

# 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.



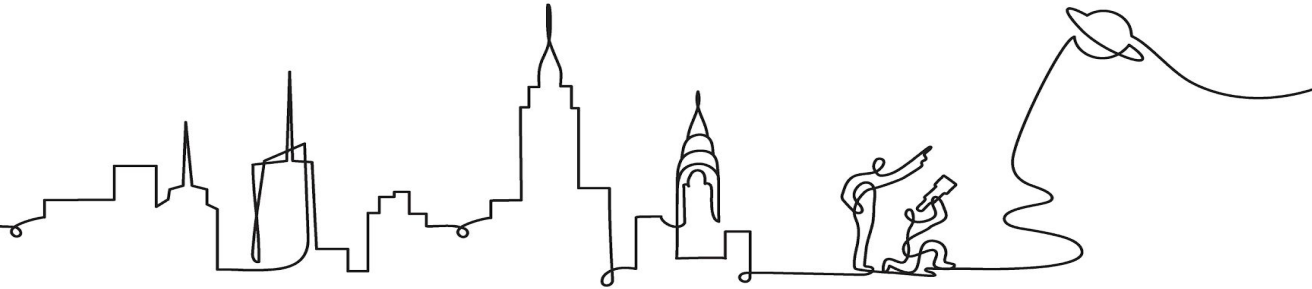
# Amplify Science

New York City

## Academic Discourse & Questioning Strategies in the Amplify Science Classroom Grade 5

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

**Window #1**

Meet - Etiwanda Grade 7 N x +

meet.google.com/hcs-dxpk-wrm?aut...

21 You

Miller Copy of Navigation Prop... x Amplify Curriculum x PM\_Resource\_Coherence\_Flow... x

apps.learning.amplify.com/curriculum/#unit/8a31e095506df8a2015256f88ab544\_californiaintegrated2019-2020#progress-build

Amplify Science

OPEN PRINTABLE PROGRESS BUILD

Progress Build Level 1: The Earth's entire outer layer (below the water and soil that we see) is made of solid rock that is divided into plates. Earth's plates can move.

Underneath the soil, vegetation, and water that we see on the surface of Earth is the outer layer of Earth's geosphere, the solid part of our rocky planet. This outer layer of Earth is covered entirely with hard, solid rock that is divided into sections called plates. And, these plates can move.

Progress Build Level 2: The plates move on top of a soft, solid layer of rock called the mantle. At plate boundaries where the plates are moving away from each other, rock rises from the mantle and hardens, adding new solid rock to the edges of the plates. At plate boundaries where plates are moving toward each other, one plate moves underneath the other and sinks into the mantle.

Underneath the soil, vegetation, and water that we see on the surface of Earth is the outer layer of Earth's geosphere, the solid part of our rocky

Getting Ready to Teach

Materials and Preparation

Flexension Compilation

Investigation Notebook

NGSS Information for Parents and Guardians

Print Materials (11" x 17")

Print Materials (8.5" x 11")

Offline Preparation

Teaching without reliable classroom internet? Prepare unit and lesson materials for offline access.

Offline Guide

**Window #2**

Amplify Curriculum x +

apps.learning.amplify.com/curriculu...

Amplify Science CALIFORNIA > Plate Motion > Chapter 1 > Lesson 1.2

Lesson 1.2:  
Using Fossils to Understand Earth

Lesson Brief (4 Activities)

1 WARM-UP Warm-Up

TEACHER Why Geologists Value Fossils

2 TEACHER-LED DISCUSSION Introducing Mesos

RESET LESSON

GENERATE PRINTABLE LESSON

Lesson Brief

Digital Resources

Overview

Materials & Preparation

Differentiation

Español rds

All Projections

Completed Scientific Argumentation Wall Diagram

Video: Meet a Paleontologist

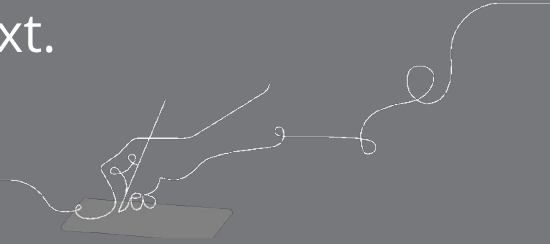
The Ancient Mesosaurus

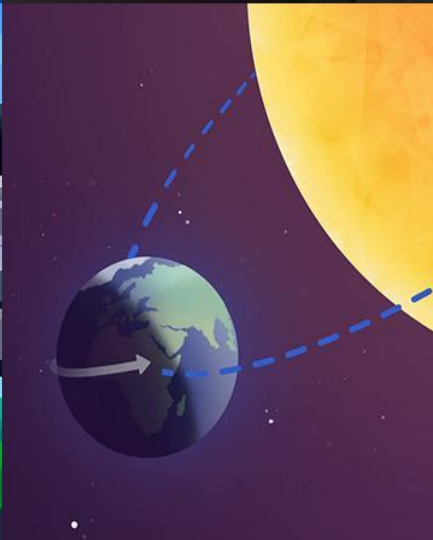
# Objectives

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.

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# 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.

