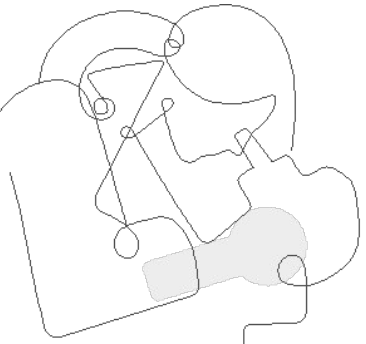
Amplify Science

Supporting Diverse Learners with Amplify Science

Session 1: Exploring the resources



School/District Name
Date
Presented by Your Name

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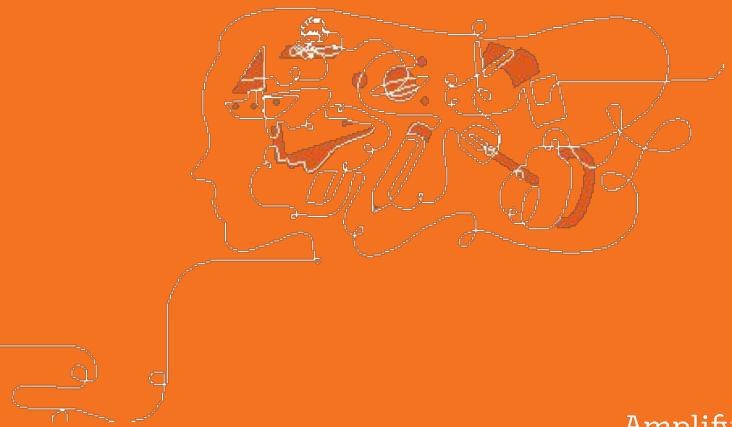
Norms: Establishing a culture of learners

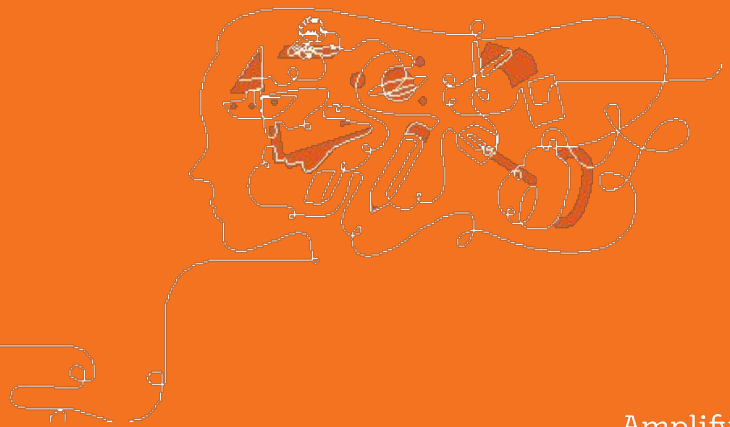
- **Take risks:** Ask any questions, provide any answers.
- **Participate:** Share your thinking, participate in discussion and reflection.
- **Be fully present:** Unplug and immerse yourself in the moment.
- **Physical needs:** Stand up, get water, take breaks.

Part 1

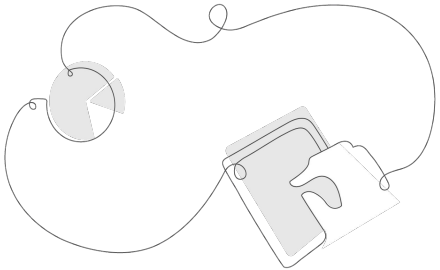


Opening reflection

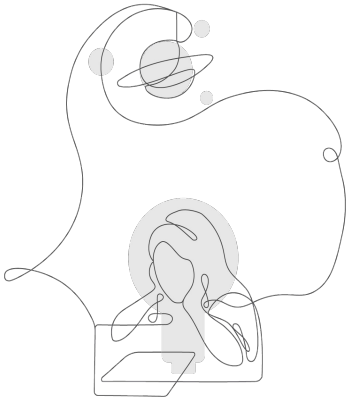
What does “diverse learners” mean to you?



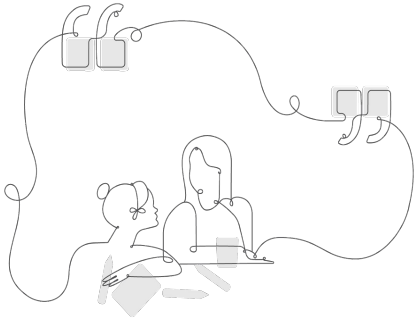
Supporting Diverse Learners with Amplify Science



Session 1:
Exploring the resources



Session 2:
Embedded supports A



Session 3:
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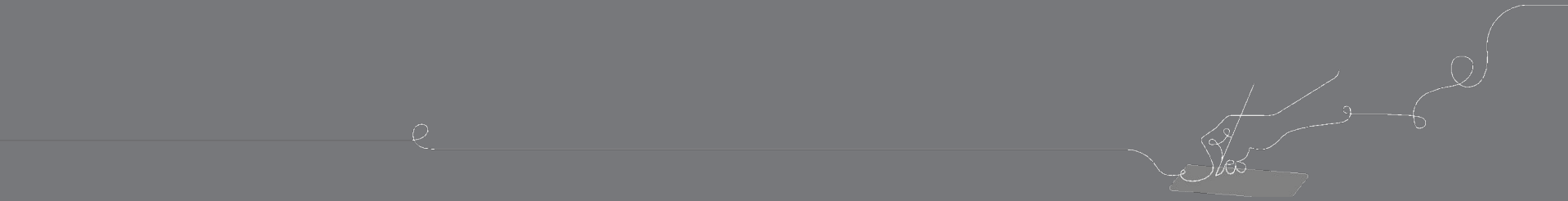
Workshop goal - Part 1

Participants will be able to identify at least one new way they'll use the teaching resources in Amplify Science to support the diverse needs of learners in their classrooms.

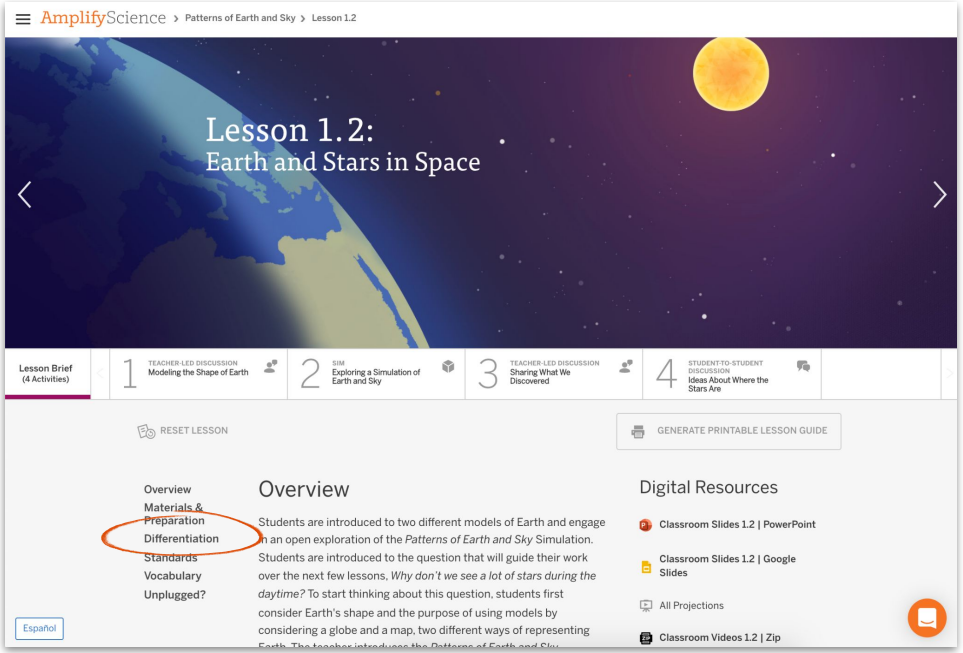


Teaching resources

1. Differentiation briefs
2. Formative assessments
3. Teacher support notes

Differentiation brief

- Lesson-specific information and suggestions
- Targeted lesson modifications for specific student populations



