

Amplify Science

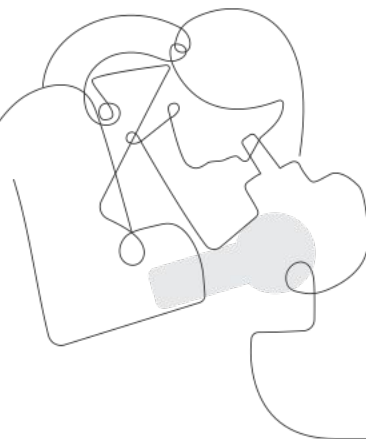
Writing in Amplify Science

Grades 2-5

LAUSD

Date:

Presented by:



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

Remote Professional Learning Norms



Take some time to orient yourself to the platform

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



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



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



Make sure you have a note-catcher present



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



Why do scientists write?



Overarching goals

By the end of this workshop, you will be able to:

- ❑ Identify specific characteristics and genres unique to science writing.
- ❑ Describe how the Amplify Science writing approach supports students to engage in science practices, make sense of science ideas, and develop as writers.
- ❑ Be ready to teach specific writing activities in an Amplify Science unit.

Writing in Science

Workshop objectives:

- Identify specific characteristics and genres unique to science writing.
- Describe how the Amplify Science approach to writing supports students in developing their writing, engaging in science practices, and making sense of science ideas.
- Be ready to teach specific writing activities in an Amplify Science unit.

