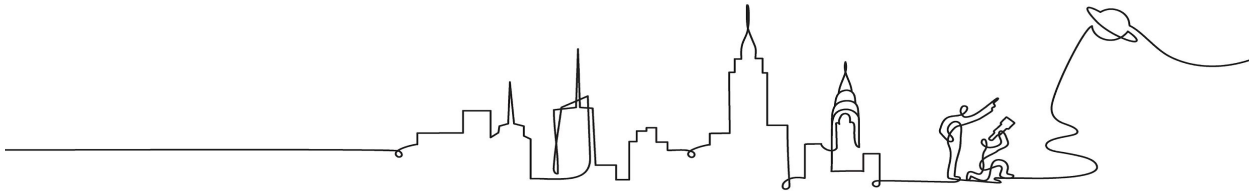
Welcome to Amplify Science!

Follow the directions below as we wait to begin.

1. Please log in to your Amplify Account.

2. Sign in using link dropped in chat.

3. In the chat, share your name, grade level, and school you teach in.

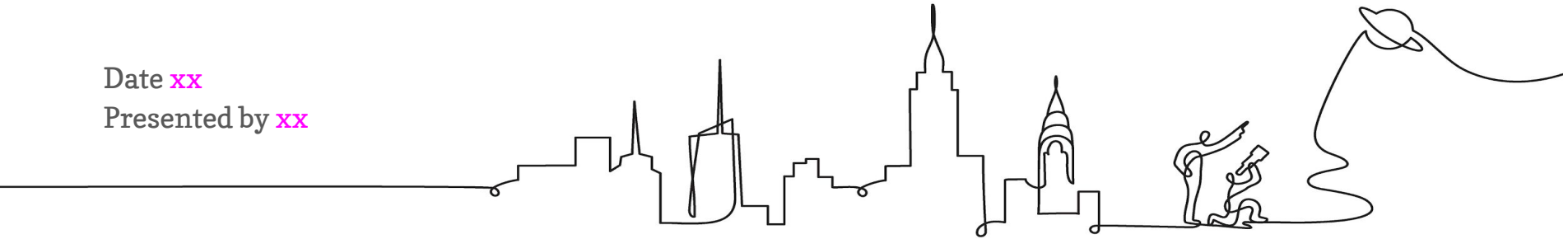


Amplify Science
New York City

Academic Discourse & Questioning Strategies in the Amplify Science Classroom

Grade 1

Date xx
Presented by xx



Remote Professional Learning Norms

Take some time to orient yourself to the platform

- *"Where's the chat box? What are these squares at the top of my screen?, where's the mute button?"*

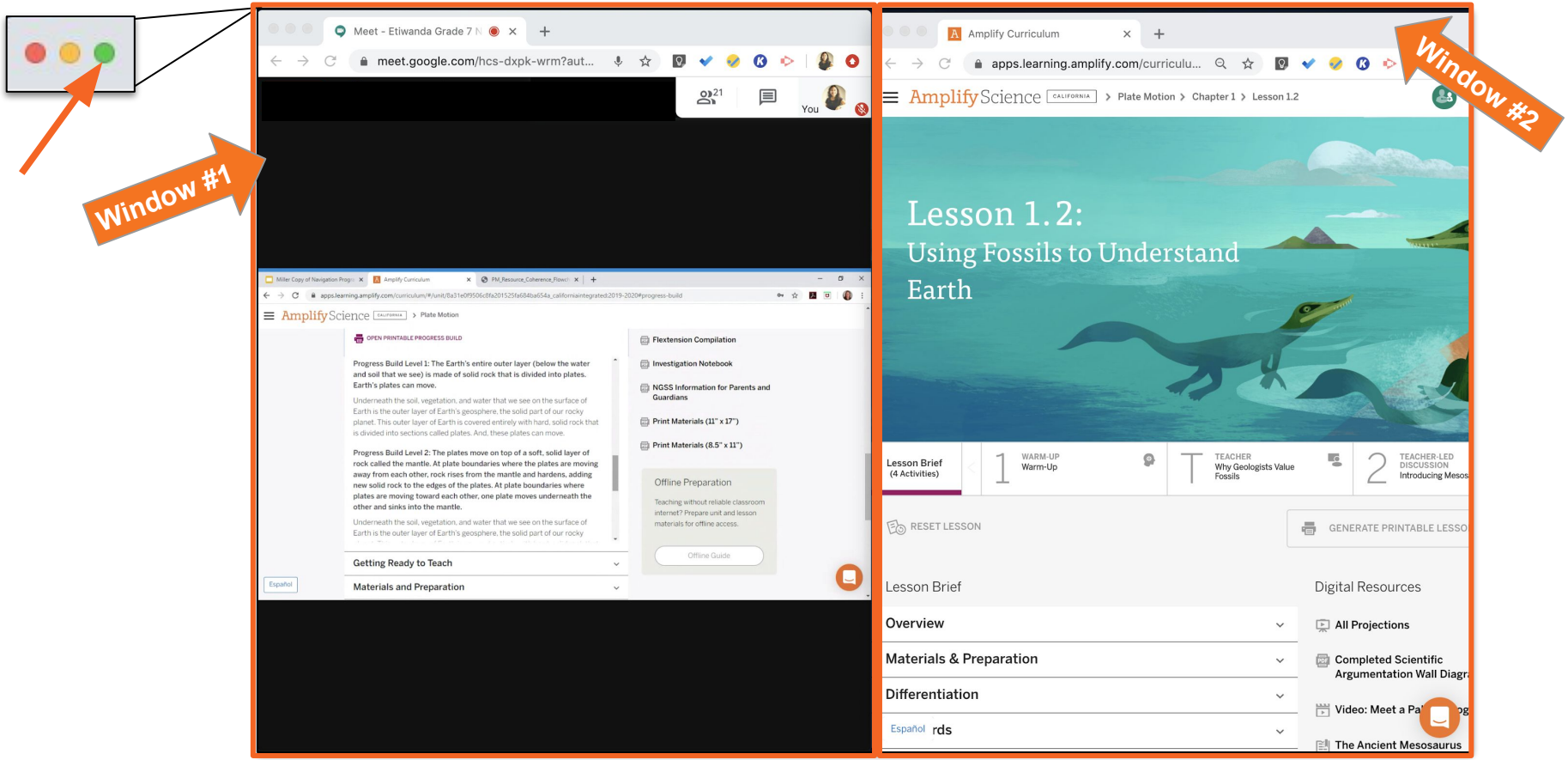
Mute your microphone to reduce background noise unless sharing with the group

The chat box is available for posting questions or responses to during the training

Make sure you have a note-catcher present

Engage at your comfort level - chat, ask questions, discuss, share!

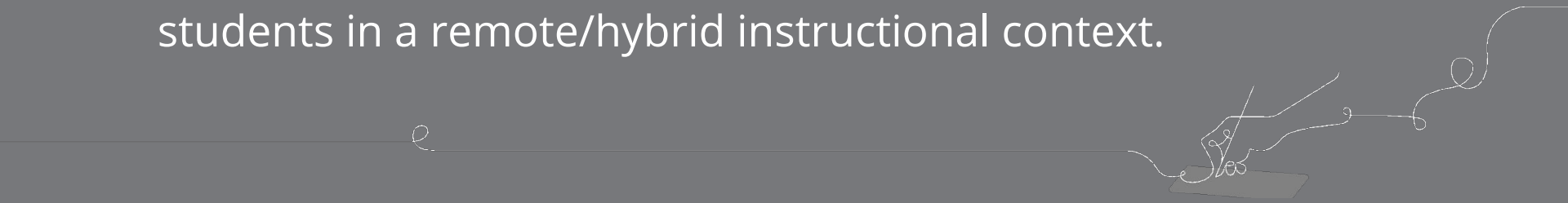
Use two windows for today's webinar

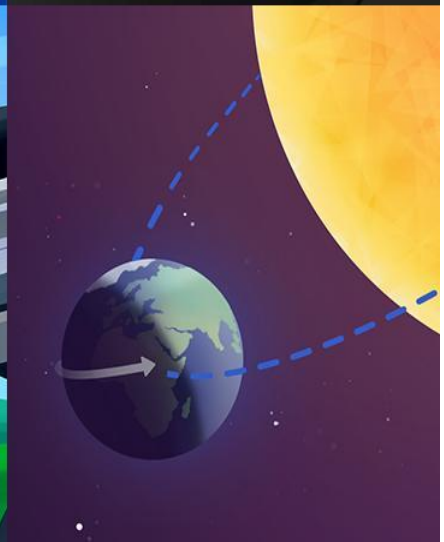


Objectives

By the end of this 1-hour workshop, you will be able to...

- Elaborate on the central role academic discourse & questioning strategies play in 3-dimensional, multimodal learning.
- Adapt Amplify Science discourse routines, questioning strategies, and the classroom wall to meet the needs of all students in a remote/hybrid instructional context.



