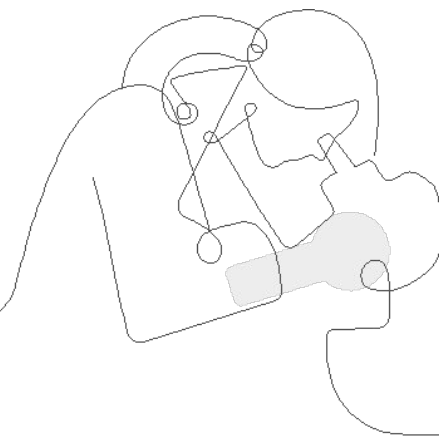


Amplify Science

Part 3: Supporting English Learners Grade 3

Strengthen workshop

School/District Name
Date
Presented by Your Name



Amplify's purpose statement

Dear teachers,

You do a job that is nearly impossible and **utterly essential**.

We are in your corner – extending your reach, saving you time, and enhancing your understanding of each student.

Thank you for working with us to craft rigorous and riveting learning experiences for your classroom.

We share your goal of **inspiring all students to think deeply, creatively, and for themselves**.

Sincerely,
Amplify

Schoolology



[← Back to Schoology Home Page](#)

LMS App Center

The LMS App Center provides a catalog of District-approved digital content and learning tools (including digital components of adopted textbooks) that are available for classroom teachers and students to access within the learning management system, Schoolology.

For information on District-approval policies and procedures, please visit: [udidp.lausd.net](#).

- To search the full list of digital learning tools, click "Submit".
- To search by Publisher Name or Textbook Title, type in a word associated to your adopted publisher, then click "Submit".
- To narrow your search with filters such as Content Area, Grade Level, or Content Type, select from the dropdown menu, then click "Submit".

To learn more about using the LMS App Center, please refer to the following [video overview](#).

Publisher Name: Starts With

Content Area: All

Grade Level: All

Content Type: All

Textbook Title: Starts With

All Amplify Products



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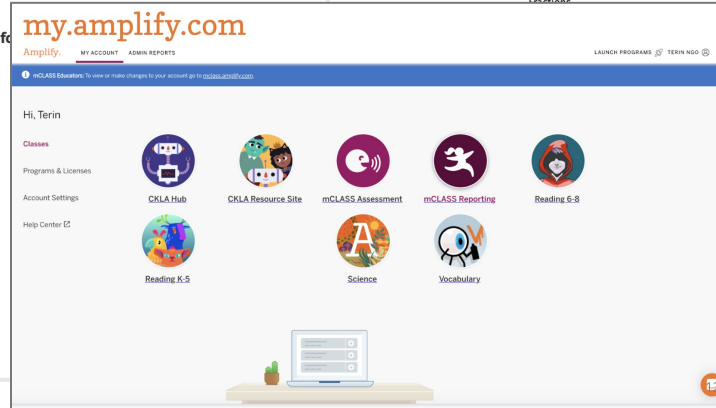
To learn more about using the LMS App Center, please refer to the following [video overview](#).

[← Search Again](#)

Amplify

Content Area: ELA
Grade Level: ES
Content Type: Supplemental
Integration Type: App (Left Navigation)
Purchase Type: District and School
[Getting Started Guide](#)
Other Info: School licenses required
mCLASS
CKLA
Amplify Reading
Amplify Science
Creative

Vendor Support Desk:
P: 800.823.9969
E: help@amplify.com
S: amplify.com/support/
Textbook Title(s):
NA



Vendor Support Desk:
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Textbook Title(s):
NA

op is for
only)

Join Amplify Science Schoology Group

To join Amplify Science Schoology
ES Group: W4PK-W466-63F5B

Navigation Temperature Check

Rate yourself on your comfort level accessing Amplify Science materials and navigating a digital curriculum.

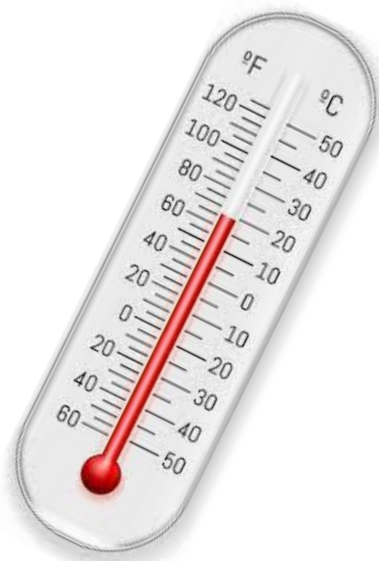
1 = Extremely Uncomfortable

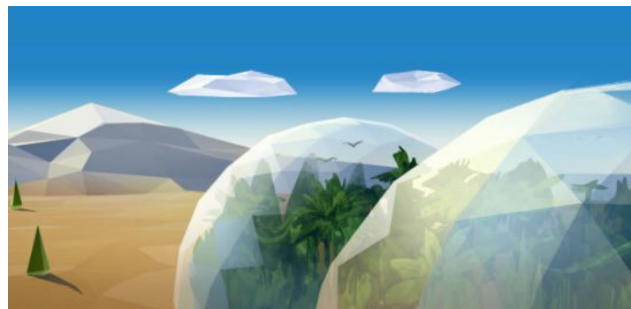
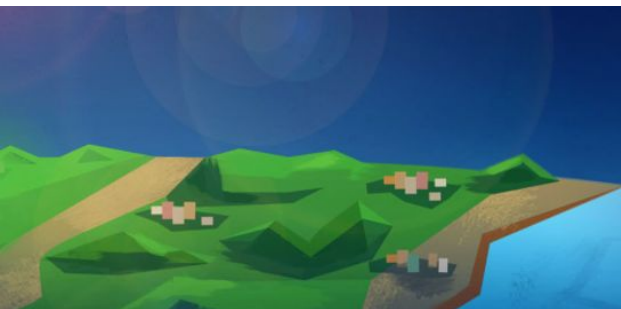
2 = Uncomfortable

3 = Mild

4 = Comfortable

5 = Extremely Comfortable





Plan for the day

- Introduction
- Language of the Science Classroom
- Embedded and Additional Supports
- Experiencing a Lesson
- Planning for Supports
- Closing

Overarching goals

- ❑ Describe the language and literacy demands in a lesson and their role in students developing science understanding
- ❑ Implement key strategies to promote English learners' academic language development and science understanding

Let's connect
this goal to
our students



Opening Reflection

What are your goals
for student outcomes?



Participant Notebook

<https://bit.ly/3fFtgfU>

Reflection

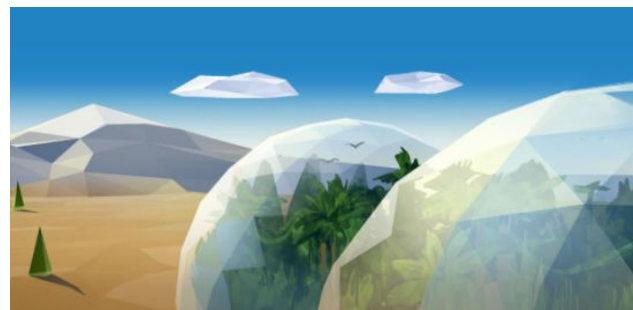
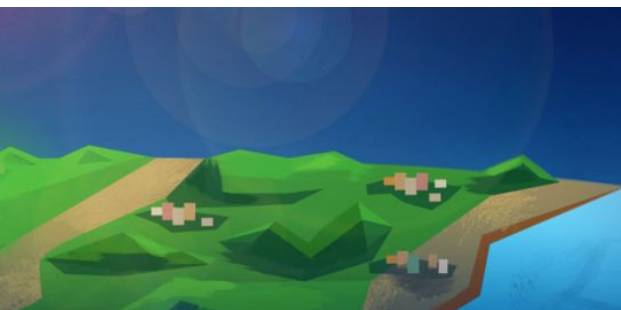
Use the provided spaces as a place for reflection throughout the session.

Session goals and student outcomes

What Connect the workshop goal(s) to an outcome you envision for your students.	Why Reflect on why you want this outcome for your students.	How How will your students achieve the outcome? Reflect on what you learned during the workshop that will impact student outcomes.

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.



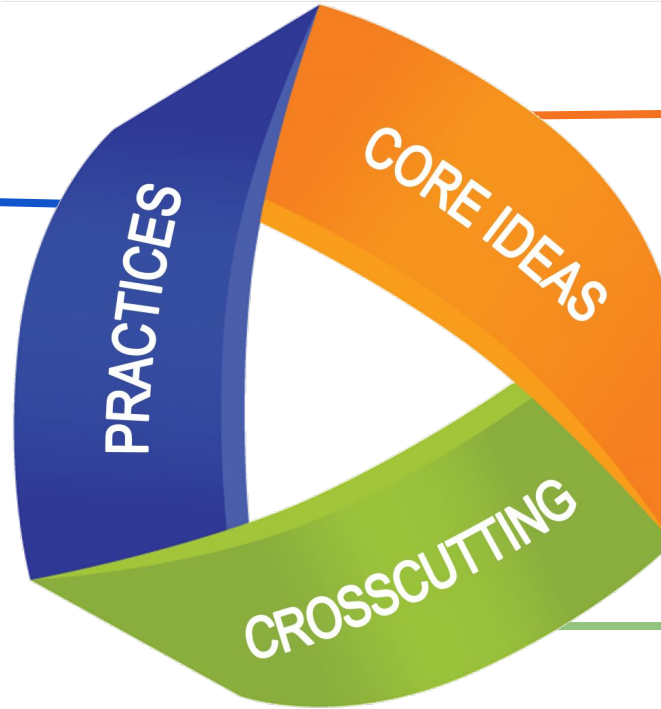
Plan for the day

- Introduction
- **Language of the Science Classroom**
- Embedded and Additional Supports
- Experiencing a Lesson
- Planning for Supports
- Closing

Language of the science classroom

Language and 3-D learning

What scientists do
Science and
Engineering Practices



What scientists
want to know
Disciplinary Core
Ideas

How scientists
think
Crosscutting Concepts

Science and Engineering Practices

inquiry

1. Asking questions (for science) and defining problems (for engineering)

2. Developing and using models

3. Planning and carrying out investigations

math

4. Analyzing and interpreting data

5. Using mathematics and computational thinking

language

6. Constructing explanations (for science) and designing solutions (for engineering)

7. Engaging in argument from evidence

8. Obtaining, evaluating, and communicating information

Academic language proficiency

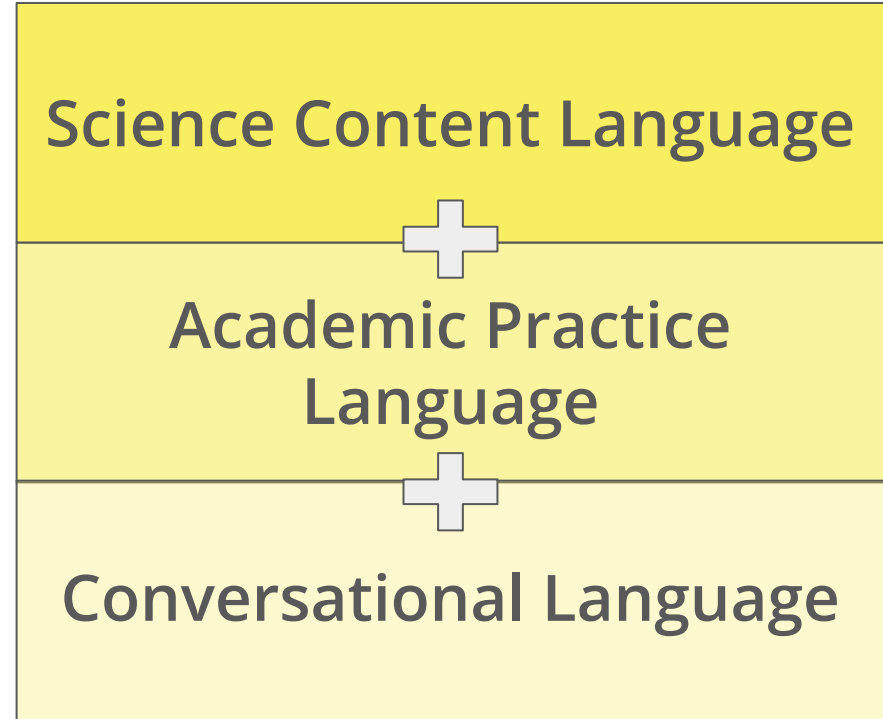
The ability to successfully use language for reading and writing and for accessing information in disciplinary content areas.



