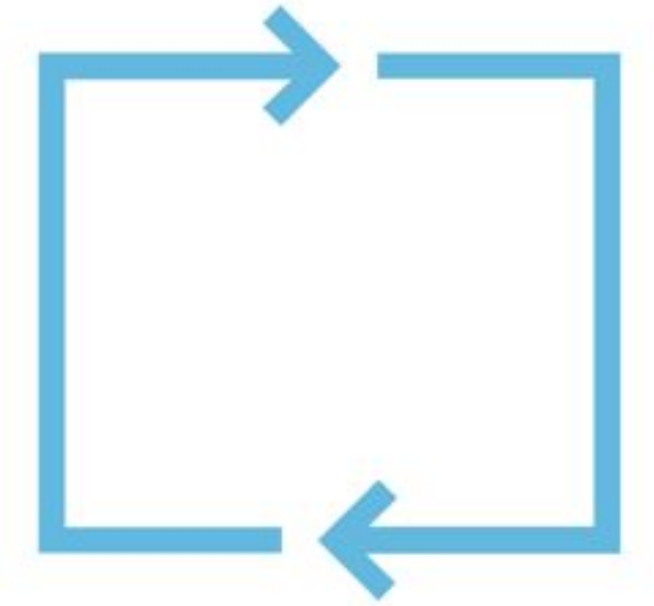
to figuring out

(like a scientist)