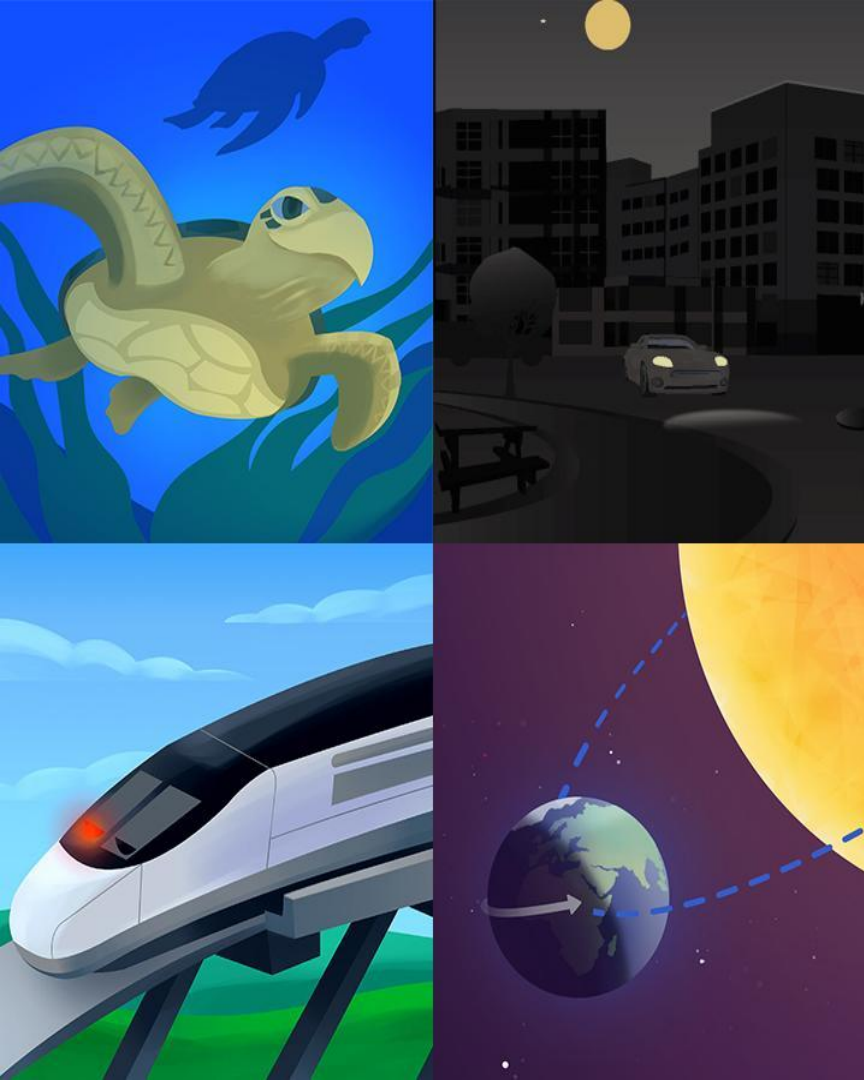
How do scientists and engineers use questioning & academic discourse in their work?

The image shows a Jamboard-style grid with a light gray background and a pattern of small dots. At the top, the question "How do scientists and engineers use questioning & academic discourse in their work?" is written in a reddish-brown font. Below the question, there are five colored squares arranged in two rows. The top row contains three squares: a yellow one on the left, a pink one in the middle, and a light green one on the right. The bottom row contains two squares: a light blue one on the left and an orange one on the right. Each square contains the word "Idea" in a bold, black, sans-serif font.

Questions?







# Plan for the day

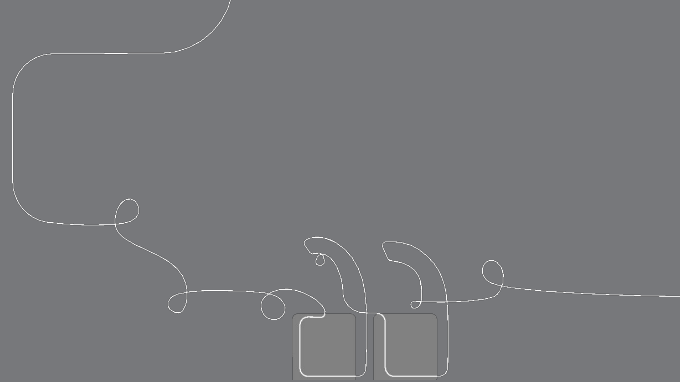
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# Multimodal, phenomenon-based learning

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.