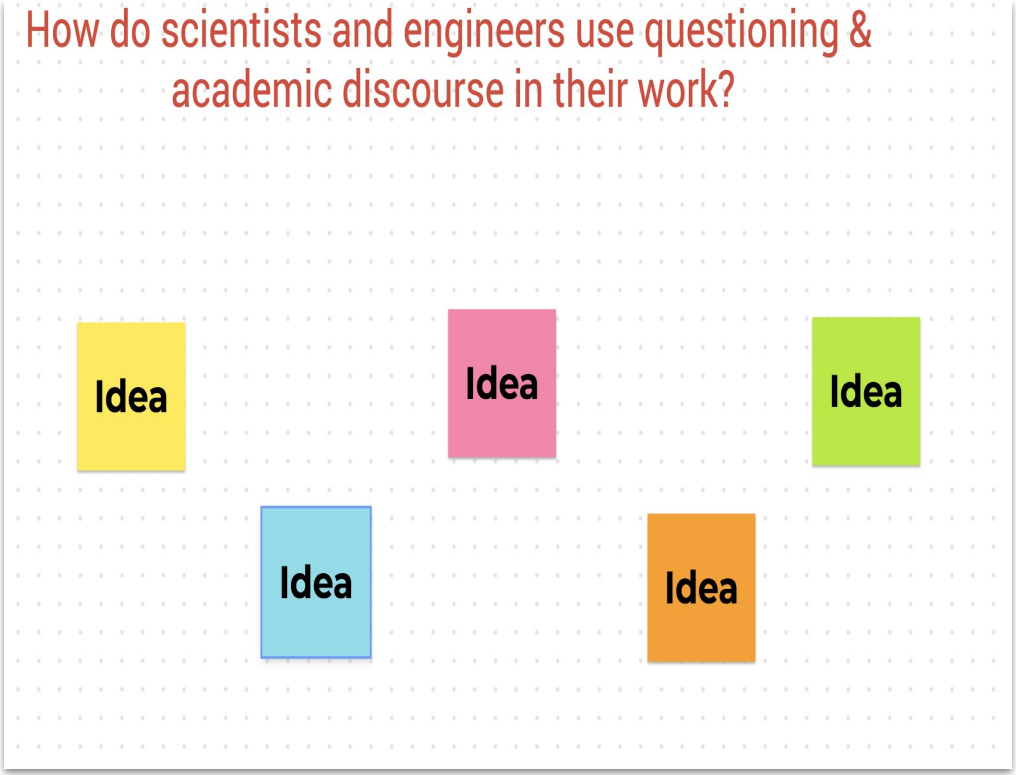
Plan for the day

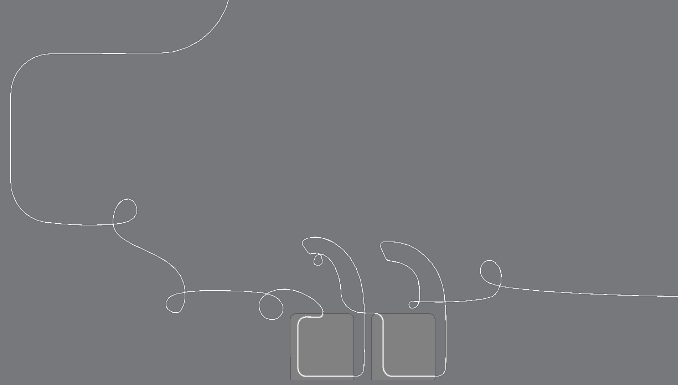
- **Framing the day**
  - Welcome and introductions
  - Anticipatory activity
- **Amplify Science approach review**
  - 3-Dimensional learning
  - Multiple modalities
- **Amplify Science discourse routines**
  - @Home Unit lesson analysis
- **Questioning strategies**
  - Remote/hybrid adaptations
- **Classroom wall**
  - Unit, chapter, & investigation questions
  - Remote classroom wall
- **Closing**
  - Reflection & additional resources
  - Survey

Anticipatory activity

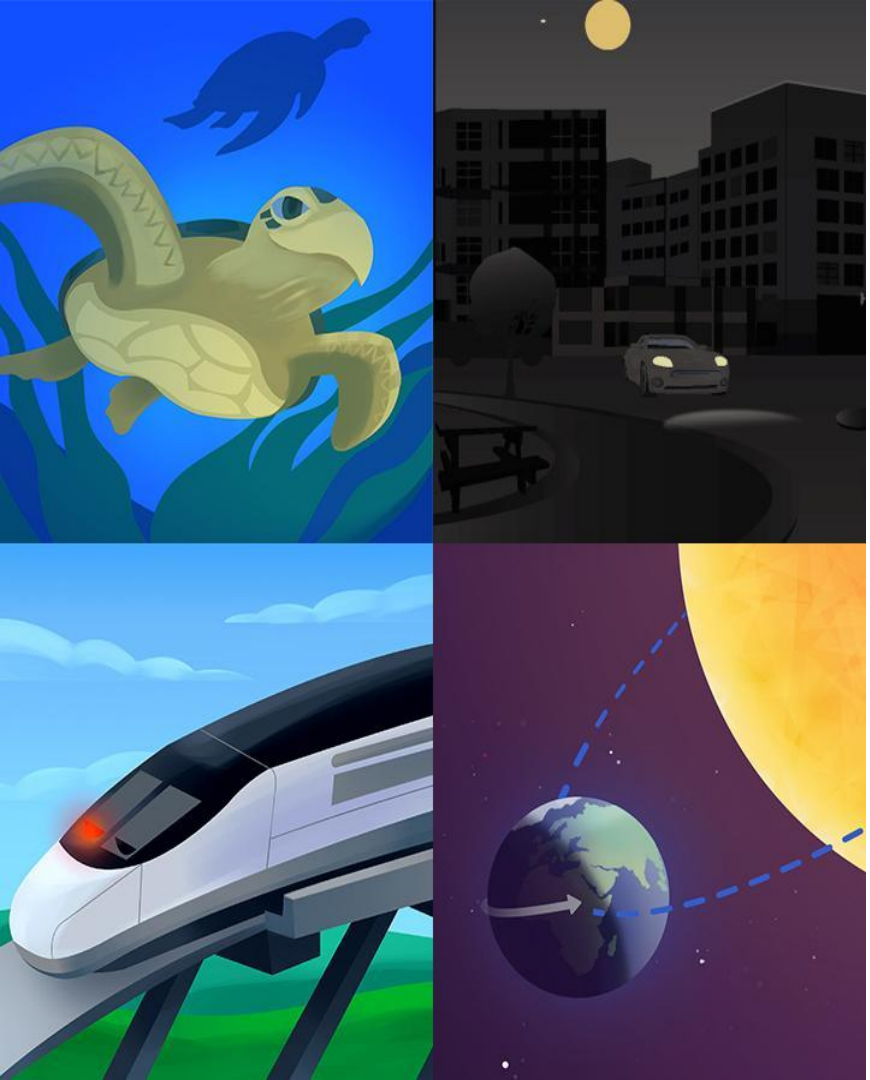
On the Jamboard "post"….

- your **ideas** on how scientists and engineers use **questioning** & academic **discourse** in their work.





Questions?



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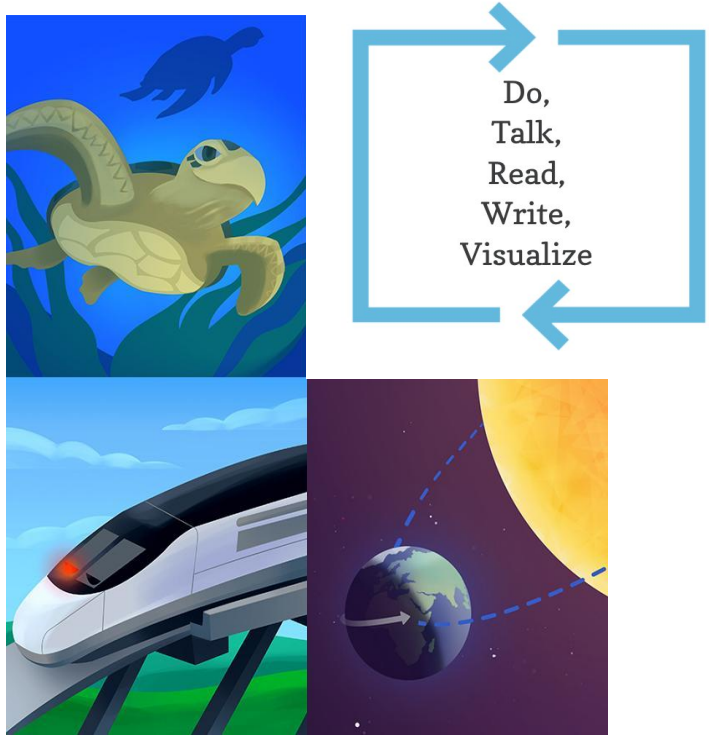
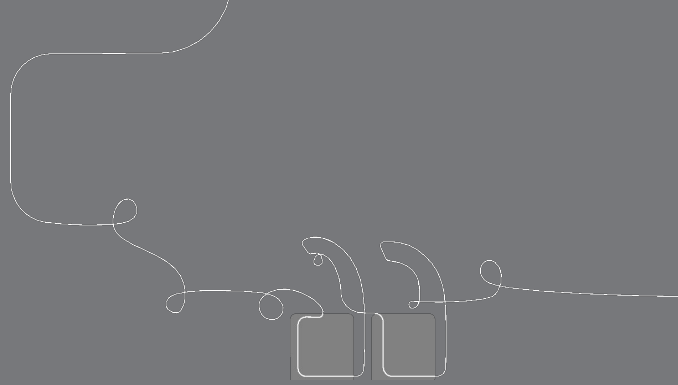
Multimodal, phenomenon-based learning

In each Amplify Science unit, students embody the role of a scientist or engineer to **figure out phenomena**.

They gather evidence from multiple sources, using multiple modalities.



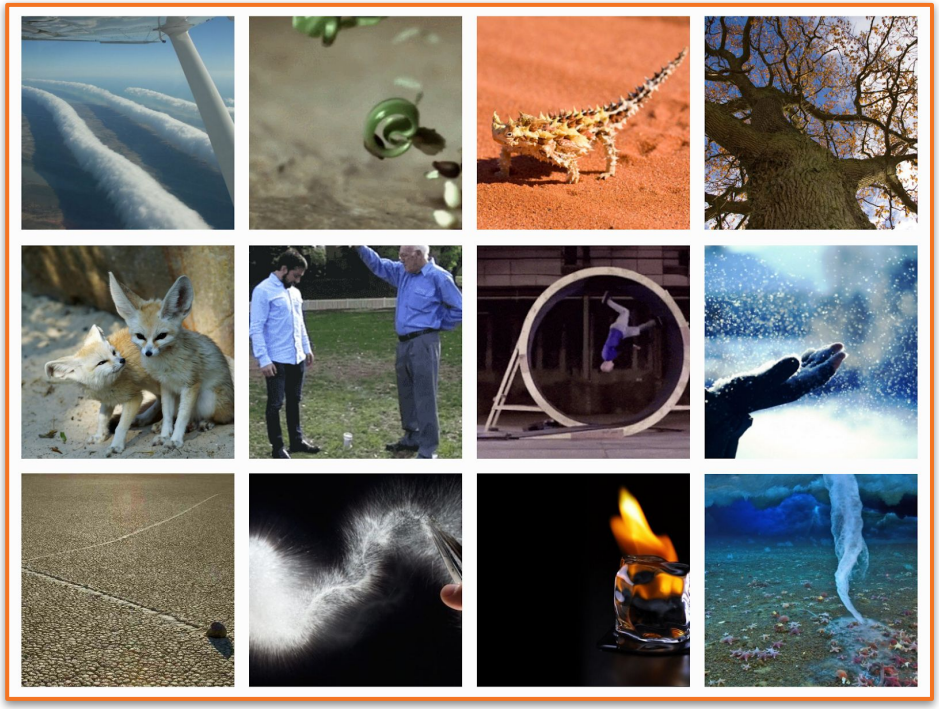


What are PHENOMENA?