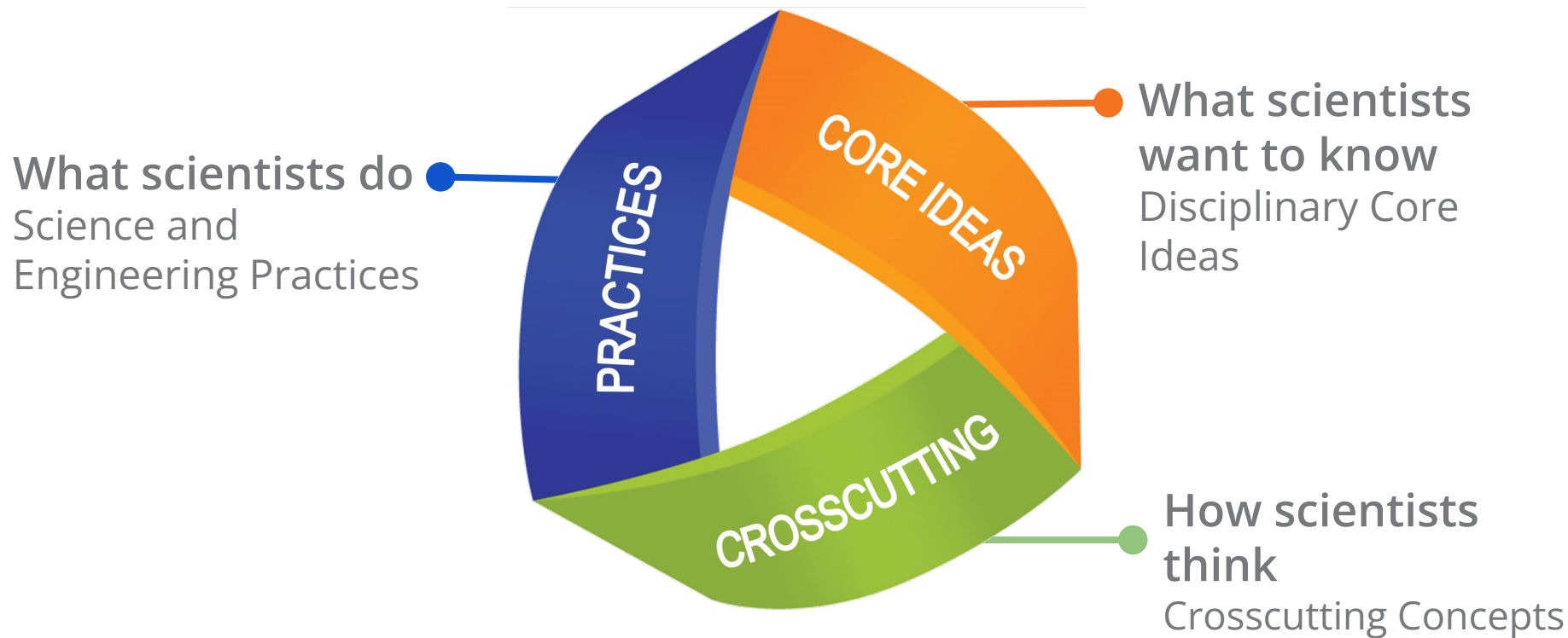


Plan for the day

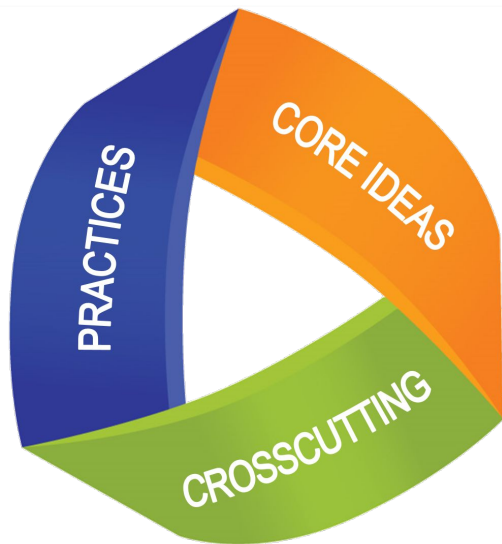
- Introduction and framing
- Writing in Amplify Science
 - Writing as part of a multimodal experience
 - Writing a culminating explanation or argument
- Supporting students with writing
- Closing