Language acquisition

Language of Science

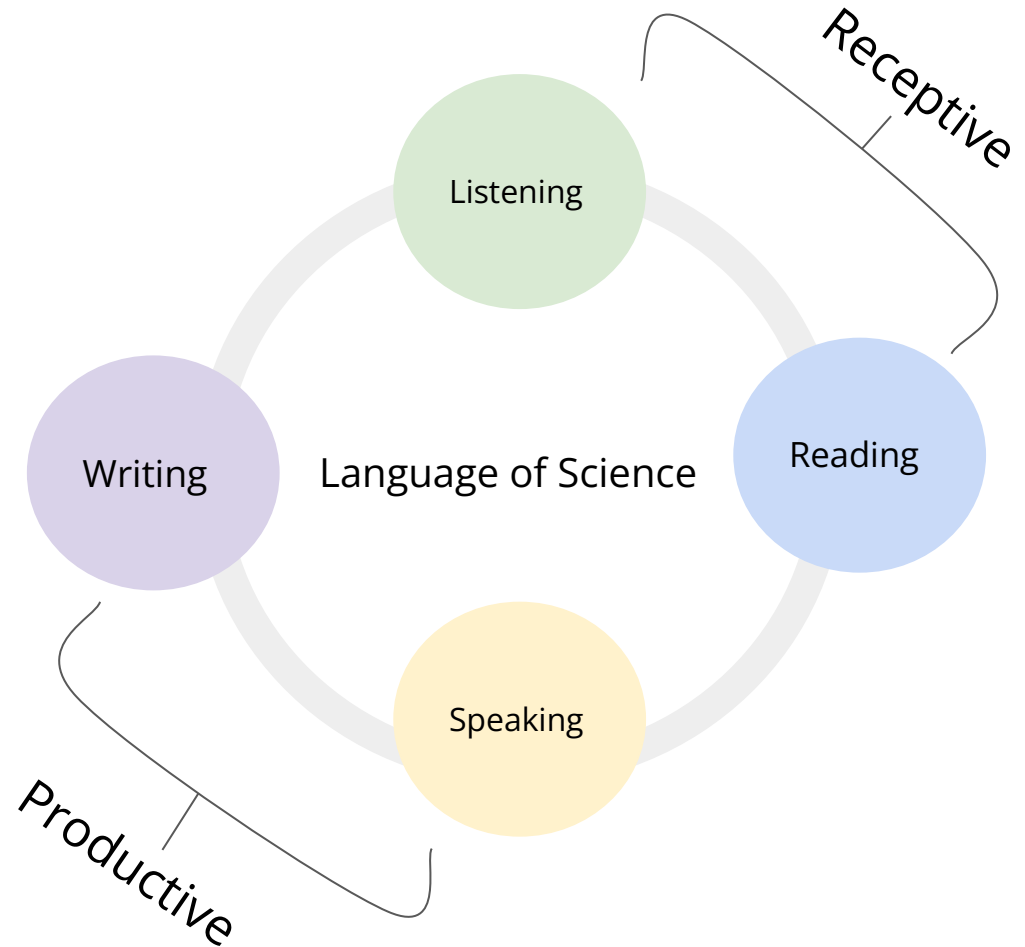
- Multimodal experiences with language
- Explicit instruction and practice



Language acquisition

Language of Science

- Learning activities to support productive and receptive language



Establishing connections among concepts

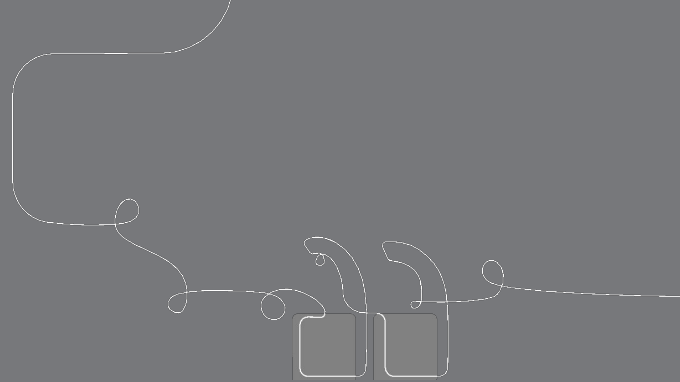
Academic
Language
Proficiency

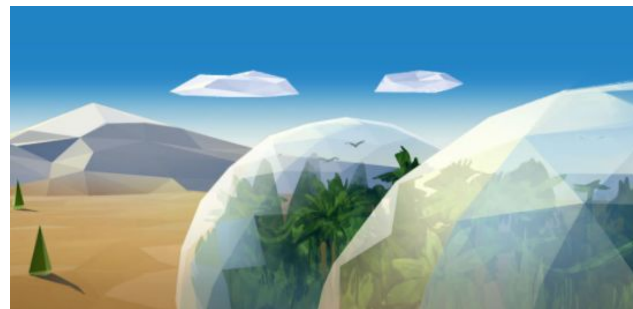
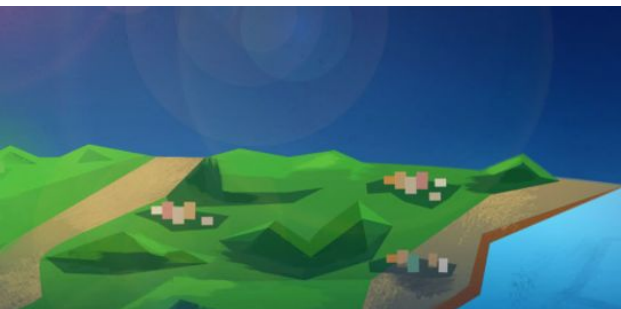
Science and
Engineering
Practices



Instructional
support

Questions?





Plan for the day

- Introduction
- Language of the Science Classroom
- **Embedded and Additional Supports**
- Experiencing a Lesson
- Planning for Supports
- Closing

Embedded supports

5 Principles for Supporting English Learners

Principle 1: Leverage and build students' informational background knowledge.

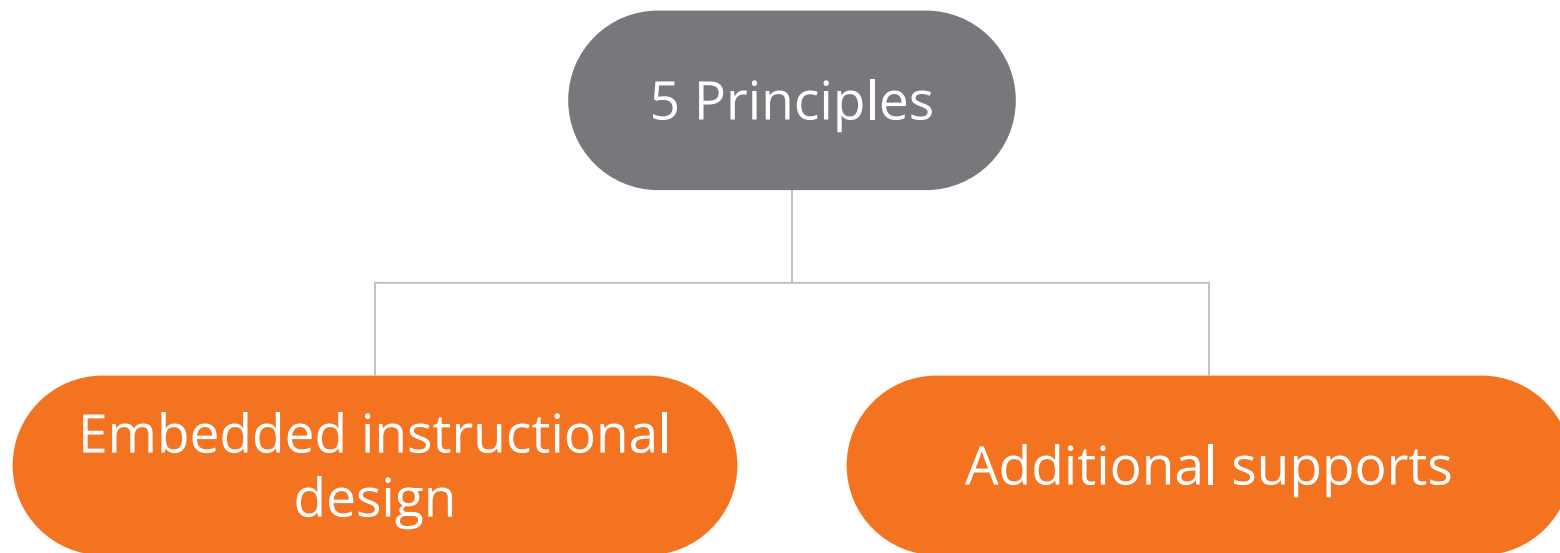
Principle 2: Capitalize on students' knowledge of language.

Principle 3: Provide explicit instruction about the language of science.

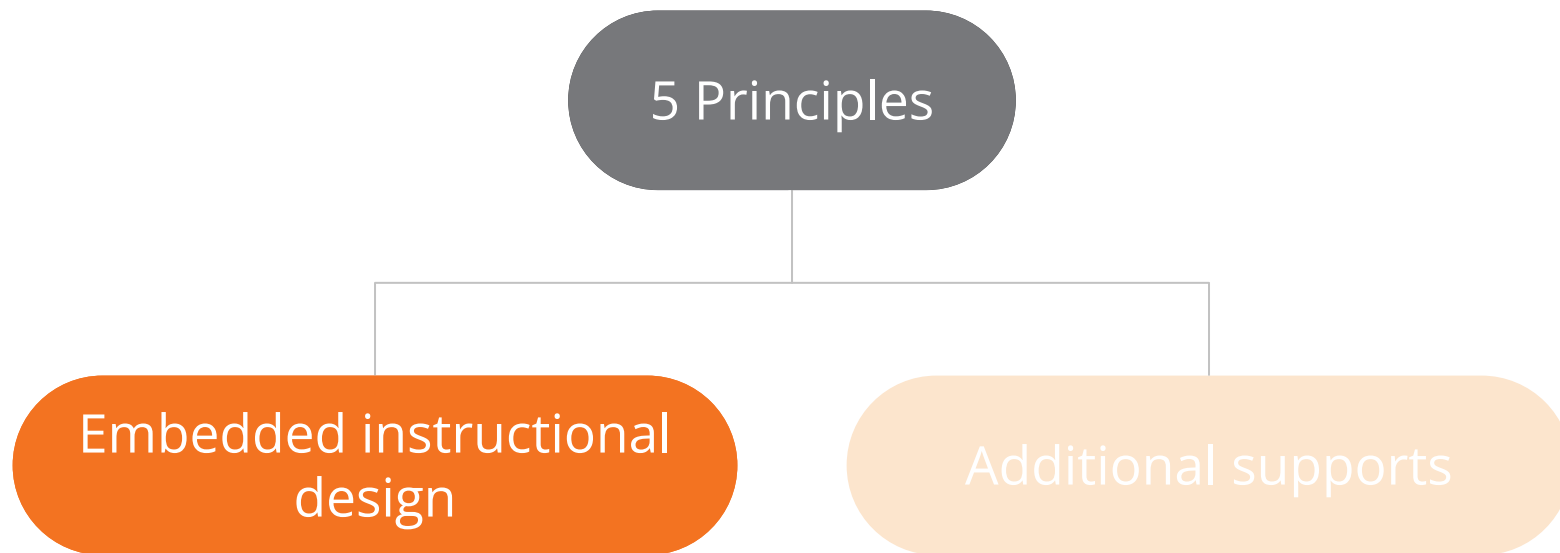
Principle 4: Provide opportunities for scaffolded practice.

Principle 5: Provide multimodal means of accessing science content and expressing language.

Supports for English learners



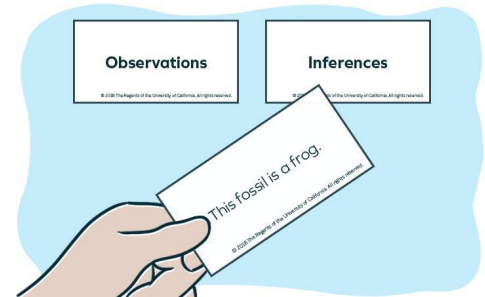
Supports for English learners



Embedded supports

Examples

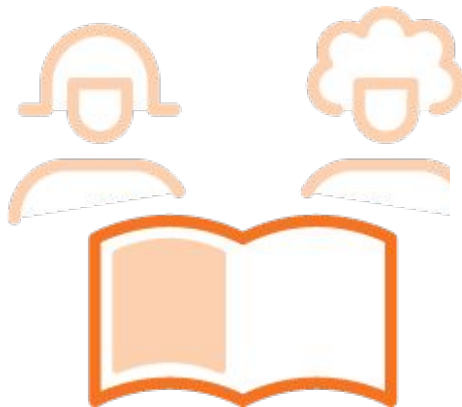
- Discourse and sensemaking Routines



Embedded supports

Examples

- Reading routines
- Multimodal Instruction

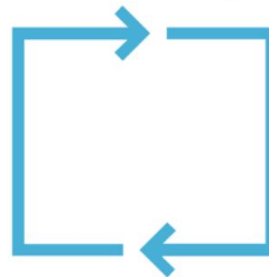


Partner Reading Guidelines

1. Sit next to your partner and place the book between you.
2. Take turns reading.
3. Read in a quiet voice.
4. Be respectful and polite to your partner.
5. Ask your partner for help if you need it. Work together to make sure you both understand what you read.

Multimodal learning

Gathering evidence over multiple lessons

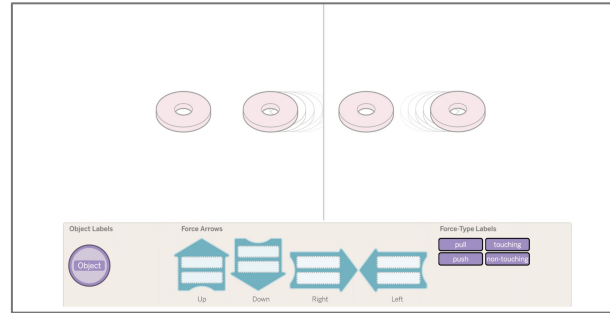


**Do,
Talk,
Read,
Write,
Visualize**

Embedded supports

Examples

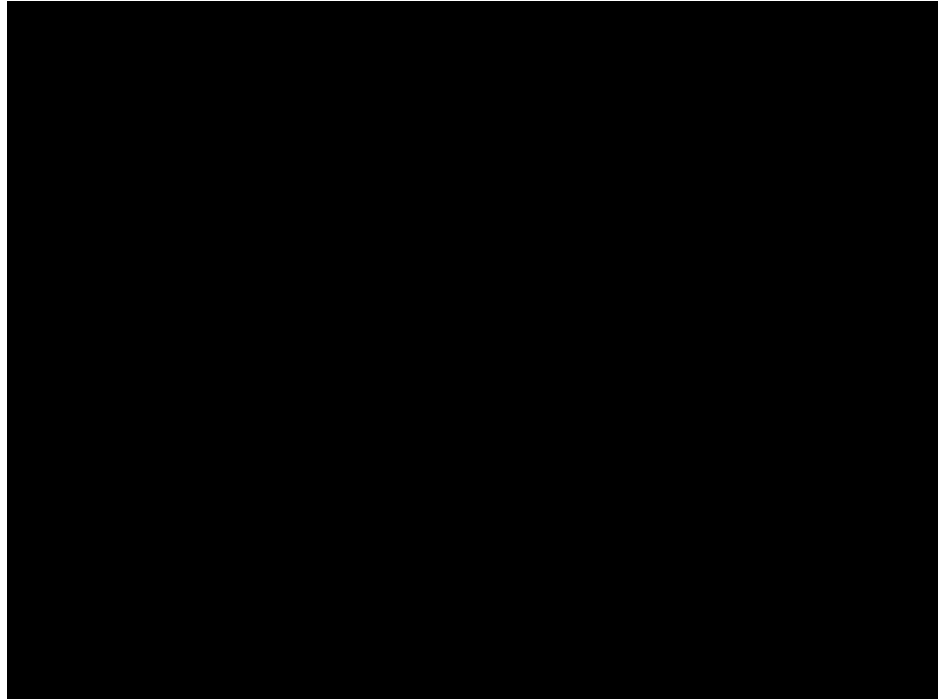
- Visual and digital models
- Visual Representations