Phenomena are observable occurrences.

- These occurrences stimulate curiosity or pose problems to for students to solve.

- Students are motivated to ask science questions or design solutions that drive learning.



Amplify Science units focus on phenomena

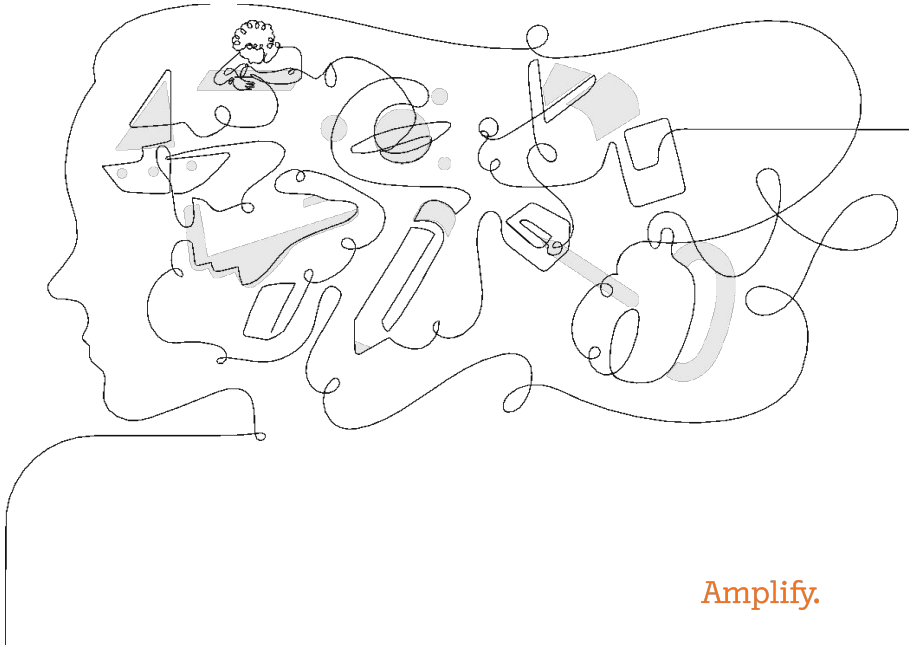
Topics	Phenomena
all about sea turtles	How do sea turtles defend themselves from sharks?
inheritance and traits	How do organisms get their traits?
ecosystem restoration	How can an ecosystem be restored to its original healthy state?

Shifts called for in the NRC* framework

Learning about topics	→	Figuring out phenomena
Listing or classifying facts devoid of context	→	Understanding interrelatedness of ideas
Simple observations	→	Complex causal explanations

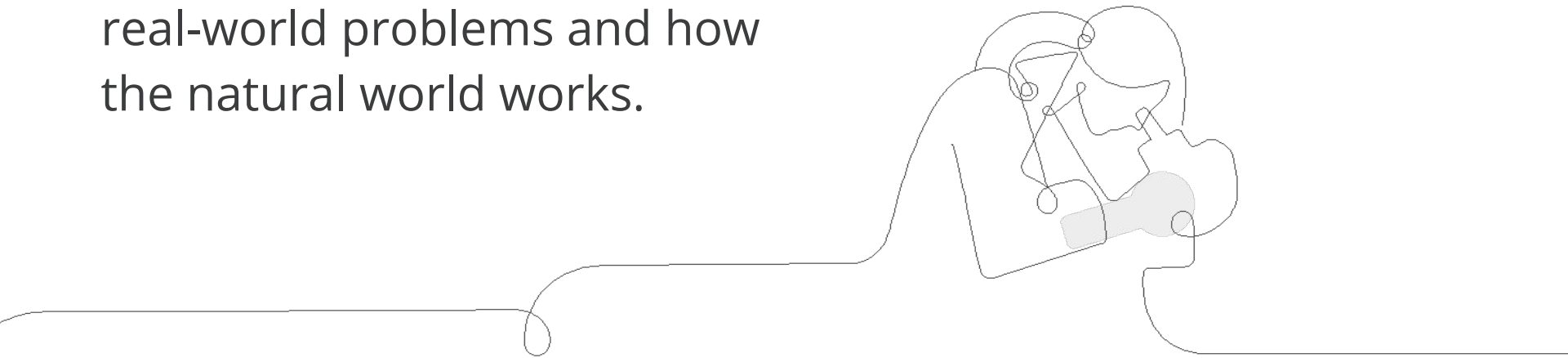
*National Research Council of the National Academy of Sciences, 2011

Figure out, not learn about

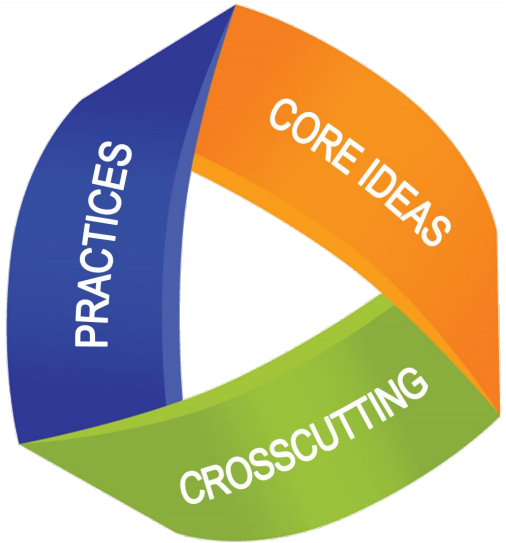


Problem-based deep dives

Students inhabit the roles of scientists and engineers to figure out solutions to real-world problems and how the natural world works.



Three dimensions of NYSSLS



Disciplinary Core Ideas

- Describe core ideas in the science discipline (DCI)

Science and Engineering Practices

- Describe behaviors scientists and engineers engage in (SEP)

Crosscutting Concepts

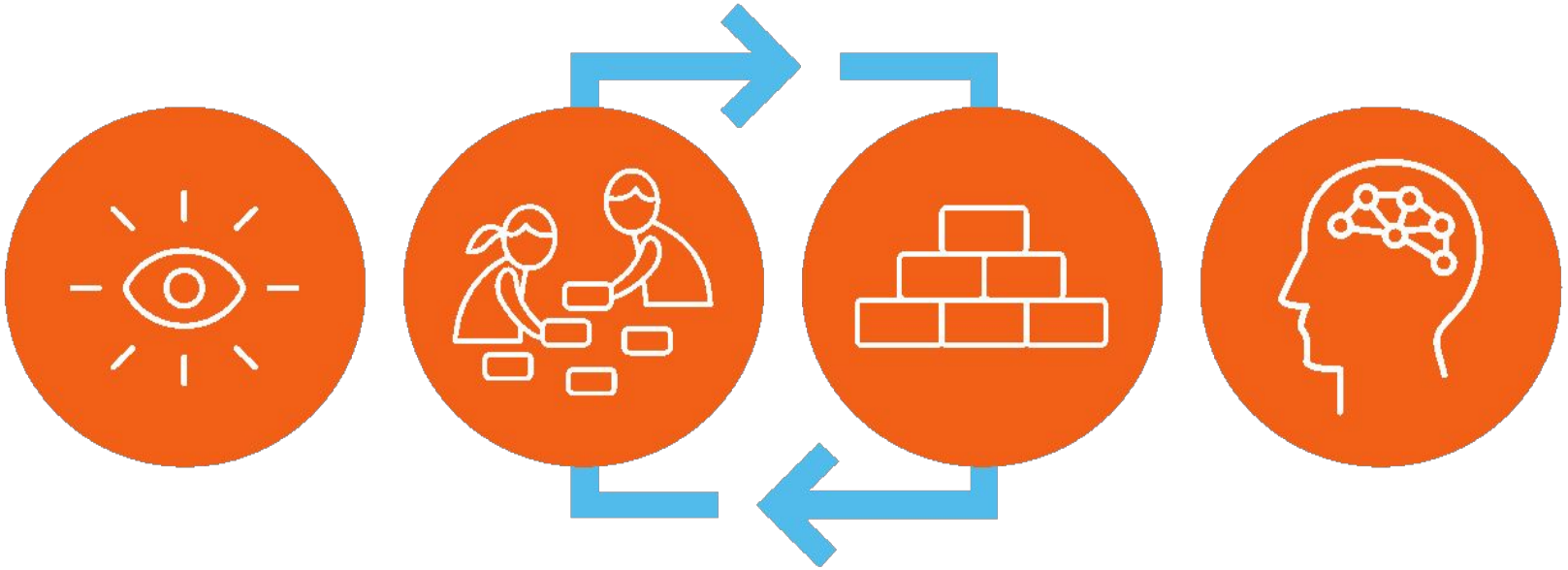
- Describe concepts linking the different domains of science (CCC)

Science and Engineering Practices (SEP)