Differentiation brief

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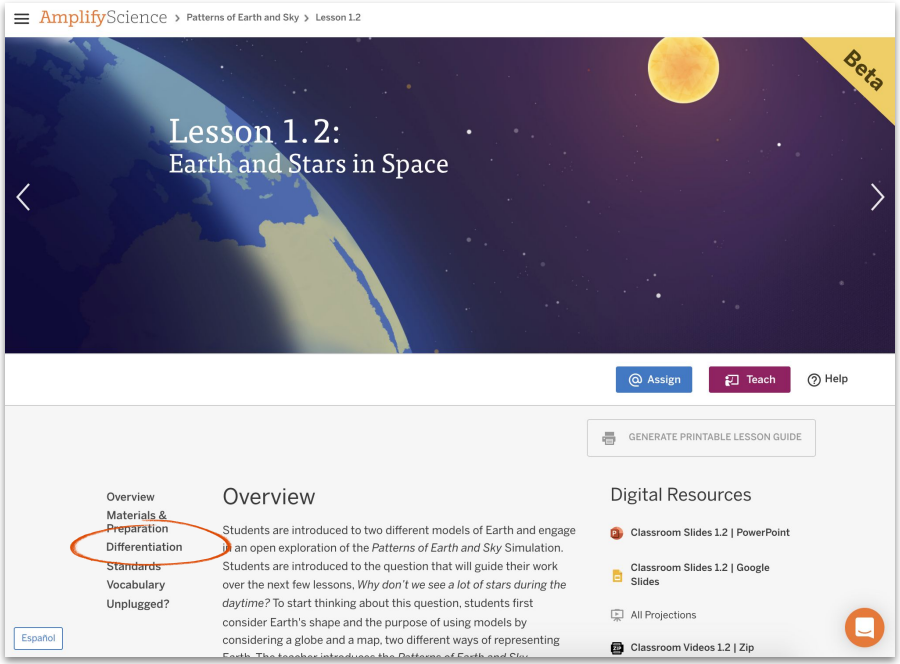
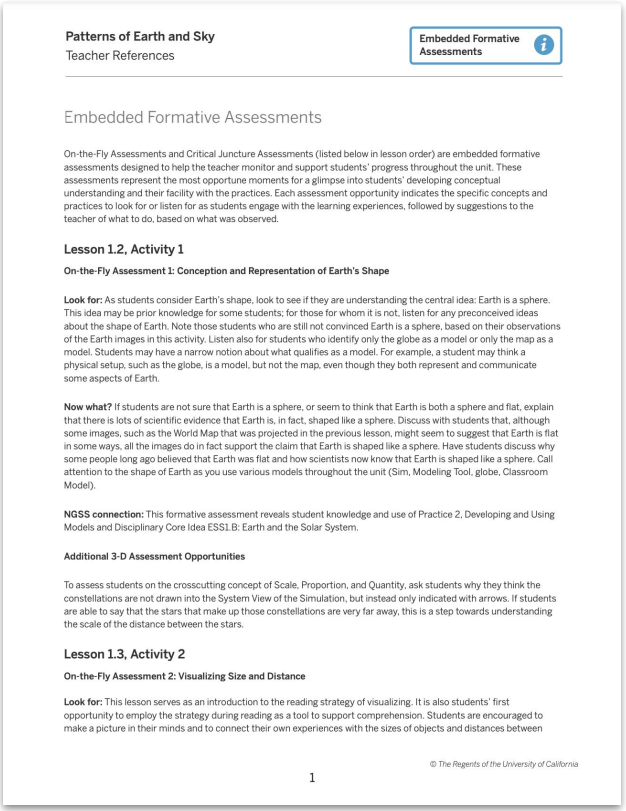


Embedded formative assessments

- On-the-Fly Assessments and Critical Juncture Assessments
- Embedded into lesson activities



Patterns of Earth and Sky
Teacher References

Embedded Formative Assessments

Embedded Formative Assessments

On-the-Fly Assessments and Critical Juncture Assessments (listed below in lesson order) are embedded formative assessments designed to help the teacher monitor and support students' progress throughout the unit. These assessments represent the most opportune moments for a glimpse into students' developing conceptual understanding and their facility with the practices. Each assessment opportunity indicates the specific concepts and practices to look for or listen for as students engage with the learning experiences, followed by suggestions to the teacher of what to do, based on what was observed.

Lesson 1.2, Activity 1

On-the-Fly Assessment 1: Conception and Representation of Earth's Shape

Look for: As students consider Earth's shape, look to see if they are understanding the central idea: Earth is a sphere. This idea may be prior knowledge for some students; for those for whom it is not, listen for any preconceived ideas about the shape of Earth. Note those students who are still not convinced Earth is a sphere, based on their observations of the Earth images in this activity. Listen also for students who identify only the globe as a model or only the map as a model. Students may have a narrow notion about what qualifies as a model. For example, a student may think a physical setup, such as the globe, is a model, but not the map, even though they both represent and communicate some aspects of Earth.

Now what? If students are not sure that Earth is a sphere, or seem to think that Earth is both a sphere and flat, explain that there is lots of scientific evidence that Earth is, in fact, shaped like a sphere. Discuss with students that, although some images, such as the World Map that was projected in the previous lesson, might seem to suggest that Earth is flat in some ways, all the images do in fact support the claim that Earth is shaped like a sphere. Have students discuss why some people long ago believed that Earth was flat and how scientists now know that Earth is shaped like a sphere. Call attention to the shape of Earth as you use various models throughout the unit (Sim, Modeling Tool, globe, Classroom Model).

NGSS connection: This formative assessment reveals student knowledge and use of Practice 2, Developing and Using Models and Disciplinary Core Idea ESS1.B: Earth and the Solar System.

Additional 3-D Assessment Opportunities

To assess students on the crosscutting concept of Scale, Proportion, and Quantity, ask students why they think the constellations are not drawn into the System View of the Simulation, but instead only indicated with arrows. If students are able to say that the stars that make up those constellations are very far away, this is a step towards understanding the scale of the distance between the stars.