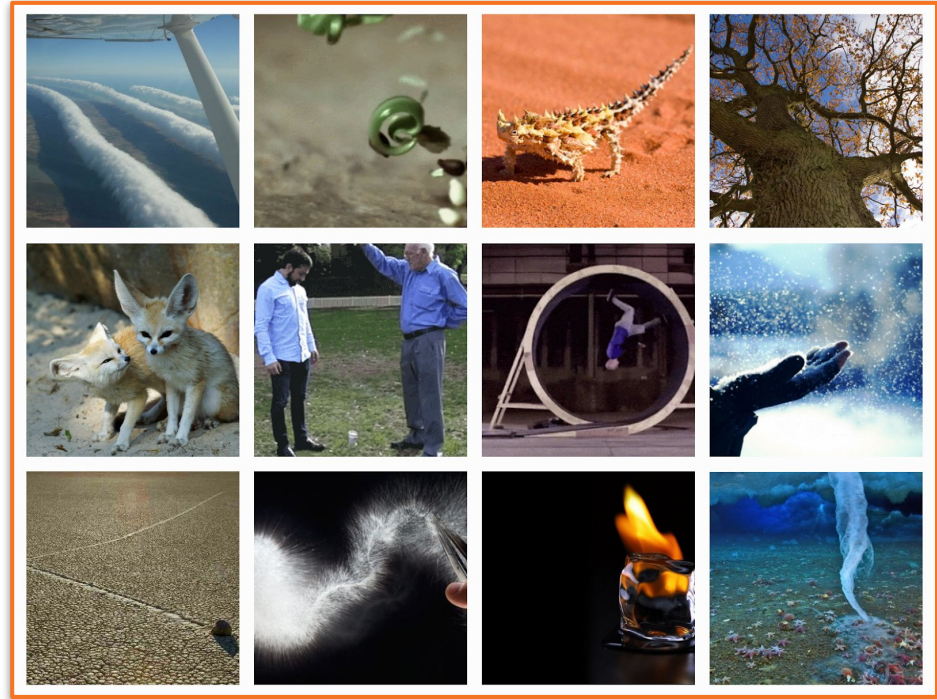




# What are PHENOMENA?

# 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

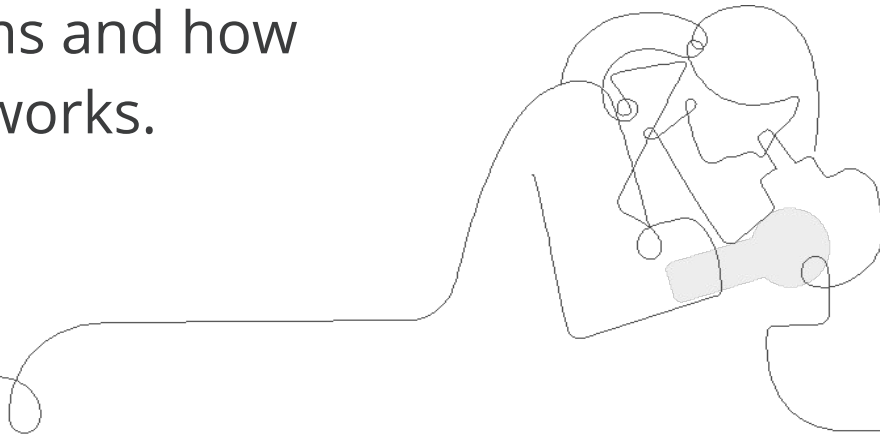
\*National Research Council of the National Academy of Sciences, 2011

Figure out,  
not learn about



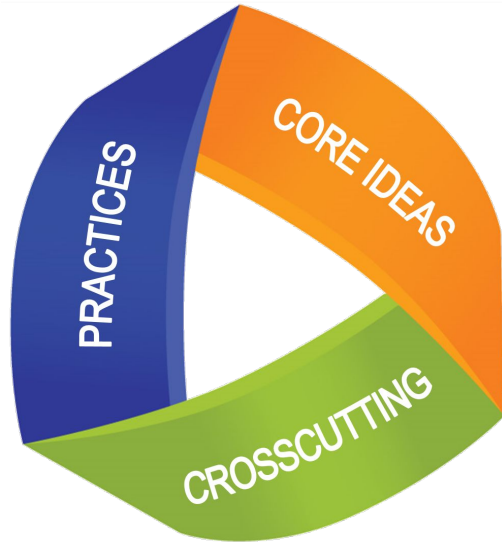
# Problem-based deep dives

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 NYSSL



## 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

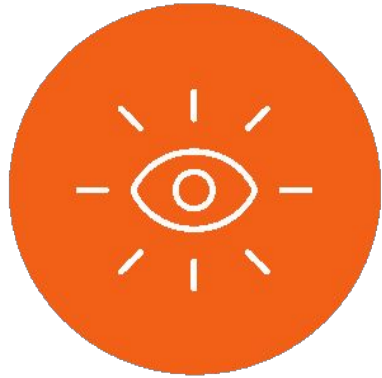
- Describe concepts linking the different domains of science (CCC)