How students engage as scientists

1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

Amplify Science approach



Introduce a phenomenon and a related problem

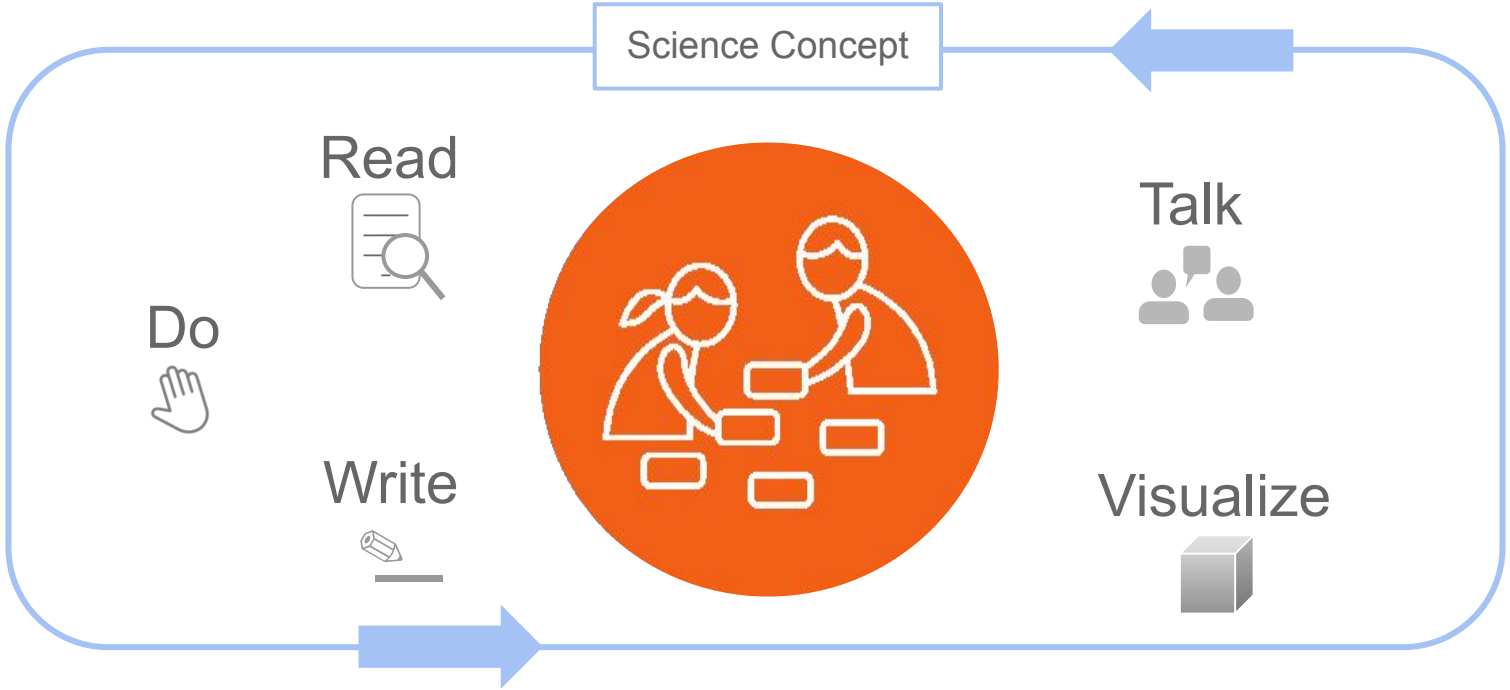
Collect evidence from multiple sources

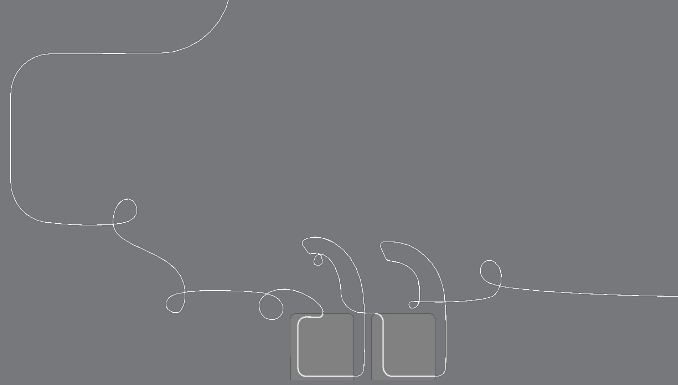
Build increasingly complex explanations

Apply knowledge to a different context

Multimodal learning

Gathering evidence from different sources





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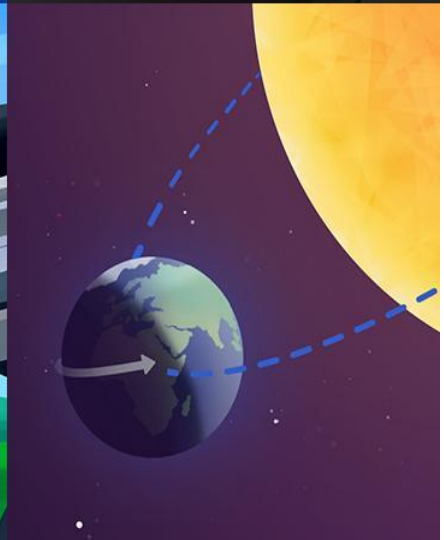

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What is academic discourse?

Academic language

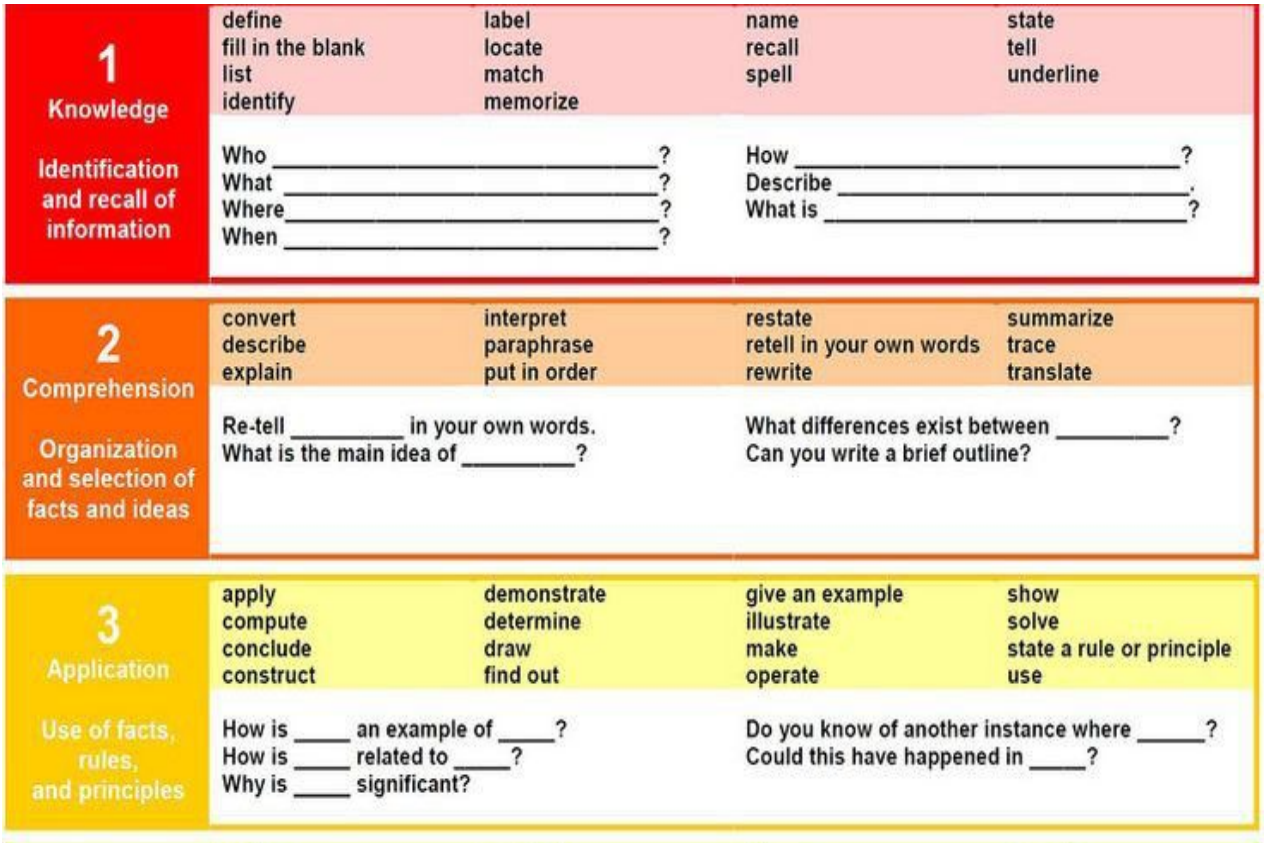
Academic discourse

- Identify…
- What is…?
- List…
- Students use tier 1 and 2 vocabulary

- Prove/disprove with evidence…
- What would happen if….how do you know?
- Explain how this connects to…
- Students use tier 2 & 3 vocabulary

How can strategic teacher questions throughout the lesson promote a higher level of student academic discourse?

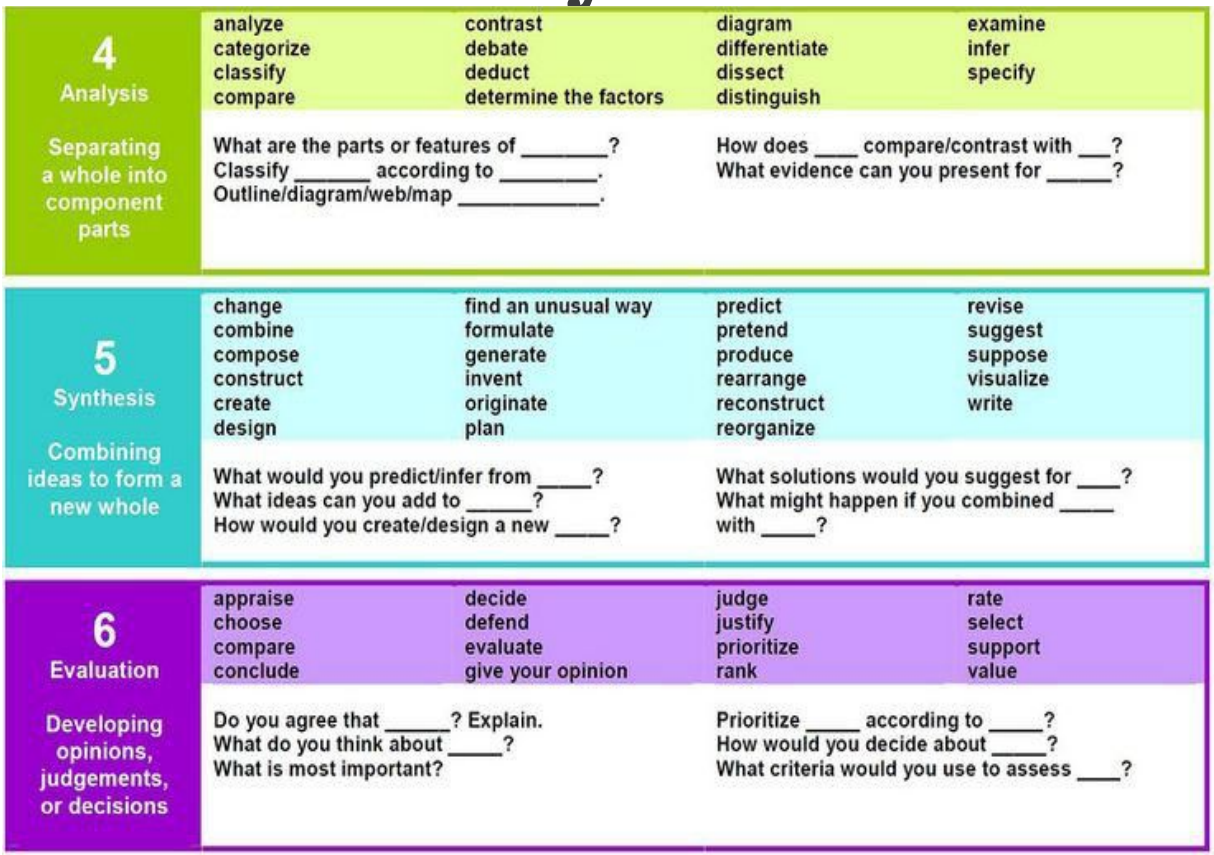
Bloom's Taxonomy



1 Knowledge Identification and recall of information	define fill in the blank list identify	label locate match memorize	name recall spell	state tell underline
	Who _____? What _____? Where _____? When _____?		How _____? Describe _____. What is _____?	
2 Comprehension Organization and selection of facts and ideas	convert describe explain	interpret paraphrase put in order	restate retell in your own words rewrite	summarize trace translate
	Re-tell _____ in your own words. What is the main idea of _____?		What differences exist between _____? Can you write a brief outline?	
3 Application Use of facts, rules, and principles	apply compute conclude construct	demonstrate determine draw find out	give an example illustrate make operate	show solve state a rule or principle use
	How is _____ an example of _____? How is _____ related to _____? Why is _____ significant?		Do you know of another instance where _____? Could this have happened in _____?	