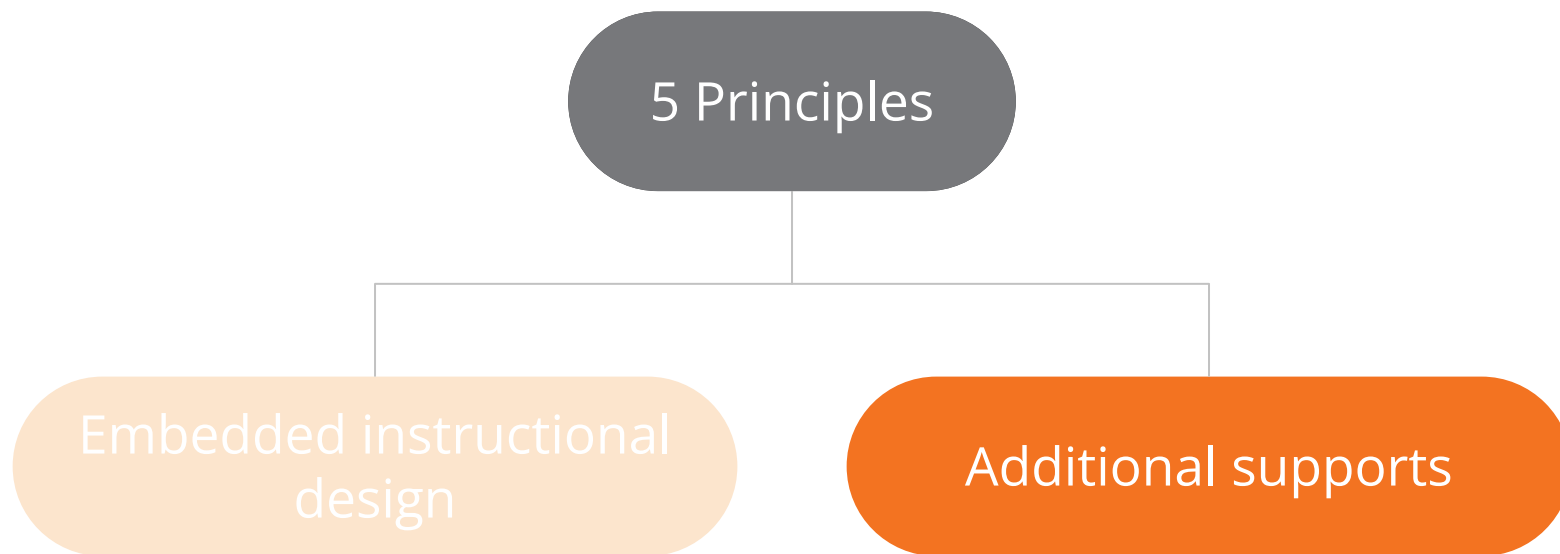
Embedded supports

Examples

- Discourse and sensemaking Routines
- Reading routines
- Multimodal Instruction
- Visual Representations
- Visual and digital models



Supports for English learners



Log in through your Schoology account

or use Demo Account

1. Go to **learning.amplify.com**
2. Select **Log in with Amplify**
3. If you're already logged in with other Google accounts, click **Use another account**
4. Enter teacher demo account credentials
 - UN: **californiasci**@pd.tryamplify.net
 - PW: AmplifyNumber1

Welcome to **Amplify**

G

Log In with Google

C

Log In with Clever

A.

Log In with Amplify

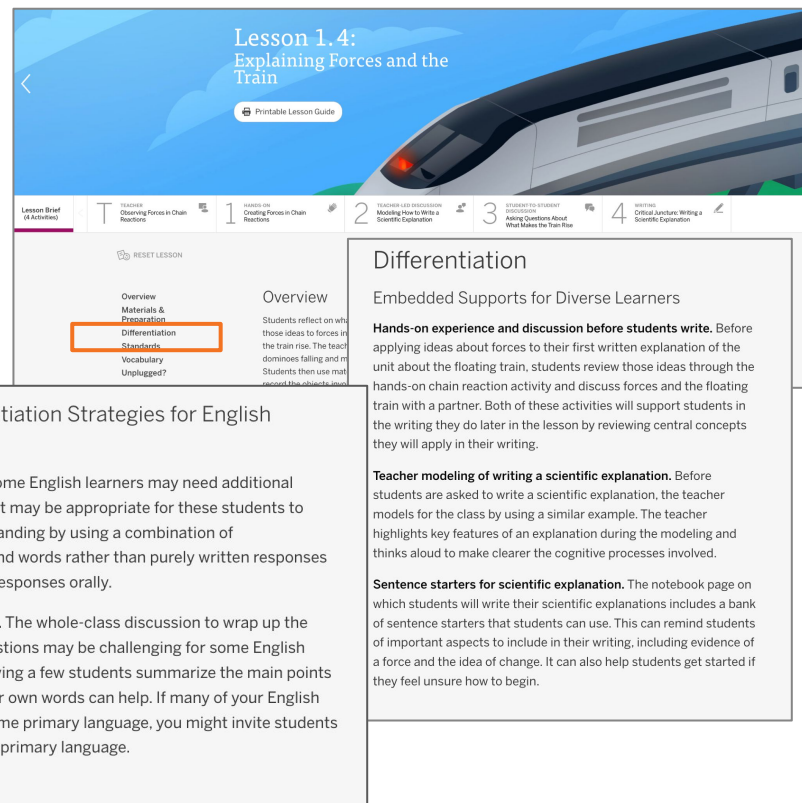


SSO login

Providing additional support

Lesson-specific differentiation

- Embedded supports for diverse learners
- Potential challenges in this lesson
- Specific differentiation strategies for:
 - English Learners
 - Students Who Need More Support
 - Students Who Need More Challenge



The screenshot shows the 'Lesson 1.4: Explaining Forces and the Train' interface. A navigation bar at the top includes a 'Printable Lesson Guide' button and a series of numbered tabs (1-4) representing different stages of the lesson. Below the navigation bar, a sidebar menu on the left lists 'Overview', 'Materials & Preparation', 'Differentiation' (highlighted with an orange box), 'Standards', 'Vocabulary', and 'Unplugged?'. The main content area is titled 'Differentiation' and 'Embedded Supports for Diverse Learners'. It contains three sections: 'Hands-on experience and discussion before students write', 'Teacher modeling of writing a scientific explanation', and 'Sentence starters for scientific explanation'. Each section provides detailed instructions for supporting diverse learners.

Lesson 1.4: Explaining Forces and the Train

Printable Lesson Guide

Lesson Brief (8 Activities)

1. Hands-on: Observing Forces in Chain Reactions

2. Hands-on: Creating Forces in Chain Reactions

3. Hands-on: Modeling How to Write a Scientific Explanation

4. Hands-on: Critical Junctions: Writing a Scientific Explanation

RESET LESSON

Overview
Materials & Preparation
Differentiation
Standards
Vocabulary
Unplugged?

Overview
Students reflect on what those ideas to forces in the train rise. The track dominoes falling and record the objects that

Differentiation

Embedded Supports for Diverse Learners

Hands-on experience and discussion before students write. Before applying ideas about forces to their first written explanation of the unit about the floating train, students review those ideas through the hands-on chain reaction activity and discuss forces and the floating train with a partner. Both of these activities will support students in the writing they do later in the lesson by reviewing central concepts they will apply in their writing.

Teacher modeling of writing a scientific explanation. Before students are asked to write a scientific explanation, the teacher models for the class by using a similar example. The teacher highlights key features of an explanation during the modeling and thinks aloud to make clearer the cognitive processes involved.

Sentence starters for scientific explanation. The notebook page on which students will write their scientific explanations includes a bank of sentence starters that students can use. This can remind students of important aspects to include in their writing, including evidence of a force and the idea of change. It can also help students get started if they feel unsure how to begin.

Providing additional support

Teacher Support notes

Lesson Brief
(6 Activities)

1 WARM-UP
Warm-Up

2 STUDENT-TO-STUDENT
DISCUSSION
Using the Reasoning Tool

3 TEACHER-LED DISCUSSION
Organizing Ideas in the
Reasoning Tool

4 WRITING
Writing Sc
Argument

Writing Scientific Arguments

ASSIGN

Students build on the work they have done by using the Reasoning Tool to write a scientific argument.(15 min)

POLL

INSTRUCTIONAL GUIDE

Step-by-stepTeacher SupportPossible ResponsesMy Notes

1. Project Using the Reasoning Tool to Write an Argument and prompt students to elaborate on the ideas in their Reasoning Tools when they write. Point out that the three colors show the elements that make a convincing argument: a claim, specific evidence, and an explanation of how the evidence supports the claim.

2. Point out that students are describing processes at different scales. Remind students that they may need to describe processes at different scales as they detail their arguments. Some processes, such as prevailing winds and ocean currents happen at a global scale, while others, such as energy transfer, may be best described at a local scale, specific to the area near South China.

3. Project and introduce Scientific Argument Sentence Starters. Point out that students can use these sentence starters as an aid to connecting ideas and sentences more clearly.

Using the Reasoning Tool to Write an Argument

For claims: which states that South China during the late Carboniferous was...

Describe the evidence: South China's temperature during the late Carboniferous was...

Explain how the evidence supports the claim: South China's temperature during the late Carboniferous was...

Scientific Argument Sentence Starters

1. I believe that...

2. I think that...

3. I am not sure about...

4. I am not sure about...

5. I am not sure about...

6. I am not sure about...

7. I am not sure about...

8. I am not sure about...

9. I am not sure about...

10. I am not sure about...

Español

Lesson Brief
(6 Activities)

1 WARM-UP
Warm-Up

2 STUDENT-TO-STUDENT
DISCUSSION
Using the Reasoning Tool

3 TEACHER-LED DISCUSSION
Organizing Ideas in the
Reasoning Tool

4 WRITING
Writing Sc
Argument

Writing Scientific Arguments

ASSIGN

Students build on the work they have done by using the Reasoning Tool to write a scientific argument.(15 min)

POLL

INSTRUCTIONAL GUIDE

Step-by-stepTeacher SupportPossible ResponsesMy Notes

Assessment

Using Rubrics: Supporting Students in Writing Their Final Arguments

In the Science Seminar for this unit, students have engaged in the work of scientists by using evidence to support a claim about South China's temperature during the late Carboniferous period. In order to assess students' written arguments from the Science Seminar, we have provided three rubrics, which can be found in Digital Resources. The rubrics are grounded in the principle that ideas in science are based on evidence, and more importantly, that students are doing science when they are making explanations and arguments. Scientists use evidence to justify why a particular explanation is the best one available.

The rubric, *Assessing Students' Understanding of Science Concepts*, may be used to assess students' written arguments for how well the writing demonstrates mastery of core science concepts from the unit. The rubric, *Assessing Students' Understanding of the Crosscutting Concept of Patterns*, may be used to assess how well students are able to apply the crosscutting concept of patterns to a specific phenomenon. The rubric, *Assessing Students' Performance of the Practice of Constructing Scientific Arguments*, may be used to guide support for students as they develop the scientific practice of argumentation and come to appreciate that science, as a field, advances through argumentation. You may choose to preview these rubrics with students before they begin their final arguments as a way of supporting their writing.

Rationale

Pedagogical Goals: Understanding the Nature of Science

One goal set forth by the Next Generation Science Standards is for students to understand the nature of science as a

Español

Providing additional support

Additional resources

- Multilingual glossaries
- Response options
- Version B Assessments (3-5)
- Word banks
- Read aloud functions
- K & 1 speaking and writing Explanation Frames

Name: _____ Date: _____

End-of-Unit Writing: Arguing About Preparing for Natural Hazards

Directions:

1. Write a scientific argument that answers the question below.
2. Include evidence that supports the claim you selected and uses scientific language.
3. Your audience is the Wildlife Protection Organization.

Question: What changes should the Wildlife Protection Organization make to their building in order to protect it from other natural hazards?

Claim: The Wildlife Protection

☐ add a lightning rod.

The evidence shows that their

The evidence also shows that

This means that

The evidence also shows that

This means that

Weather and

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English-Chinese Glossary

argument: the use of evidence to say why one idea is the best
论证: 用证据来表明某个观点为何最合理

claim: a proposed answer to a question
主张: 对某个问题的拟定答案

climate: the typical weather in a place over a long period of time
气候: 某个地方长期以来的常见天气

data: observations or measurements recorded in an investigation
数据: 调查中记录到的观察结果或测量值

evaluate: to judge how useful or accurate something is
评估: 判断某事物是否有用或准确

evidence: information that supports an answer to a question
证据: 支持问题答案的资料

graph: a way of organizing numbers that can help you see patterns
图表: 组织数字的方式, 有助于了解模式

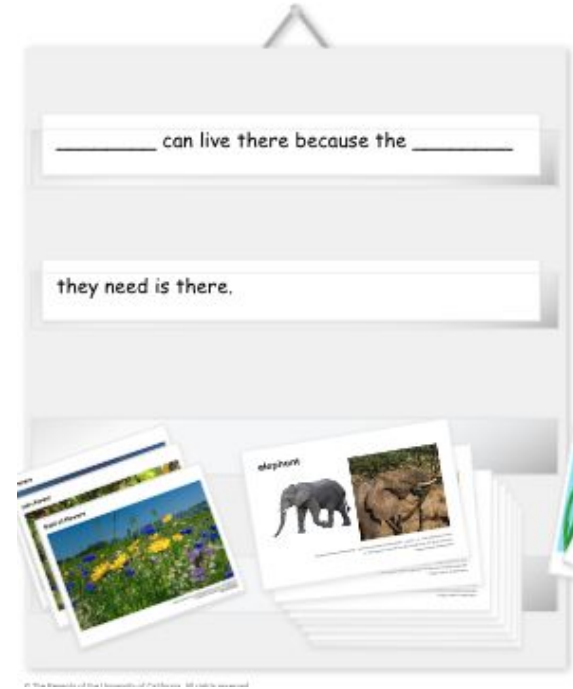
measure: to use a tool to find out information such as how heavy, how big, how fast, or how hot or cold something is
测量: 使用工具来获取物体的轻重、大小、快慢或冷热等信息

Providing additional support

Additional resources for K & 1

Support for Speaking and Writing K & 1

- Explanation Frames



We can talk about animals and what they need the way **scientists** do.

Let's use these words to explain why a **manatee** can live where it does.

_____ can live there because the _____

they need is there.



Let's use these words to explain why the **other animals** can live where they do.

_____ can live there because the _____

they need is there.





The Field



The Garden

_____ can live there because the

_____ they need are there.



monarch caterpillars



milkweed plants

Now we can explain our ideas as a scientist would.

First, let's explain why **monarch caterpillars can live in the Field.**

Why are there no monarch caterpillars since the Field was made into the Garden?

The Garden



Maniposa Grove Cards—Lesson 1.6—AMPG35606.08-KL3
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Image credit: Shutterstock

We will think about **the Garden** first.

First, you will share your ideas. Then, I will write them on this chart.

_____ cannot live there because the _____

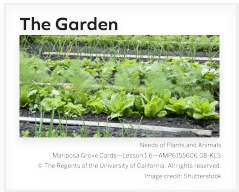
they need are not there.