Figuring out phenomena

Using 3-D teaching and learning

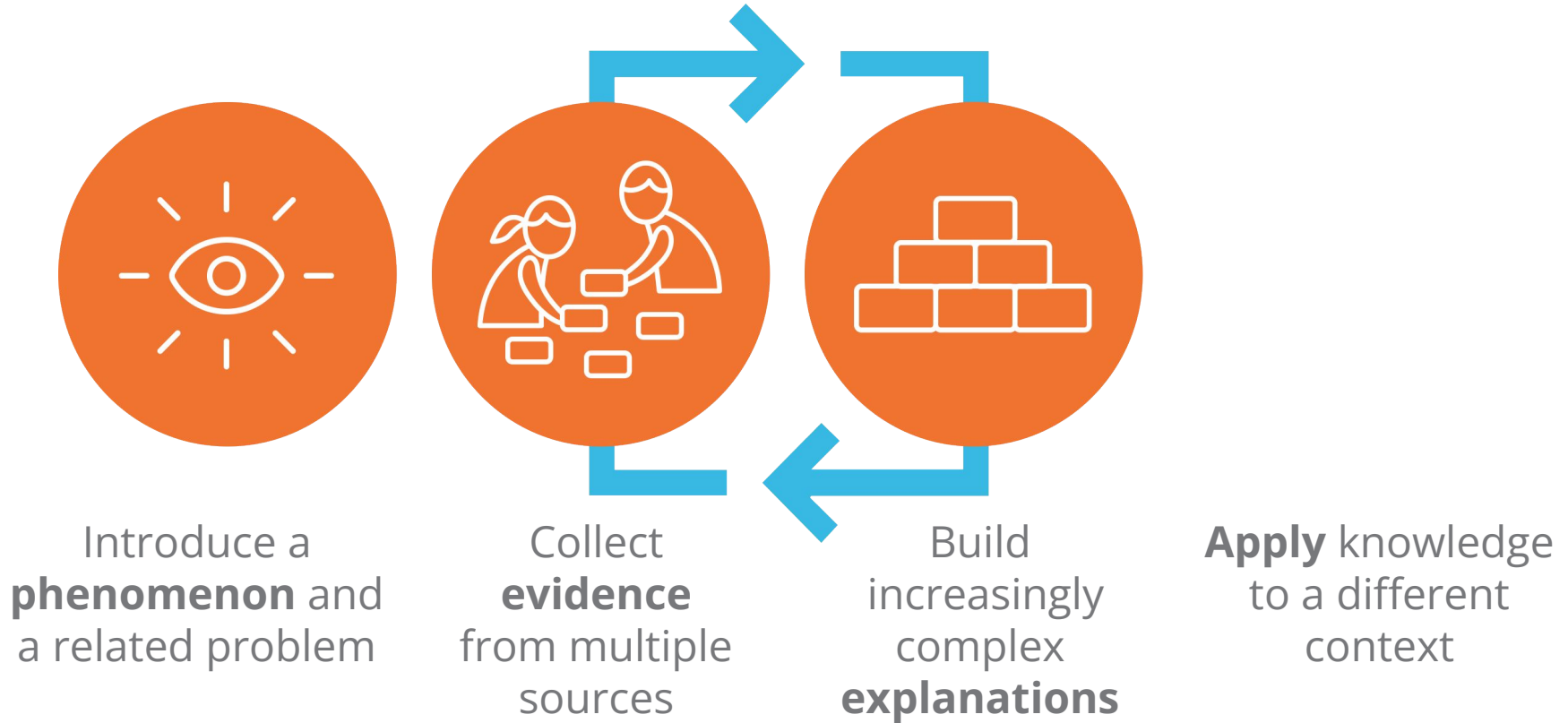


Next Generation Science Standards Science and Engineering Practices

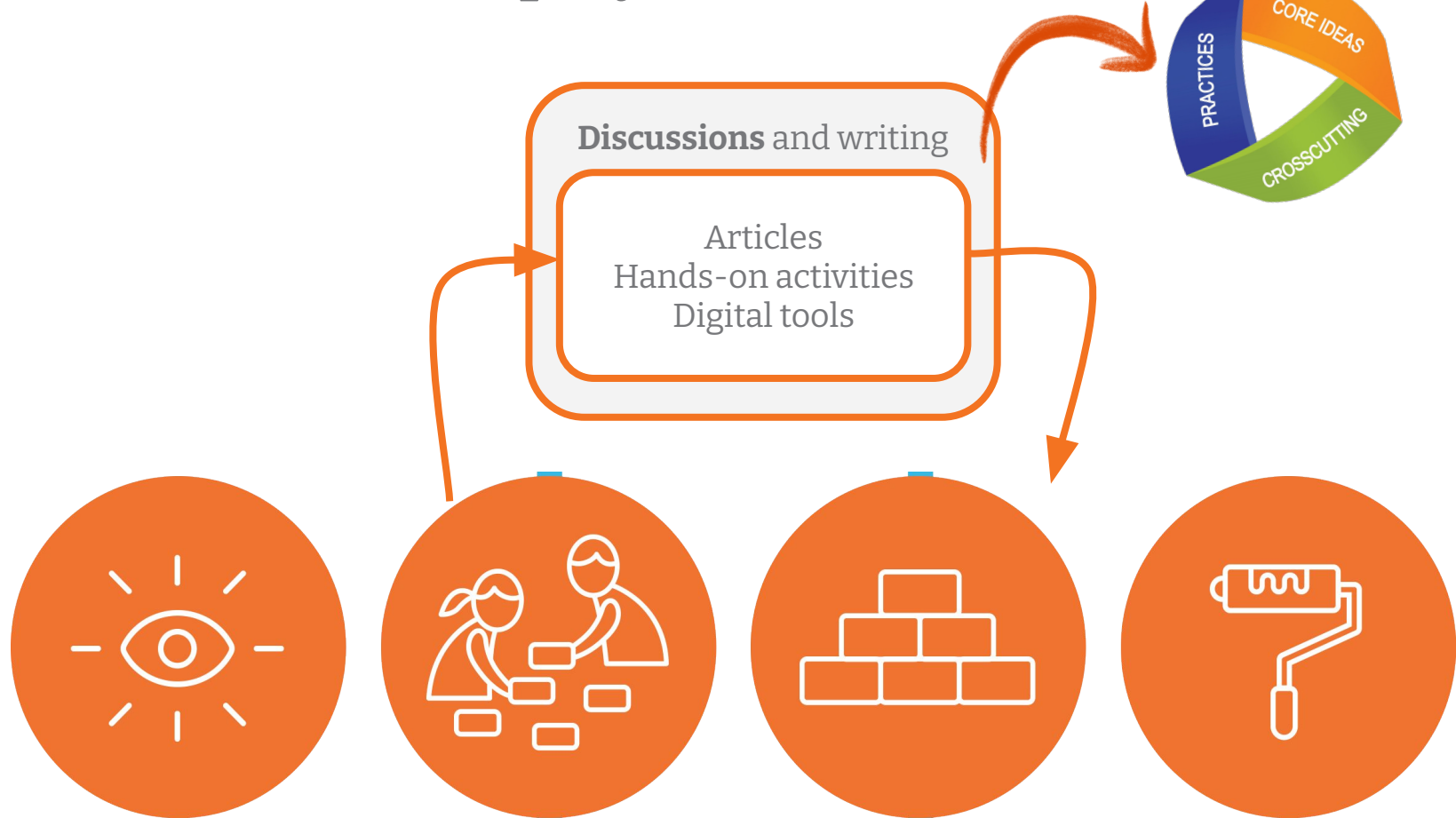


1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations (for science) and designing solutions (for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

Instructional approach



Discourse within Amplify Science



Phenomena-based Instruction

Inquire like a scientist.

Think like a scientist.

Quantify like a scientist.