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

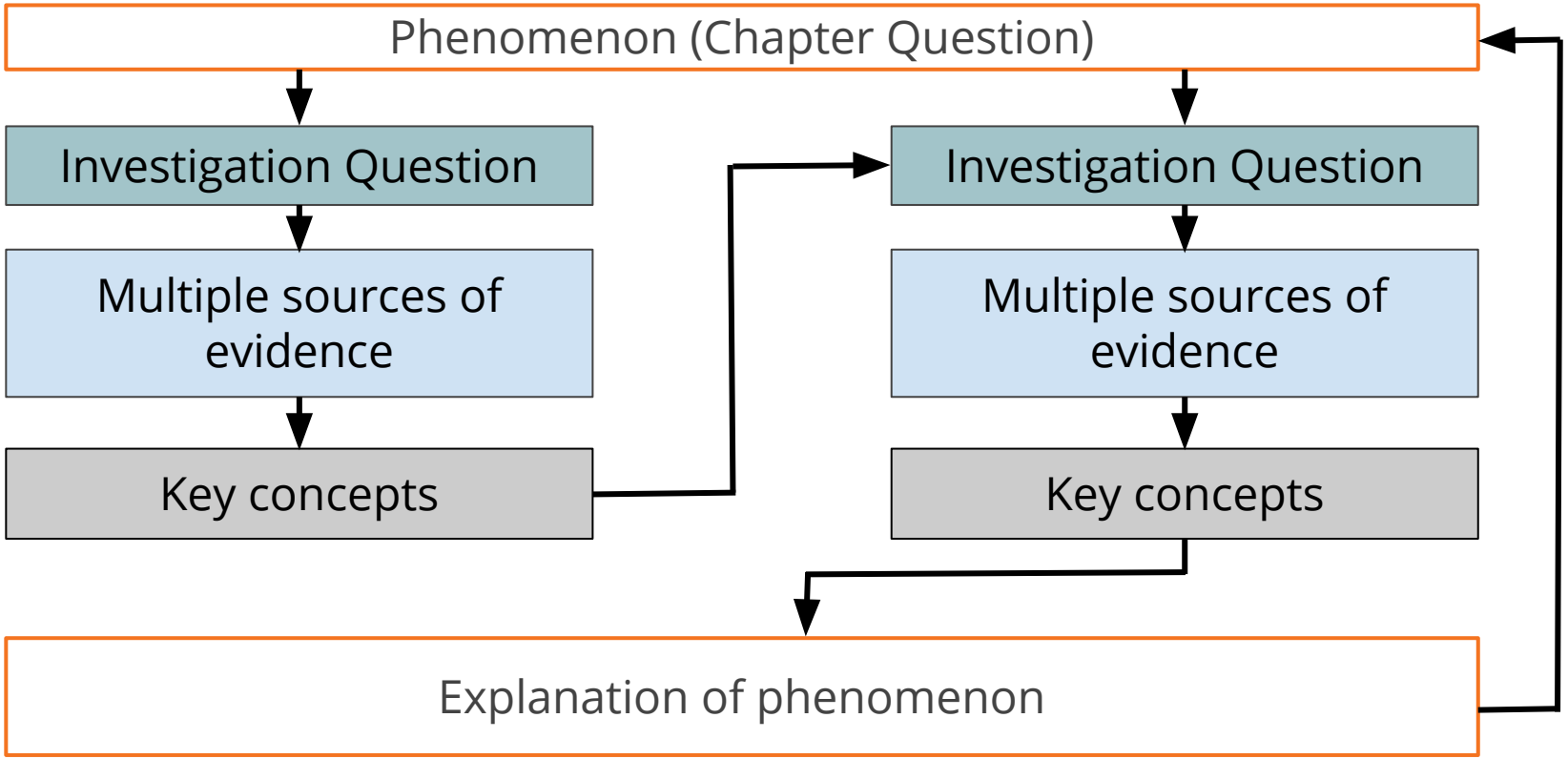
Multimodal learning

Gathering evidence over multiple lessons



Do,
Talk,
Read,
Write,
Visualize

Coherent storylines

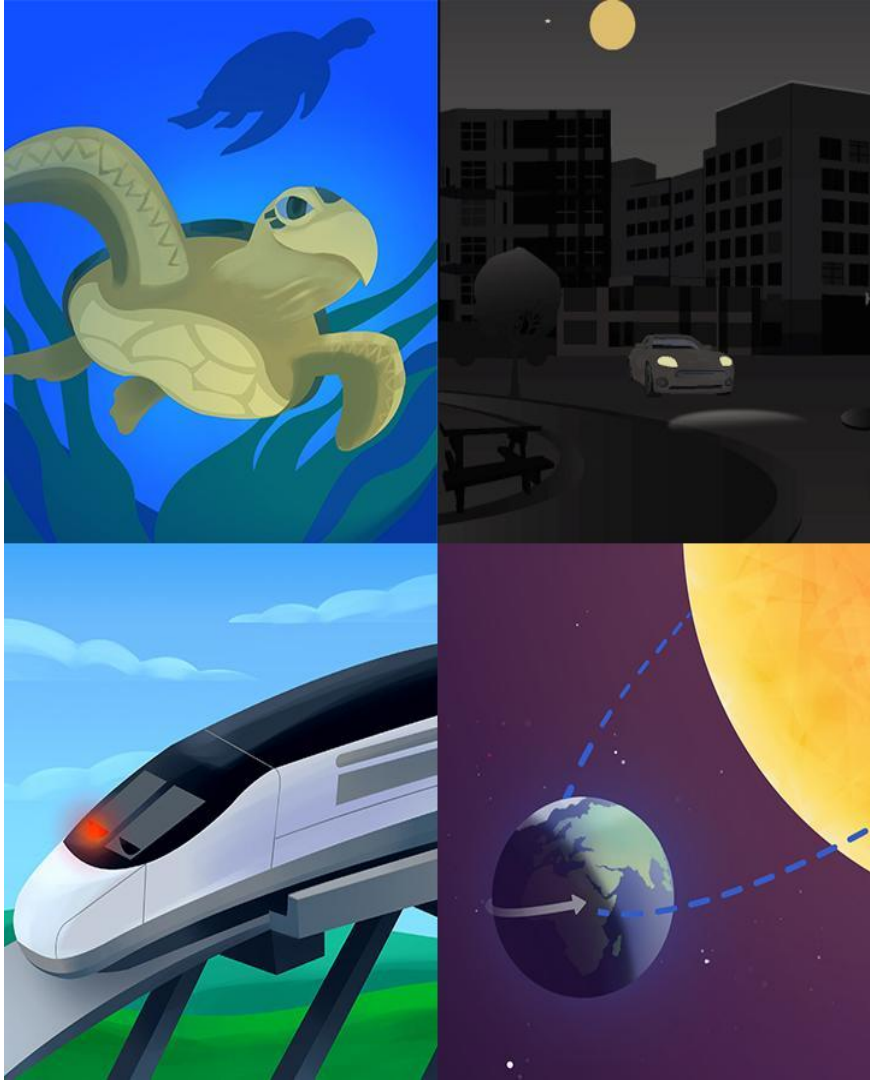


Opening reflection

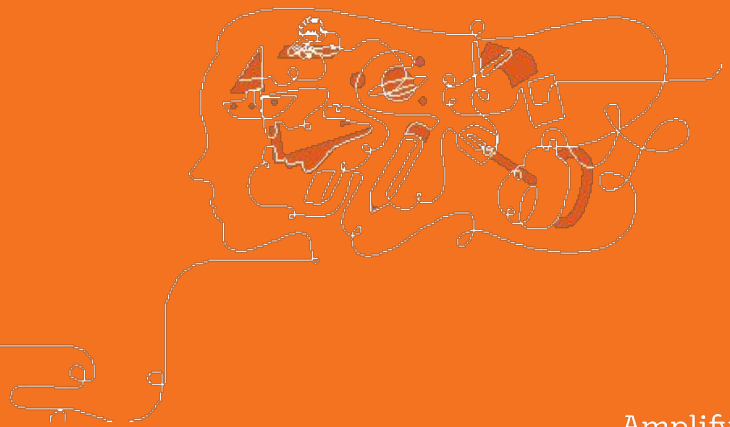
Stop and jot

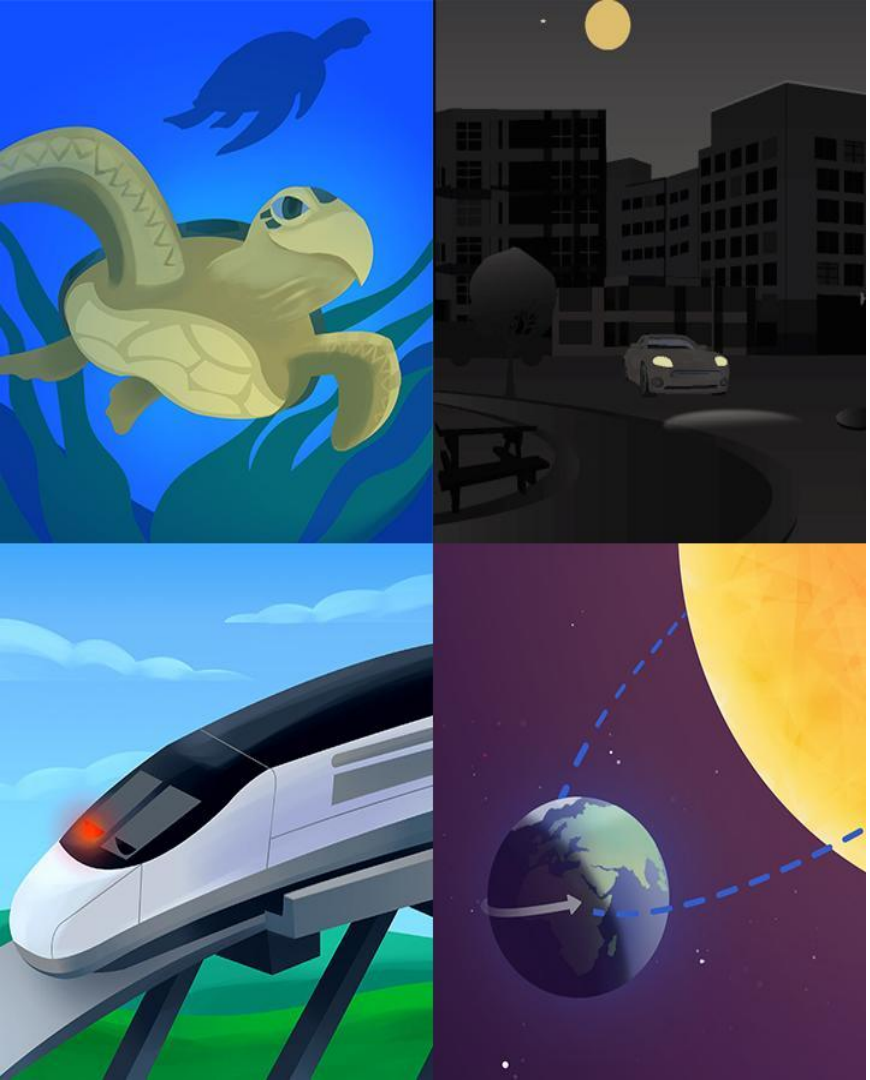
Amplify Science units are designed around **storylines**.

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

25 MIN

Activity 1

Introducing Students' Role as Engineers

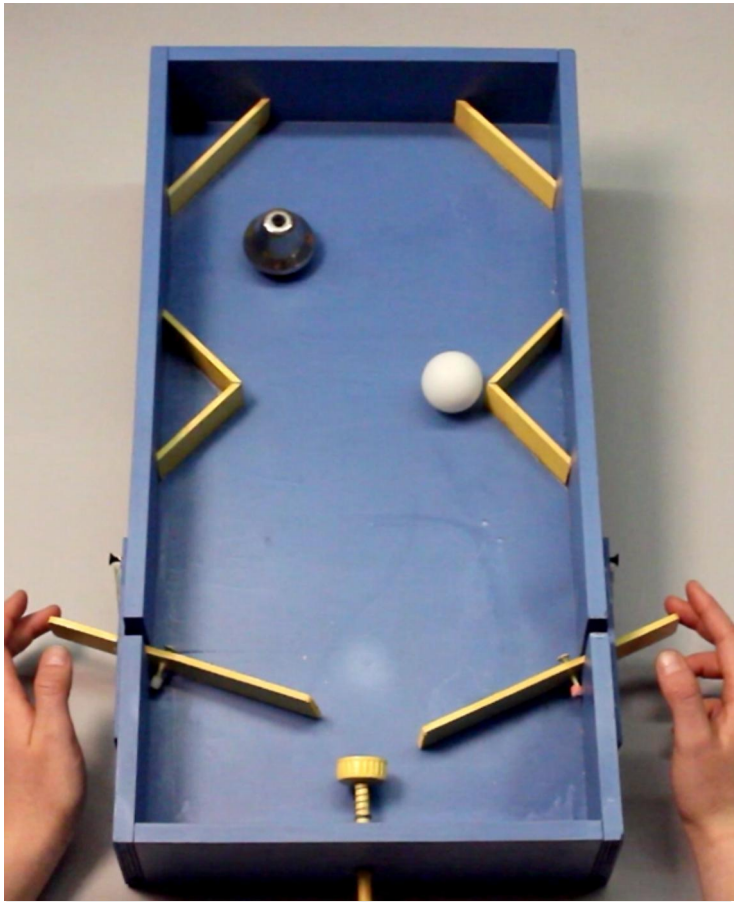
We have a chance to take on an interesting new challenge!

I have been thinking that our class could create our own pinball machine that we could play.

Let's think about what we already know about pinball machines.

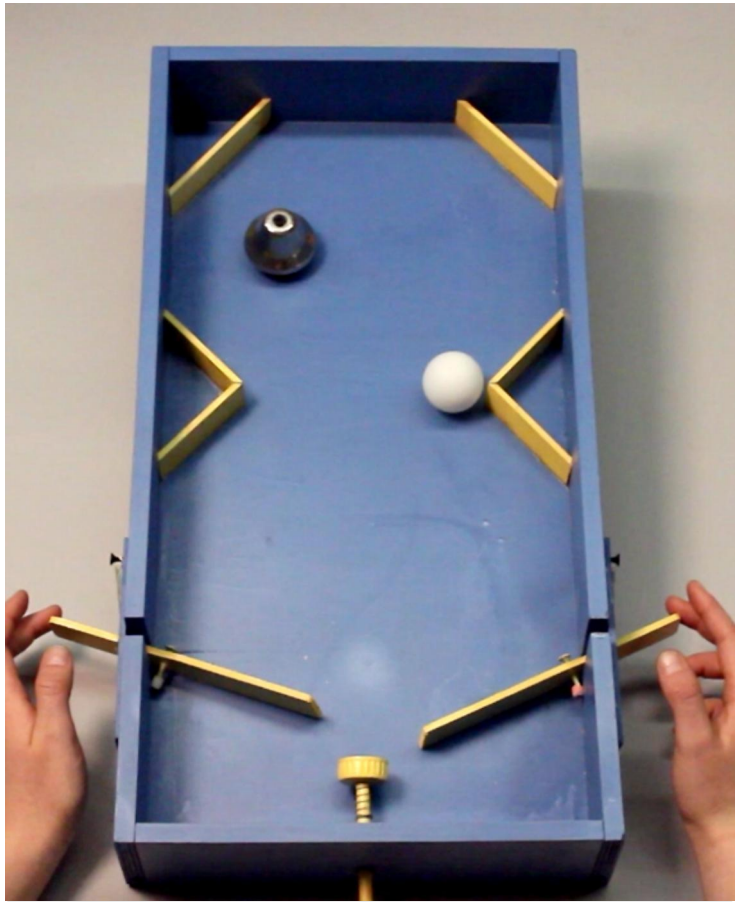
Do you know what a **pinball machine** is?

What do pinball machines do?



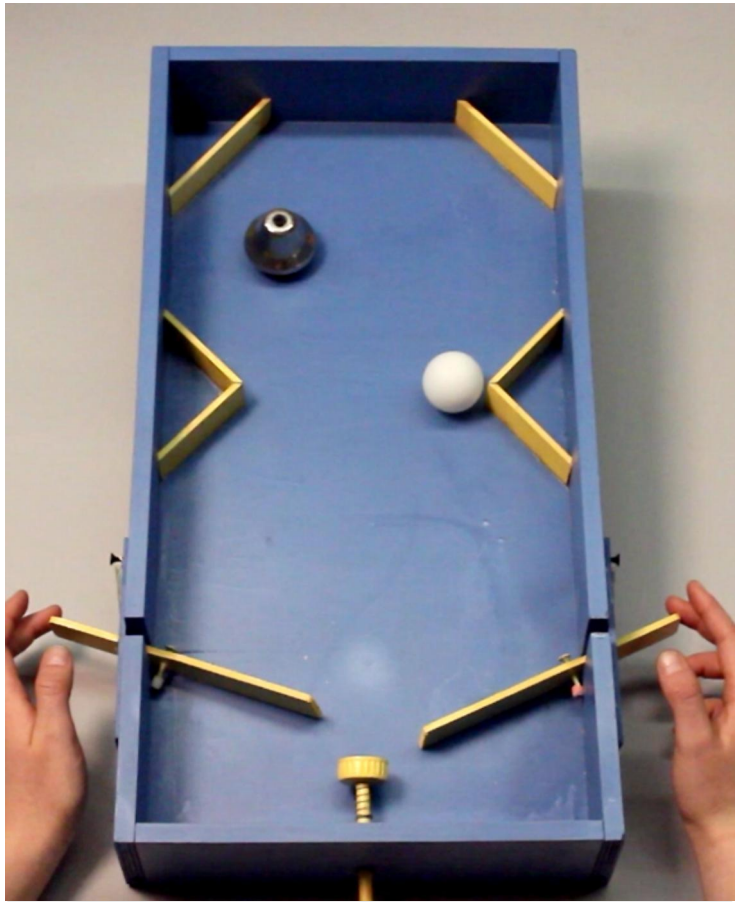
We will watch a video that shows **what pinball machines do.**

This will help us start thinking about how to make our pinball machine.



I am going to show the video a second time.

This time, pay careful attention to the **different ways that the ball moves.**



Let's talk about what we noticed.

What made the pinball **move in different ways** in the video?

Unit Question

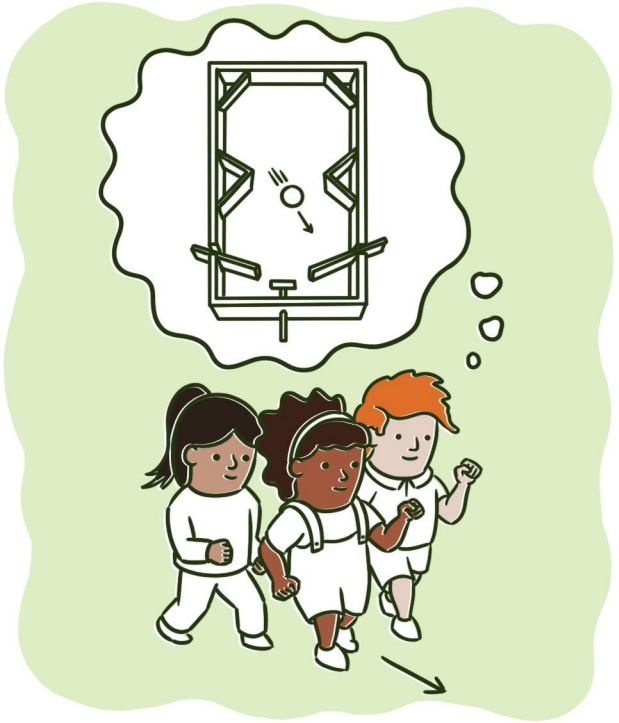
Why do things move in different ways?

Using Our Bodies to Show How Pinballs Move

1.
Stand up so we can act out being a moving pinball in a pinball machine.

2.
Move to the left! Move to the right! Move forward! Move to the back!

3.
Take a seat.



To figure out how to make a pinball machine, we need to think and work like **engineers.**

Engineers make things to solve problems. This is what we will do when we work as engineers.

What Engineers Do

We will use the What Engineers Do chart to talk about what engineers do.

One thing engineers do is **find out about a problem.**

What Engineers Do

Find out about a problem.