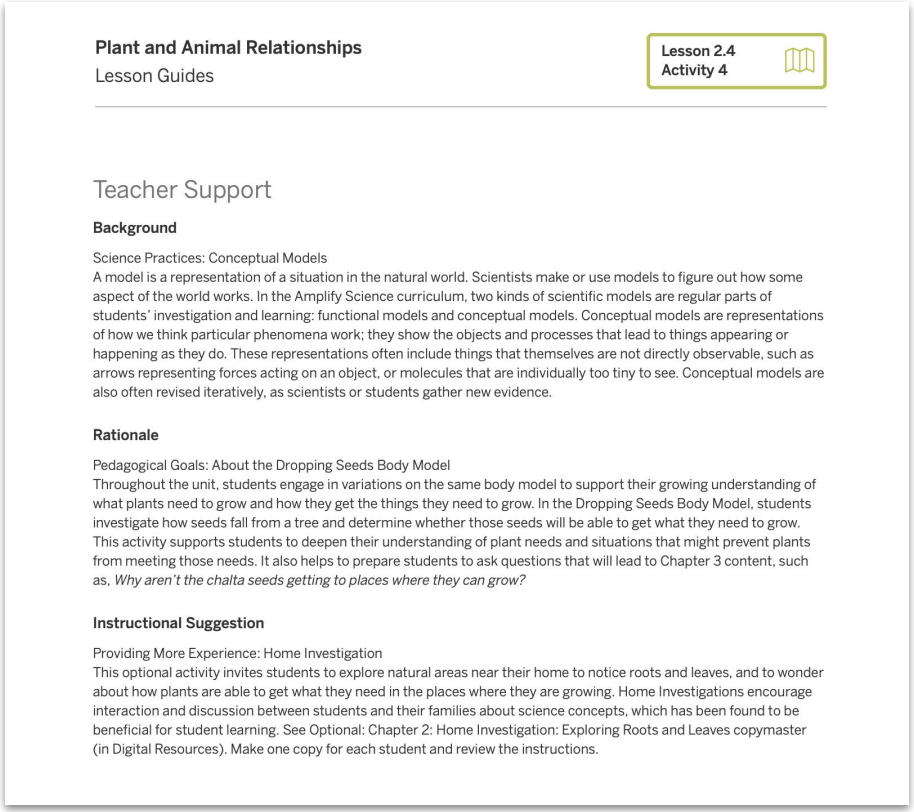
Lesson 1.3, Activity 2

On-the-Fly Assessment 2: Visualizing Size and Distance

Look for: This lesson serves as an introduction to the reading strategy of visualizing. It is also students' first opportunity to employ the strategy during reading as a tool to support comprehension. Students are encouraged to make a picture in their minds and to connect their own experiences with the sizes of objects and distances between

Teacher support notes

- Activity-specific background information or suggestions



Plant and Animal Relationships
Lesson Guides

Lesson 2.4
Activity 4

Teacher Support

Background

Science Practices: Conceptual Models
A model is a representation of a situation in the natural world. Scientists make or use models to figure out how some aspect of the world works. In the Amplify Science curriculum, two kinds of scientific models are regular parts of students' investigation and learning: functional models and conceptual models. Conceptual models are representations of how we think particular phenomena work; they show the objects and processes that lead to things appearing or happening as they do. These representations often include things that themselves are not directly observable, such as arrows representing forces acting on an object, or molecules that are individually too tiny to see. Conceptual models are also often revised iteratively, as scientists or students gather new evidence.

Rationale

Pedagogical Goals: About the Dropping Seeds Body Model
Throughout the unit, students engage in variations on the same body model to support their growing understanding of what plants need to grow and how they get the things they need to grow. In the Dropping Seeds Body Model, students investigate how seeds fall from a tree and determine whether those seeds will be able to get what they need to grow. This activity supports students to deepen their understanding of plant needs and situations that might prevent plants from meeting those needs. It also helps to prepare students to ask questions that will lead to Chapter 3 content, such as, *Why aren't the chalta seeds getting to places where they can grow?*

Instructional Suggestion

Providing More Experience: Home Investigation
This optional activity invites students to explore natural areas near their home to notice roots and leaves, and to wonder about how plants are able to get what they need in the places where they are growing. Home Investigations encourage interaction and discussion between students and their families about science concepts, which has been found to be beneficial for student learning. See Optional: Chapter 2: Home Investigation: Exploring Roots and Leaves copymaster (in Digital Resources). Make one copy for each student and review the instructions.

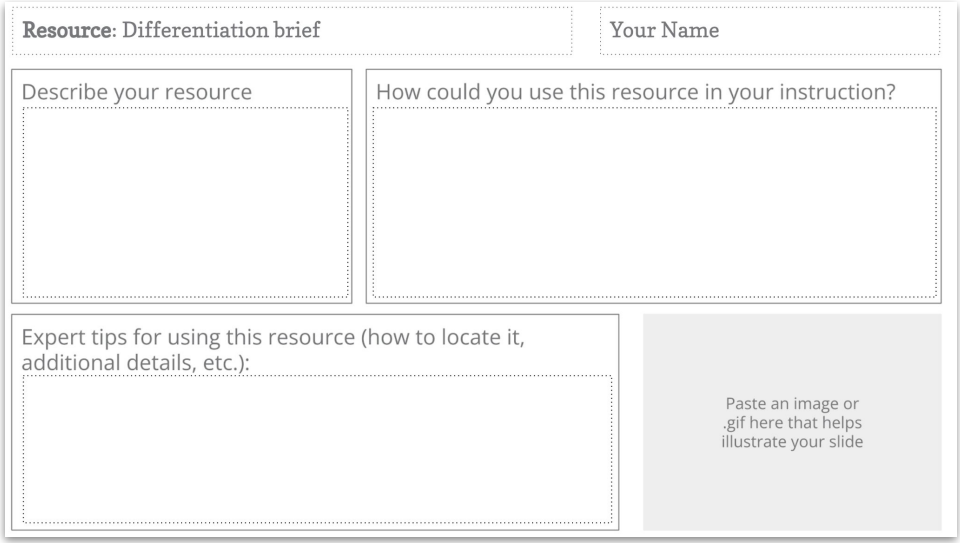
Group jigsaw activity

Together: Assign roles

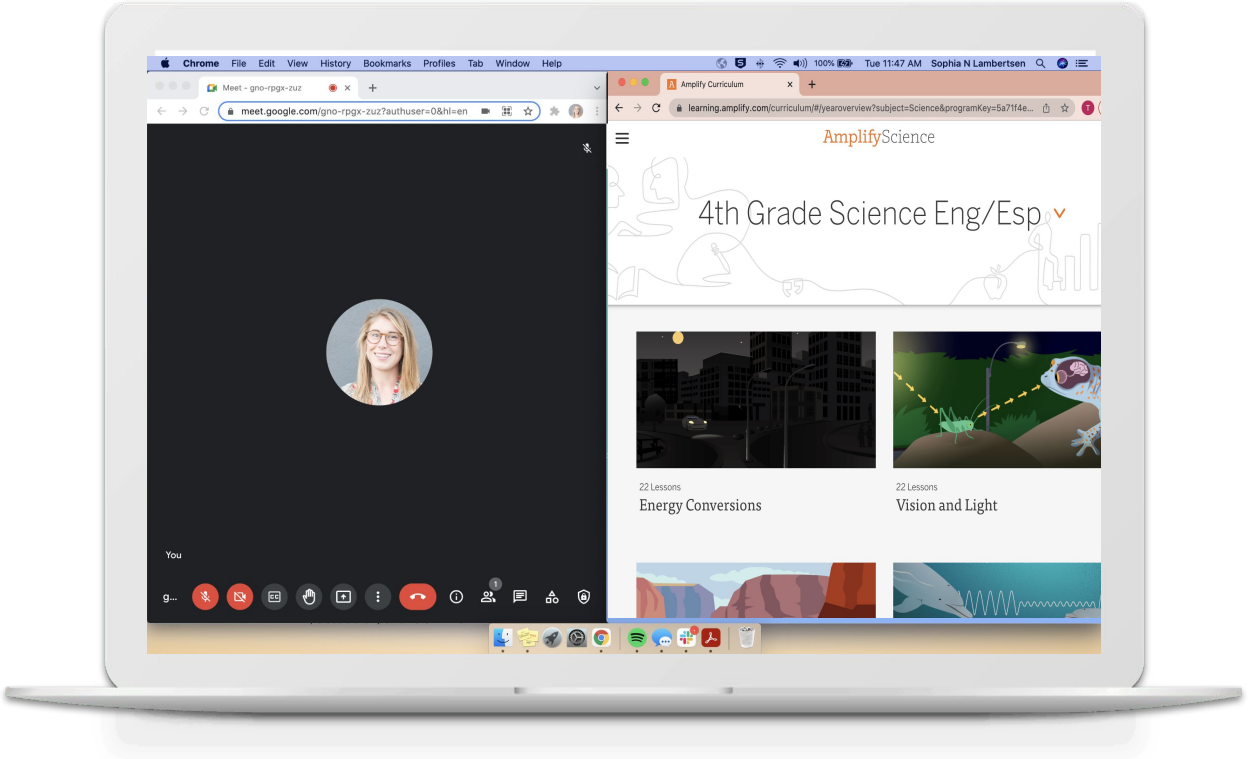
Independently (15 minutes):