From https://www.teachthought.com/learning-models/25-question-stems-framed-around-blooms-taxonomy

Bloom's Taxonomy



4 Analysis Separating a whole into component parts	analyze categorize classify compare	contrast debate deduct determine the factors	diagram differentiate dissect distinguish	examine infer specify
	What are the parts or features of _____? Classify _____ according to _____. Outline/diagram/web/map _____.		How does ____ compare/contrast with ___? What evidence can you present for _____?	
5 Synthesis Combining ideas to form a new whole	change combine compose construct create design	find an unusual way formulate generate invent originate plan	predict pretend produce rearrange reconstruct reorganize	revise suggest suppose visualize write
	What would you predict/infer from _____? What ideas can you add to _____? How would you create/design a new _____?		What solutions would you suggest for ____? What might happen if you combined _____ with _____?	
6 Evaluation Developing opinions, judgements, or decisions	appraise choose compare conclude	decide defend evaluate give your opinion	judge justify prioritize rank	rate select support value
	Do you agree that _____? Explain. What do you think about _____? What is most important?		Prioritize _____ according to _____? How would you decide about _____? What criteria would you use to assess ____?	

From https://www.teachthought.com/learning-models/25-question-stems-framed-around-blooms-taxonomy/

Amplify Science discourse routines

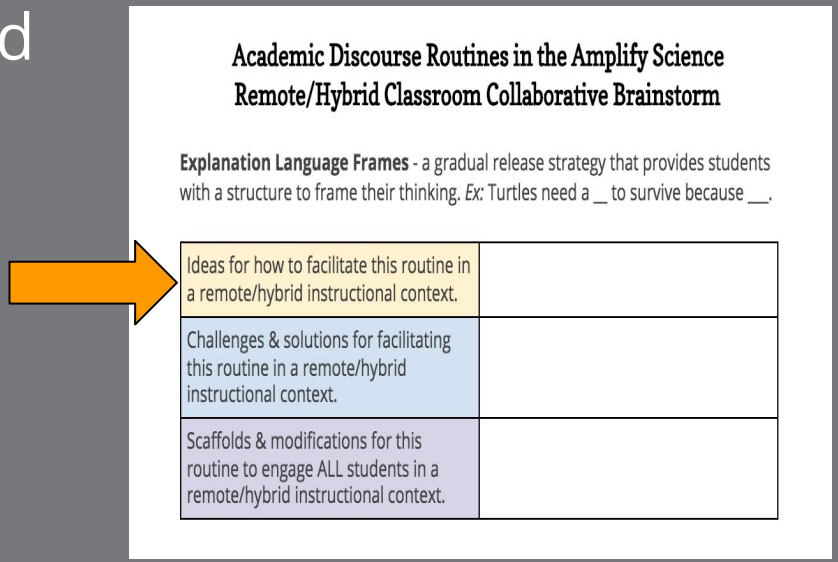
- Oral Composition and/or Drawings as teacher captures words (K-1)
- Explanation Language Frames
- Shared Listening
- Partner Reading
- Thought Swap
- Think-Pair-Share
- Word Relationships
- Questioning Strategies [K-8]
    - Do you agree/disagree?

	Kindergarten - Grade 1	Grades 2-5
Discourse routines	Students engage in informal partner, small group, and full class talk as well as with Shared Listening, a structured discourse routine. To work towards answering each Chapter question, students first compose responses orally with a Language Frame activity using sentence frames written on sentence strips, completed with cards. They use this practiced sentence structure to write explanations together as a class (Shared Writing) or in their investigation notebooks.	Students engage in informal partner, small group, and full class talk as well as with a variety of structured discourse routines. Each unit includes 2-3 different routines such as: • Shared listening • Think-pair-share • Think-draw (or write) -pair-share • Thought swap • Concept mapping • Word relationships • Building on ideas • Evidence circles

Placeholder for @ home lesson insert: Light & Sound

Reflect and share

- Choose one discourse routine and describe how you would facilitate it in your remote/hybrid classroom for this particular lesson.



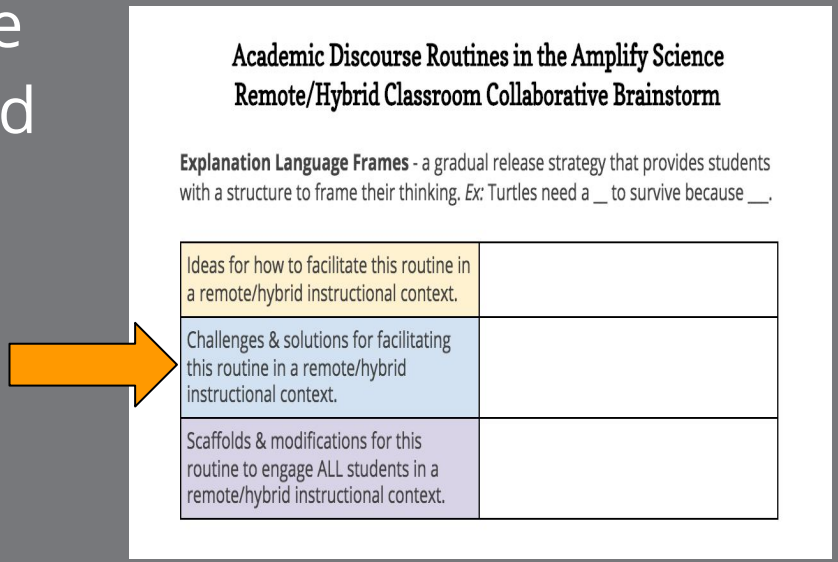
Academic Discourse Routines in the Amplify Science Remote/Hybrid Classroom Collaborative Brainstorm

Explanation Language Frames - a gradual release strategy that provides students with a structure to frame their thinking. *Ex:* Turtles need a __ to survive because ___.

Ideas for how to facilitate this routine in a remote/hybrid instructional context.	
Challenges & solutions for facilitating this routine in a remote/hybrid instructional context.	
Scaffolds & modifications for this routine to engage ALL students in a remote/hybrid instructional context.	

Reflect and share

- What might be one challenge with facilitating this discourse routine in your remote/hybrid classroom?
- What is a solution to this challenge?



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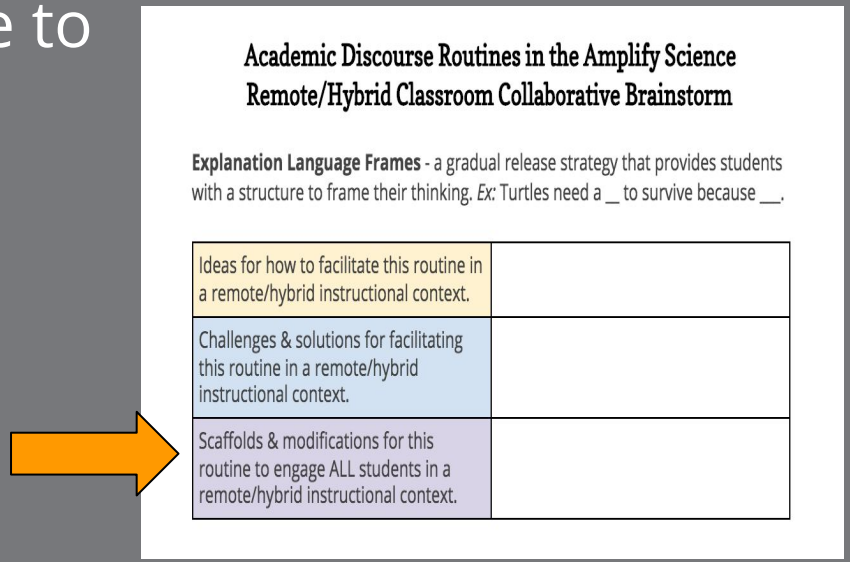
Reflect and share

- How could you scaffold and/or modify the discourse routine to engage all students?