Our problem is that we need to **figure out how we can design a pinball machine** so the pinball can move in all the ways we want it to, just like the pinball in the video.

We saw in the video that a pinball machine has to **launch the ball,** which means that the pinball machine has to **start the ball moving.**

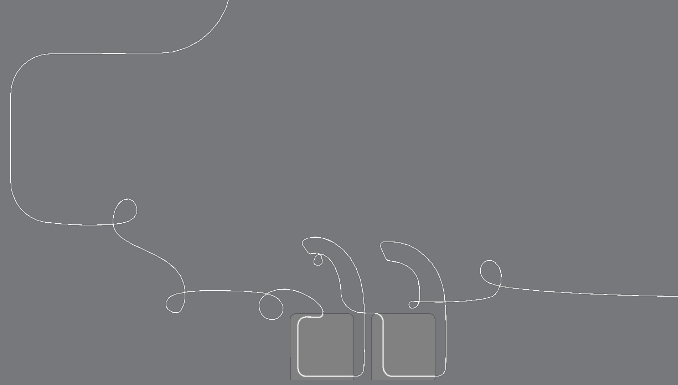
An engineer who is starting to **design** a pinball machine needs to **learn** how to make the pinball start to move.

Chapter 1 Question

How do we make a pinball start to move?

Investigation Question:

What makes an object start to move?



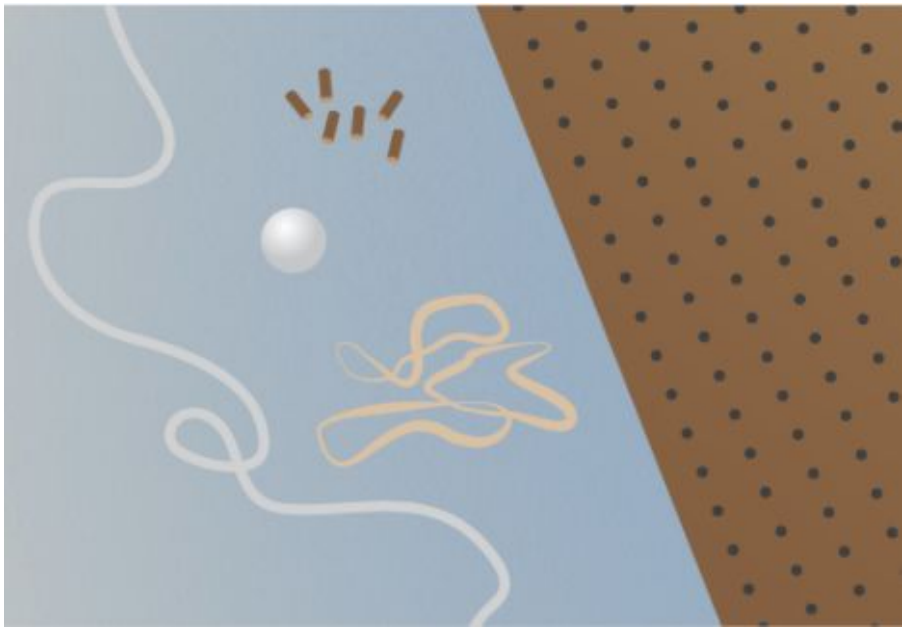
Explaining the phenomenon piece by piece

Pushes & Pulls storyline

Look for

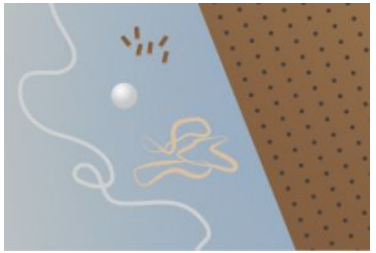
As you listen to the storyline summary, **consider the student experience.**

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



Pushes & Pulls

Chapter 1

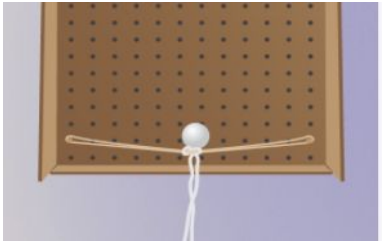


Chapter Question: How do we make a pinball start to move?

Explanation: To make our pinball start to move, we must exert a force on the pinball. We can use a rubber band launcher to exert a force on the pinball.

Pushes & Pulls

Chapter 2

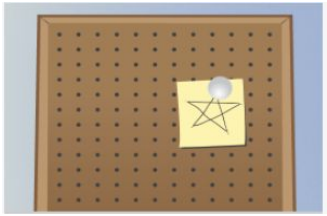


Chapter Question: How do we make a pinball move as far as we want?

Explanation: To make our pinball go the distance we want, the rubber band launcher has to exert a strong force. To make it go a short distance, the rubber band launcher has to exert a gentle force. Attaching a shoelace to the rubber band launcher can help us adjust the force.

Pushes & Pulls

Chapter 3

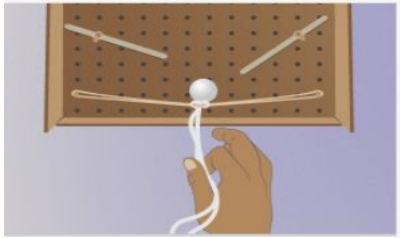


Chapter Question: How do we make a pinball move to a certain place?

Explanation: To get the pinball moving in the direction we want (left or right), we must exert a force on the pinball in the direction that we want it to move.

Pushes & Pulls

Chapter 4

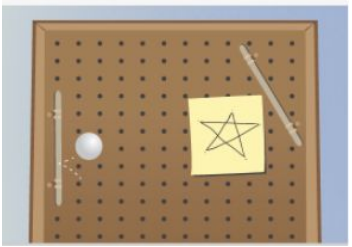


Chapter Question: How do we make a moving pinball change direction?

Explanation: To make a moving pinball change direction, we have to exert another force on it, either from a moving object or from a still object in its path

Pushes & Pulls

Chapter 5

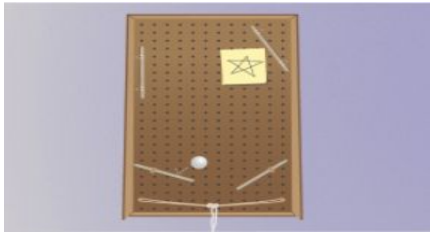


Chapter Question: How can we make the pinball machine do all the things we want it to do?

Explanation: Students can more independently construct a solution to a problem by planning and constructing solutions based on what they've learned, then testing, evaluating, and revising their solution to better meet design goals.

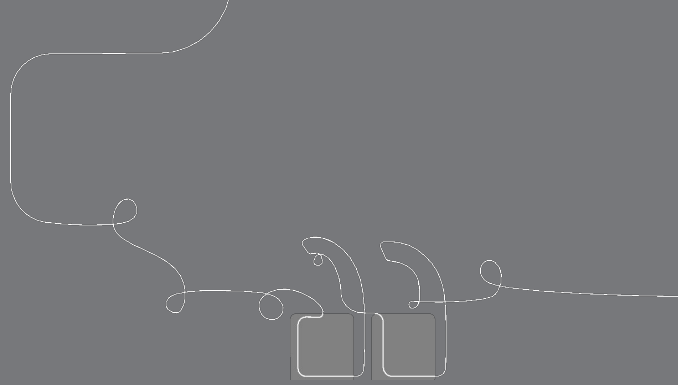
Pushes & Pulls

Chapter 6



Chapter Question: Where are forces around us?

Explanation: There are strong and gentle forces in different directions all around us. We know a force has been exerted on an object whenever that object starts moving, changes direction, or stops moving



Would you like to add anything to your opening reflection?

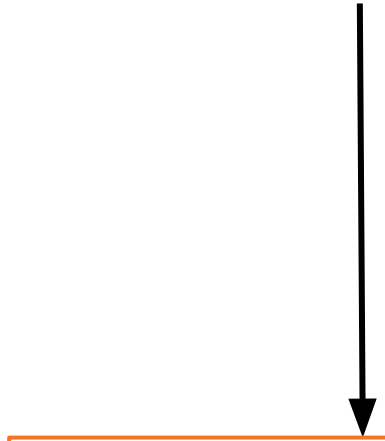
Make any updates, then take a break!

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?

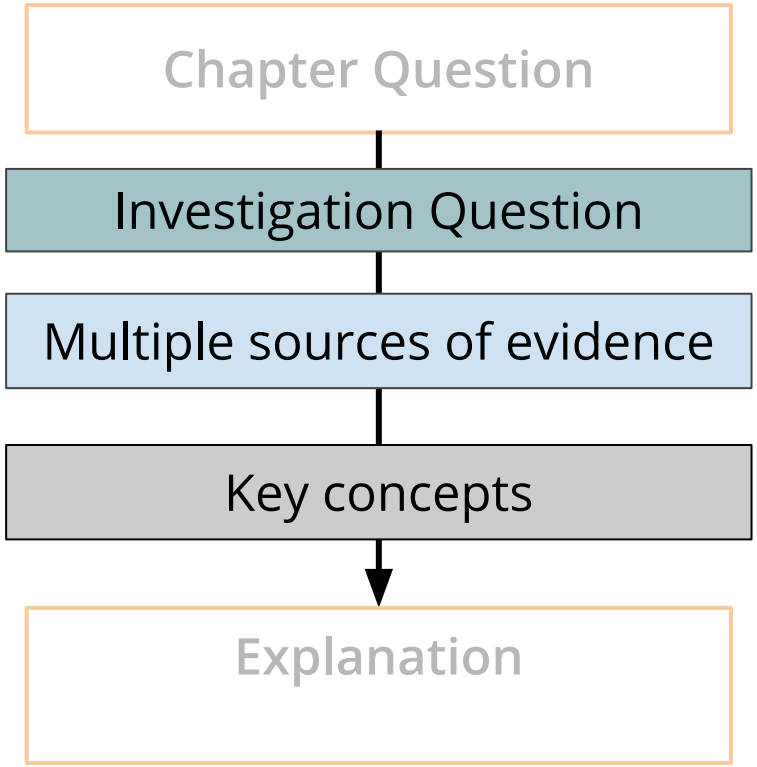
Chapter Question: How do we make a pinball start to move?



Explanation: To make our pinball start to move, we must exert a force on the pinball. We can use a rubber band launcher to exert a force on the pinball.