- Preview your next lesson
- Explore your resource
- Make your slide

Together (10 minutes): Share slides and generate questions

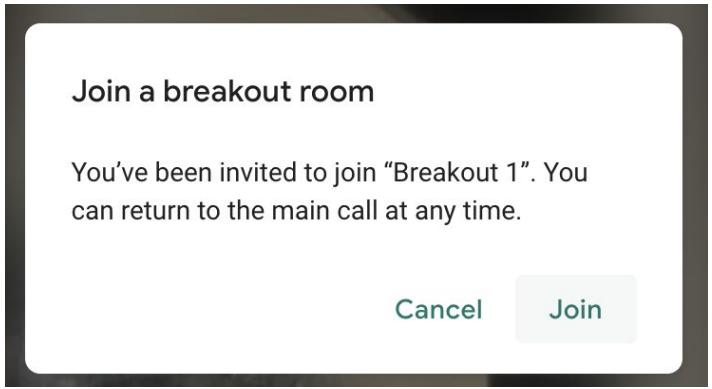


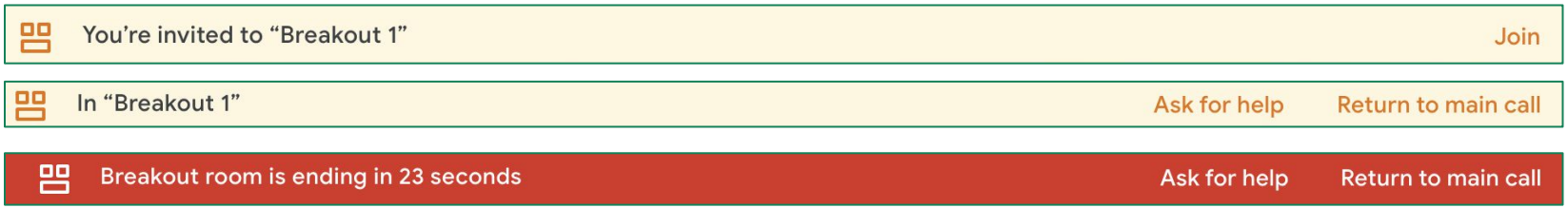
Screen setup



Breakout rooms

What to expect

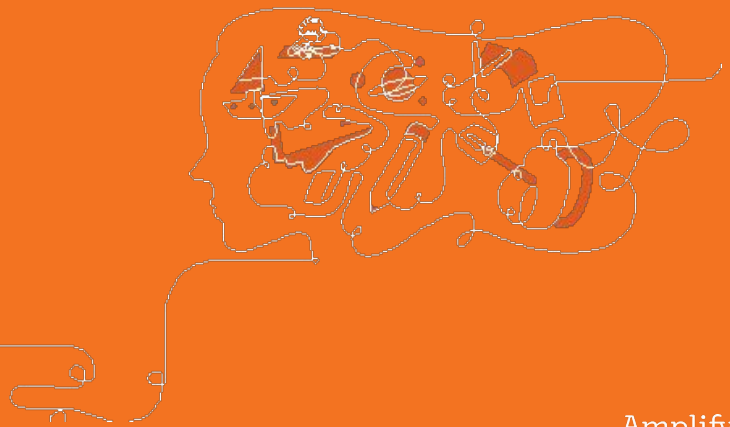




Group reflection: Teaching resources

Please share a question you still have or something new you learned from the jigsaw activity.

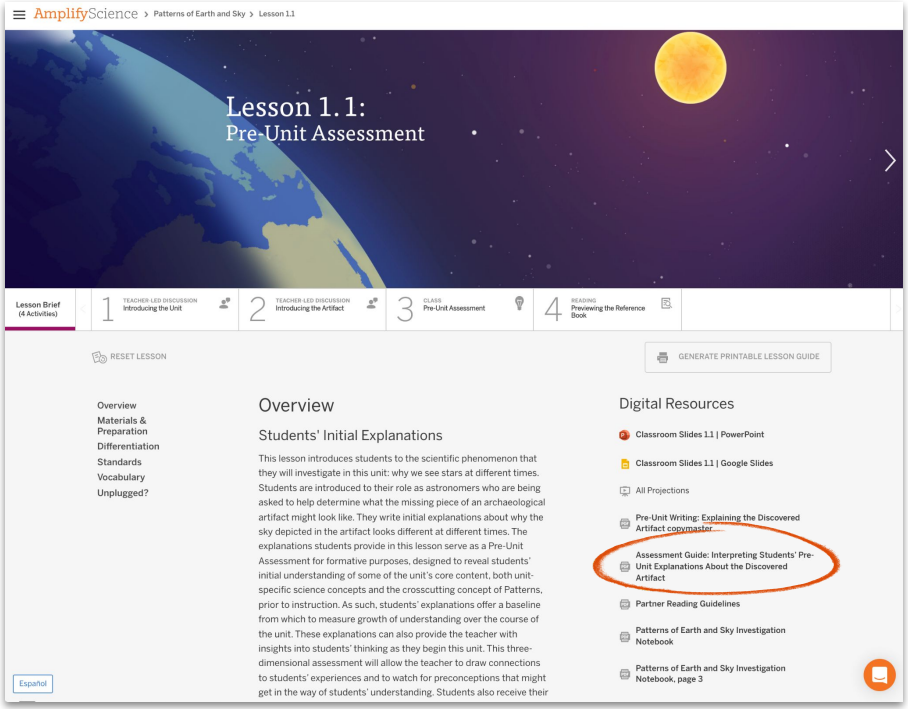
Additional resources for supporting diverse learners



Additional resources for supporting diverse learners

Pre-Unit Assessment Guide

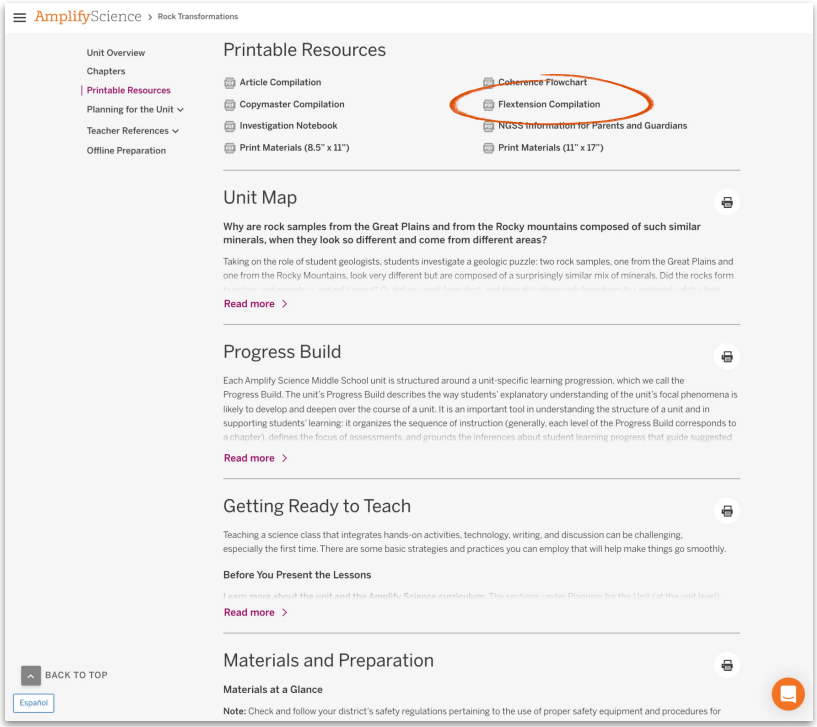
- Found in Lesson 1.1 Digital Resources
- Outlines typical prior knowledge and potential preconceptions