_____ can live there because the _____

they need are there.

You can use these words
to talk with a partner
about **why monarch
caterpillars cannot live in
the Garden.**

**Why are there no monarch caterpillars
since the Field was made into the Garden?**



Let's record our ideas.

5 Principles for Supporting English Learners



Embedded and Additional Supports in Amplify Science

Principle 1: Leverage and build students' informational background knowledge.

Principle 2: Capitalize on students' knowledge of language.

Principle 3: Provide explicit instruction about the language of science.

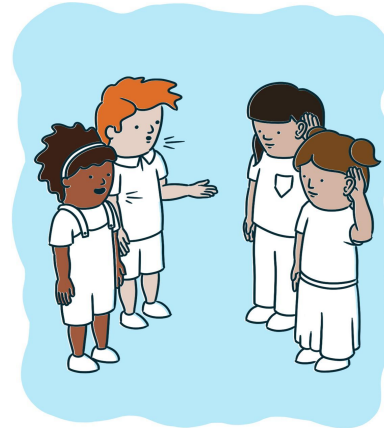
Principle 4: Provide opportunities for scaffolded practice.

Principle 5: Provide multimodal means of accessing science content and expressing language.

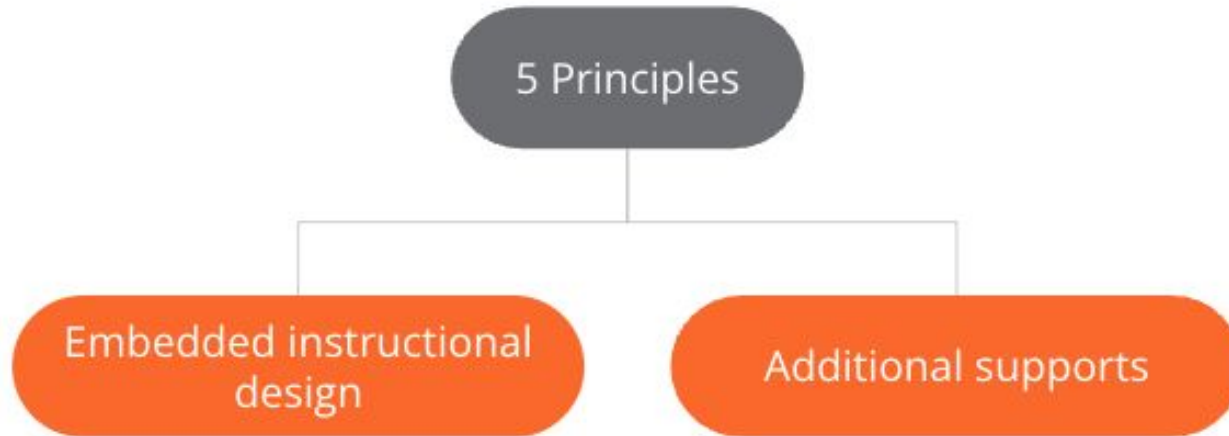
Let's Work

What are the Principles for Supporting English Learners?

- Form 5 groups in the room (could be by tables)
- Each group will be assigned a Principle to internalize.
- Independently read your group's Principle for Supporting ELLs.
- Discuss and Summarize with your group.
- Create an illustration/poster of your findings
- Share out



What are the embedded and additional supports that apply to each principle?



Principle 1: Leverage and build students' informational background knowledge.

- Partner discourse routines
- Daily written reflections
- Active reading
- Anticipation guides






Name: _____ Date: _____

Daily Written Reflection

What is a force that could happen on a playground to make an object START moving?

What is a force that could happen on a playground to make an object STOP moving?

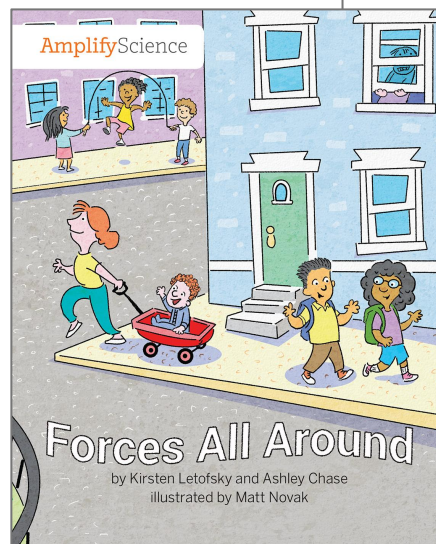
ing if it helps you explain your thinking. Label your drawing.



Balancing Forces—Lesson 1.4 (optional)

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7



Principle 2: Capitalize on students' knowledge of language.

- Science/Everyday word charts
- Leveraging native language
- Cognates
- Multilingual glossary

Specific Differentiation Strategies for English Learners

Response options. Some English learners may need additional support with writing. It may be appropriate for these students to express their understanding by using a combination of drawings/diagrams and words rather than purely written responses or by providing their responses orally.

Cognates. Many of the academic words that students will be learning over the course of this lesson and unit are Spanish cognates. Cognates are words in two or more different languages that sound and/or look the same or very nearly the same, and that have similar or identical meanings. You may decide to support students by keeping a running list on chart paper of cognates that students encounter in this unit, or by encouraging students to keep their own lists that they can refer to as needed. Cognates are especially rich linguistic resources to exploit for academic English language development and for biliteracy development.

Principle 3: Provide explicit instruction about the language of science.

- Language Frames /sentence starters
- Argumentation
- Modeling active reading
- Word Relationships
- Word banks
- Multiple meaning words



Name: _____ Date: _____

Multiple Meaning Words

Directions:

Some words can mean more than one thing. For each word in the chart:

1. Read the sentence from the book **Forces All Around** that uses the word.
2. Read the two meanings the word can have.
3. Decide which meaning the word has in the sentence from the book and circle that meaning in the table.

Word	Sentence from the book	Meaning 1	Meaning 2
	ard at was t.	a push or a pull	to make someone do something they don't want to do
	ame?" many	the sharp end of something	what you count in the score of a game
	ts were nd	a thing that can be seen or touched	the goal of a game

What Is a Scientific Argument?

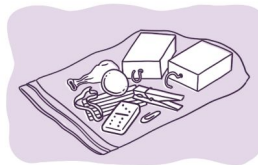
1. It answers a question with a claim about the natural world.
2. It includes evidence to support the claim.
3. It uses scientific language.
4. It is written for an audience.

Principle 4: Provide opportunities for scaffolded practice.

- Gradual release
- Graphic organizers
- Reflective writing
- Clear and concise instructions
- Language Practice
- Modeling tools

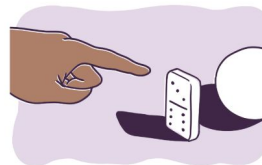


Instructions for Chain Reactions



Step 1

Use materials in the bag to make a chain reaction. You do not have to use all the materials.



Step 2

Your finger can push the first object. That object should make another object move.

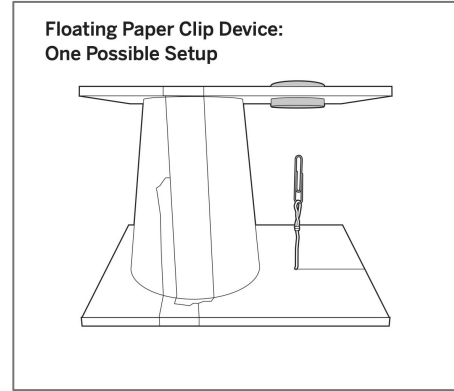


Step 3

See how many forces you can have happen in your chain reaction.

Principle 4: Provide opportunities for scaffolded practice (cont'd)

- Create and using models
- Strategic grouping
- Promoting inclusion in discussion
- Extended modeling
- Partner reading

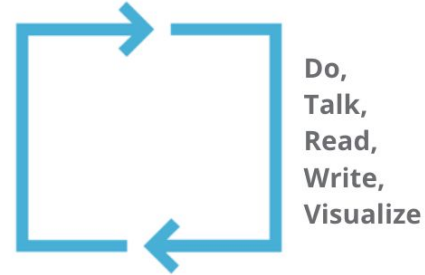


Principle 5: Provide multimodal means of accessing science content and expressing language.

- Multimodal instruction
- Use of visual representations of images
- Interpreting and creating visual representations
- Use of physical and digital models
- Additional practice in other modalities

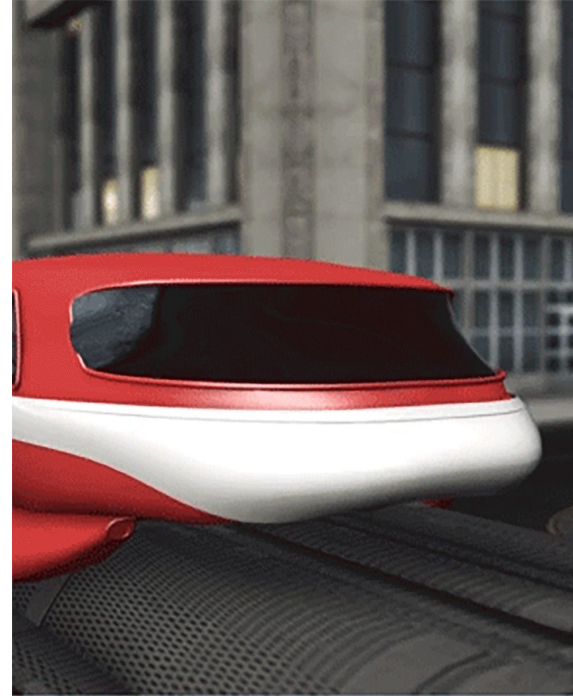
Multimodal learning

Gathering evidence over multiple lessons



Principle 5: Provide multimodal means of accessing science content and expressing language (cont'd)

- Additional visual representations
- Optional graphic organizers
- Response options
- Increase wait time for student responses
- Student summarize



Now it's your turn!

5 Principles for Supporting English Learners

Explore the embedded and additional support resources that are available.

Examples:

Unit 1 Landing page

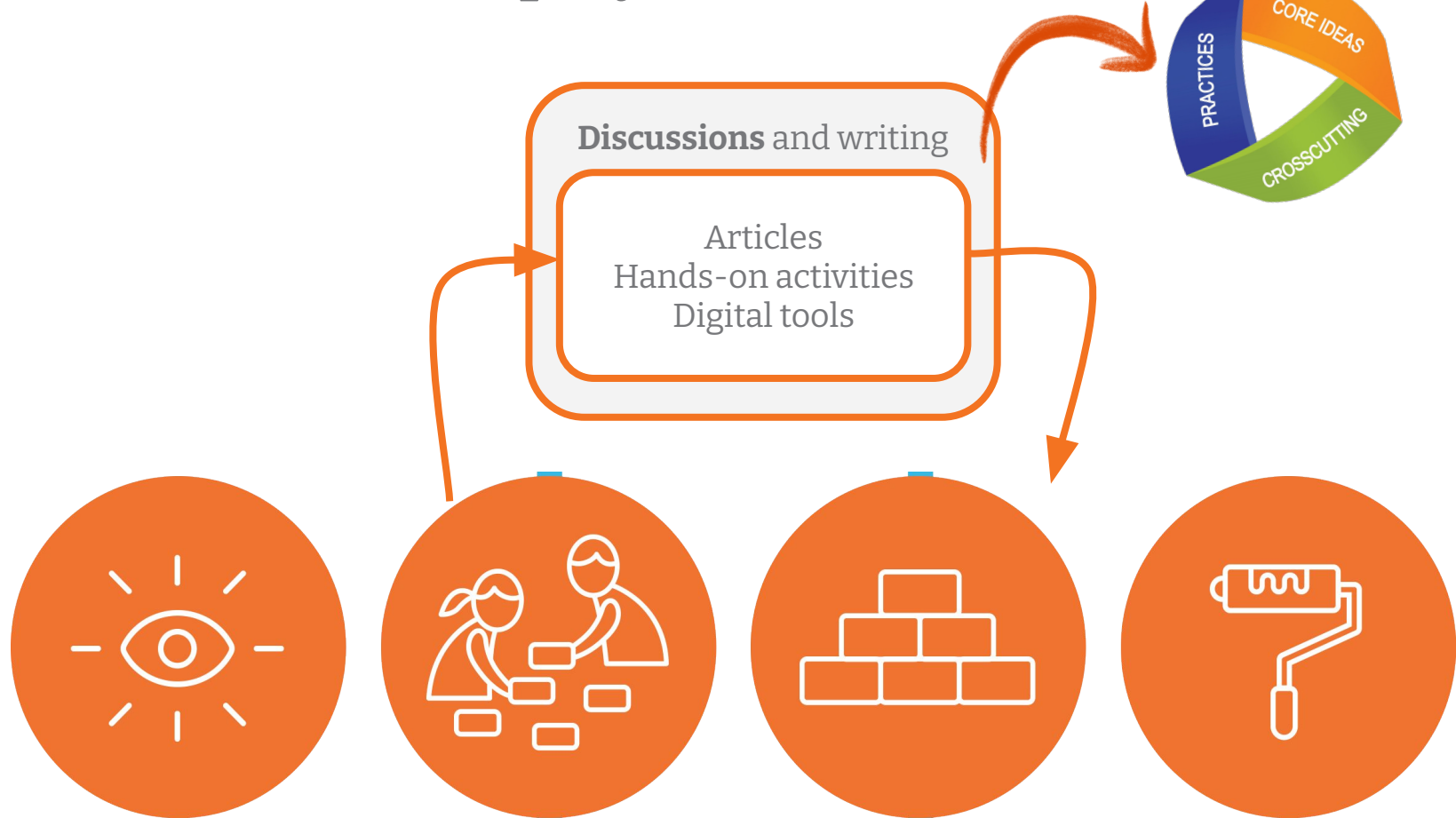
- Printable Resources
 - Investigation Notebook
 - Multi-language Glossary
 - Eliciting and Leveraging....