Constructing science knowledge

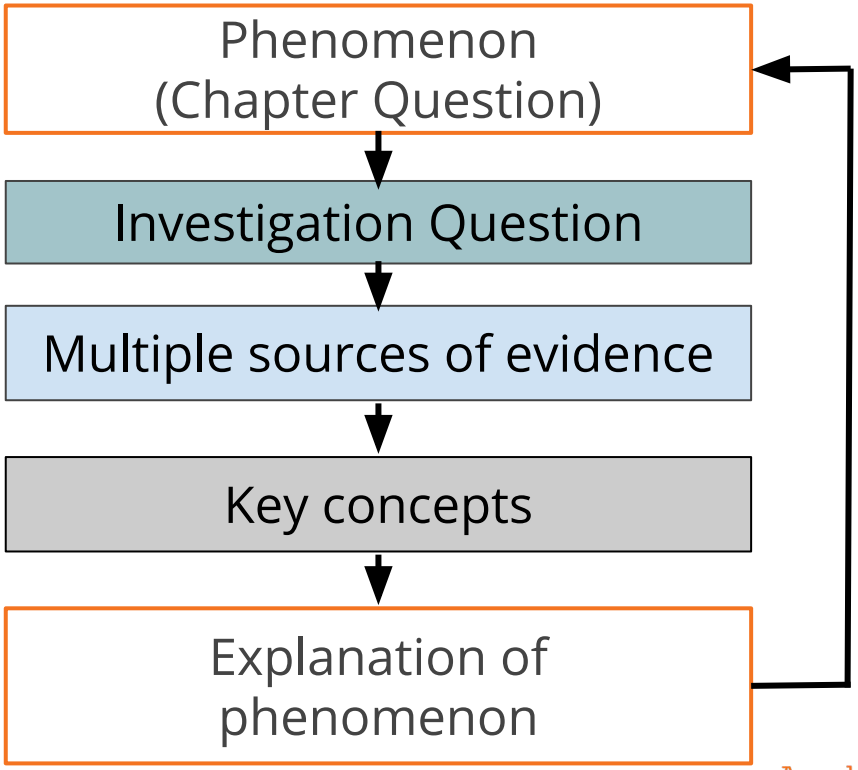
In order to progress through a unit storyline, students figure out general science ideas they can use to explain the phenomenon.



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.



Pushes and Pulls: Designing a Pinball Machine

Unit Design Problem

Problem students work to solve

We want to create a pinball machine that lets us control the way a pinball moves.
How can we create a pinball machine for our class?

Chapter-level Anchor Phenomenon
Chapter 1 Question

Sometimes a pinball starts to move.
How do we make a pinball start to move?

Investigative Phenomena
Investigation Questions

Sometimes an object starts to move.

What makes an object start to move? (1.1-1.4)

Evidence sources and reflection opportunities

- Investigate how to make objects start to move in a classroom Movement Hunt (1.1)
- Investigate making an object start to move in full-class Rugball routine (1.2)
- Use recognizable images of objects moving to visualize movement (1.2)
- Practice using cause and effect to explain everyday scenarios (1.2)
- Read Talking About Forces (1.2)
- Investigate how to make an object move by exerting a force on it using Forces Investigation materials (1.3)
- Use Explanation Language Frame to explain forces and movement in Forces Investigation (1.3)

Key concepts

- An object starts to move when another object exerts a force on it. (1.3)
- Forces happen between two objects. (1.3)

Application of key concepts to problem

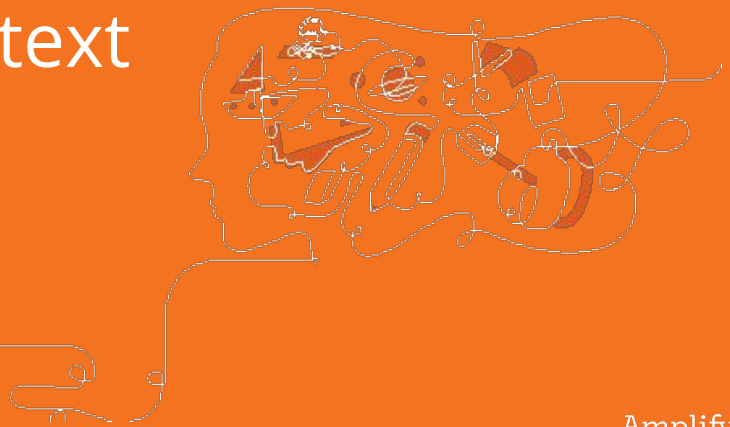
- Design launchers to make a pinball start to move in individual student Box Models (1.4)
- Diagram Box Model launcher design (1.4)
- Add a launcher to make the pinball start to move in Class Pinball Machine (1.5)
- Shared Writing to explain the Chapter 1 Question (1.5)
- Revisit Talking About Forces to use Explanation Language Frame to explain how objects move in the text (1.5)

Explanation that students can make to answer the Chapter 1 Question

To make our pinball start to move, we must exert a force on the pinball. We can use a rubber band launcher to exert a force on the pinball.

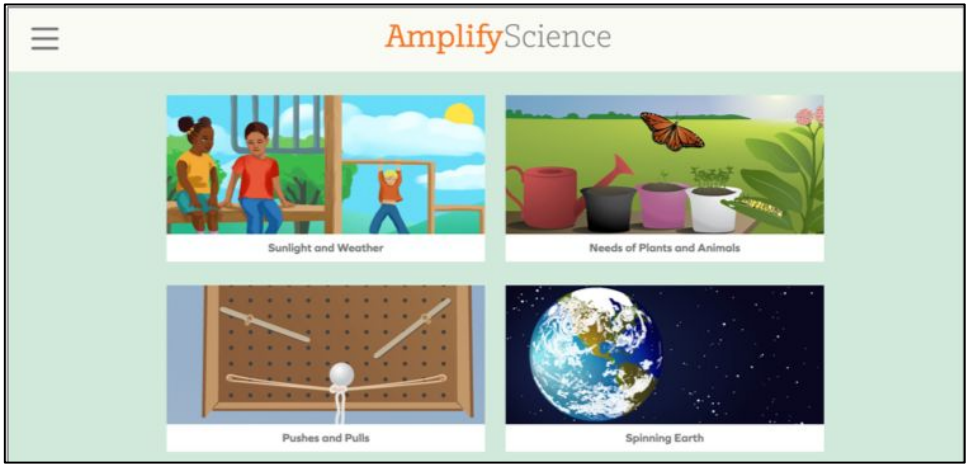
Example evidence source

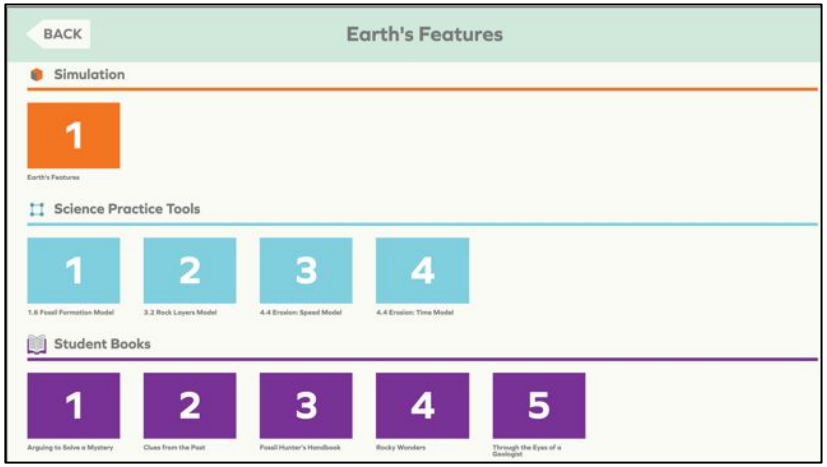
Model Lesson with text



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 K | Pushes and Pulls

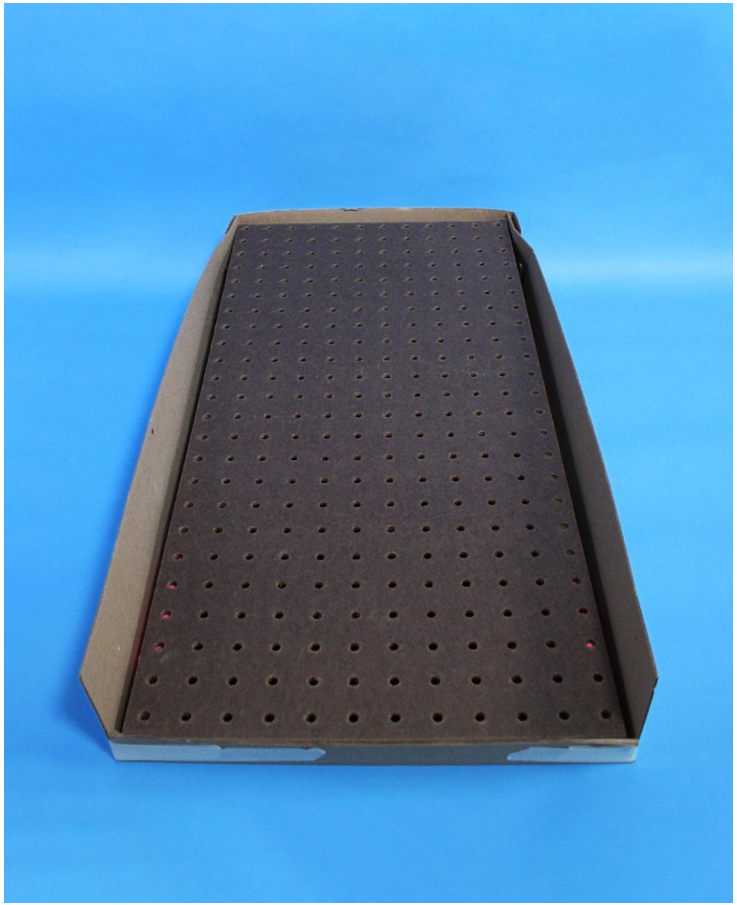
Lesson 1.2: Talking About Forces

AmplifyScience

10 MIN

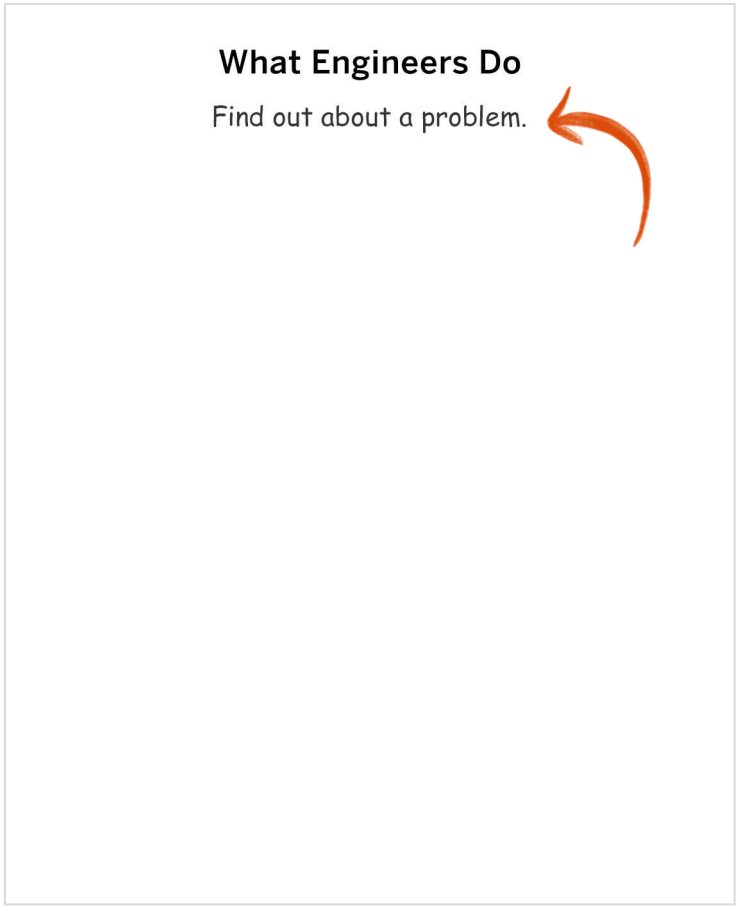
Activity 1

Exploring and Describing Movement



We are **engineers,** and we are working to design a **pinball machine** for our classroom.