Additional resources for supporting diverse learners

Flextensions

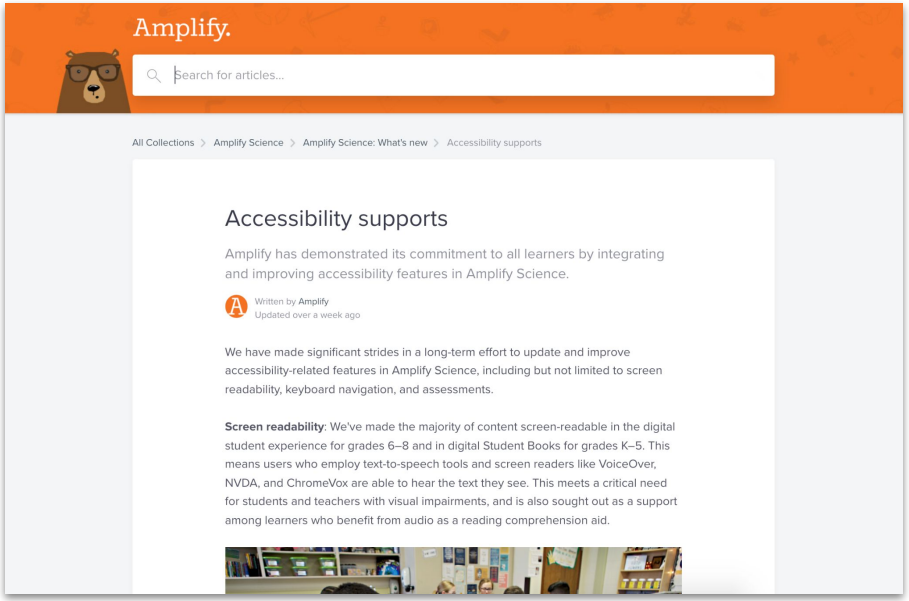
- Additional hands-on investigations to accompany unit instruction
- Compilation available in Printable Resource section on the unit landing page



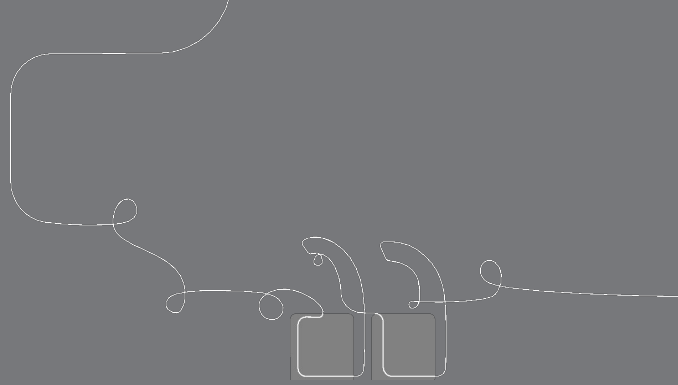
Additional resources for supporting diverse learners

Accessibility supports

- Detailed overview available on Amplify help site:
  bit.ly/ASaccessibility

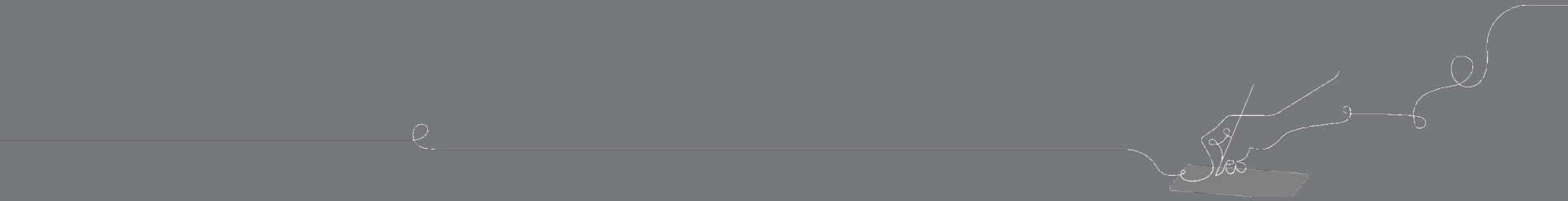


Questions?



Workshop goal

By the end of this session, participants will identify at least one new way they'll use the teaching resources in Amplify Science to support the diverse needs of learners in their classrooms.



Timing Sample clock time	Part	Components
5 8:00-8:05	Part 1: Welcome	• Icebreaker • Norms, session goal, and agenda
20 8:05-8:25	Part 2: Model activity	• Introduce and contextualize (2) • Teacher modeling (5) • Log in (3) • Partner work fishbowl (5) • Flex (5)
15 8:25-8:40	Part 3: Reflection	• Reflection 1: Teacher modeling (7) • Reflection 2: Partner discourse (8)
15 8:40-8:55	Part 4: Resources and planning	• Introduce Discourse routine resource and work time (3) • Looking ahead to an upcoming lesson (10) • Share out (2)
10 8:55-9:00	Part 5: Wrap up	• Reflection and closing

Prep

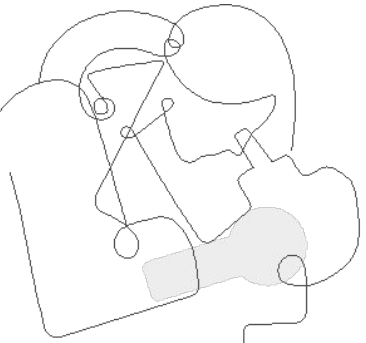
1. Review the Service Appointment in Salesforce to determine what materials the school has purchased (digital access, Investigation Notebooks, Spanish access, etc.), any previous training teachers have had, and look for any special notes.
2. Email the Point of Contact with the email template found in the Handbook. Note that there isn't a PN for this session so you can remove language referring to one in the email.
3. Make a copy of this deck then update and customize it for your audience:
    a. Update title slide: update presenter name and school name. If you are **not** leading this session as part of a three-part series, update the session title as well.
    b. Use the blue presenter notes throughout the deck for guidance on which slides to hide based on the curriculum edition your site is using.
    c. Update survey slide: update presenter name
    d. Add your PLS demo account to the login slide.
4. Practice navigating to the Discourse routines reference document on the Program Hub so you're prepared to model this process: Amplify Science curriculum -> Global Navigation -> Program Hub -> Professional Learning Resources -> Additional Support -> Supporting Diverse Learners card -> Discourse routines reference.pdf
5. On the day of the session, log in with your training demo account and open the following:
    a. Scale Tool: learning.amplify.com/scaletool
    b. Amplify Science Program Hub

Amplify Science

Supporting Diverse Learners with Amplify Science

Session 2: Embedded Supports:

Teacher modeling and student discourse



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Norms: Establishing a culture of learners