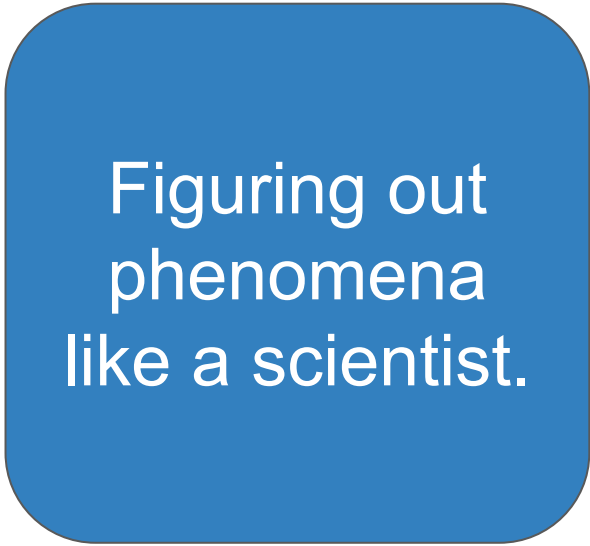
Read like a scientist.

Talk like a scientist.

✓ **Write** like a scientist.

Critique like a scientist.

Argue like a scientist.



Figuring out
phenomena
like a scientist.

Writing in Amplify Science

Purposeful communicative writing is
an integral part of the Amplify
Science curriculum



Why do students write in Amplify Science?

- To activate background knowledge
- To reflect on understanding
- To engage in sense-making
- To record data / observations
- To organize ideas
- To communicate ideas
 - To explain
 - To persuade

Reflecting with students in mind



- Choose two focal students.
- Write their names on the back page of your participant notebook.



Think, write, pair, share











- What has been a challenge of writing in Amplify Science for each of these students? Where have each of these students found success?
- What strategies do you use to engage and support your focal students with writing in Amplify Science?




Plan for the day

- Introduction and framing
- Writing in Amplify Science
 - Writing as part of a multimodal experience
 - Writing a culminating explanation or argument
- Supporting students with writing
- Closing

Standards and Goals

Planning for the Unit		Printable Resources
Unit Overview	▼	 3-D Assessment Objectives
Unit Map	▼	 Coherence Flowcharts
Progress Build	▼	 Copymaster Compilation
Getting Ready to Teach	▼	 Crosscutting Concept Tracker
Materials and Preparation	▼	 Eliciting and Leveraging Student Prior Knowledge, Personal Experiences, and Cultural Backgrounds
Science Background	▼	
Standards at a Glance	▼	 Investigation Notebook
Teacher References		 Multi-Language Glossary
Lesson Overview Compilation	▼	 NGSS Information for Parents and Guardians
Standards and Goals	▼	 Print Materials (8.5" x 11")
3-D Statements	▼	 Print Materials (11" x 17")



Changing Landforms

Reading: Informational Text

- **CCSS.ELA-LITERACY.RI.2.1:** Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
- **CCSS.ELA-LITERACY.RI.2.2:** Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text.
- **CCSS.ELA-LITERACY.RI.2.4:** Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.
- **CCSS.ELA-LITERACY.RI.2.5:** Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.
- **CCSS.ELA-LITERACY.RI.2.7:** Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text.

As a whole, the unit moves students along the continuum for meeting the following grade-level standard for reading complex texts:

- **CCSS.ELA-LITERACY.RI.2.10:** By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Writing

- **CCSS.ELA-LITERACY.W.2.2:** Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.
- **CCSS.ELA-LITERACY.W.2.5:** With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing.
- **CCSS.ELA-LITERACY.W.2.8:** Recall information from experiences or gather information from provided sources to answer a question.

Speaking and Listening

Inheritance and Traits

Reading: Informational Text

- **CCSS.ELA-LITERACY.RI.3.1:** Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- **CCSS.ELA-LITERACY.RI.3.3:** Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
- **CCSS.ELA-LITERACY.RI.3.5:** Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.
- **CCSS.ELA-LITERACY.RI.3.7:** Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).

Writing

- **CCSS.ELA-LITERACY.W.3.2:** Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
 - **CCSS.ELA-LITERACY.W.3.2.A:** Introduce a topic and group related information together; include illustrations when useful to aiding comprehension.
 - **CCSS.ELA-LITERACY.W.3.2.B:** Develop the topic with facts, definitions, and details.
- **CCSS.ELA-LITERACY.W.3.4:** With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose.
- **CCSS.ELA-LITERACY.W.3.7:** Conduct short research projects that build knowledge about a topic.
- **CCSS.ELA-LITERACY.W.3.8:** Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.