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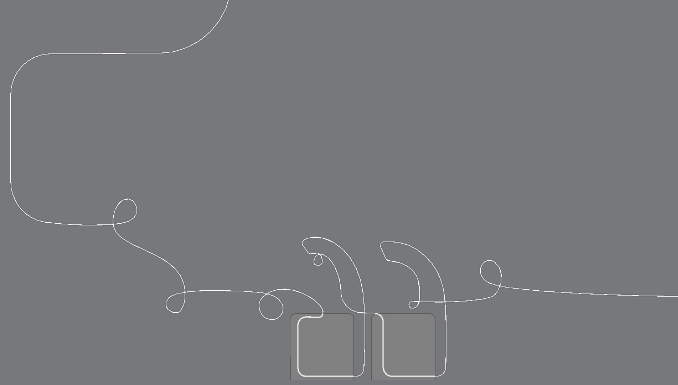
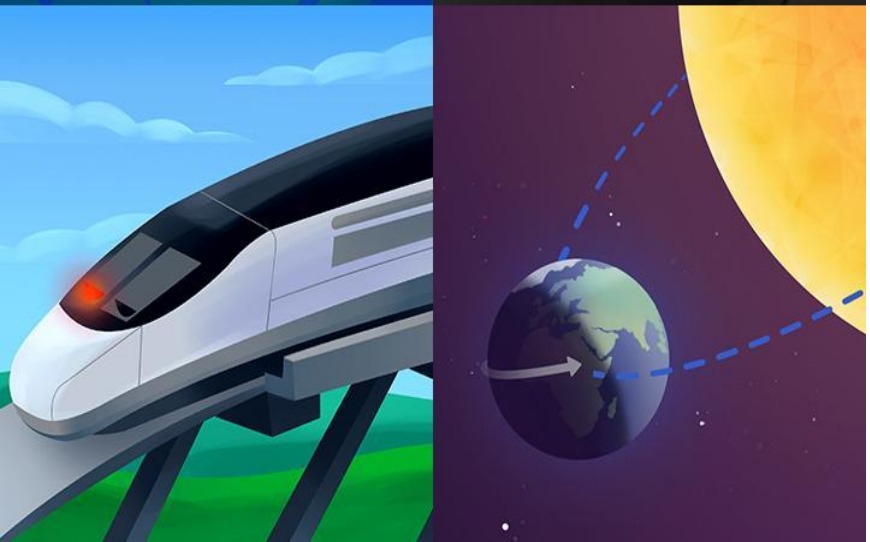


Questions?



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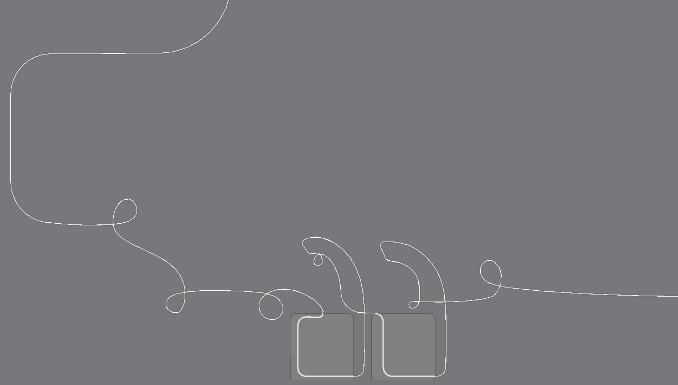
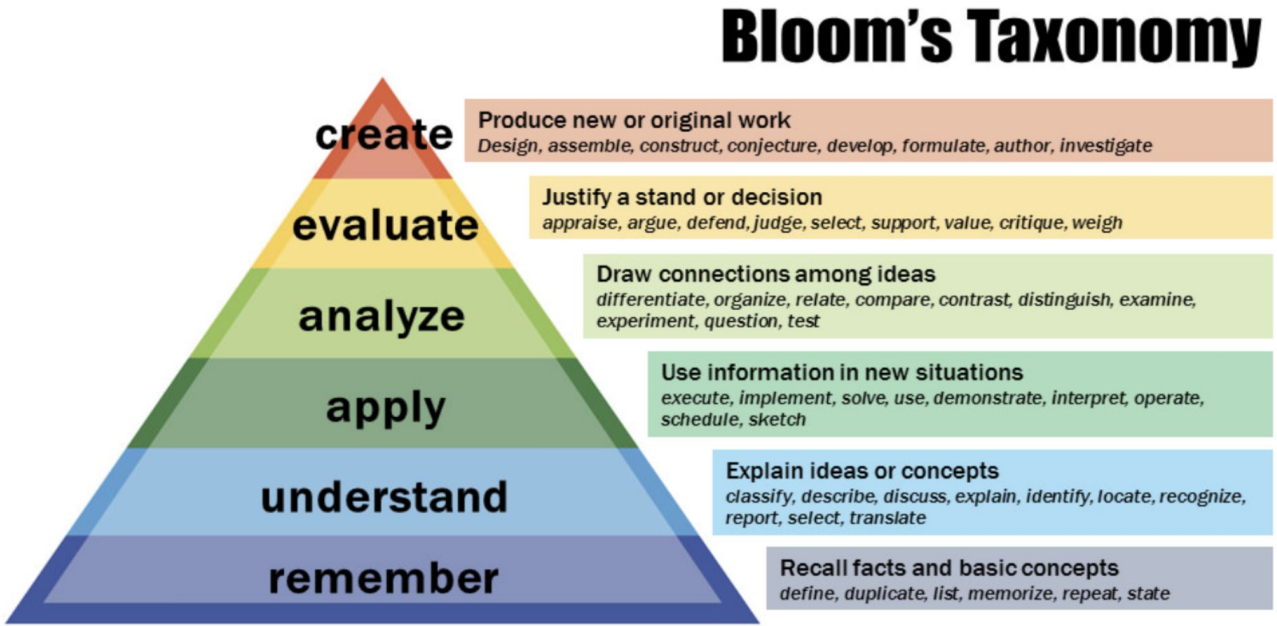


- What questioning strategies have you used in your classroom in the past?
- What role(s) have these strategies taken on in your classroom in the past?

Questioning Strategies - In order to engage all learners in the classroom, ensuring everyone has the opportunity to participate in discussions and do the important thinking when a question is posed, teachers use a variety of questioning strategies along Bloom's Taxonomy. Questions are pre-planned prior to the lesson and specifically aligned to the learning objectives and differentiated student needs.

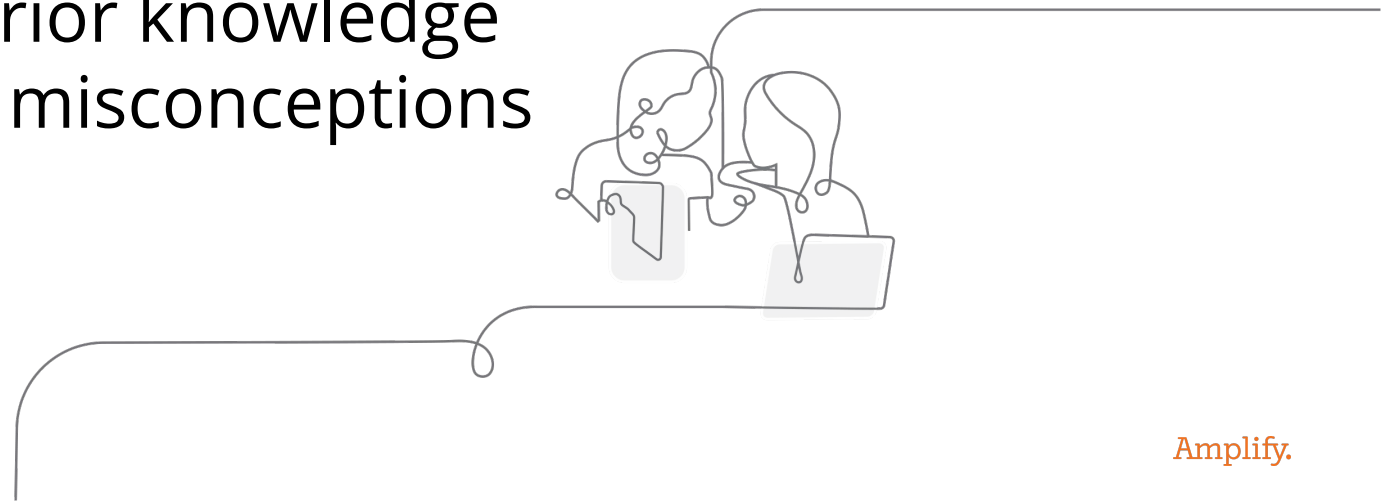


To make connections within a unit of study, ask students to:

- **Remember:** What are we figuring out in this unit? What do you already know?
- **Understand:** Describe how this lesson activity is connected to the unit/chapter/investigation question?
- **Apply:** Use the unit vocabulary to enhance your scientific explanation.
- **Analyze:** What information can you use from the Simulation to support your explanation or argument? Describe how the ideas / concepts fit together?
- **Evaluate:** Defend your claim with at least two sources of evidence. Critique the argument of a peer and provide feedback on their supporting evidence.
- **Create:** Design a model to support the solution.

Questioning in Amplify Science

- clarify understanding
- justify claims
- verify evidence
- accessing prior knowledge
- uncovering misconceptions

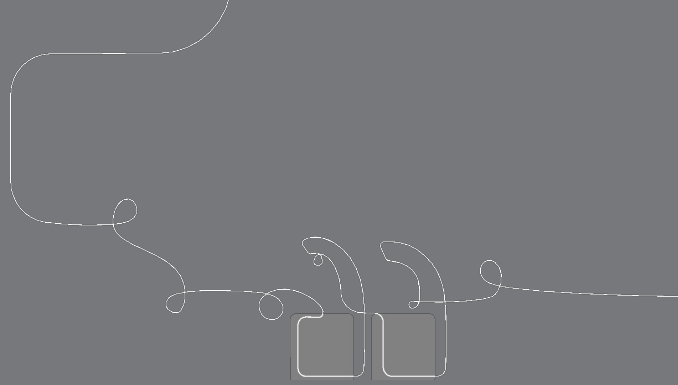


Analyzing Questioning Strategies in Amplify

Use the graphic organizer to collect your thoughts.

- Identify questions within @home lesson of choice.
- What purpose did the questions serve?
- How did the questions further student understanding?
- How did they serve as a check for understanding?
- How did they align to the unit phenomenon?
- What modifications would you make to questioning to address the needs of the different learners in a remote/hybrid context?

Identify questions within the activity.	
What purpose did the questions serve?	
How did the questions further student understanding?	
How did they serve as a check for understanding?	
How did they align to the unit phenomenon?	
Thinking about your students, what modifications would you make to questioning to address their needs?	