Lesson Page

- Lesson Brief
 - Teacher support tab
- Digital resources (depends on lesson)
 - Classroom Slides
 - Additional resources

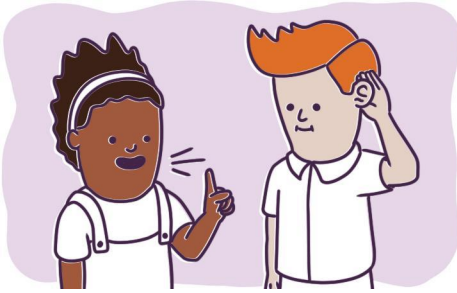
Break

Discourse within Amplify Science



Let's Practice

Discourse Routines



Discourse Routine Reference

<https://bit.ly/3rEe85g>

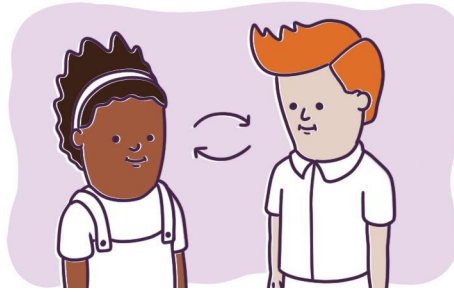
Shared Listening

Shared Listening



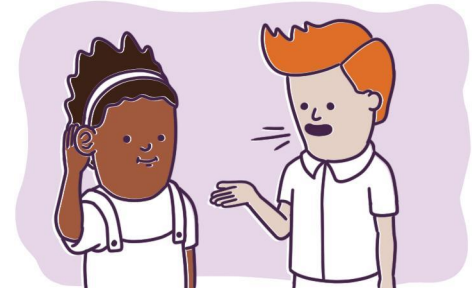
1.

Partner A shares.
Partner B listens.



2.

Partners switch.



3.

Partner B shares.
Partner A listens.

Share ideas on ways you support your English learners.



After doing the shared listening routine, call on individuals to share what their partner said. This demonstrates their ability to listen.

Think-Pair-Share

Think-Pair-Share Routine



Think

Think silently about the question.



Pair

Turn and talk to a partner about the question.



Share

Share your ideas about the question with the class.

Think-Draw-Pair-Share Routine



Think

Think silently about the question.



Draw

Draw your ideas in your notebook.



Pair

Turn and talk to a partner about the question.



Share

Share your ideas about the question with the class.

Think-Write-Pair-Share Routine



Think

Think silently about the question.



Write

Write your ideas about the question in your notebook.



Pair

Turn and talk to a partner about the question.



Share

Share your ideas about the question with the class.



We are used to using this routine. Is there anyone that has tried to build on this strategy or different ways to group students?

Building on Ideas

Building on Ideas



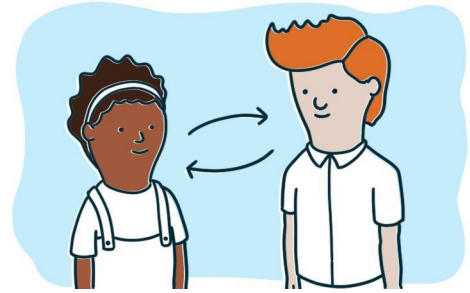
Step 1

I will pose a question.
Partner A shares for one minute while **Partner B listens**.



Step 2

Partner B repeats what Partner A said, and then **agrees or disagrees**.



Step 3

Partner A repeats what Partner B said, and then says if that **changed their mind or not**.

Building on Ideas: Question 1

Why do we need to teach Amplify science with fidelity?

Partner A

We need to teach with fidelity because _____.

Partner B

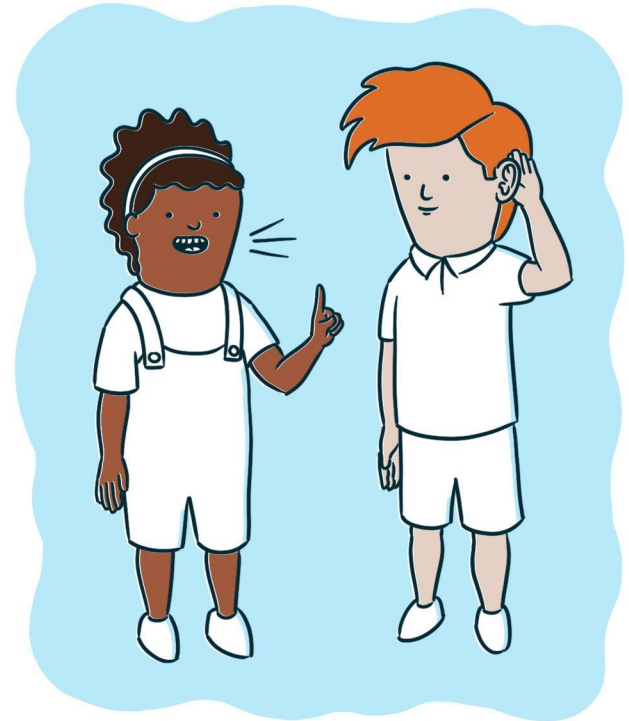
I heard you say _____.

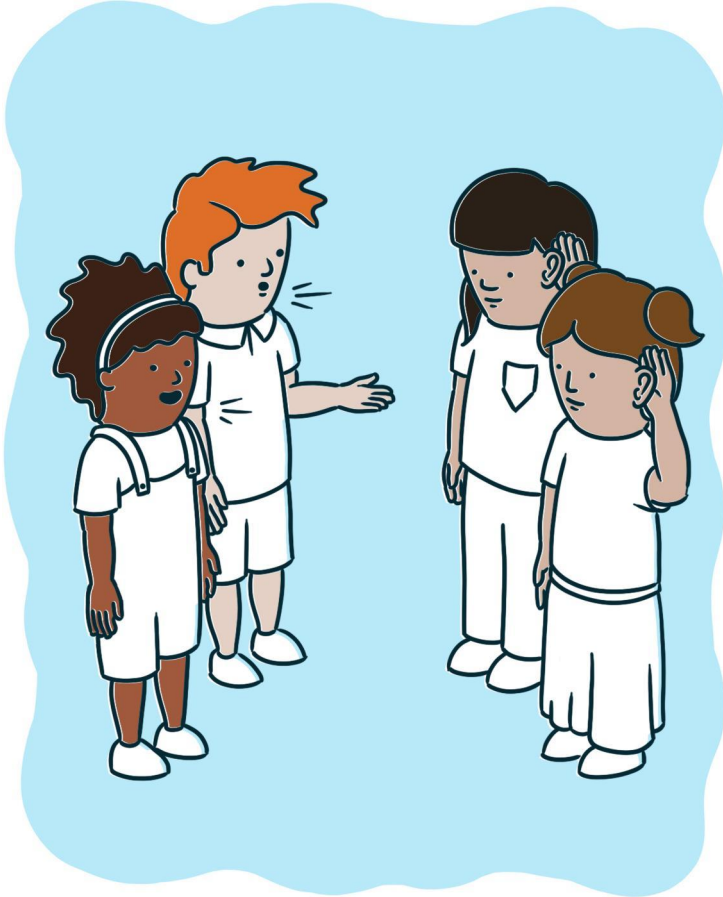
I agree/disagree because _____.

Partner A

I heard you say _____.

This changed/didn't change what I think because
_____.





You will now join another pair and discuss your ideas about Question 1.



Why do we need to teach
Amplify science with
fidelity?

Building on Ideas: Question 2

Why is timing important?

Partner B

Timing is important because _____.

Partner A

I heard you say _____.

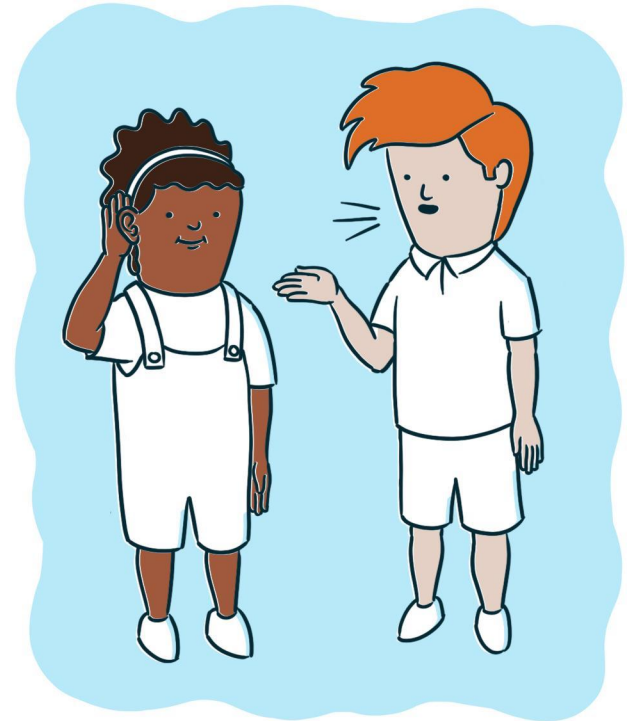
I agree/disagree because _____.

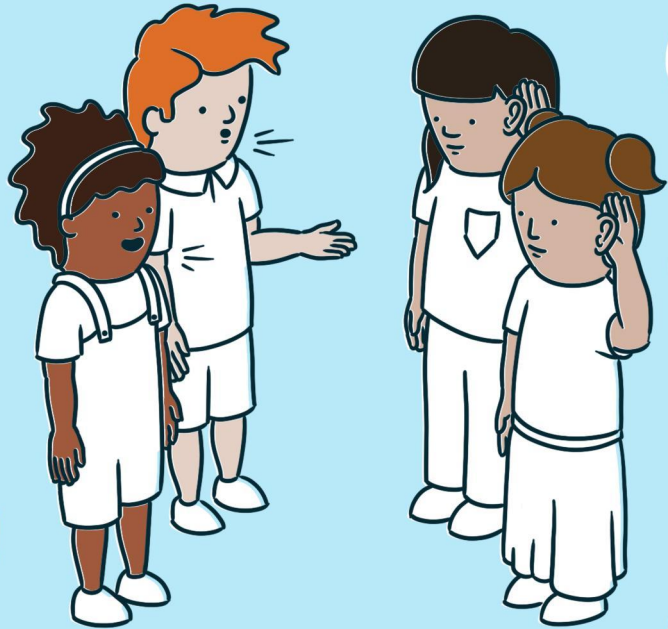
Partner B

I heard you say _____.

This changed/didn't change what I think because

_____.





Join another pair and discuss your ideas about Question 2.



Why is timing important?

Concept Mapping

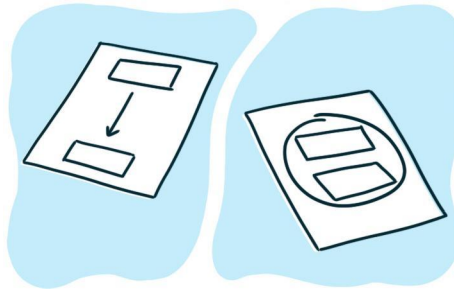
Concept Mapping



Step 1

Choose two or three word cards at a time.

Talk about how the words are related.



Step 2

Glue the words to a piece of paper.

Draw lines or circles, and **write** to show how the words are related.



Step 3

You can **record more words** if you would like.

science

Plant and Animal Relationships—Concept Mapping Cards, Set 3—Lesson 3.6—AMPS0208.05.01.5
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engineering

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writing

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reading

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Choose **two or three** words and **discuss** how those words are related to each other.

science

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engineering

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reading

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writing

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Paste two or three word cards on the paper.

Draw and write to show how the words are related.

Thought Swap

Thought Swap



Step 1

Make two lines so that you each have a partner directly across from you.



Step 2

Discuss the first question with your partner.



Step 3

Switch partners and discuss the next question.

Thought Swap Question 1:



What have you been successful with in teaching Amplify Science?

Now, switch partners for Thought Swap Question 2:



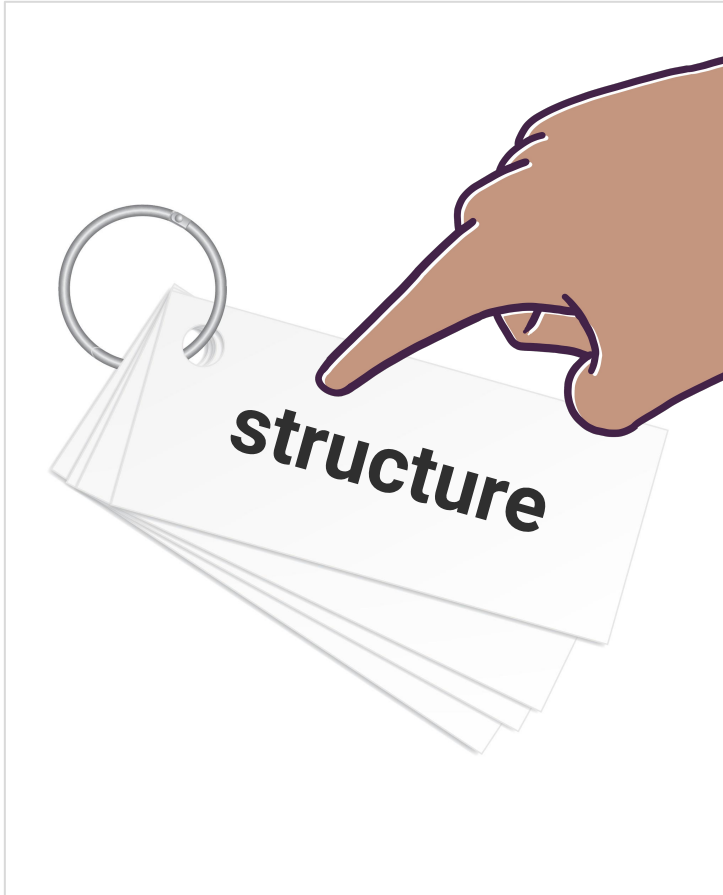
What have you struggled with in teaching Amplify Science? How did you address it?

Variation on Thought Swap

Put students in groups of 8 (or 6) and have them rotate as the questions change.



Word Relationships



This **word ring** is a tool we can use to remember a word or how to spell it.

Word Relationships Routine

Make Sentences

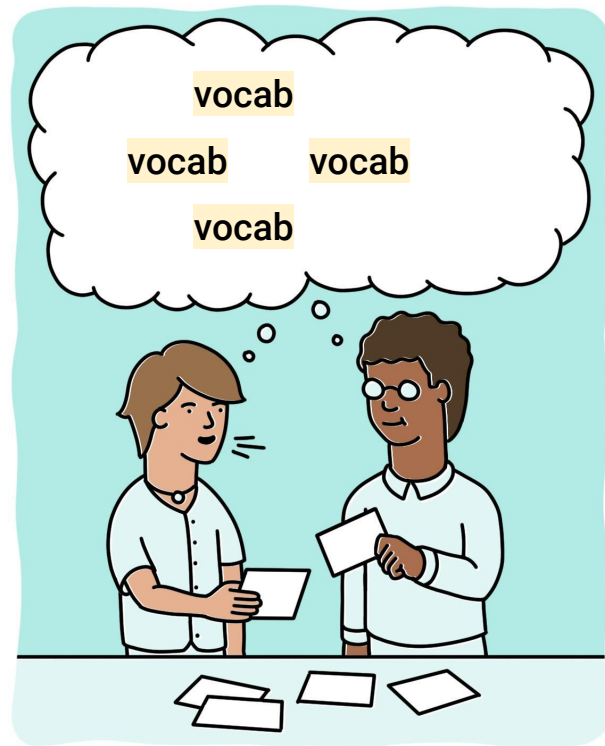
Use at least two words from the Word Relationships Cards in each sentence. You may use the same word more than once. Try to use all the vocabulary words.