Speaking and Listening

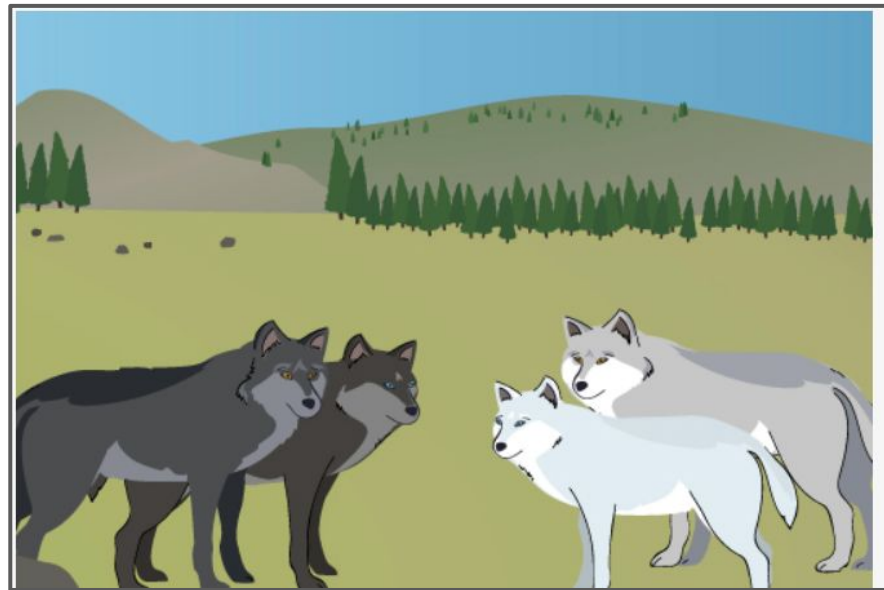
- **CCSS.ELA-LITERACY.SL.3.1:** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their

Sample instructional sequence

Grade 3: Inheritance and Traits

During the sample sequence, we'll experience some **small writes**.

Small writes are **short writing opportunities**. They're distinct from more formal end-of-chapter explanations or arguments (which we'll talk about later).



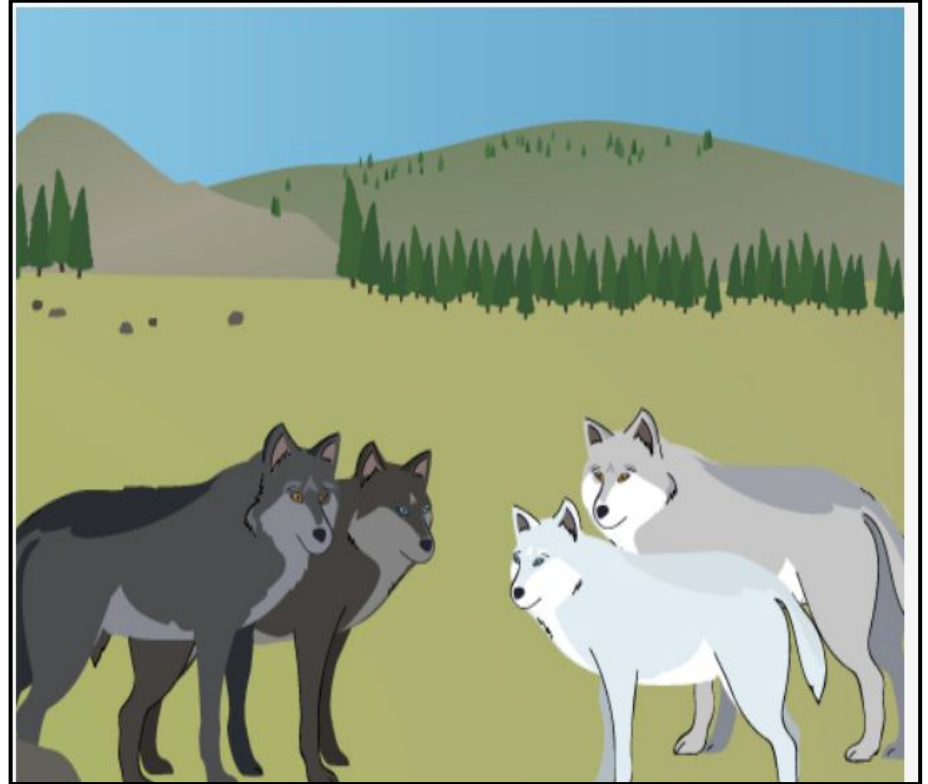
Sample instructional sequence

Grade 3: Inheritance and Traits

As you experience the small writes in the sequence, consider the **role** of each writing opportunity.

It may help to consider:

- Why are students writing?
- How is it useful to them in figuring out the phenomenon?



Sample instructional sequence

Note catcher

Use **Table 1** to keep track of your thinking during the instructional sequence.

Writing in science: Note catcher and reference sheet

Table 1: Writing as part of the multimodal experience

Reference: Why do students write in Amplify Science?