# 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

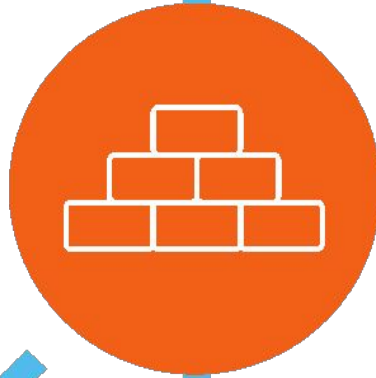
# Amplify Science approach



Introduce a phenomenon  
and a related problem



Collect evidence from  
multiple sources



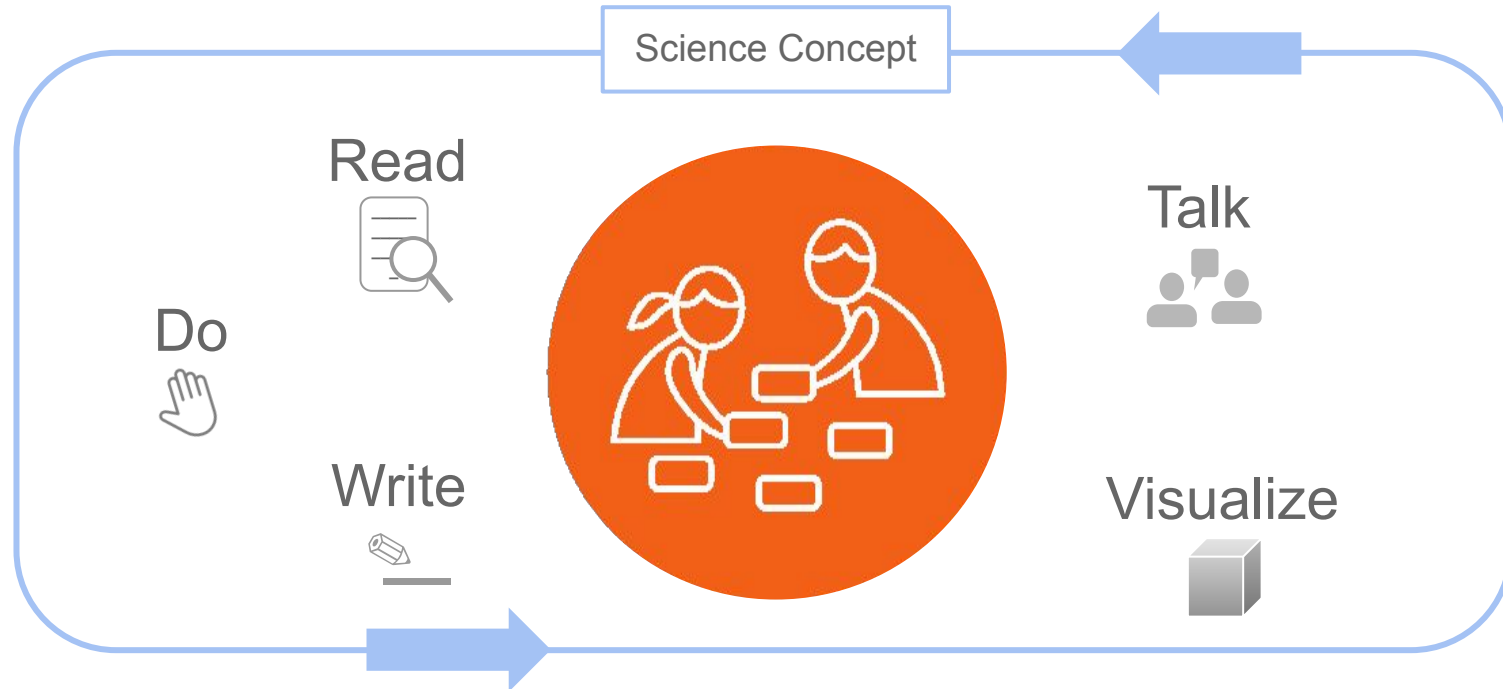
Build increasingly  
complex explanations



Apply knowledge  
to a different context

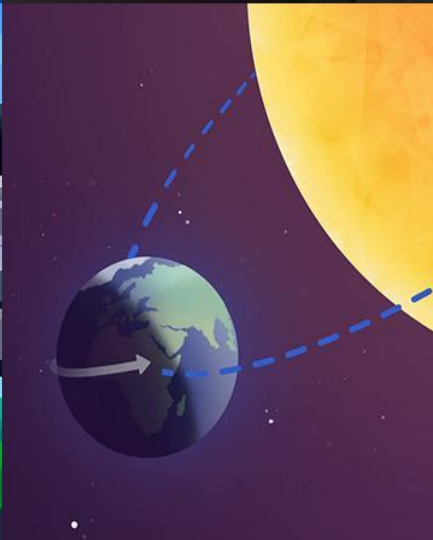
# Multimodal learning

## Gathering evidence from different sources





Questions?



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# What is academic discourse?

## Academic language

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

## Academic discourse

- 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

<p><b>1</b></p> <p><b>Knowledge</b></p> <p>Identification and recall of information</p>	<p>define fill in the blank list identify</p>	<p>label locate match memorize</p>	<p>name recall spell</p>	<p>state tell underline</p>
<p><b>2</b></p> <p><b>Comprehension</b></p> <p>Organization and selection of facts and ideas</p>	<p>convert describe explain</p>	<p>interpret paraphrase put in order</p>	<p>restate retell in your own words rewrite</p>	<p>summarize trace translate</p>
<p><b>3</b></p> <p><b>Application</b></p> <p>Use of facts, rules, and principles</p>	<p>apply compute conclude construct</p>	<p>demonstrate determine draw find out</p>	<p>give an example illustrate make operate</p>	<p>show solve state a rule or principle use</p>



# Bloom's Taxonomy

<p><b>4</b> Analysis</p> <p>Separating a whole into component parts</p>	<p>analyze categorize classify compare</p>	<p>contrast debate deduct determine the factors</p>	<p>diagram differentiate dissect distinguish</p>	<p>examine infer specify</p>
<p><b>5</b> Synthesis</p> <p>Combining ideas to form a new whole</p>	<p>change combine compose construct create design</p>	<p>find an unusual way formulate generate invent originate plan</p>	<p>predict pretend produce rearrange reconstruct reorganize</p>	<p>revise suggest suppose visualize write</p>
<p><b>6</b> Evaluation</p> <p>Developing opinions, judgements, or decisions</p>	<p>appraise choose compare conclude</p>	<p>decide defend evaluate give your opinion</p>	<p>judge justify prioritize rank</p>	<p>rate select support value</p>