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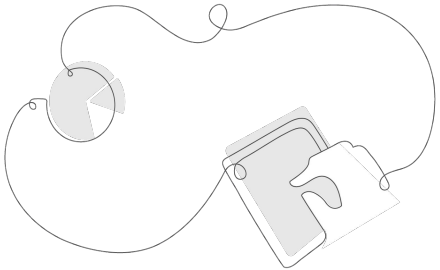

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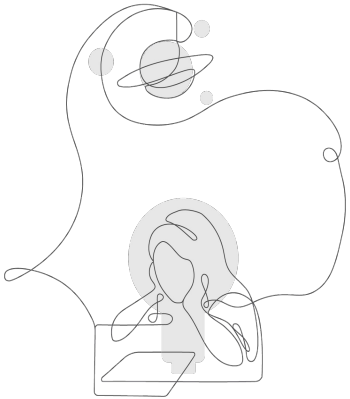
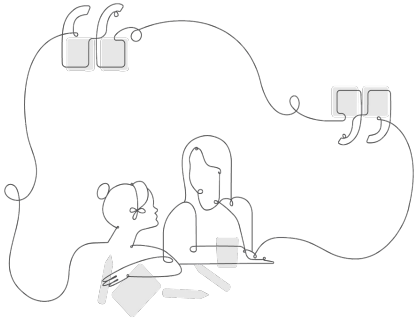
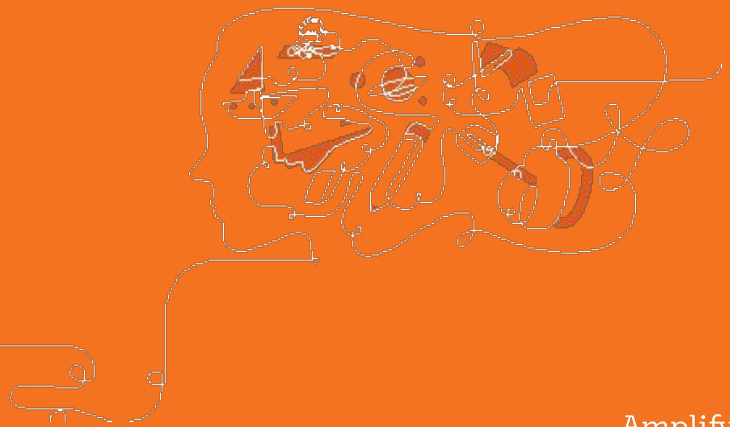


Session 2:
Embedded supports A



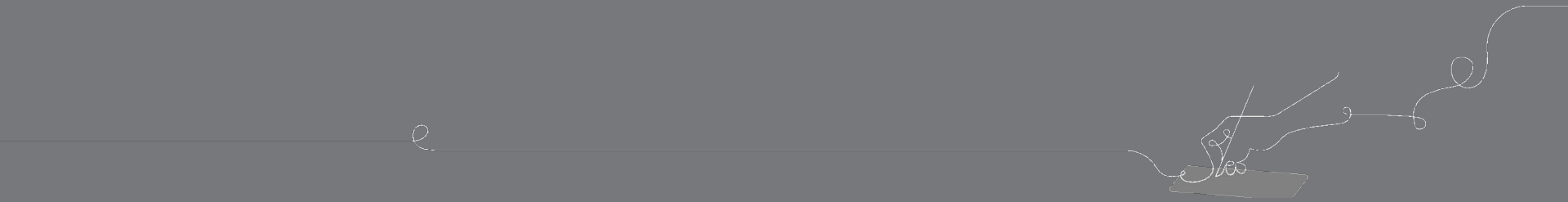
Session 3:
Embedded supports B

Part 2



Workshop goal

By the end of this session, participants will have a plan to leverage teacher modeling and/or student discourse to support the diverse needs of learners in their classrooms in an upcoming lesson.



Example activity

Grade 5: *Ecosystem Restoration*

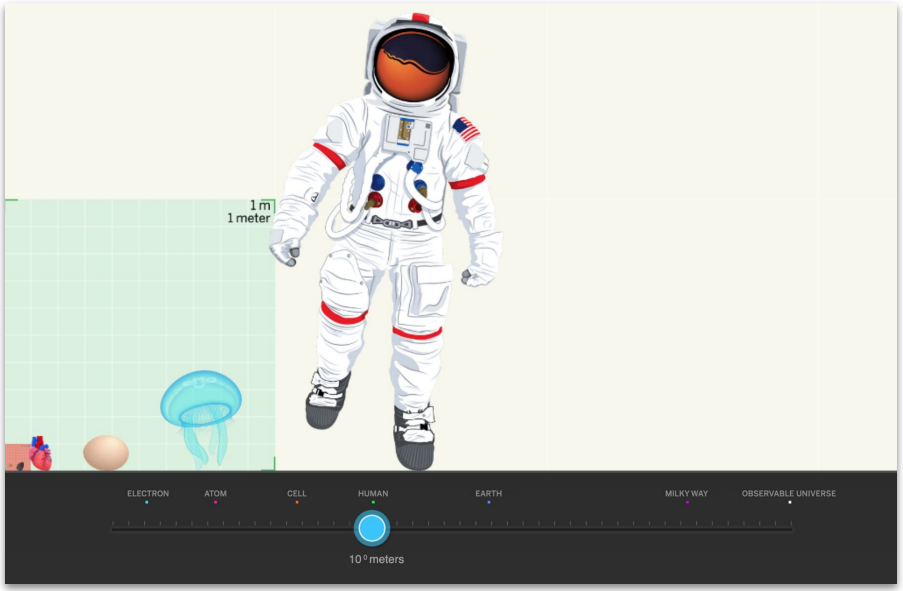
Key idea:

Animals grow by changing food molecules into body molecules that can build their bodies.

Example activity

Scale Tool

Pay attention to how **teacher modeling** and **student discourse** support all students to access this complex content.