- To activate background knowledge
- To reflect on understanding
- To engage in sense-making
- To record data / observations
- To organize ideas
- To communicate ideas
 - To explain
 - To persuade

Sample instructional sequence: Use the space below to make notes about the role of each small write as we talk through the sequence

Small write 1: *Blue Whales and Buttercups*

Small write 2: Recording and analyzing observations

Small write 3: Gathering evidence about the Elk Mountain Pack

End-of-sequence reflection: How did the small writes support students as they worked towards writing the more formal end-of-chapter explanation?

Reference: Embedded supports for writing in Amplify Science

- Smaller pieces of writing build to larger pieces of writing
- Informal talk opportunities: partners and small groups
- Sentence starters and/or language frames
- Classroom wall and other environmental print
- Word banks
- Discourse routines
- Multimodal instruction
- Gradual release of responsibility

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1

in your unit

is upcoming. Review the activity and small write to analyze.

nt Guide from digital resources.

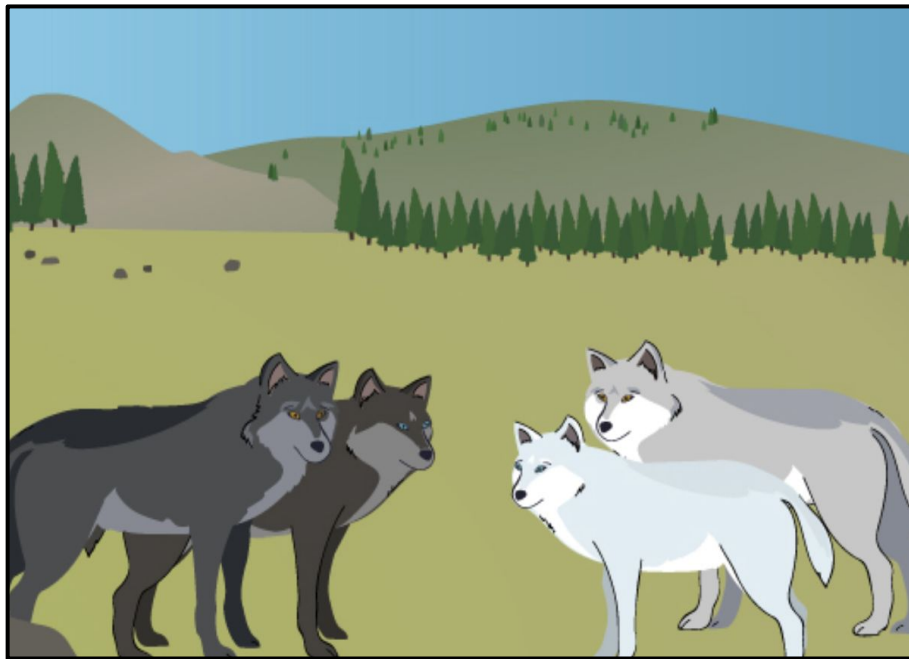
Reflection: How could the End-of-Unit Assessment Guide help your planning and instruction throughout the whole unit?

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Inheritance and Traits: Variation in Wolves

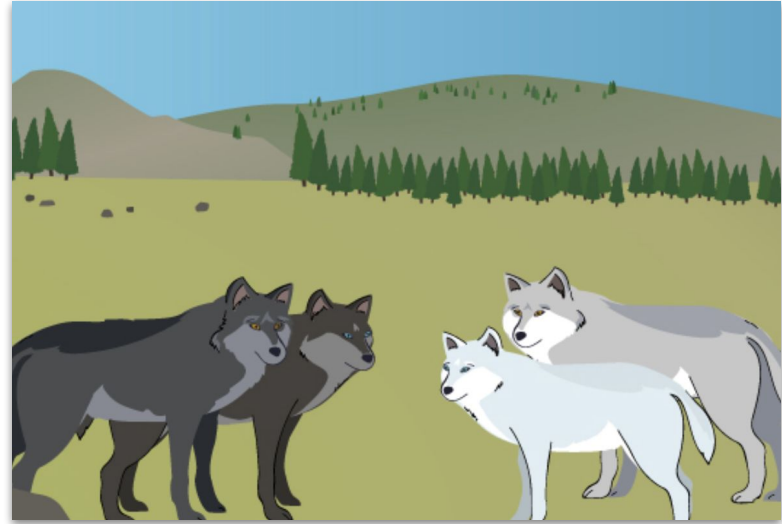
Grade 3



Inheritance and Traits: Variation in Wolves

Role: Wildlife biologists

Problem: A class of second graders wants to know the origin of Wolf 44 in Graystone National Park, that seems to be different from the rest of its pack.



Elk Mountain Wolf Pack



Bison Valley Pack



Hunting Styles

Elk Mountain Pack



Hunts elk in small groups
(up to 4 wolves).