We will build our pinball machine in this box.



One thing engineers do is **find out about a problem.**

Our problem is that we need to figure out how to make this pinball machine so that it makes a pinball **start to move.**

Investigation Question:

What makes an object start to move?

In the last lesson, we made objects in the classroom start to move.

What are some **objects** we made move with our bodies?

How did we make those objects **start to move?**

Today, we will play a game called **Rugball.**

This is a game we will play many times as we learn about **movement** and work as **engineers** to design a pinball machine.

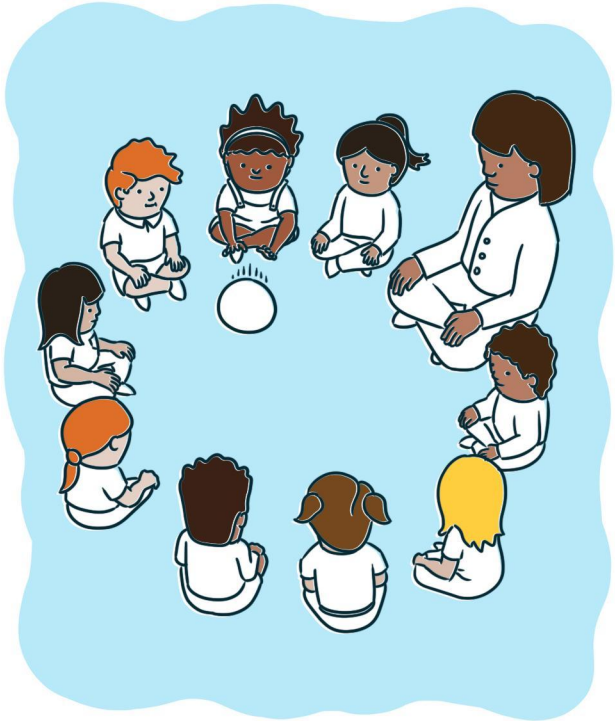
Playing Rugball: Introduction *(try now if there are grown-ups or siblings where you are)*

We are trying to start moving the ball.

1.
Sit in a circle so everyone can see.

2.
Start the ball moving with a push—not a throw or a kick.

3.
Keep the ball in the circle. If the ball goes outside the circle, wait for the teacher to ask a student to get it.



10 MIN

Activity 2

Visualizing Movement

In the Movement Hunt and when we played Rugball, we made **objects** move. I wonder if there are things other than people that can make things start to move.

We will look at pictures that show objects moving and **visualize** what is happening. I will **show you how.**

This is a picture. I cannot see anything moving.

I'll share how I **imagine the movement** to better understand what is happening.

I will show you some more pictures. For each one, **visualize** what is happening.

Think about **what is moving,** and **what is making that object move.**

You can also **act out** out what is happening with your body.

Engineers work together to learn more about the things they study.

As you look at the pictures share your ideas with your partner and talk about how to answer this question: **What movements did you visualize in the picture?**

Vocabulary

visualize

to make a movie or picture in our minds

10 MIN

Activity 3

Explaining with Because

We explored making the rugball move and visualized how different objects were moving in pictures. Now, we are going to try some movements of our own to practice talking about them like scientists and engineers.

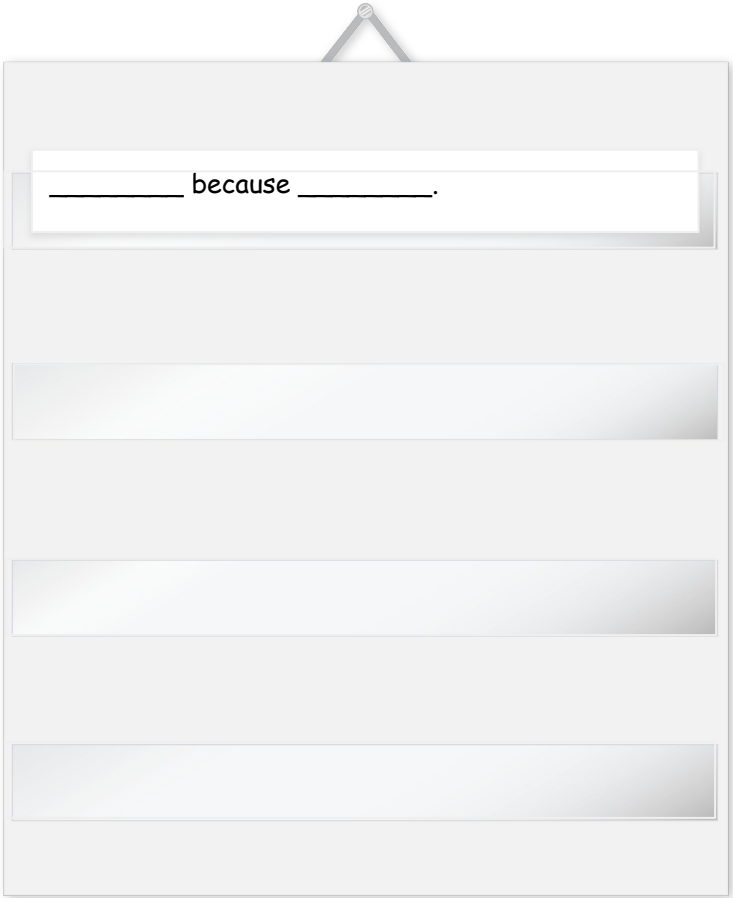
Scientists and engineers use the word **because** to explain why something happened.

I am going to **stand on one foot.** Watch my movements carefully.

_____ because _____.

We can explain what happened and why with "because."

What happened when I tried to **balance?**



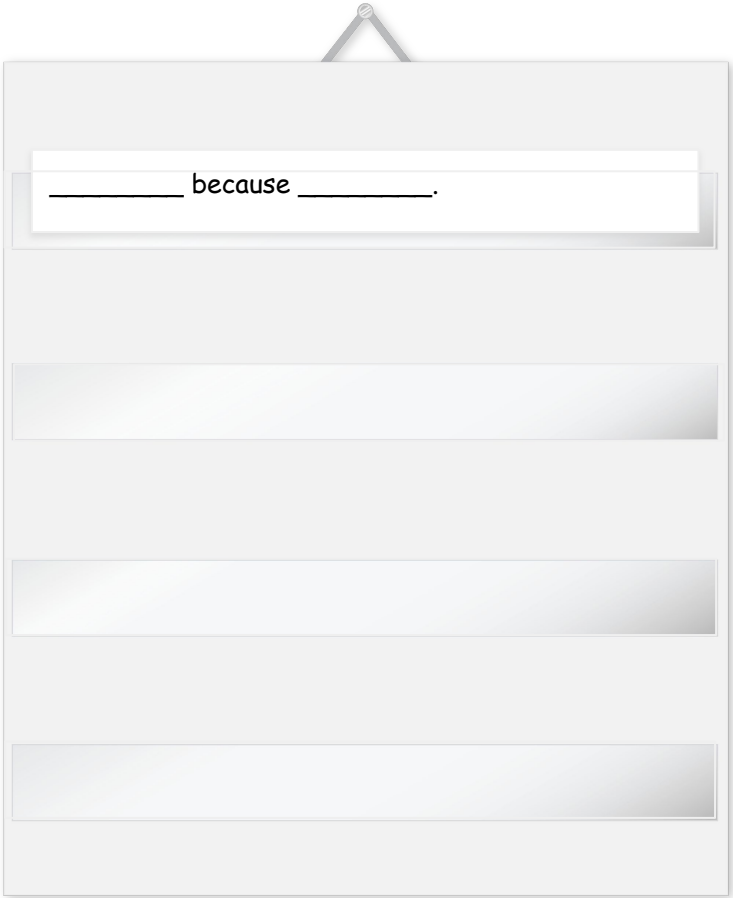
I tipped over **because** I stood on one foot.

The word **because** means that the first part of what I said made the second part happen.

_____ because _____.

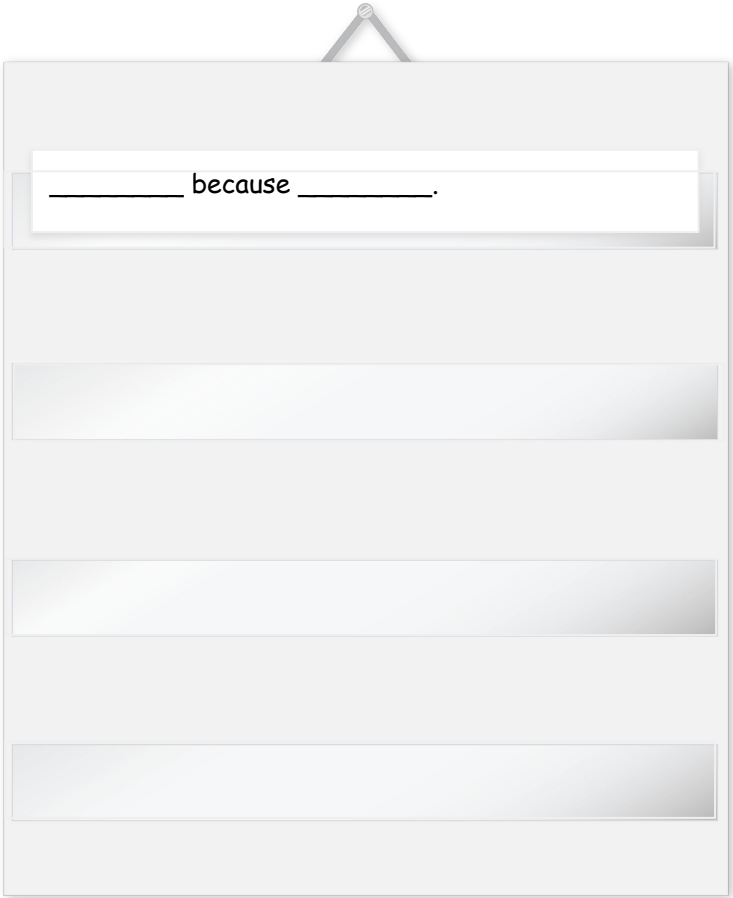
Let's try a different movement together.

Run in place.



Let's make a sentence about it.