Take Turns

Take turns as both the speaker and the listener.

Create More Than One Sentence

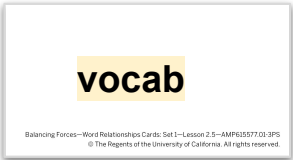
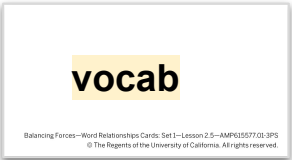
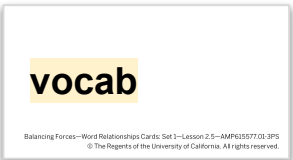
There are many different sentences that could help to answer the Investigation Question. You and your partner will need to create multiple sentences in order to answer the question completely.



Here is a sentence using two of the word cards:

A  causes  to occur.

Here is a sentence using three of the word cards:

A  can  a paperclip
with a .

Evidence Circles

Scientific Language for Evidence Circles

Ways to share ideas:

- I think Claim _____ (A, B, or C) is best because _____ .
- The evidence shows that _____ .
- This means that _____ .

Ways to respond to others:

- I agree because _____ .
- I disagree because _____ .

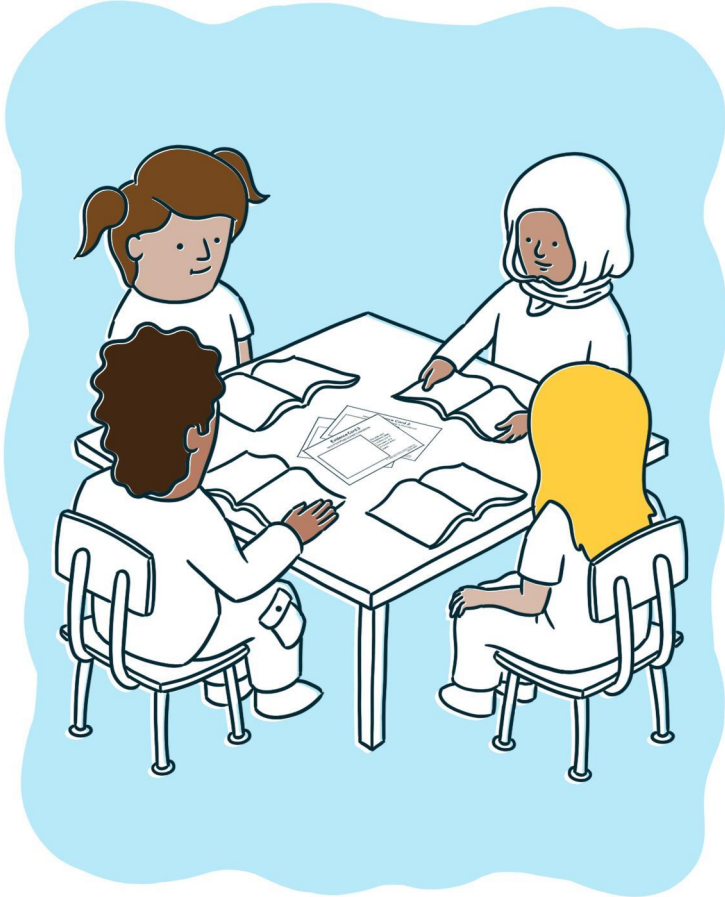
Questions to ask during the discussion:

- What evidence supports your claim?
- Could you say more about why the evidence you shared supports your claim?



You can use the scientific language to help you discuss.

Make sure each person gets to read the cards.



Begin your **Evidence Circles.**

Discuss to decide which claim is best.

I will call on a volunteer to share for each group.



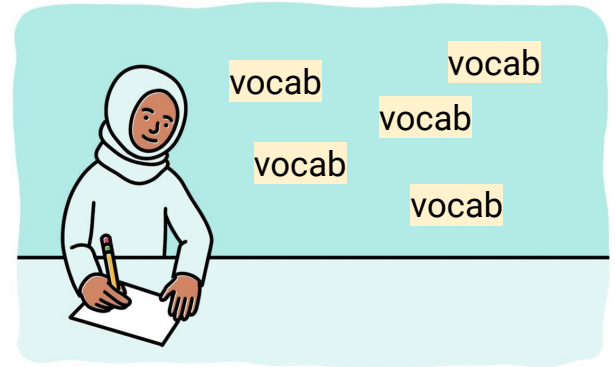
Did your group come to an **agreement**?

Why did you choose to link the **evidence** that you did?

Write and Share

Write and Share Routine

1. Carefully **read and annotate** the information you're given.
2. **Answer your prompt** using the vocabulary words.
3. After everyone in your group has had a chance to write, **take turns introducing your prompts and sharing** your responses.
4. While one student presents, the others should **listen carefully**.
5. After each student presents, the other students in the group can **ask questions** or make comments.



Write and Share Routine: Student 1 Name: _____ Date: _____

Ro

Write and Share Routine: Student 2 Name: _____ Date: _____

Ro

Write and Share Routine: Student 3 Name: _____ Date: _____

Ro

Write and Share Routine: Student 4 Name: _____ Date: _____

Teacher note:
consider replacing
with a screenshot of
an image from your
own unit/ handout

What
samp
expos
interi
years
the s

Word

• en
• me
• me
• se
• we

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Let's hear from a few different groups.

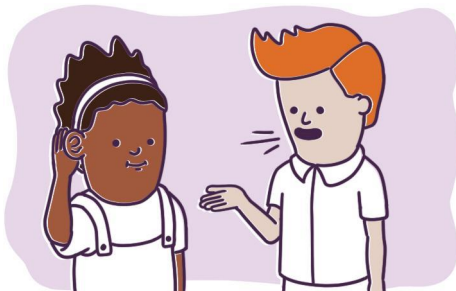
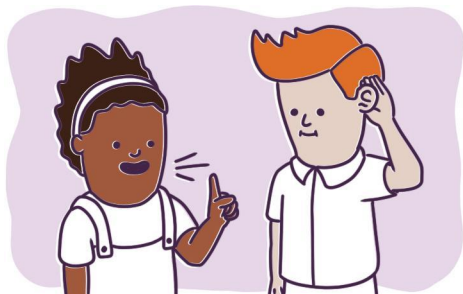


What ideas did you share
in your group?

What did you **learn** from
another group member?

Discourse Routine Templates

Discourse Routines



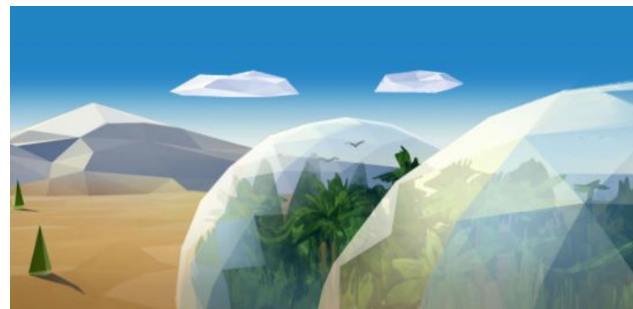
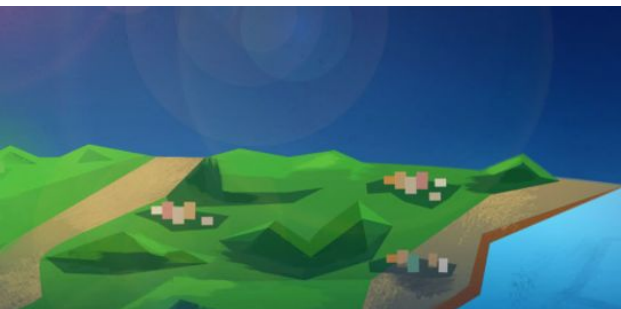
Discourse Routine Templates

<https://bit.ly/3T65FDA>

Questions?



Lunch Break



Plan for the day

- Introduction
- Language of the Science Classroom
- Embedded and Additional Supports
- Experiencing a Lesson
- Planning for Supports
- Closing

Balancing Forces

Problem: How is it possible for a train to float?

Role: Engineers

Students are challenged to figure out how the floating train works in order to explain it to the citizens of Faraday.

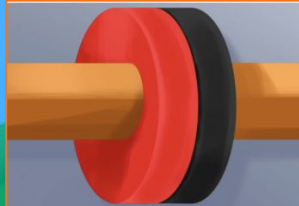


Coherent Storylines



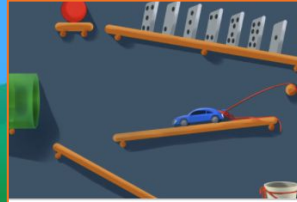
Chapter 1: Why does the train rise?

4 Lessons



Chapter 2: Why does the train rise without anything touching it?

5 Lessons



Chapter 3: Why does the train fall?

4 Lessons



Chapter 4: Why does the train float, even though gravity is acting on it?

4 Lessons



Chapter 5: Why does the train change from floating to falling?

5 Lessons

Balancing Forces

Unit Question: What can make an object move or not move?

Students explore forces that are acting on and around them every day, often unseen and misunderstood. They will discover how magnetic force can be used to counterbalance the force of gravity.

Explaining the phenomenon: Science Concepts

What **science concepts** do you think students need to understand in order to **explain the phenomenon?**



Progress Build

Balancing Forces

Assumed prior knowledge (preconceptions): When you push or pull something, it starts moving.

Level 1

A force is a push or pull that acts between two objects.

Level 2

Forces can be touching or non-touching.

Level 3

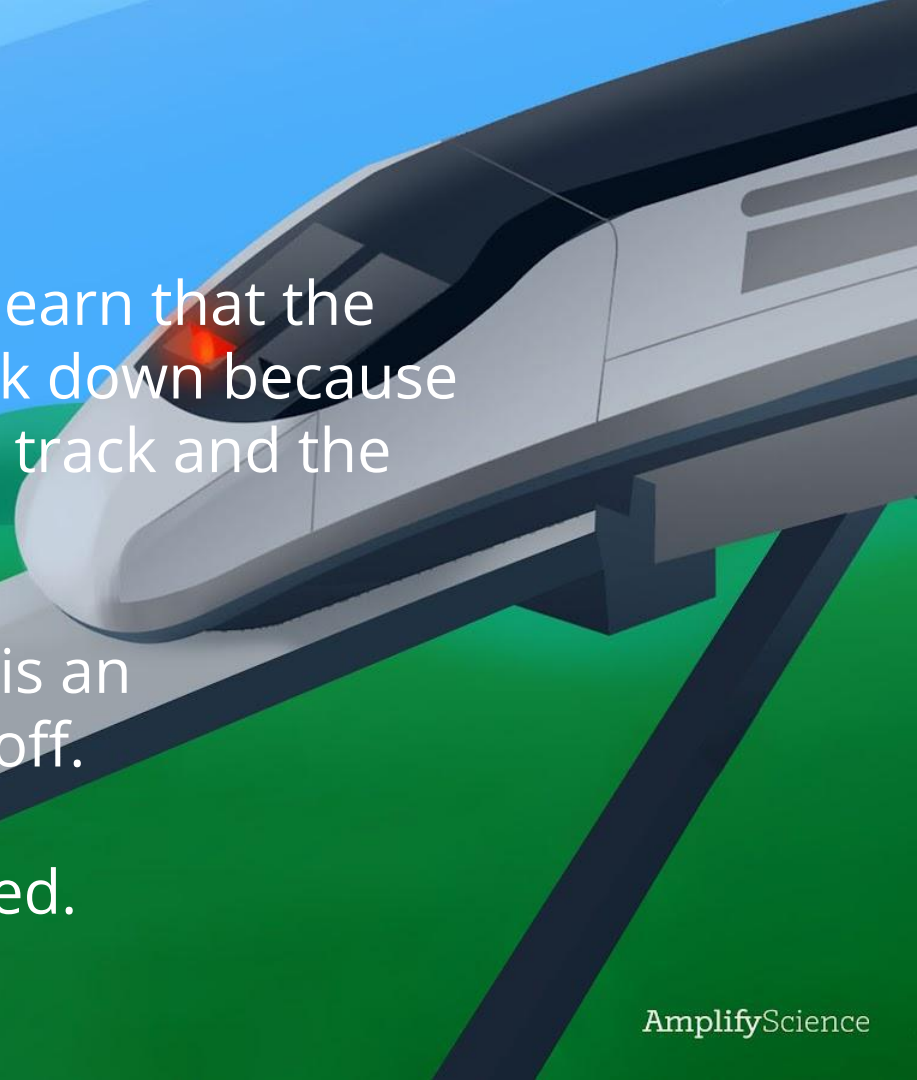
More than one force can act on an object at the same time. When those forces are balanced, a still object will remain still; when those forces are unbalanced, the object will start to move.

Balancing Forces

By the end of the unit students learn that the train stops floating and falls back down because the magnetic force between the track and the train stops.

It can stop because the magnet is an electromagnet and gets turned off.

This makes the forces unbalanced.



Unit Anchor Phenomenon

Problem students work to solve

Chapter-level Anchor Phenomenon Chapter 1 Question

Investigative Phenomenon Investigation Question

Evidence sources and reflection opportunities

Key concepts

Application of key concepts to problem

Explanation that students can make to answer the Chapter 1 Question

Balancing Forces: Investigating Floating Trains

The floating train rises, floats above the track, then later falls back to the track.
How is it possible for a train to float?

The train rises above the track.
Why does the train rise?

Sometimes objects start to move.
What makes an object start to move? (1.2, 1.3, 1.4)

- Investigate by making blocks move (1.2)
- Read *Forces All Around* (1.3)
- View *Domino* video (1.4)
- Create and analyze chain reactions (1.4)

- A force acts between two objects. (1.3)
- When an object starts moving or stops moving, that is evidence that a force has acted on it. (1.3)

- Discuss why the train starts to move (1.4)
- Write a scientific explanation about the floating train (1.4)

The train rises because a force acts on it. The train started to move and when an object changes how it is moving, that means a force acted on it.

Coherence Flowchart

Balancing Forces Lesson 1.2-1.4

Chapter Question: Why does the train rise?



Investigation Question: What makes an object start to move?



Evidence: Investigate by making blocks move (1.2)

Evidence: Read *Forces All Around* (1.3)

Evidence: View *Domino* video(1.4)

Evidence: Create and analyze chain reactions (1.4)



Key concepts: A force acts between two objects. When an object starts moving or stops moving, that is evidence that a force has acted on it.