Bison Valley Pack



Hunts bison in large groups
(up to 10 wolves).

Comparing Wolf Weights

Bison Valley Pack

Wolf
63

Wolf
61

Wolf
68

Wolf
66

← Females →

35 kg
(77 lbs.)

40 kg
(88 lbs.)

45 kg
(100 lbs.)

Wolf Wolf Wolf Wolf
65 62 67 60

Elk Mountain Pack

Wolf
46

Wolf
47

Wolf
41

Wolf
40

50 kg
(110 lbs.)

55 kg
(121 lbs.)

60 kg
(132 lbs.)

Wolf
44

← Males →

Wolf Wolf
45 43

Wolf
48

Unit phenomenon

Wolf 44 is different from the rest of the wolves in the Elk Mountain Pack.

- Wolf 44 has **light-colored fur** and the other Elk Mountain wolves have dark fur.
- Wolf 44 **smaller** than the other wolves in its pack.
- Wolf 44 **hunts in the same way** as the wolves in the Elk Mountain Pack.



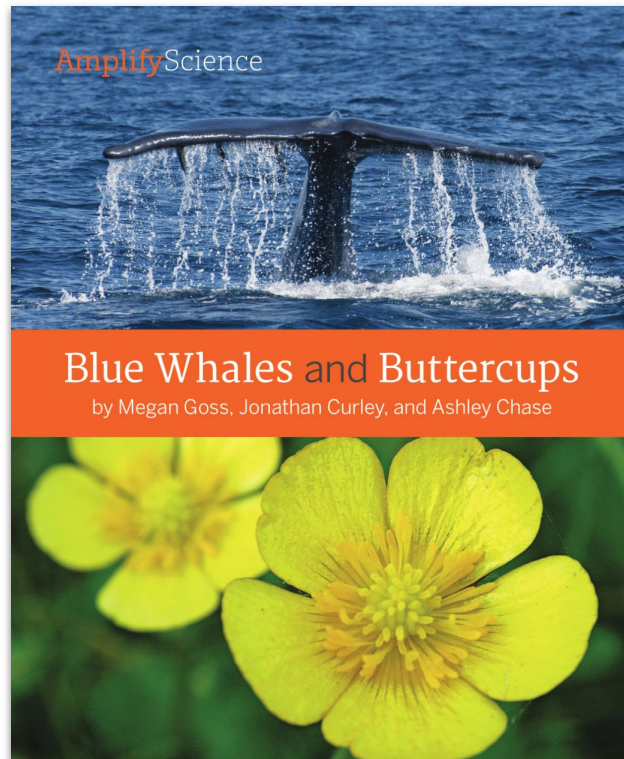
We will investigate this question:

What are some ways that organisms can be similar or different?

Small write 1: Asking questions while reading

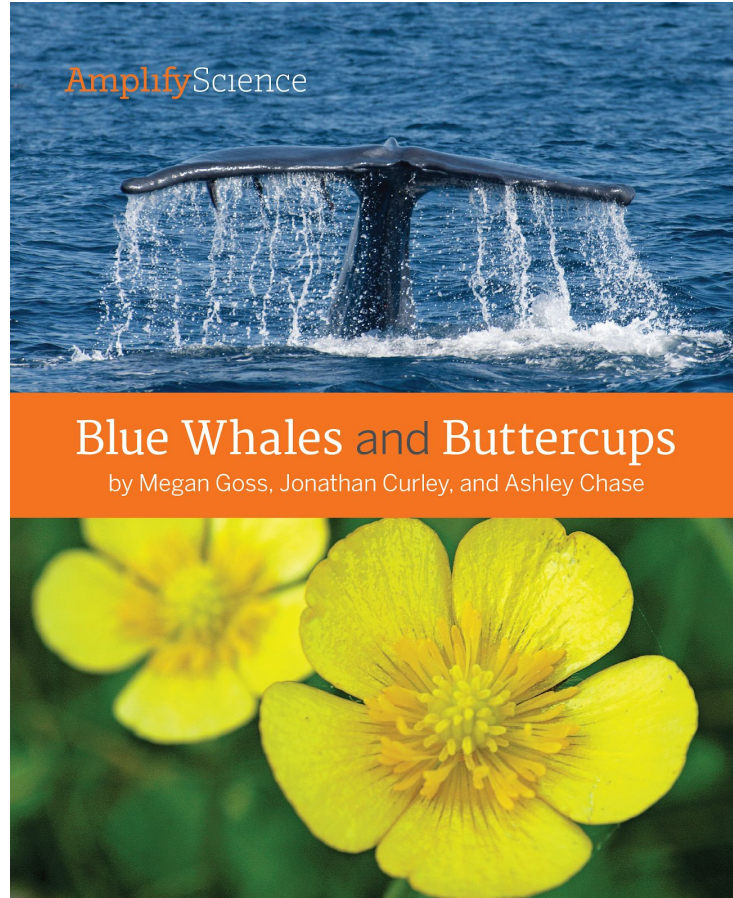
Questioning guidelines:

- Is the question on topic?
- Is there information in the book to help me answer the question?
- What else could I do to investigate the question?