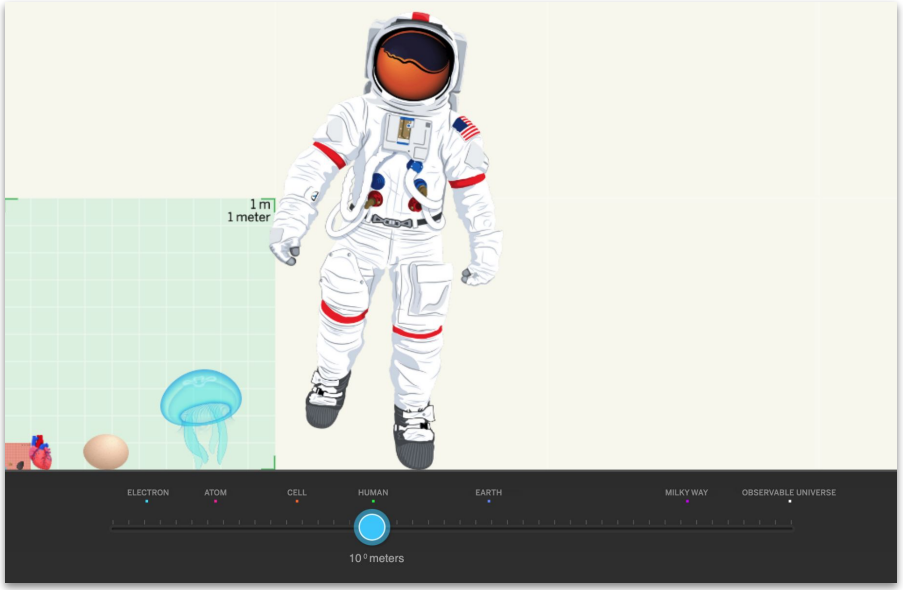
Log in

Scale Tool

1. Open an Incognito or Private window.
2. learning.amplify.com/scaletool
3. Log in with a demo account:

   Username: **nationalsciX@pd.tryamplify.net**

   Password: **AmplifyNumber1**



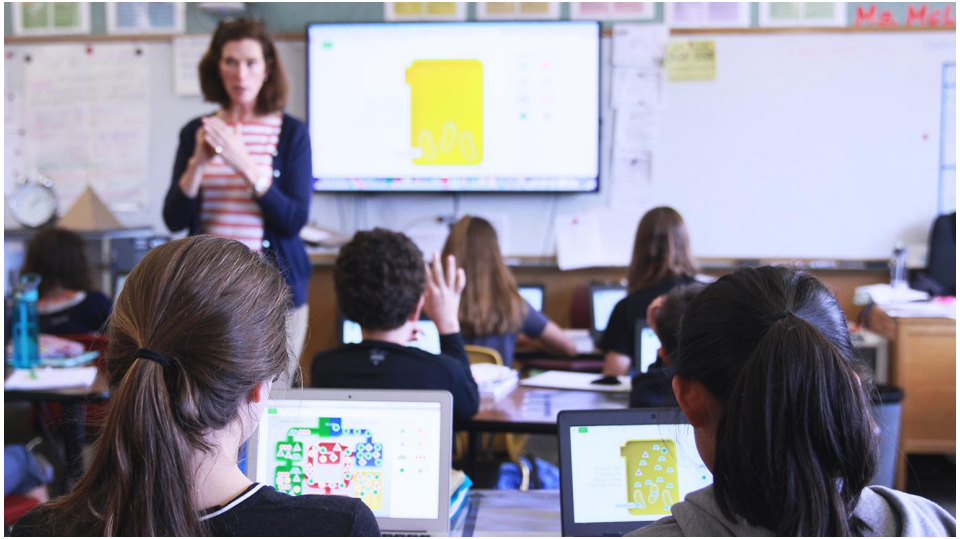
Scale Tool fishbowl

Model student volunteers will:

- Compare familiar objects to ones they've never seen before
- Try to figure out which objects are too small to see with human eyes

Reflection

How was **teacher modeling** supportive in the example activity?



Leverage and build upon an embedded support

Think-aloud modeling

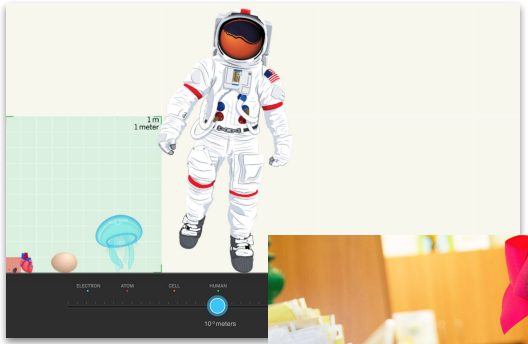
Make expert thinking visible:

- Digital tools
- Reading
- Writing
- Puzzling and sensemaking
- Reflecting on learning
- Full class, small groups, or one-on-one discussions with students

Reflection

How was **partner discourse** supportive in the example activity?

What can we do to make partner work **more** supportive and effective?

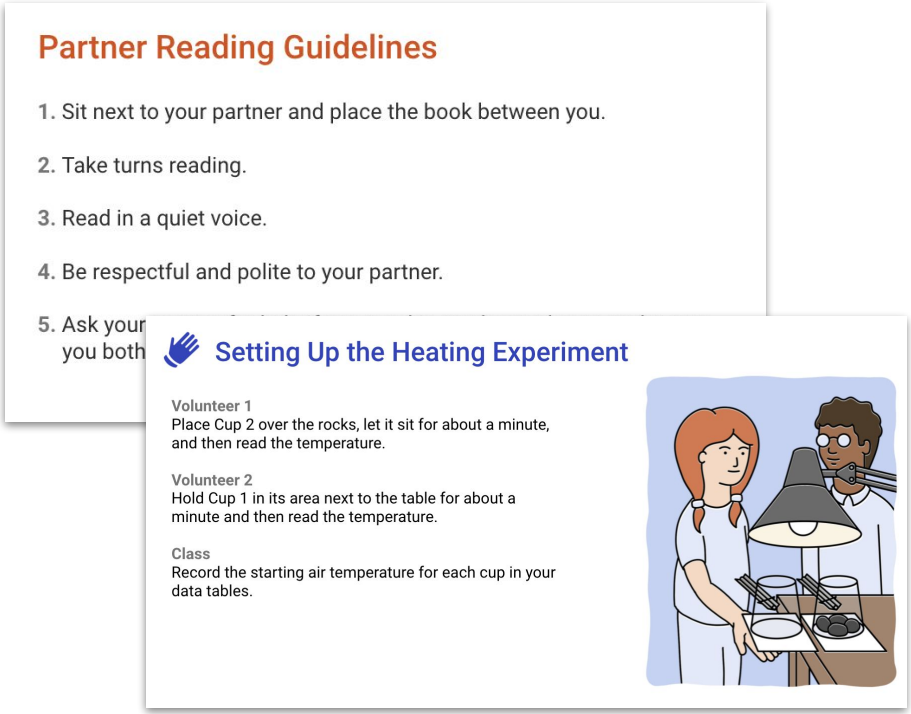


Leverage and build upon an embedded support

Partner and group work

Guidelines:

- Partner reading guidelines (K-5)
- Active Reading guidelines (6-8)
- Guidelines for using apps
- Visual instructions for group work
  - Assign specific roles to group members

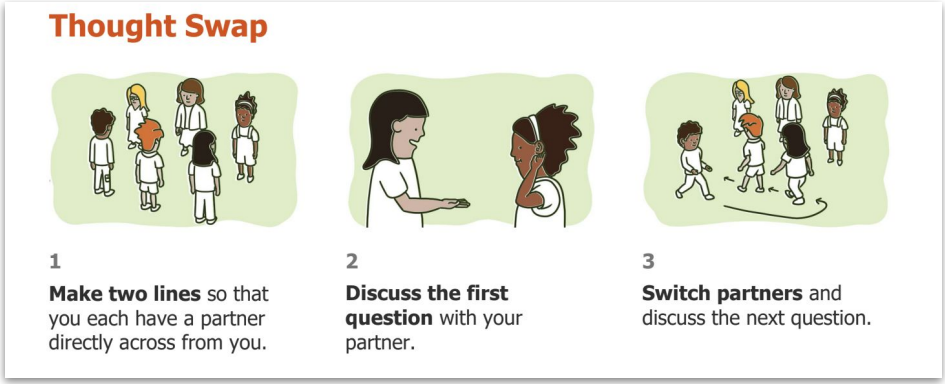


Leverage and build upon embedded supports

Partner and group work

Discourse routines:

- Structured pair or small-group talk routines
- Low-stakes rehearsal for full-group discussion or writing
- Formative assessment opportunities