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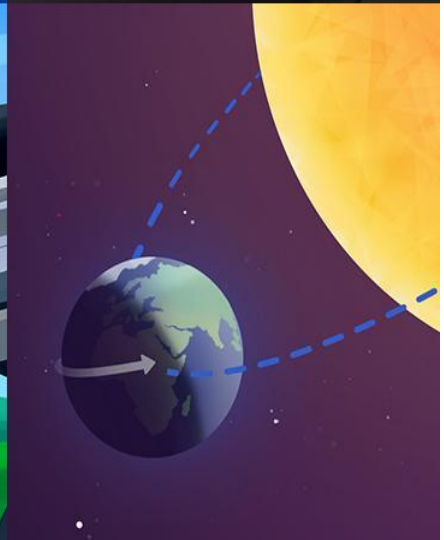

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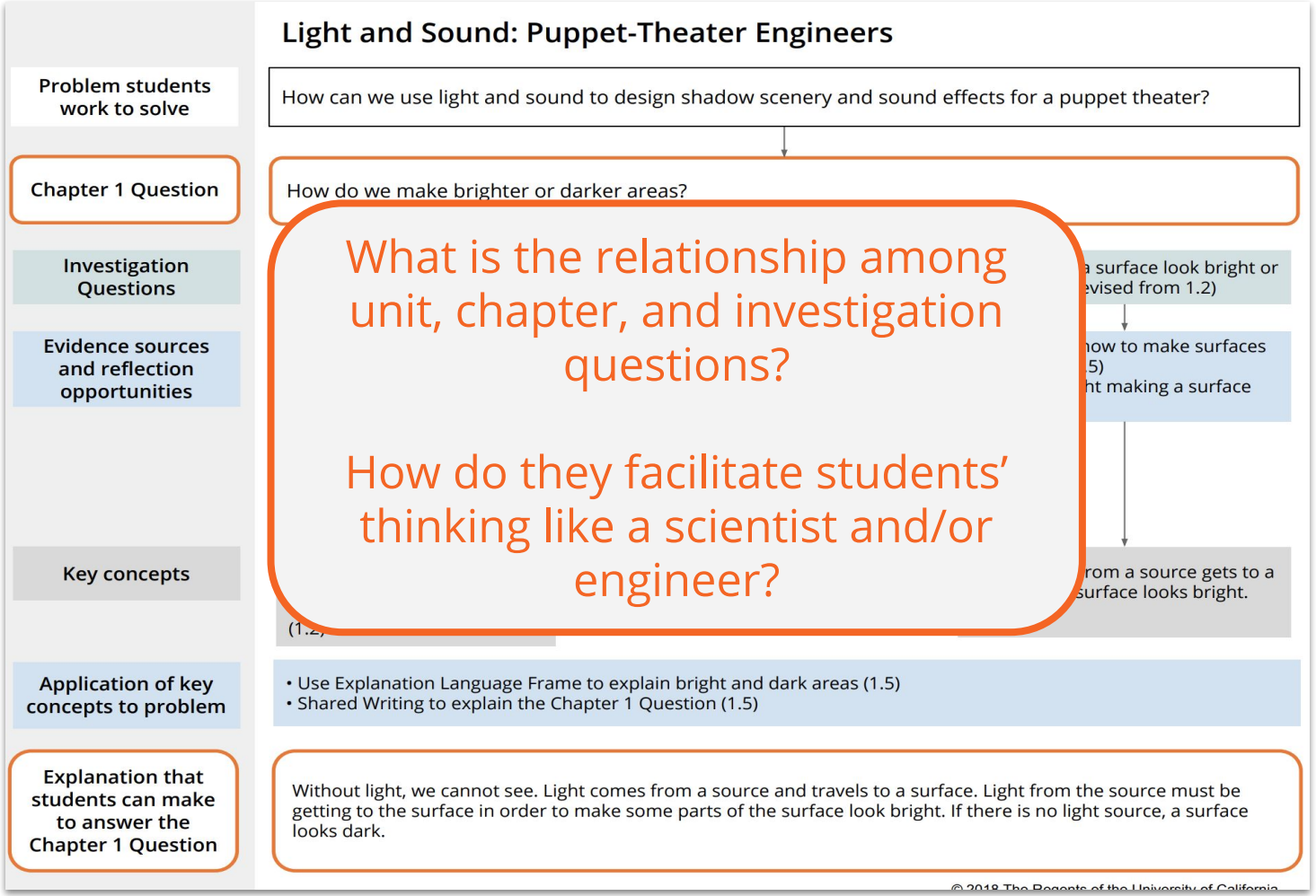

Light and Sound: Puppet-Theater Engineers
Problem students work to solve
How can we use light and sound to design shadow scenery and sound effects for a puppet theater?
Chapter 1 Question
How do we make brighter or darker areas?
Investigation Questions
Evidence sources and reflection opportunities
Key concepts
Application of key concepts to problem
• Use Explanation Language Frame to explain bright and dark areas (1.5)
• Shared Writing to explain the Chapter 1 Question (1.5)
Explanation that students can make to answer the Chapter 1 Question
Without light, we cannot see. Light comes from a source and travels to a surface. Light from the source must be getting to the surface in order to make some parts of the surface look bright. If there is no light source, a surface looks dark.
What is the relationship among unit, chapter, and investigation questions?
How do they facilitate students' thinking like a scientist and/or engineer?

Classroom wall

Re-imagined as @Home science wall

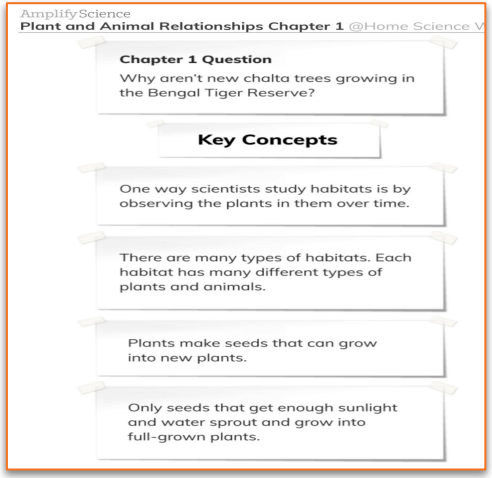
- **Chapter Questions**, **key concepts**,

  and **vocabulary** that have been introduced

  so far are provided in the **last lesson** of each chapter.
- How would you enhance students'

  experience of the **Classroom wall** in a

  remote/hybrid setting?



@Home science wall

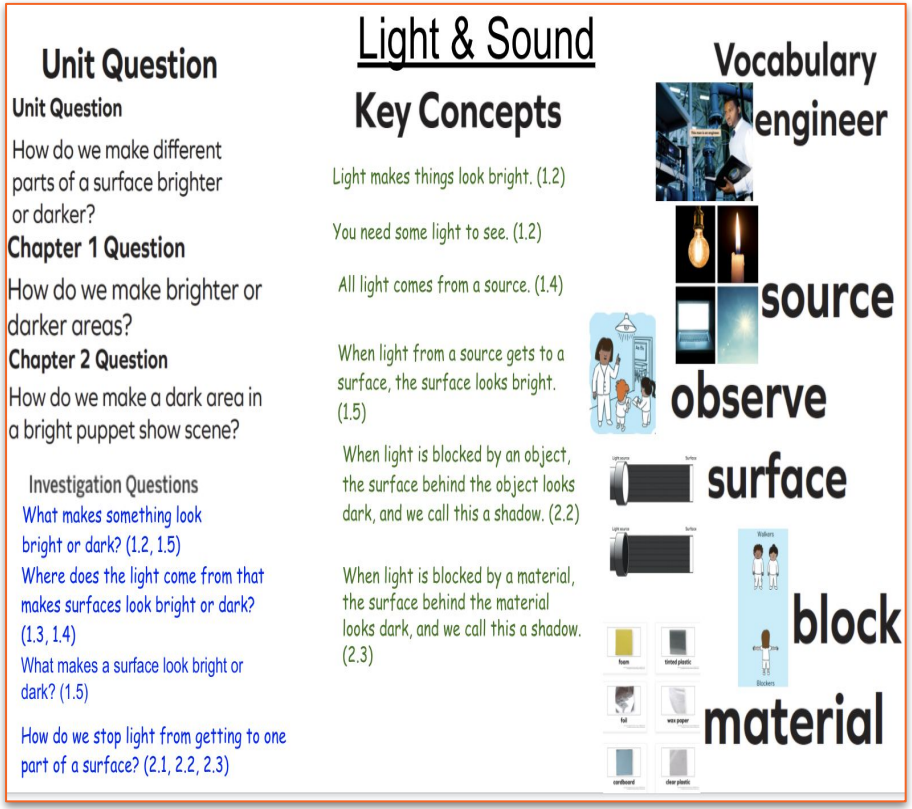
To enhance students' experience of the @Home Science Wall, you could have them:

- Draw a **picture** or write their ideas on their @Home Science Wall pages.
- Highlight or **color** in each question, key concept, or word that is introduced.
- **Cut out** each question, key concept, or word. These can be then posted on a wall, large sheet of paper, or refrigerator at home.
- **Illustrate** each word that is introduced to create a picture glossary.
- If you are meeting with your class remotely, you could create a **virtual** @Home Science **Wall.**

Creating a virtual @Home science wall

If meeting remotely

- **Screenshot** chapter questions, key concepts, vocabulary from **@Home Student sheets**
- Screenshot (from **teacher's guide**) or create own **unit** & **investigation** questions
- **Animate** new additions
- Now **try** yourself on **Google slides**!



Light & Sound

Unit Question

Unit Question

How do we make different parts of a surface brighter or darker?

Chapter 1 Question

How do we make brighter or darker areas?

Chapter 2 Question

How do we make a dark area in a bright puppet show scene?

Investigation Questions

What makes something look bright or dark? (1.2, 1.5)

Where does the light come from that makes surfaces look bright or dark? (1.3, 1.4)

What makes a surface look bright or dark? (1.5)

How do we stop light from getting to one part of a surface? (2.1, 2.2, 2.3)

Key Concepts

Light makes things look bright. (1.2)

You need some light to see. (1.2)

All light comes from a source. (1.4)

When light from a source gets to a surface, the surface looks bright. (1.5)

When light is blocked by an object, the surface behind the object looks dark, and we call this a shadow. (2.2)

When light is blocked by a material, the surface behind the material looks dark, and we call this a shadow. (2.3)

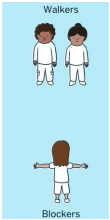
Vocabulary

engineer

source

observe

surface



block

material

Revisiting our objectives

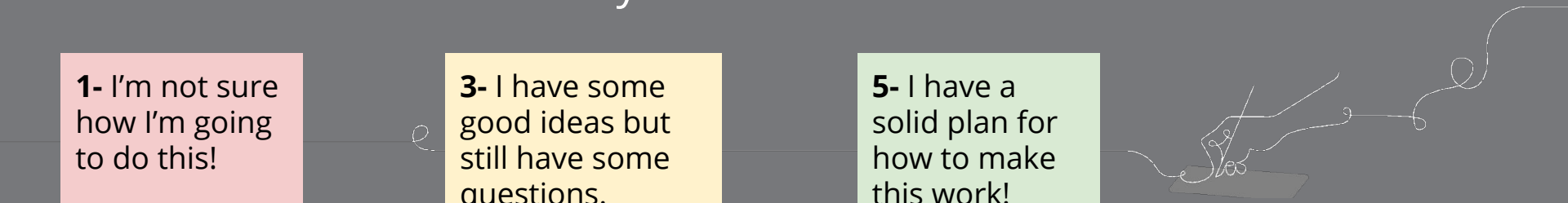
Do you feel ready to to…

- Elaborate on the central role academic discourse & questioning strategies play in 3-dimensional, multimodal learning.
- Adapt Amplify Science discourse routines, questioning strategies, and the classroom wall to meet the needs of all students in a remote/hybrid instructional context.