Raise your hand if you **feel tired** or **out of breath.**

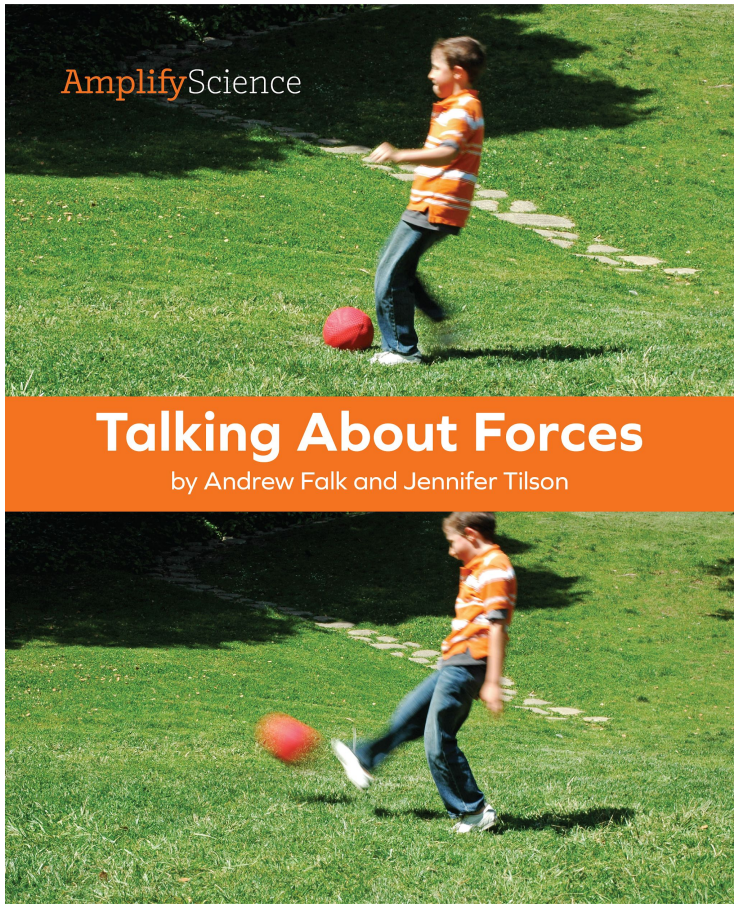


Let's try out a few more examples, and make sentences explaining what happened with **because.**

15 MIN

Activity 4

Reading: Talking About Forces



This book is called *Talking About Forces.* We will read to find out more about **forces.**

We will **visualize** what is happening in the pictures and words.

It was a beautiful day at the park! Everywhere you looked, there were kids making things move.

We have many ways of talking about what happens when one thing makes another thing move.

Scientists and **engineers** have their own way of **explaining** what is happening. They talk about **forces**. They say that when one thing makes another thing move, it **exerts** a force on it.

Let's see some examples!

4

Scott pushed Francis on the swing, and Francis moved. She sailed forward in the swing, high into the air.

What would a scientist or engineer say happened here?

5

Here is what a scientist or engineer would say:

Francis moved because Scott exerted a force on her.

6

Faheem jumped into the wagon and asked for a ride. Francis pulled on the handle of the wagon, and the wagon rolled up the hill with Faheem in it!

What would a scientist or engineer say happened here?

7

Here is what a scientist or engineer would say:

The wagon and Faheem moved because Francis exerted a force on the wagon.

8

Mia and Scott played catch in the field. When it was her turn to throw, Mia threw the ball and it flew away from her.

What would a scientist or engineer say happened here?

9

Here is what a scientist or engineer would say:

The ball moved because Mia exerted a force on the ball.

Another ball was sitting on the grass. Jess ran up and kicked the ball. Wham! The ball bounced away over the grass. Jess scored a goal!

What would a scientist or engineer say happened here?

Here is what a scientist or engineer would say:

The ball moved because Jess exerted a force on the ball.

The kids had fun playing in the park and making things move. A scientist or engineer would agree that they had fun playing in the park. A scientist or engineer might also say they exerted forces on lots of **objects** in the park!

Scientists and engineers know that any time you see an object start to move, it is because another object exerted a force on it. When you see one object start to move, look for the other object that made it move. Forces always happen between two objects.

We are really starting to talk like **pinball engineers!**

In the next lesson, we will keep figuring out how **forces** work, so we can get ready to start working on our pinball machines.

End of Lesson

THE LAWRENCE HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY

Amplify.

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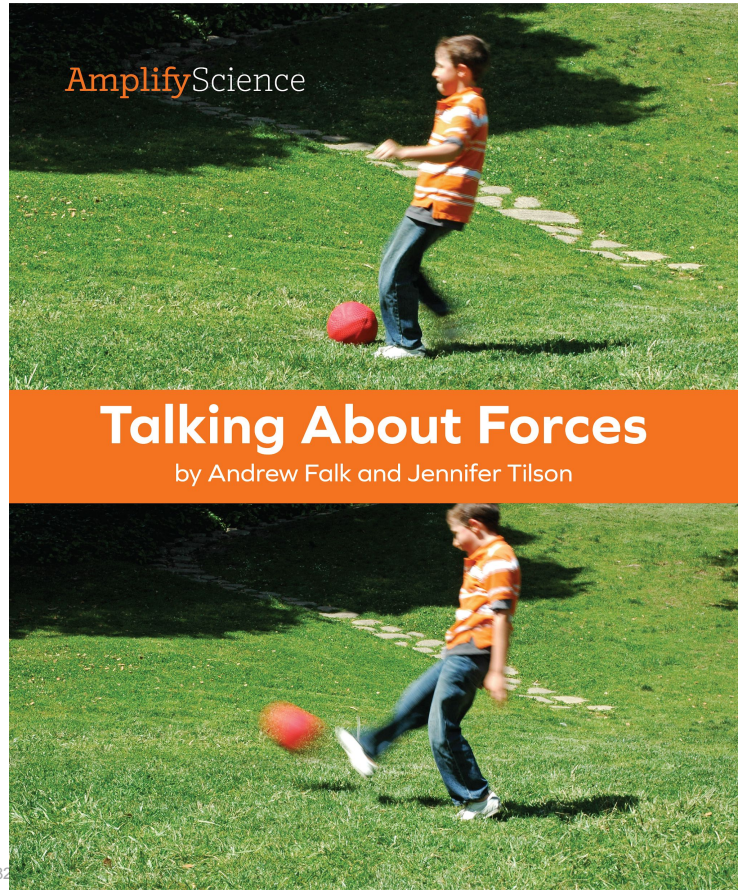
Evidence source analysis



Key Concept:

- An object starts to move when another object exerts a force on it.

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:

- An object starts to move when another object exerts a force on it.

Evidence source analysis

Analyzing an activity within a chapter storyline

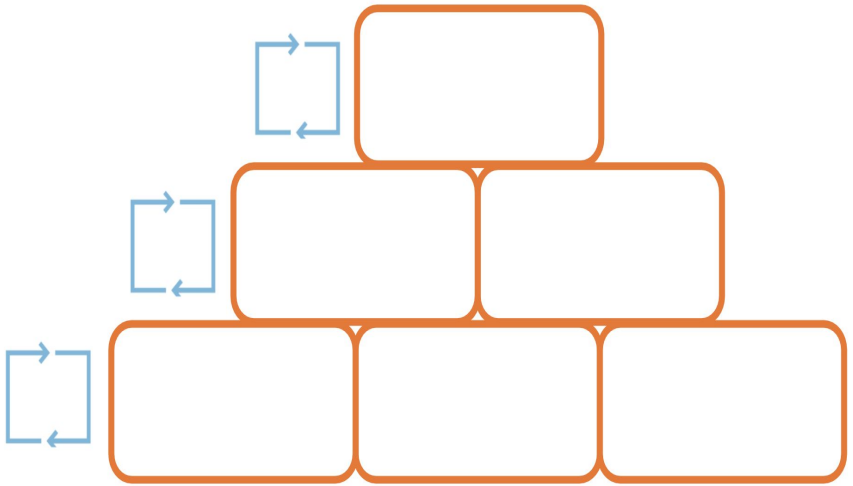
Reflecting on how an activity helps students **figure out key concepts** is a tool for planning to teach.