Balancing Forces

Chapters

Chapter 1: Why does the train rise? ⓘ



LESSON 1.1

Pre-Unit Assessment



LESSON 1.2

Making an Object Move



LESSON 1.3


Forces All Around



LESSON 1.4

Explaining Forces and the Train

The Lesson Brief



Lesson 1.4: Explaining Forces and the Train

Printable Lesson Guide

Lesson Brief
(4 Activities)

T TEACHER
Observing Forces in Chain
Reactions

1 HANDS-ON
Creating Forces in Chain
Reactions

2 TEACHER-LED DISCUSSION
Modeling How to Write a
Scientific Explanation

3 STUDENT-TO-STUDENT
DISCUSSION
Asking Questions About
What Makes the Train Rise

4 WRITING
Critical Juncture: Writing a
Scientific Explanation

RESET LESSON

Overview
Materials & Preparation
Differentiation
Standards
Vocabulary
Unplugged?

Overview

Students reflect on what they have learned about forces and apply those ideas to forces in a chain reaction and to explain what makes the train rise. The teacher plays a video of a chain reaction of dominoes falling and models recording information about the forces. Students then use materials to create their own chain reactions and record the objects involved and the evidence of a force for two of the

Digital Resources

- Classroom Slides 1.4 | PowerPoint
- Classroom Slides 1.4 | Google Slides
- All Projections

Considering language demands

Read over the lesson brief and consider:

- What will students “do” with language in this lesson?
(*receptive or productive*)
- What types of language will support students in engaging with the lesson?

Analyzing an activity: Language of Science

Unit: Changing Landforms

Lesson 1.3-1.4

Part 1:

Activity	Analyze the language of science in these activities. What do STUDENTS “do” with the language in this lesson?	How are STUDENTS using and developing language?	Notes
Activity 1: Exploring Sand Samples			
Activity 2: Comparing Sand Samples			
Activity 3: Setting a Purpose for Reading/ Partner Read			
3-D Statement Analysis			
Word Bank: listening, speaking, writing, receptive language, productive language, individual, partner, group			
Types of Language: Conversational language, academic practice language, science content language			

Language demands

The 3-D Statement can help focus us in on the goal of the lesson.

- Write Explanations (Productive Language)
- Stability and change, cause and effect (Comparative language)

Students write explanations detailing their understanding that a force must have caused the train to change from not moving to rising up off the track (stability and change; cause and effect).

Practices Disciplinary Core Ideas Crosscutting Concepts

Strategies and supports

As we go through the lesson, think about what strategies or supports are used to engage students in the language of science.

- Embedded
- Additional

Part 2: Instructional strategies for supporting English learner's use of language in science

Activity	What embedded strategies were there in the lesson to support students with engaging in the language of science?	What additional strategies might you use to support students in engaging in the language of science? <i>(Differentiation Brief, Teacher Support Tab, Teacher Toolkit)</i>
Activity 1: Exploring Sand Samples		
Activity 2: Comparing Sand Samples		
Activity 3: Setting a Purpose for Reading/ Partner Read		

Principles for Supporting English Learners:

Principle 1: Leverage and build students' informational background knowledge.

Principle 2: Capitalize on students' knowledge of language.

Principle 3: Provide explicit instruction about the language of science.

Principle 4: Provide opportunities for scaffolded practice.

Principle 5: Provide multimodal means of accessing science content and expressing language.

Balancing Forces

Materials for Lesson 1.4

For the Class:

Optional: Chapter 1 Home Investigation: *Forces Around the Home* copymaster

Optional: Scientific Explanation of *Why the Train Rises* Version B copymaster

For Each Pair of Students

- 1 self sealing plastic bag
- 2 wooden blocks: with hooks
- 1 balloon
- 1 rubber band*
- 1 paper clip
- 1 domino
- 1 clothespin
- 1 index card
- 1 rubber ball

For Each Student:

- Investigation Notebook pages 7-11
- Optional: Chapter 1 Home Investigation: *Forces Around the Home* student sheet
- Optional: Scientific Explanation of *Why the Train Rises* Version student sheet

A stylized illustration of a high-speed train, possibly a Shinkansen, traveling on a track. The train is white with a black stripe and a red light on its nose. It is moving from right to left. The background features rolling green hills and a bright blue sky with soft, white clouds. The train tracks are dark grey and curve through the landscape.

Grade 3 | Balancing Forces

Lesson 1.4: Explaining Forces and the Train

Balancing Forces

Classroom Wall

Problem: How is it possible for a train to float?

Unit Question: What can make an object more or not move?

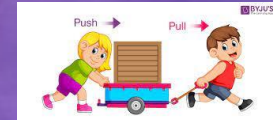
Chapter 1 Question: Why does the train rise?

Investigation Question: What makes an object start to move?

Key Concept: A force acts between two objects

Key Concept: When an object starts moving or stops moving, that is evidence that a force has acted on it.

Vocabulary:
Force



Activity 1

Creating Forces in Chain Reactions



Remember that we are investigating this question:

What makes an object start to move?

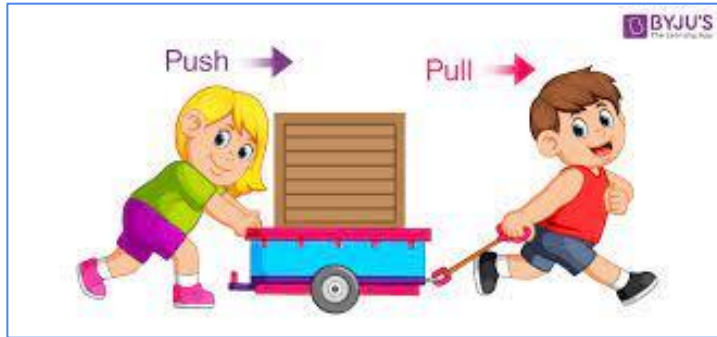
Key Concept

A force acts between two objects.

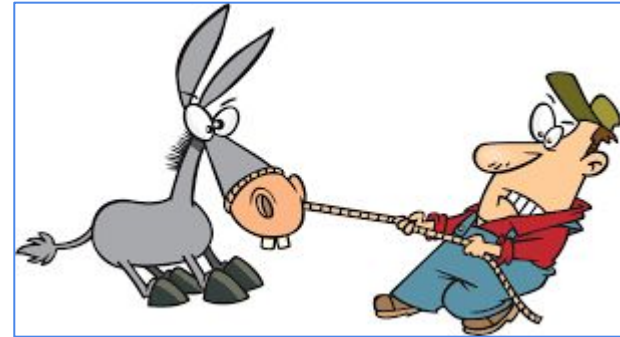
Multiple Meaning Word

Force

A push or a pull



To make someone do something they don't want



Key Concept

When an object starts moving or stops moving, that is evidence that a force has acted on it.



How do we know that there were forces acting in this domino chain reaction?

What evidence did we observe?

Name: _____ Date: _____

Forces in a Chain Reaction

- Directions:
- 1. With your partner, set up and run chain reactions using materials from the bag.
 - 2. Pick one chain reaction you made.
 - 3. Make a drawing to show what happened in the chain reaction.

4. Choose two forces in your chain reaction and fill in information about them. What were the two objects that the force acted between? What was your evidence? How did you know a force happened?

Force #1

Object 1	Object 2	Evidence of a force

Force #2

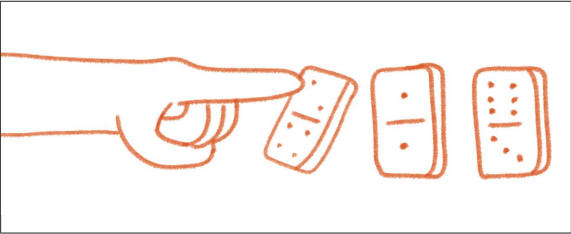
Object 1	Object 2	Evidence of a force

On page 8 of your notebooks, you will draw and write about the chain reaction you make.

Name: _____ Date: _____

Forces in a Chain Reaction

- Directions:
1. With your partner, set up and run chain reactions using materials from the bag.
 2. Pick one chain reaction you made.
 3. Make a drawing to show what happened in the chain reaction.



4. Choose two forces in your chain reaction and fill in information about them. What were the two objects that the force acted between? What was your evidence? How did you know a force happened?

Force #1

Object 1	Object 2	Evidence of a force

Force #2

Object 1	Object 2	Evidence of a force

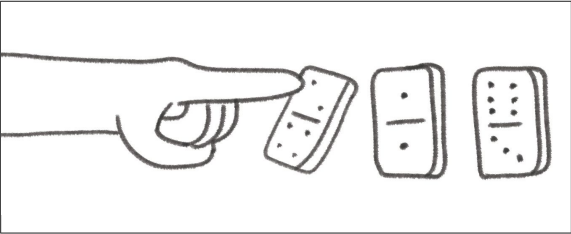
Start by making a drawing.

Here's an example from the chain reaction in the domino video.

Name: _____ Date: _____

Forces in a Chain Reaction

- Directions:
- 1. With your partner, set up and run chain reactions using materials from the bag.
 - 2. Pick one chain reaction you made.
 - 3. Make a drawing to show what happened in the chain reaction.



4. Choose two forces in your chain reaction and fill in information about them. What were the two objects that the force acted between? What was your evidence? How did you know a force happened?

Force #1

Object 1	Object 2	Evidence of a force
finger	first domino	tipped over domino

Force #2

Object 1	Object 2	Evidence of a force

Then fill in the boxes at the bottom of the page.

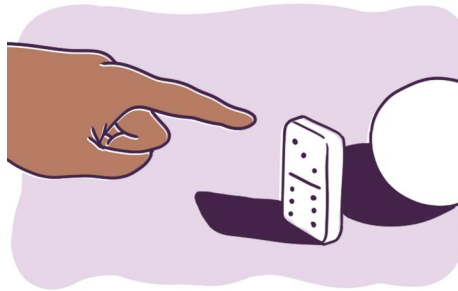
Think about one force at a time.

Instructions for Chain Reactions



Step 1

Use materials in the bag to make a chain reaction. You do not have to use all the materials.



Step 2

Your finger can push the first object. That object should make another object move.

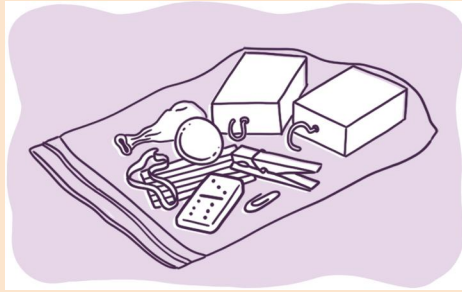


Step 3

See how many forces you can have happen in your chain reaction.

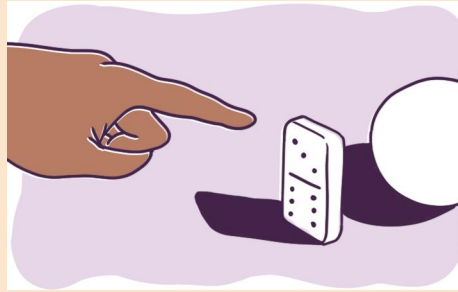
Hidden Slide: Shared activity

Instructions for Chain Reactions



Step 1

Use materials in the bag to make a chain reaction. You do not have to use all the materials.



Step 2

Your finger can push the first object. That object should make another object move.



Step 3

See how many forces you can have happen in your chain reaction.

Name: _____ Date: _____

Forces in a Chain Reaction

- Directions:
- 1. With your partner, set up and run chain reactions using materials from the bag.
 - 2. Pick one chain reaction you made.
 - 3. Make a drawing to show what happened in the chain reaction.

4. Choose two forces in your chain reaction and fill in information about them. What were the two objects that the force acted between? What was your evidence? How did you know a force happened?

Force #1

Object 1	Object 2	Evidence of a force

Force #2

Object 1	Object 2	Evidence of a force

Turn to page 8, Forces in a Chain Reaction, in your notebooks.



Set up and run a chain reaction. Then complete the page for **one version** of your chain reaction.

Activity 2

Modeling How to Write a Scientific Explanation



What Is a Scientific Explanation?

1. It answers a question about how or why something happens.
2. It is based on the ideas we have learned from investigations and text.
3. It uses scientific language.
4. It is written for an audience.
5. It describes things that are not easy to observe.

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Activity 3

Asking Questions About What Makes the Train Rise



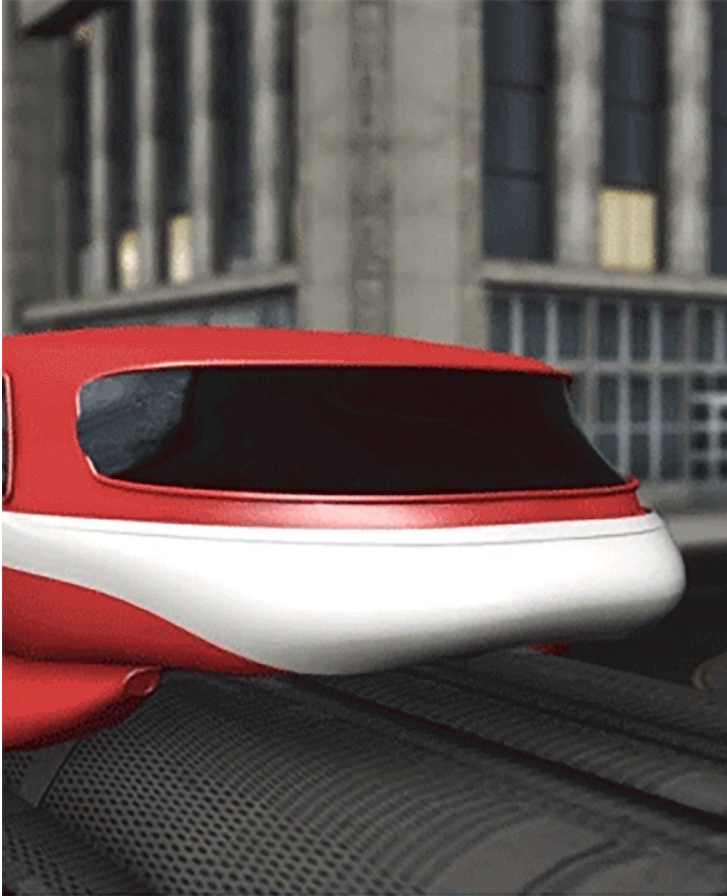


Chapter 1 Question

Why does the train rise?



What would have caused the train to start moving up off the track?



What questions do you still have about why the train rises off the track?