1- I'm not sure how I'm going to do this!

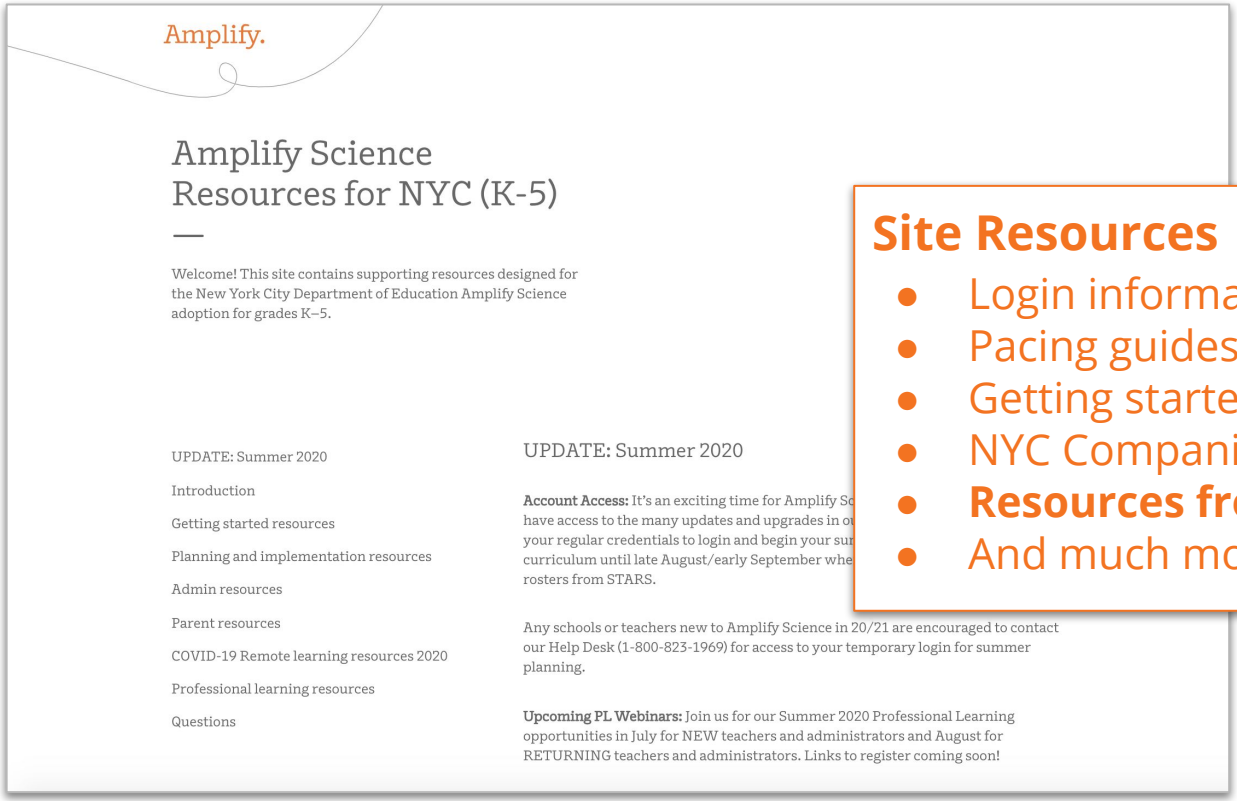
3- I have some good ideas but still have some questions.

5- I have a solid plan for how to make this work!



New York City Resources Site

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



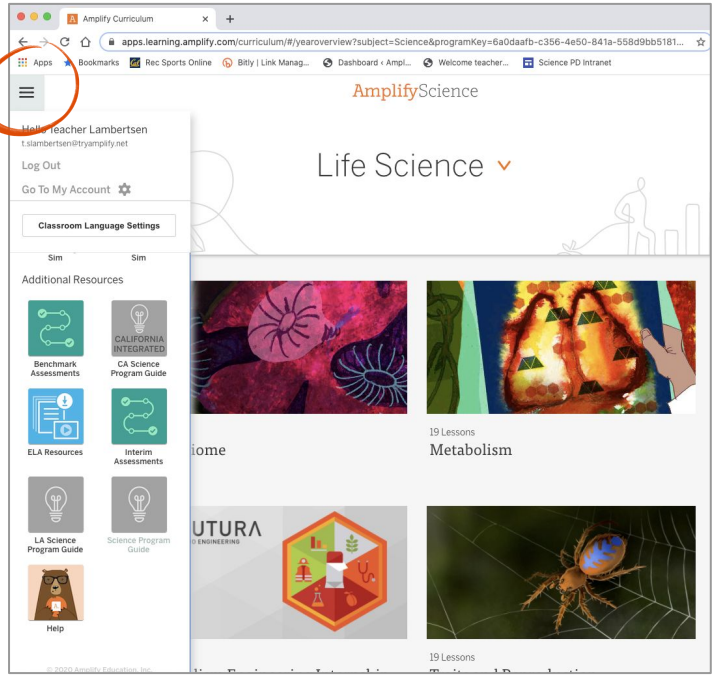
Site Resources

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

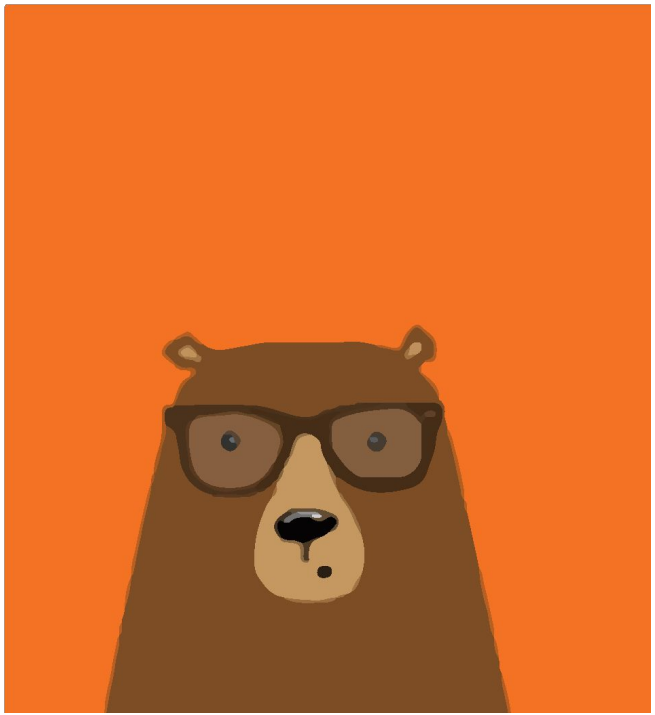
Amplify Science Program Hub

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.

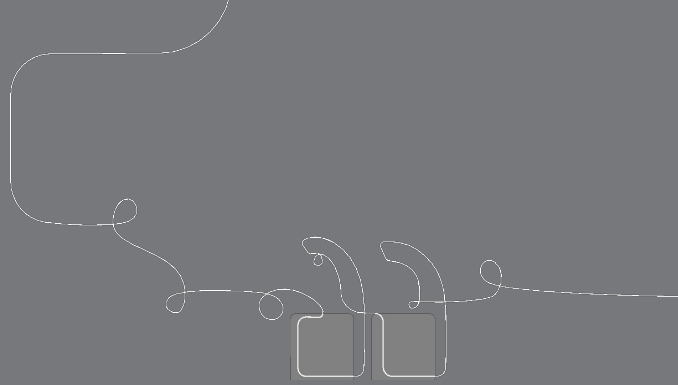
scihelp@amplify.com

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.

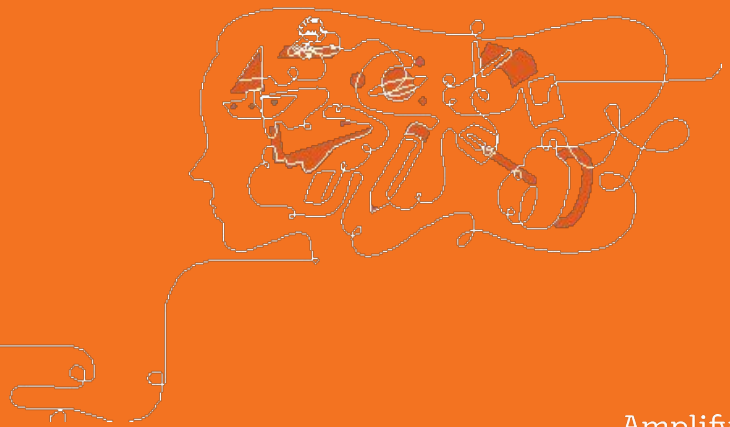


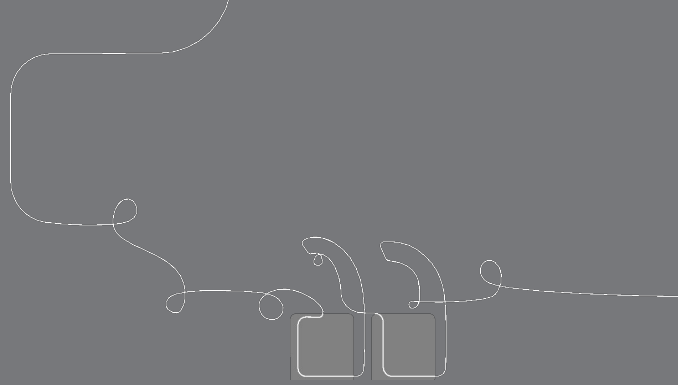
Final Questions?

Please provide us feedback!

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

Presenter name: XXX





30 minute open office hours to follow...