# 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	<p>Students engage in informal partner, small group, and full class talk as well as with Shared Listening, a structured discourse routine.</p> <p>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.</p>	<p>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:</p> <ul style="list-style-type: none"><li>• Shared listening</li><li>• Think-pair-share</li><li>• Think-draw (or write) -pair-share</li><li>• Thought swap</li><li>• Concept mapping</li><li>• Word relationships</li><li>• Building on ideas</li><li>• Evidence circles</li></ul>


**Placeholder for @ home lesson insert: Modeling  
Matter**

# 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?

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

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Scaffolds & modifications for this routine to engage ALL students in a remote/hybrid instructional context.	



# Reflect and share



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

## 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 \_\_\_.

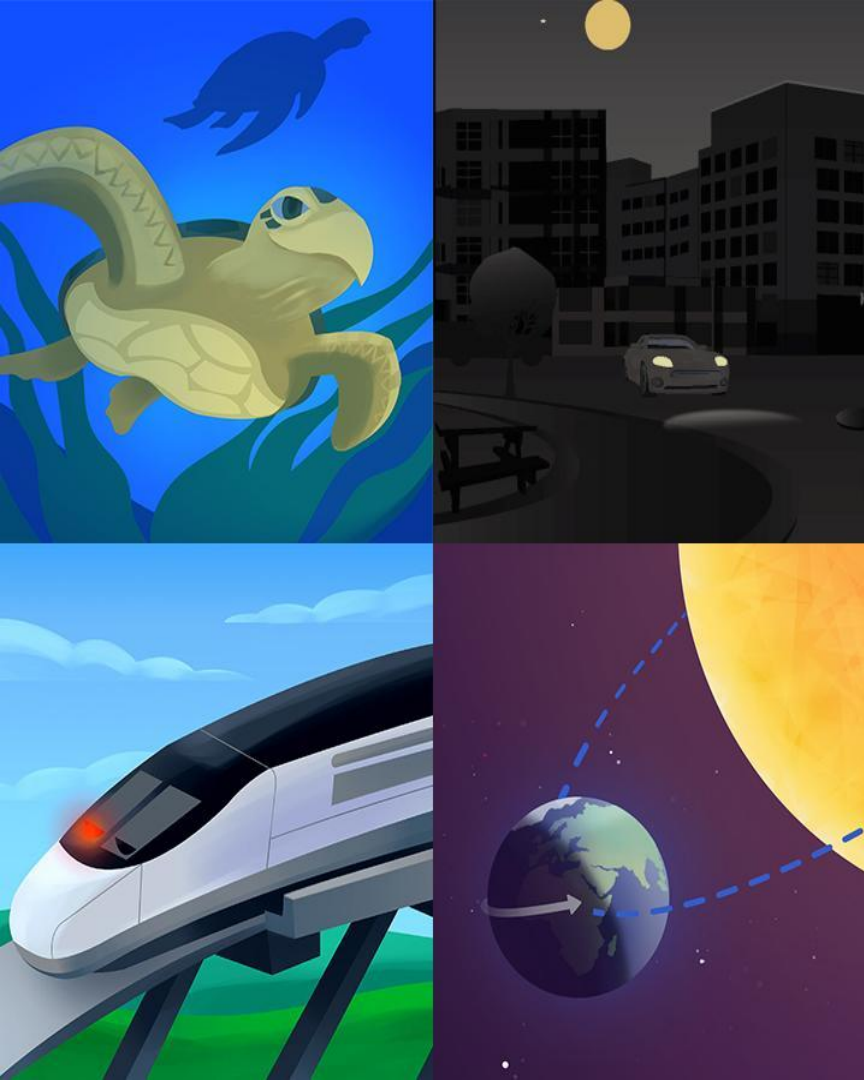
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Questions?