Activity 4

Critical Juncture: Writing a Scientific Explanation



Name: _____ Date: _____

Scientific Explanation of Why the Train Rises

Directions:

1. Write a scientific explanation that answers the question below.
2. Your audience is the people of Faraday.

Why does the train rise?

The train rises because _____

Turn to page 10 in your notebooks.

You will **write an explanation** to the people of Faraday about what the class knows so far about what makes the train rise.

Name: _____ Date: _____

Scientific Explanation of Why the Train Rises

Directions:

1. Write a scientific explanation that answers the question below.
2. Your audience is the people of Faraday.

Why does the train rise?

The train rises because _____

Let's begin our response with “The train rises because . . .”



Discuss how you would like to complete this sentence. Then write your sentence.

End of Lesson



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UNIVERSITY OF CALIFORNIA, BERKELEY

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Reflecting

Strategies and supports

What strategies and supports were used to support engaging in the language of science?

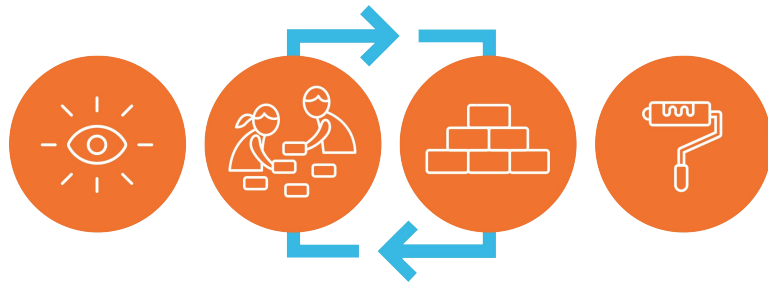
- Embedded
- Additional

Part 2: Instructional strategies for supporting English learner's use of language in science

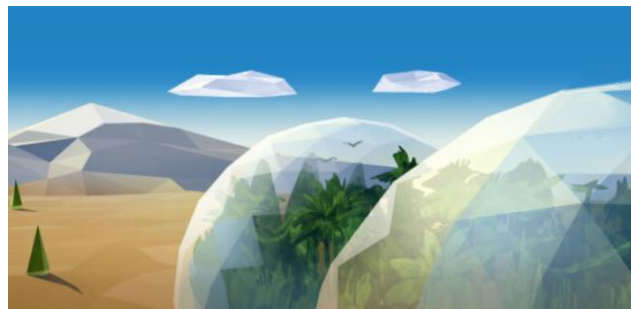
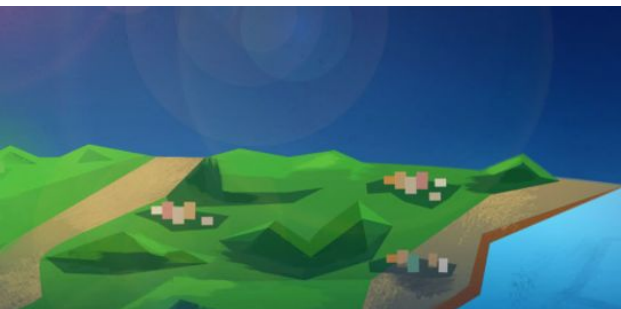
Activity	What embedded strategies were there in the lesson to support students with engaging in the language of science?	What additional strategies might you use to support students in engaging in the language of science? <i>(Differentiation Brief, Teacher Support Tab, Teacher Toolkit)</i>
Activity 1: Exploring Sand Samples		
Activity 2: Comparing Sand Samples		
Activity 3: Setting a Purpose for Reading/ Partner Read		
Principles for Supporting English Learners: Principle 1: Leverage and build students' informational background knowledge. Principle 2: Capitalize on students' knowledge of language. Principle 3: Provide explicit instruction about the language of science. Principle 4: Provide opportunities for scaffolded practice. Principle 5: Provide multimodal means of accessing science content and expressing language.		

Strategies for engaging English learners

- Oral and visual support
- Sentence Starters
- Multimodal instruction
 - Do, Talk, Read, Write, Visualize
- Using different registers



Break

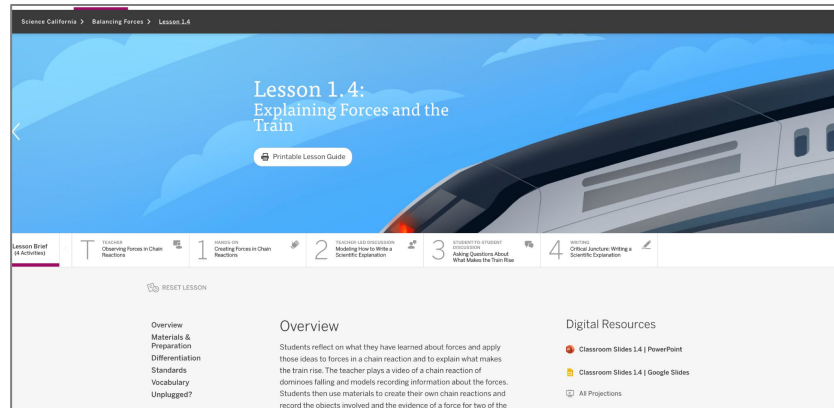


Plan for the day

- Introduction
- Language of the Science Classroom
- Embedded and Additional Supports
- Experiencing a Scaffolded Lesson
- **Planning for Supports**
- Closing

Work time

- Navigate to a lesson you'll teach in the upcoming week.
- Skim the lesson to get a sense of the activities.
- Read the 3-D Statement



Work time

- Navigate to the Differentiation section of the Lesson Brief, and read the “Specific differentiation strategies for English learners” section.
- Click through the activity tabs and explore any Teacher Support Notes
- Consider any additional supports from your own teacher toolkit

Possible Suggestion: Download the classroom slides for your lesson and add an additional support from your Discourse Template resource.

Planning for Support in your Unit

- Navigate to a lesson you'll teach in the upcoming week.
- Skim the lesson to get a sense of the activities.
- Read the 3-D statement for the lesson
- Navigate to the Differentiation section of the Lesson Brief, and read the “Specific differentiation strategies for English learners” section.
- Explore the “Teacher Support” tabs at the activity level

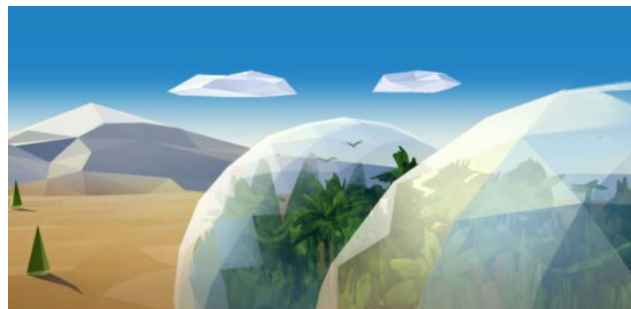
Unit: _____

Lesson #:	3-D Statement	What will students “do” with the language in this lesson? What language will support students in constructing science ideas?
What are the instructional suggestions for supporting students? How do you envision enacting these suggestions?		What else might you do or modify to support your students with the language of science in this lesson?

Share Out

Share the additional strategies and supports you chose for your lesson.



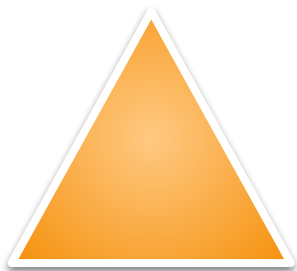


Plan for the day

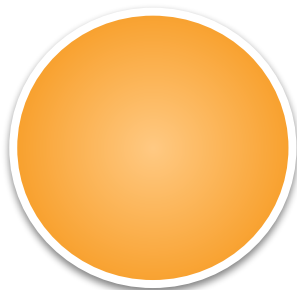
- Introduction
- Language of the Science Classroom
- Experiencing a Scaffolded Lesson
- Embedded and Additional Supports
- Planning for Supports
- Closing

Closing reflection

Based on our work today, share:



1-3 big points you're taking away from this session



A question or topic that's still circling in your mind



Something that's "squaring" (resonating) with you from this session

Overarching goals

- ☑ Describe the language and literacy demands in a lesson and their role in students developing science understanding
- ☑ Implement key strategies to promote English learners' academic language development and science understanding

Let's connect
this goal to
our students



Additional resources

Welcome, caregivers!

We hope you enjoy learning more about Amplify Science and what students are learning in science this year.

[Para acceder a este sitio en español haga clic aquí.](#)

Amplify welcomes you and your learner to the Science program for the new school year. We are very excited to



Grades 6-8



[Caregivers](#)

LAUSD Microsite-
<https://amplify.com/lausd-science>



Welcome to Amplify Science!

This site contains supporting resources designed for the LAUSD Amplify Science adoption for grades TK–8.

- Access the [Amplify Science Program Hub](#) (To help orient you to the new design, watch this [video](#) and view this [reference guide](#).)
- Find out more about [Amplify Science@Home](#)
- Share the [Caregiver Hub](#) (Eng/Span) with your families
- For LAUSD ES Teachers- [Amplify Science & Benchmark Advance Crosswalk](#)
- Instructional guidance for a [Responsive Relaunch of Amplify Science in 21-22](#)

Click the button below to preview the digital Teacher's Guide, and check back for exciting updates to this site!

Program Hub

Use the Amplify Science Program Hub to find useful resources for implementing Amplify Science, including unit overview videos and planning tools.

The screenshot shows the Amplify Science Program Hub interface. At the top, there's a navigation bar with 'Amplify', 'CURRICULUM', 'CLASSWORK', 'REPORTING', 'PROGRAMS & APPS', and 'NATIONALSCI200 TEACHER'. Below this, the 'Science California' section is active, showing the 'Balancing Forces' unit. A large illustration of a train on a track is featured, with a red circle highlighting the 'PROGRAMS & APPS' link in the top navigation bar. The unit title 'Balancing Forces' is prominently displayed, along with a 'Printable Teacher Guide' button. On the left, a sidebar lists navigation options: 'Unit Overview', 'Chapters', 'Printable Resources', 'Planning for the Unit', 'Teacher References', and 'Offline Preparation'. The main content area is titled 'Unit Overview' and includes a 'What's in This Unit?' section with a paragraph of text. Below this, there's a 'Read more' link. The 'Chapters' section is also visible, listing 'Chapter 1: Why does the train rise?' with three lesson thumbnails: 'LESSON 1.1 Pre-Unit Assessment', 'LESSON 1.2 Making an Object Move', and 'LESSON 1.3 Force All Around'. At the bottom left, there are language selection buttons for 'English' and 'Español'.

This screenshot shows the Amplify Science Program Hub interface for the 'Energy Conversions' unit. The top navigation bar is identical to the previous screenshot. The 'Science' section is active, showing the 'Energy Conversions' unit. A dropdown menu for 'Program:' is set to '4th Grade Science Eng/Esp'. The unit title 'Energy Conversions' is displayed, along with a '22 Lessons' indicator. On the right, there's a 'Vision and Light' unit preview with a gecko illustration. The 'Units' section is highlighted, showing two unit cards: 'Energy Conversions' and 'Vision and Light'. The 'AmplifyScience' logo is visible in the top right corner. A red circle highlights the 'PROGRAMS & APPS' link in the top navigation bar.

The screenshot shows the 'Welcome Science Educators!' page of the Amplify Science Program Hub. The page features a header with 'AmplifyScienceProgramHub' and 'HELP CENTER'. Below the header, there's a 'Welcome Science Educators!' section with a paragraph of text. The main content area is divided into three sections: 'Remote and hybrid learning resources', 'Professional Learning Resources', and 'Additional Unit Materials'. Each section has a corresponding icon and a brief description. A red circle highlights the 'Remote and hybrid learning resources' section. At the bottom right, there's a 'Launch Programs' button.

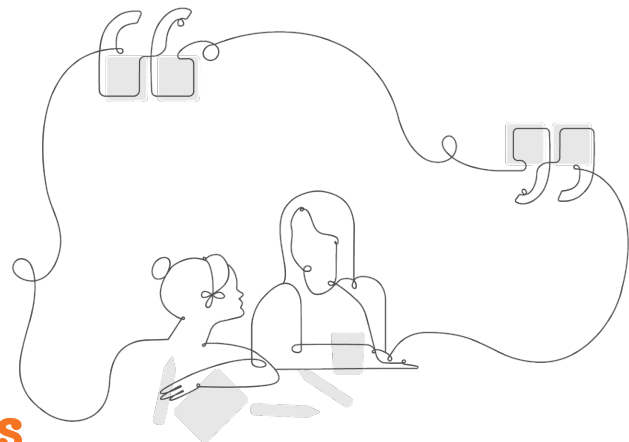
Upcoming Professional Development!

Unit 2 Internalization / Guided Planning (remote, 4:30-6:00 pm)

- 11/2 - Part 1, 11/3 - Part 2 (grades 3-5)
- 11/9 - Part 1, 11/10 -Part 2 (grades K-2)

Unit 2. Part 3 - with a focus on assessments (onsite 8:00 am - 3:00 pm)

- December 3 (grades 3-6)
- December 12 (grades K-2)



Additional resources and ongoing support

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



help@amplify.com



800-823-1969



Amplify Chat



Your feedback matters!

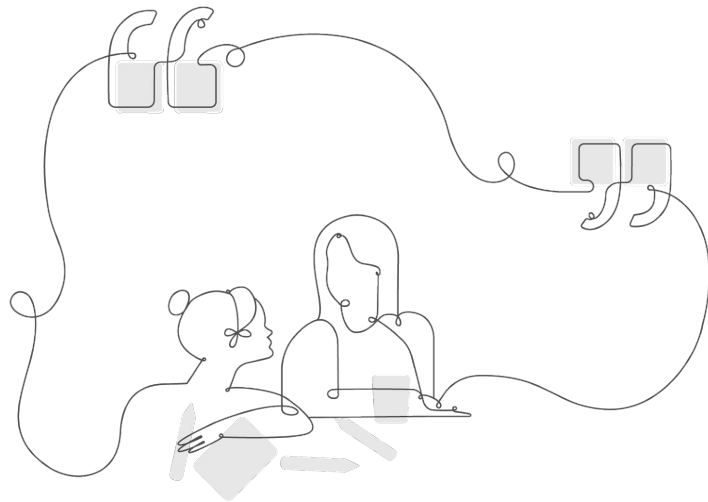
Survey

Facilitation

Session design

Final Question: Is there anything else you would like us to know?

- Curriculum
- Materials
- Enrollment and licensing
- And more!



Please provide feedback!

surveymonkey.com/r/AmpSciPD

Type:

Strengthen

Session title:

Part 3: Unit 1, Supporting English
Language Learners

Professional Learning Specialist name:

Insert name

(insert email, if you would like)