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

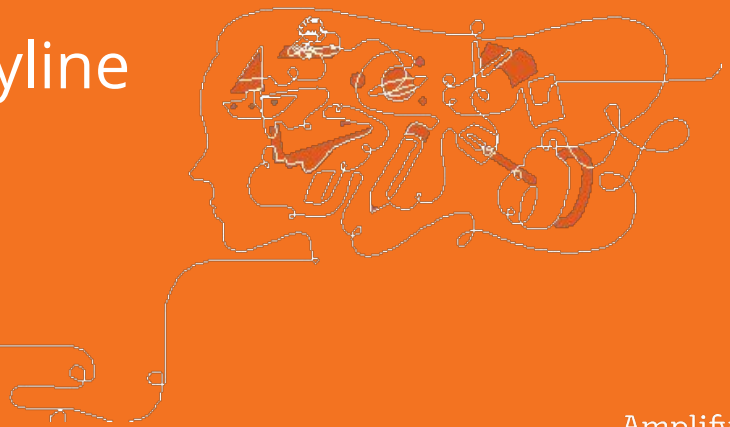
Evidence source analysis

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

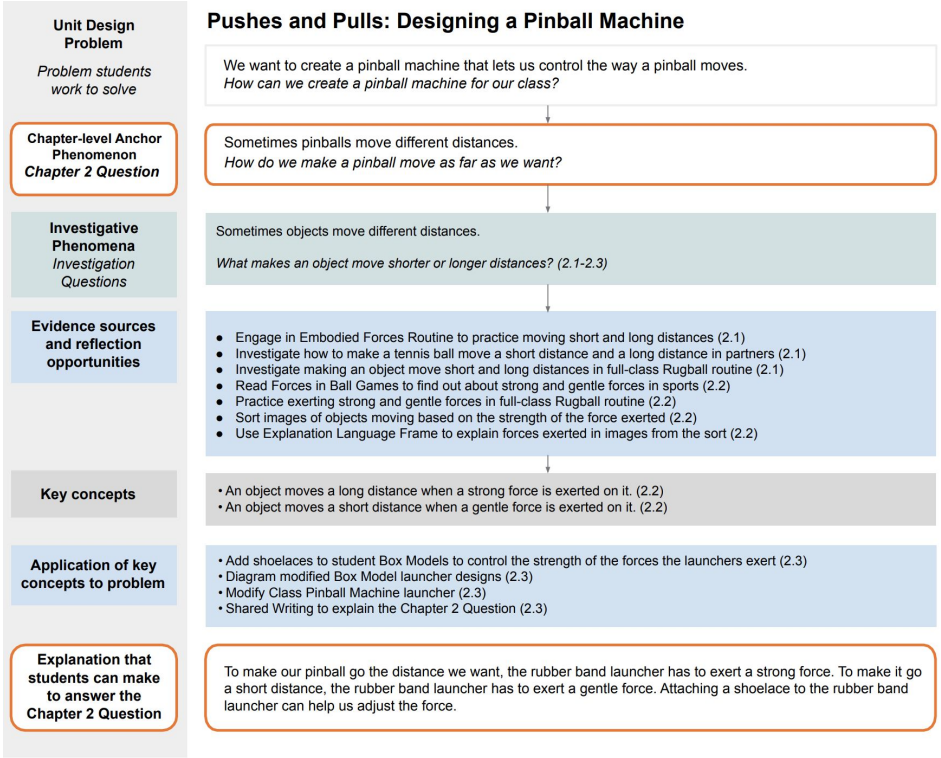


Breakout groups

Evidence source analysis

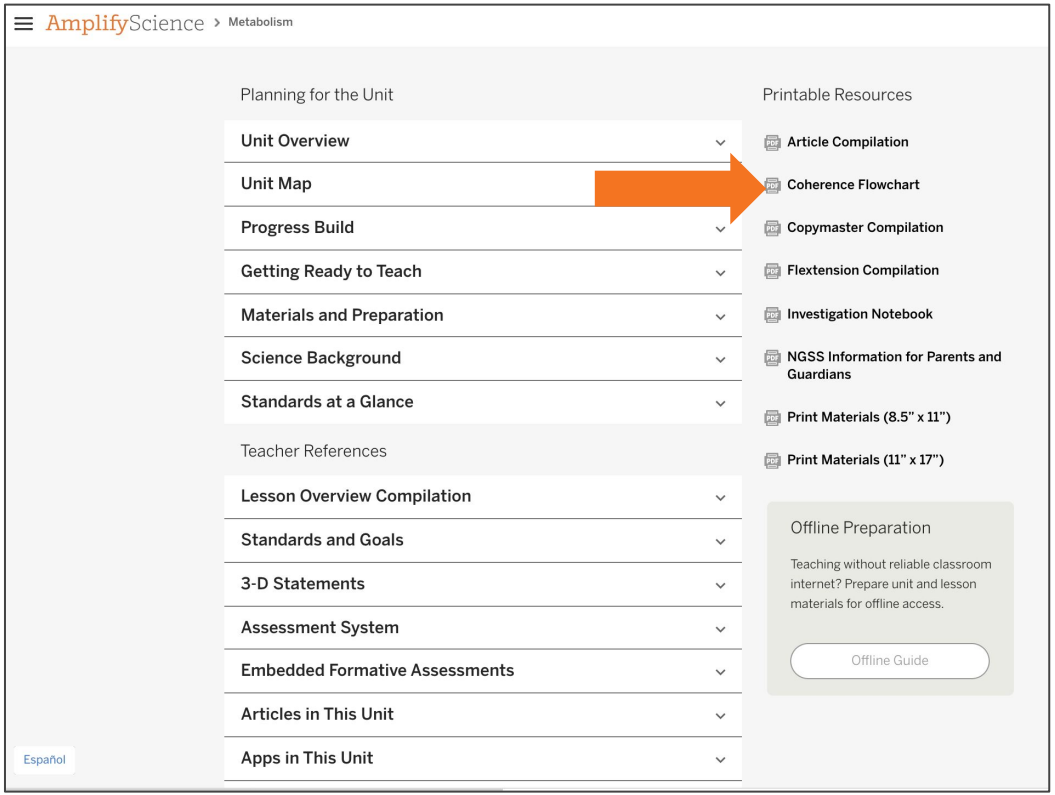
First, get familiar with the Chapter Question, Investigation Question, key concepts, and explanation.

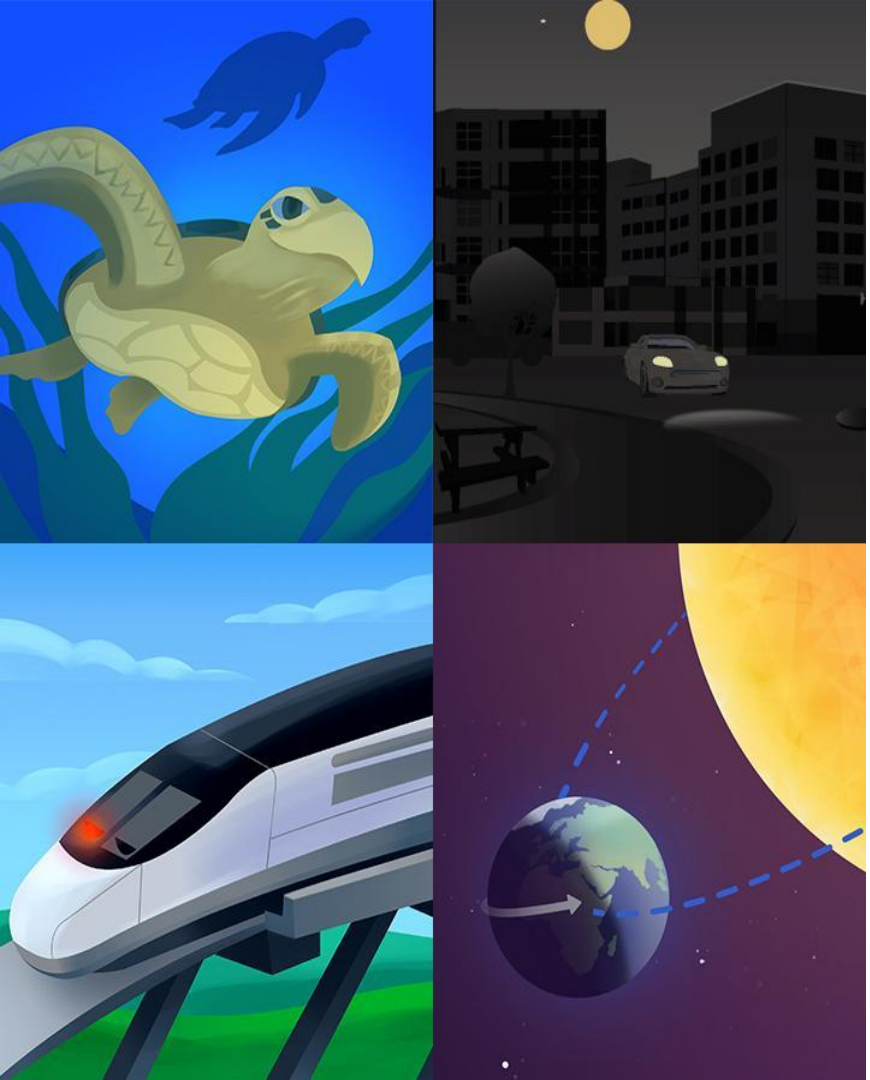
Then, choose one evidence source and analyze its role in the Chapter 2 storyline.



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.**





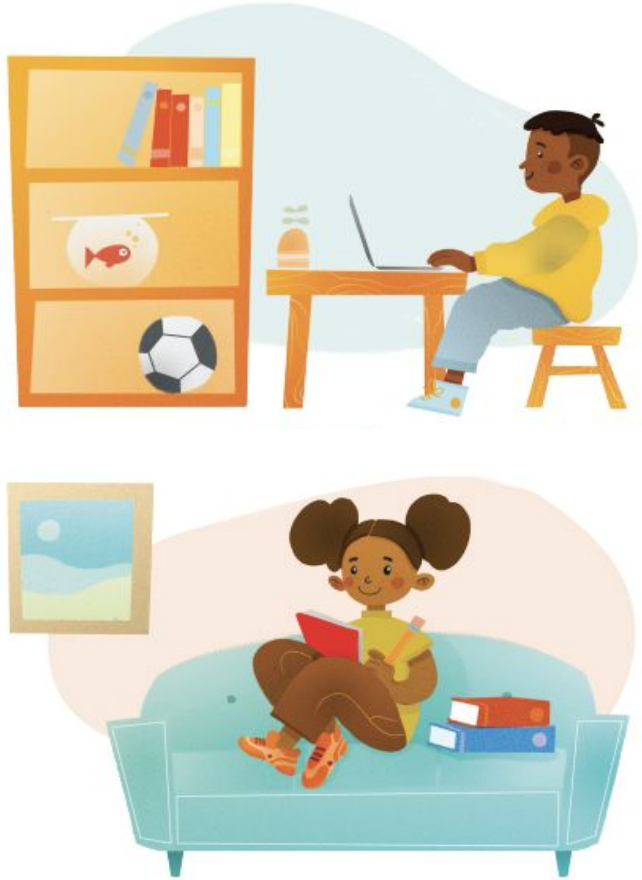
Plan for the day

- 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...

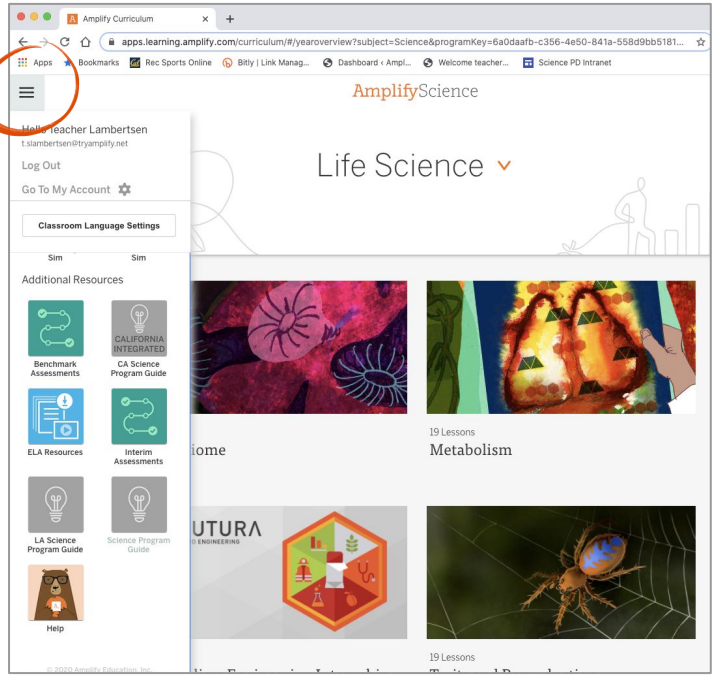
- Are designed for students to complete independently
- Require no materials except a pencil and paper
- Include digital and print-only options
- Can be leveraged in a variety of remote and hybrid instructional formats