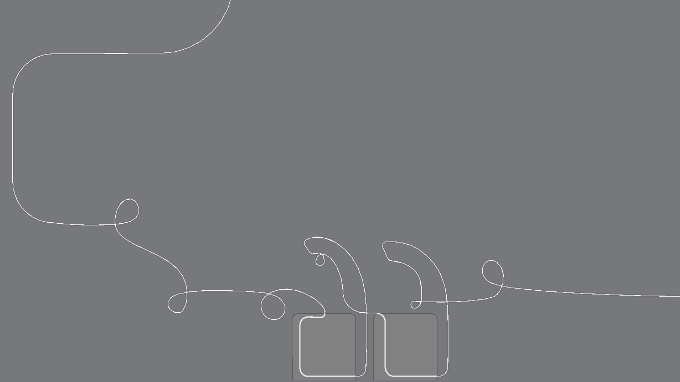


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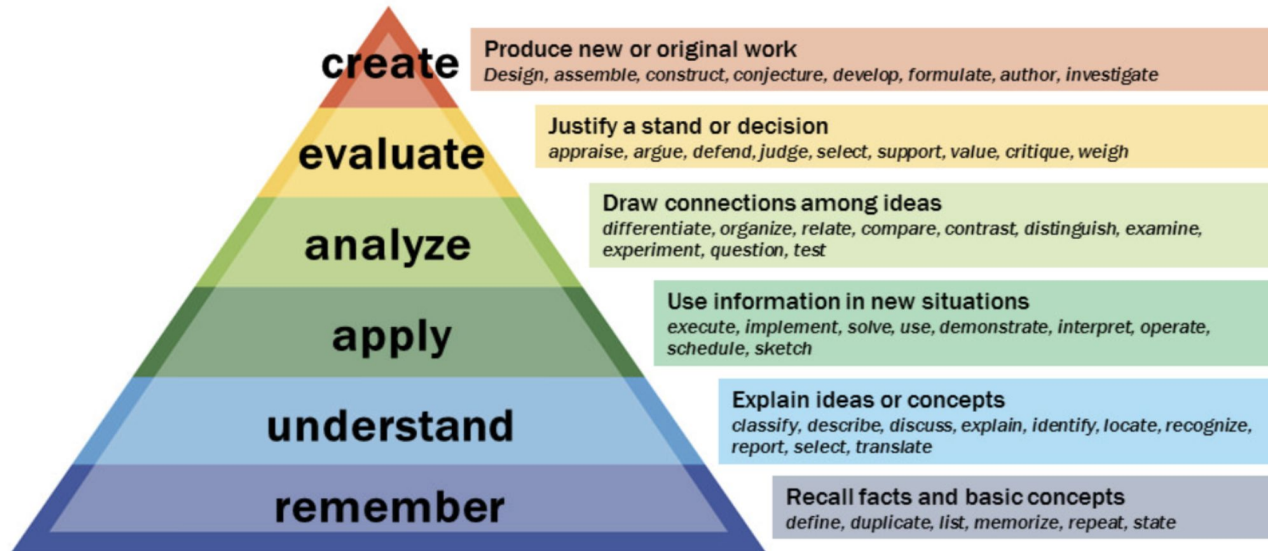
# Reflect and share

- 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.

## Bloom's Taxonomy

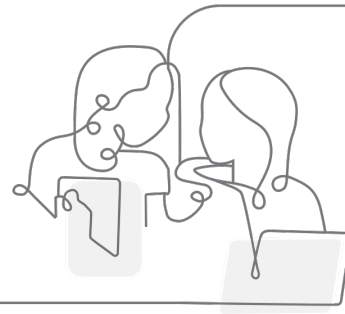


## To make connections within a unit of study, ask students to:

- **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

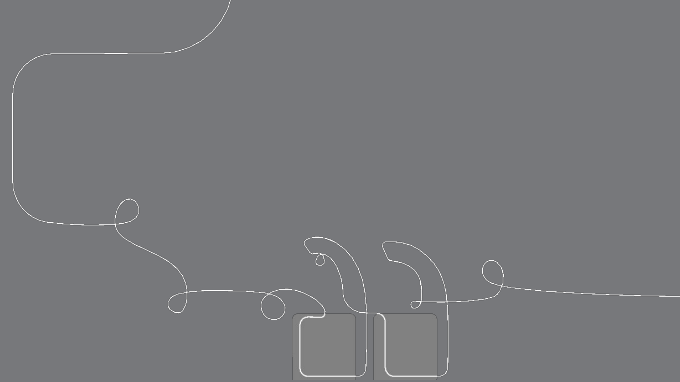


# Analyzing Questioning Strategies in Amplify

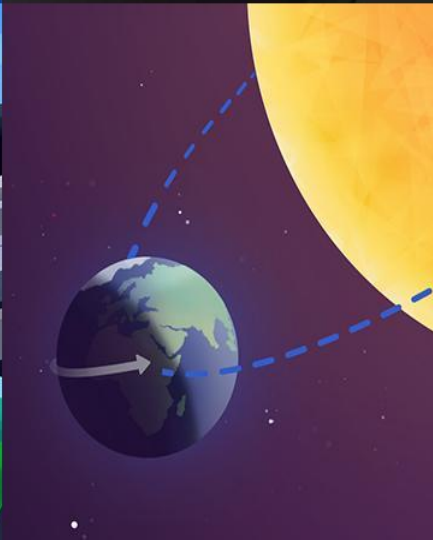
Use the graphic organizer to collect your thoughts.

- 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?	



Questions?



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## Modeling Matter: The Chemistry of Food

Problem students work to solve

How can we help Good Food Production, Inc. solve problems with their products—figuring out if their food coloring includes a harmful dye and creating an appealing salad dressing?

Chapter 1 Question

Why did the food coloring separate into different dyes? (introduced in 1.5)

Investigation Questions

How are substances different?

Molecules cause (1.5-1.7)

Evidence sources and reflection opportunities

Observation record of food (1.2)

Model of

vision models of rawing, then with

What is the relationship among unit, chapter, and investigation questions?