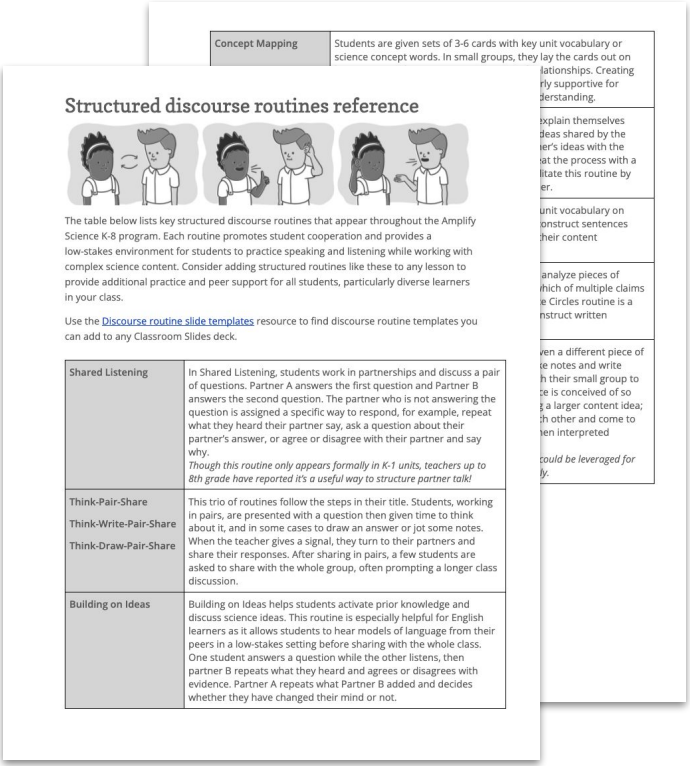


Leverage and build upon embedded supports

Discourse routine resources

Add discourse routines to lessons:

- To provide extra practice
- For sensemaking around challenging concepts
- Before full-class discussions or formal writing opportunities



Concept Mapping | Students are given sets of 3-6 cards with key unit vocabulary or science concept words. In small groups, they lay the cards out on ...lationships. Creating ...rly supportive for ...derstanding.

...explain themselves ...deas shared by the ...er's ideas with the ...at the process with a ...litate this routine by ...er.

...unit vocabulary on ...onstruct sentences ...their content

...analyze pieces of ...which of multiple claims ...e Circles routine is a ...nstruct written

...ven a different piece of ...e notes and write ...h their small group to ...ce is conceived of so ...g a larger content idea; ...h other and come to ...nen interpreted

...could be leveraged for ...y.

Structured discourse routines reference

The table below lists key structured discourse routines that appear throughout the Amplify Science K-8 program. Each routine promotes student cooperation and provides a low-stakes environment for students to practice speaking and listening while working with complex science content. Consider adding structured routines like these to any lesson to provide additional practice and peer support for all students, particularly diverse learners in your class.

Use the Discourse routine slide templates resource to find discourse routine templates you can add to any Classroom Slides deck.

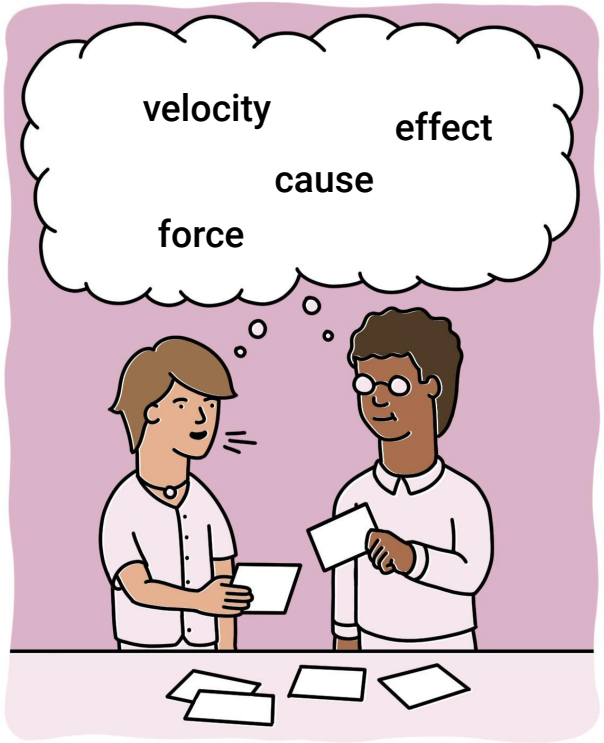
Shared Listening	In Shared Listening, students work in partnerships and discuss a pair of questions. Partner A answers the first question and Partner B answers the second question. The partner who is not answering the question is assigned a specific way to respond, for example, repeat what they heard their partner say, ask a question about their partner's answer, or agree or disagree with their partner and say why. *Though this routine only appears formally in K-1 units, teachers up to 8th grade have reported it's a useful way to structure partner talk!*
Think-Pair-Share **Think-Write-Pair-Share** **Think-Draw-Pair-Share**	This trio of routines follow the steps in their title. Students, working in pairs, are presented with a question then given time to think about it, and in some cases to draw an answer or jot some notes. When the teacher gives a signal, they turn to their partners and share their responses. After sharing in pairs, a few students are asked to share with the whole group, often prompting a longer class discussion.
Building on Ideas	Building on Ideas helps students activate prior knowledge and discuss science ideas. This routine is especially helpful for English learners as it allows students to hear models of language from their peers in a low-stakes setting before sharing with the whole class. One student answers a question while the other listens, then partner B repeats what they heard and agrees or disagrees with evidence. Partner A repeats what Partner B added and decides whether they have changed their mind or not.

Leverage and build upon embedded supports

Work time

In an upcoming lesson, plan when you can support diverse learners in your class by adding one of the following:

- Think-aloud modeling
- Partner or group work guidelines
- Structured discourse routine(s)

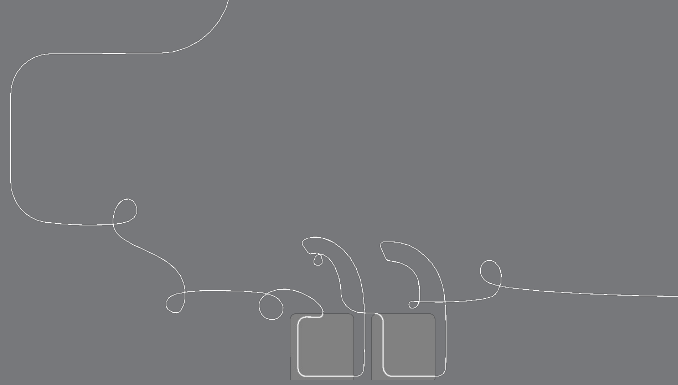


Leverage and build upon embedded supports

Work time

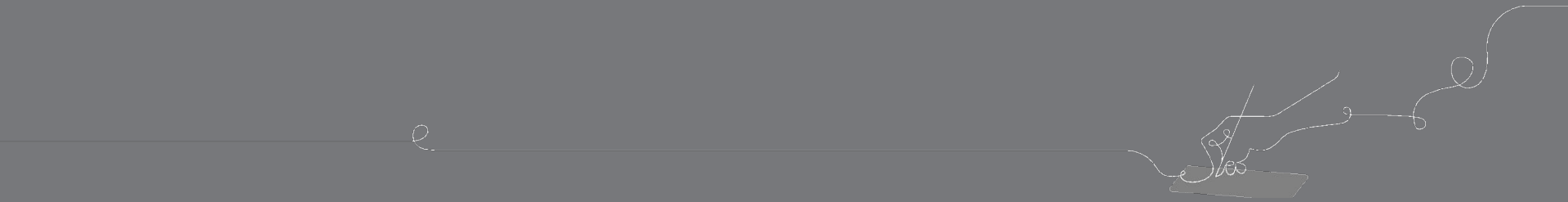
Share your plan for leveraging and building upon think-aloud modeling and student discourse in an upcoming lesson!

Questions?



Workshop goal

By the end of this session, participants will have a plan to leverage teacher modeling and/or student discourse to support the diverse needs of learners in their classrooms in an upcoming lesson.



Additional resources and ongoing support

Customer Care

Seek information specific to enrollment and rosters, technical support, materials and kits, and teaching support.

help@amplify.com

800-823-1969

Amplify Chat

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Supporting Diverse Learners: Embedded Supports A

Professional Learning Specialist name:

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(insert email, if you would like)