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

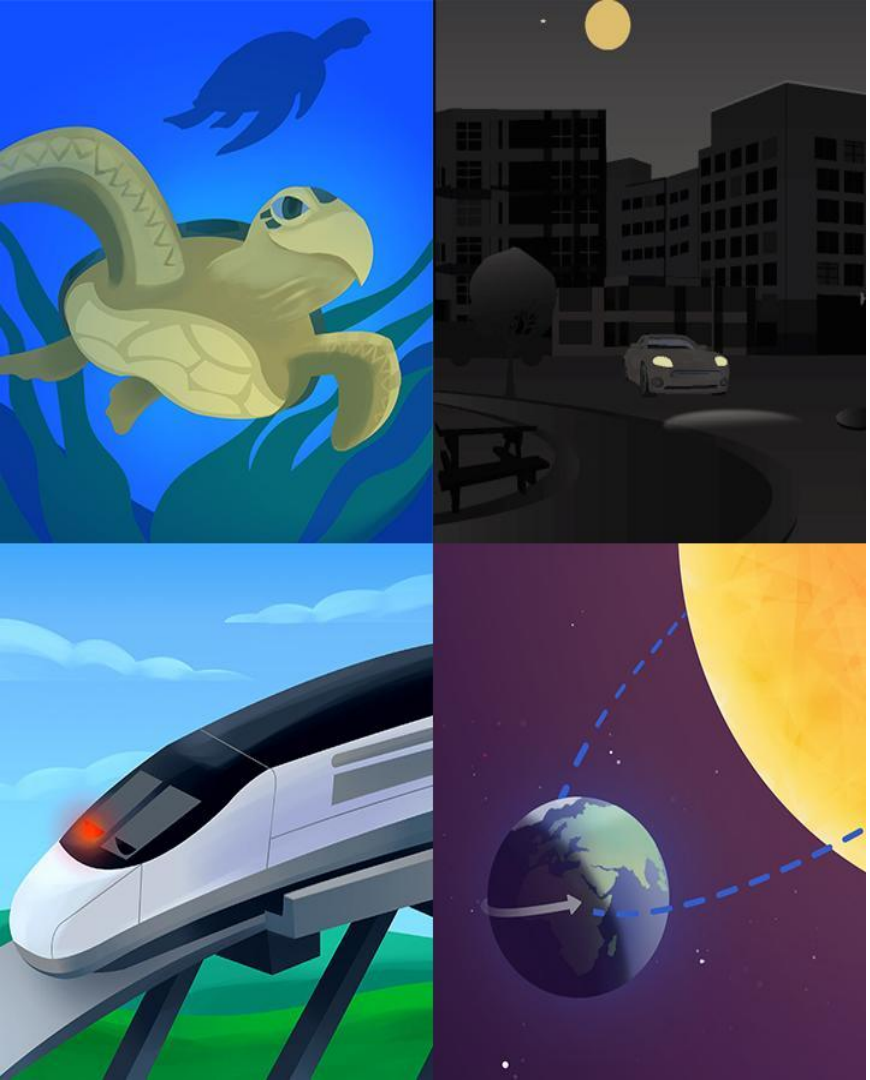
Utilizing coherence as a design principle

@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



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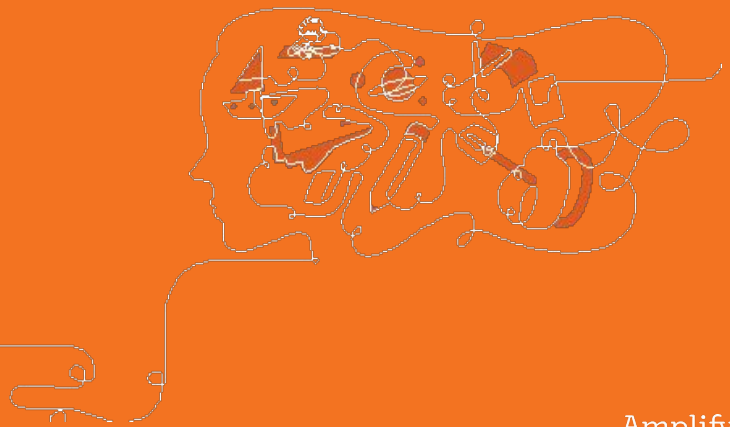
Questions



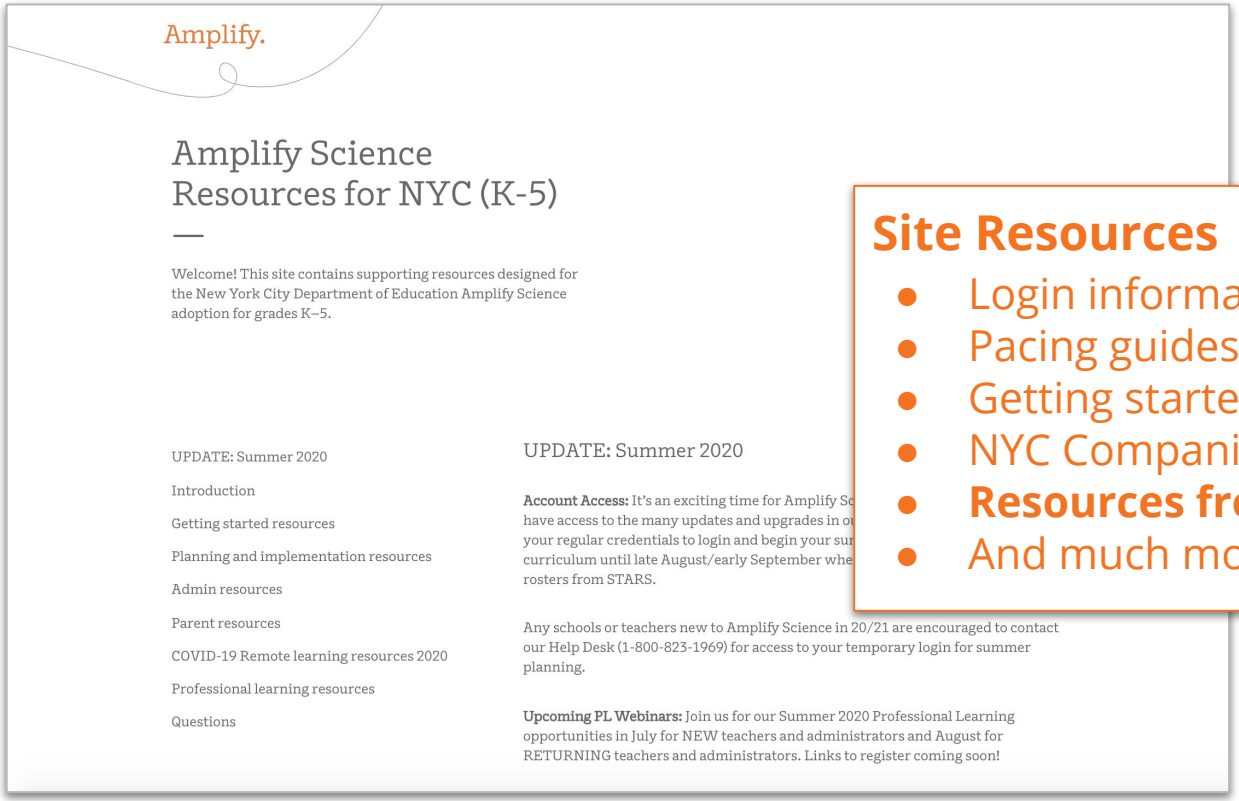
Closing reflection

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

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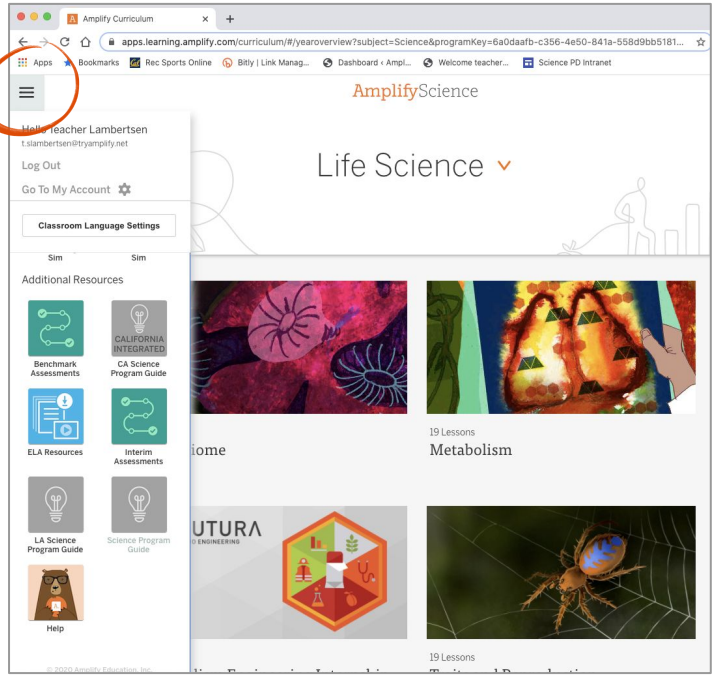
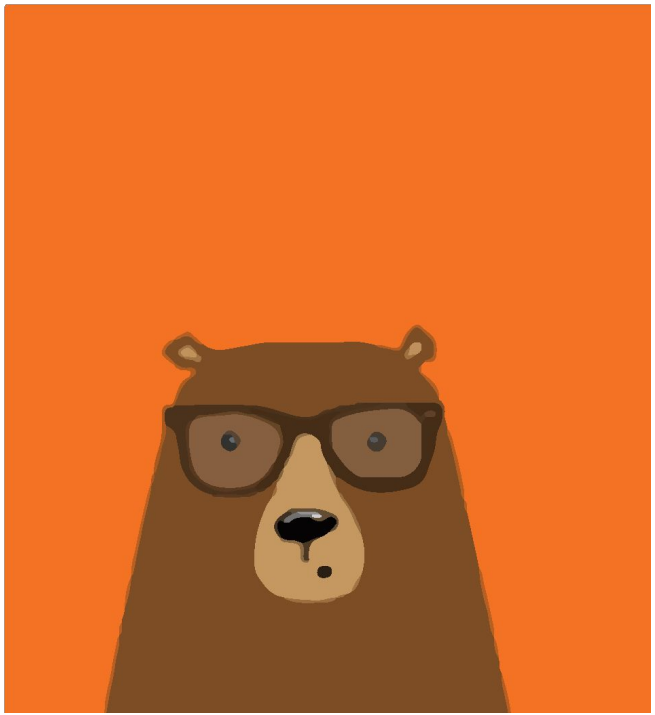


Additional Amplify resources



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.

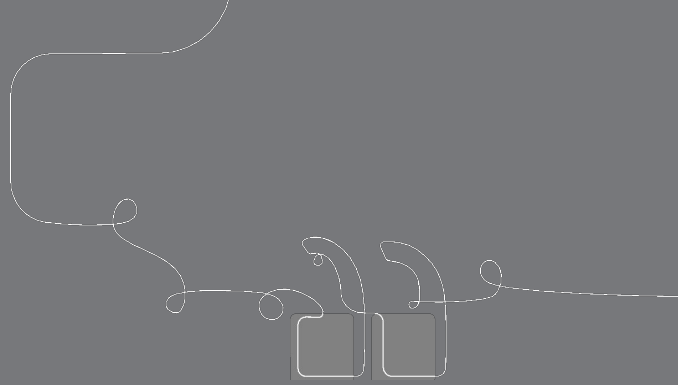
scihelp@amplify.com

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