How do they facilitate students' thinking like a scientist and/or engineer?

analyze how scientists molecules to separate

vision models of

Key concepts

have different properties.

different from molecules of any other substance. (1.4)

The properties of a substance are determined by the properties of its molecules. (1.8)

Application of key concepts to problem

- Revise nanovision models (1.9)
- Write explanations to answer the Chapter 1 Question (1.10)

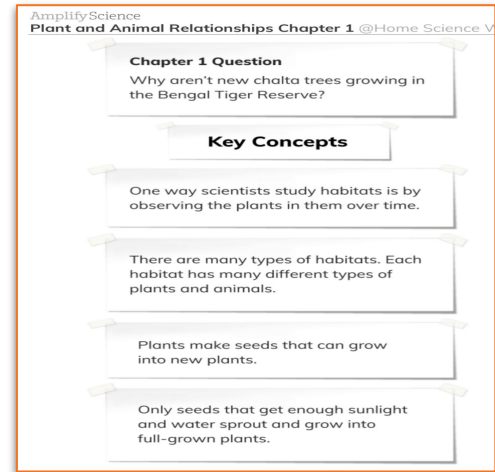
Explanation that students can make to answer the Chapter 1 Question

The different dyes that are mixed together have different properties (colors), so they are made of different molecules. The molecules in the mixture that are carried up the paper by the water are attracted to the water and mix with it. As the water travels up the paper, different kinds of molecules travel different distances because their molecules are different sizes or have a different attraction to the paper.

# 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

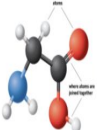




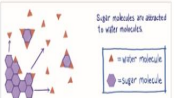
To enhance students' experience of the @Home Science Wall, you could have them:

- 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!**

Unit Question	<u>Modeling Matter</u>	Vocabulary
<b>Chapter 3 Question</b> Why can salad-dressing ingredients separate again after being mixed?	<b>Key Concepts</b> Some liquid mixtures stay mixed, and others separate into layers over time.	 <b>model</b>
<b>Investigation Questions</b> <i>What happens to the molecules of a solid and the molecules of a liquid when you mix them together? (2.2, 2.3, 2.4, 2.5)</i>	Some liquids hold together more than others. The more a liquid's molecules are attracted to one another, the more the liquid will hold together.	<b>attract</b> 
<i>What happens when you mix a liquid into a liquid? (3.1)</i>	When the molecules of two different liquids are attracted to one another, they cluster together and become evenly distributed in the mixture.	<b>evidence</b> 
<i>What happens to the molecules of two liquids when you mix them together? (3.1, 3.2, 3.3, 3.4)</i>	Molecules of an emulsifier attract the molecules of two liquids that do not typically mix, allowing the molecules of the emulsifier and of the liquids to mix.	<b>inference</b> 
<i>Why does adding an emulsifier allow two liquids that don't typically mix to stay mixed? (3.5, 3.6)</i>		<b>explain</b> 
		<b>dissolve</b> <b>soluble</b> 

# Unit Question

## Chapter 3 Question

Why can salad-dressing ingredients separate again after being mixed?

### Investigation Questions

What happens to the molecules of a solid and the molecules of a liquid when you mix them together? (2.2, 2.3, 2.4, 2.5)

What happens when you mix a liquid into a liquid? (3.1)

What happens to the molecules of two liquids when you mix them together? (3.1, 3.2, 3.3, 3.4)

Why does adding an emulsifier allow two liquids that don't typically mix to stay mixed? (3.5, 3.6)

# Modeling Matter

## Key Concepts

Some liquid mixtures stay mixed, and others separate into layers over time.

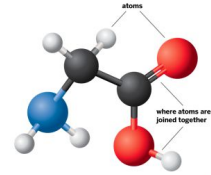
Some liquids hold together more than others.

The more a liquid's molecules are attracted to one another, the more the liquid will hold together.

When the molecules of two different liquids are attracted to one another, they cluster together and become evenly distributed in the mixture.

Molecules of an emulsifier attract the molecules of two liquids that do not typically mix, allowing the molecules of the emulsifier and of the liquids to mix.

## Vocabulary

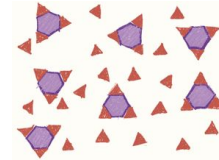


model

attract



evidence

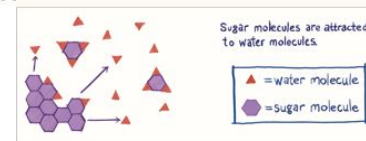


inference

explain

dissolve

soluble



# Revisiting our objectives

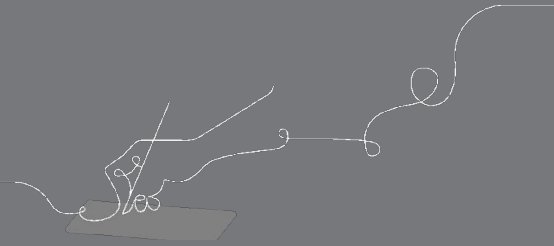
Do you feel ready to to...

- 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/>



Amplify.

## Amplify Science Resources for NYC (K-5)

Welcome! This site contains supporting resources designed for the New York City Department of Education Amplify Science adoption for grades K-5.

UPDATE: Summer 2020

Introduction

Getting started resources

Planning and implementation resources

Admin resources

Parent resources

COVID-19 Remote learning resources 2020

Professional learning resources

Questions

UPDATE: Summer 2020

**Account Access:** It's an exciting time for Amplify Science! We have access to the many updates and upgrades in our curriculum until late August/early September when we will update our rosters from STARS.

Any schools or teachers new to Amplify Science in 20/21 are encouraged to contact our Help Desk (1-800-823-1969) for access to your temporary login for summer planning.

**Upcoming PL Webinars:** Join us for our Summer 2020 Professional Learning opportunities in July for NEW teachers and administrators and August for RETURNING teachers and administrators. Links to register coming soon!

## Site Resources

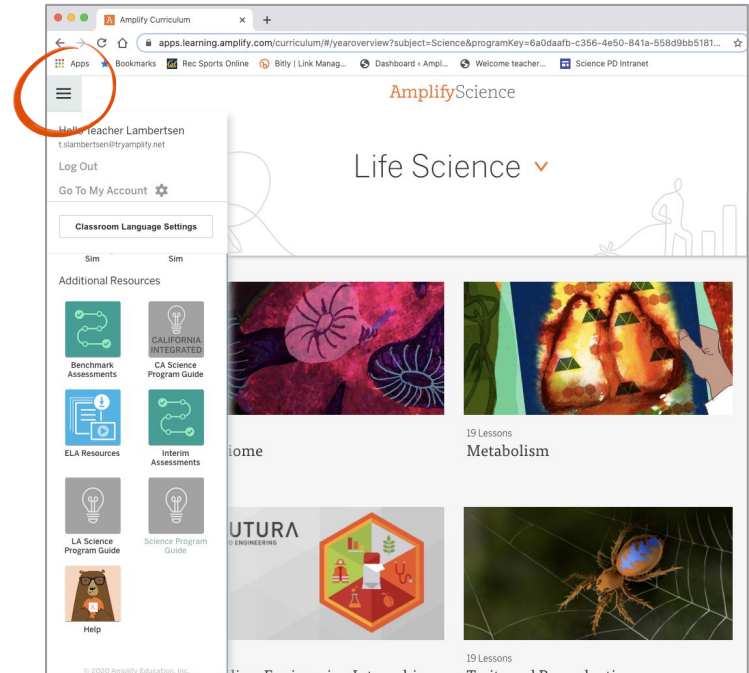
- Login information
- Pacing guides
- Getting started guide
- NYC Companion Lessons
- **Resources from PD sessions**
- And much more!



# 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



The screenshot shows the Amplify Science Program Hub website. The browser address bar displays the URL: [apps.learning.amplify.com/curriculum/#/yearoverview?subject=Science&programKey=6a0daafb-c356-4e50-841a-558d9bb5181...](https://apps.learning.amplify.com/curriculum/#/yearoverview?subject=Science&programKey=6a0daafb-c356-4e50-841a-558d9bb5181...). The page header includes the AmplifyScience logo and the subject "Life Science" with a dropdown arrow. A user profile for "Molly Teacher Lambertsen" is visible, with options for "Log Out" and "Go To My Account". Below this is a "Classroom Language Settings" section. The main content area is titled "Additional Resources" and features a grid of icons for "Benchmark Assessments", "ELA Resources", "Interim Assessments", "LA Science Program Guide", and "Science Program Guide". A red circle highlights the hamburger menu icon in the top left corner. The page also displays a "Sim" section with a "Home" card and a "Metabolism" card (19 Lessons). At the bottom, there is a "FUTURA" section with a "Help" icon.



# 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](https://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



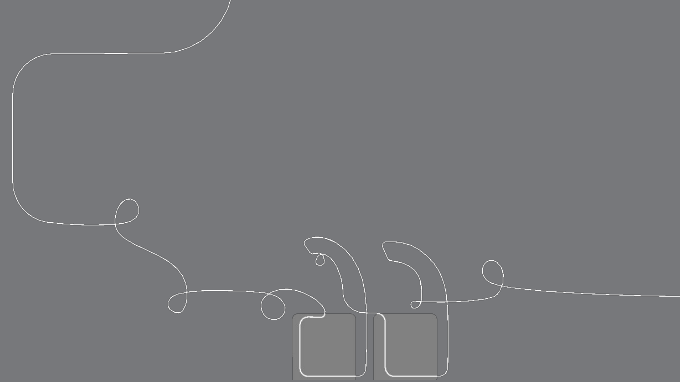
800-823-1969



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.

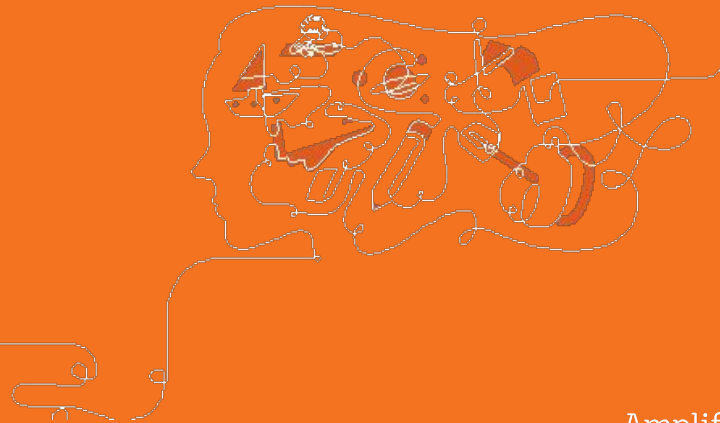


# Final Questions?

# Please provide us feedback!

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

Presenter name: XXX



30 minute open office hours  
to follow...