Remember that we are investigating this question:

What are some ways that organisms can be similar or different?



We will practice **asking questions** as we read *Blue Whales and Buttercups*.

Name: _____ Date: _____

Asking Questions When Reading:
Blue Whales and Buttercups

Directions:

1. As you read the book, record questions you have in Column 1.
2. If you find the answers to your questions as you read, record your answers in Column 2. Be sure to include the page number from the book where you found the information so you can discuss these ideas with the class.
3. In Column 3, record other ways you could investigate your questions.

Question	Information from the book that helps answer my question	Other ways to investigate my question
	Page:	
	Page:	
	Page:	

Turn to page 5 in your notebooks.

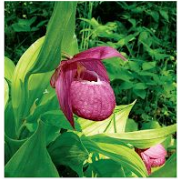
As you read, you will ask questions and **record your questions.**

Let's try one example together.

How Organisms Are Different

There are so many different kinds of animals, plants, and other **organisms** on Earth. There are polar bears, redwood trees, and nine-armed sea stars. Scientists put organisms into groups called **species**.

Earth has more species than you might expect. Even types of organisms that might seem like one species are often divided into different species. For example, there are actually many different species of whales. There are blue whales, humpback whales, gray whales, and more. Millions of different species of organisms live on Earth.



Organisms can have very different **traits**. A trait is anything you can **observe** about an organism, including the way it looks or acts. Some animals have fur, and others have feathers. Some plants have flowers, and others do not. Some animals protect themselves by running fast, and others protect themselves by biting. We call these differences **variation**. Let's look at some examples of variation.

Name: _____ Date: _____

Asking Questions When Reading:
Blue Whales and Buttercups

- Directions:
1. As you read the book, record questions you have in Column 1.
 2. If you find the answers to your questions as you read, record your answers in Column 2. Be sure to include the page number from the book where you found the information so you can discuss these ideas with the class.
 3. In Column 3, record other ways you could investigate your questions.

Question	Information from the book that helps answer my question	Other ways to investigate my question
Do organisms that look similar have variation?	Page:	
	Page:	
	Page:	

What I read on page 5 makes me wonder: Do organisms that look similar have variation?

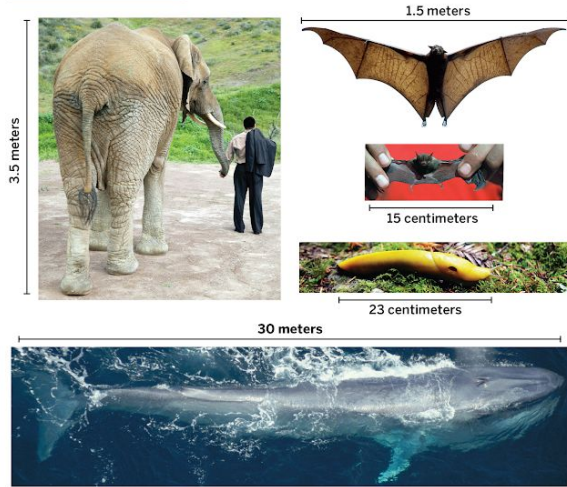
Let's **record our question** on the notebook page.

Organisms Grow to Different Sizes

You can find lots of variation in the sizes of different organisms. **Compared** to people, elephants are huge. Still, it would take about 20 big elephants to match the weight of just one blue whale. The biggest trees weigh more than 40 blue whales!

You can find huge size variation even between organisms in similar species. For example, the largest species of bat is about 10 times bigger than the smallest species of bat.

1 meter = 100 centimeters



Blue whales are the largest animals in the world.



This is a close-up of the sharp point of a pin. Imagine how tiny the mite sitting on it is!

These are tiny plant-like organisms that float in the ocean. They are too small to see without a microscope.

This tree is one of the largest living things on Earth.

Difference in size is not the only kind of variation among organisms on Earth. . . .

Name: _____ Date: _____

Asking Questions When Reading:
Blue Whales and Buttercups

- Directions:
- As you read the book, record questions you have in Column 1.
 - If you find the answers to your questions as you read, record your answers in Column 2. Be sure to include the page number from the book where you found the information so you can discuss these ideas with the class.
 - In Column 3, record other ways you could investigate your questions.

Question	Information from the book that helps answer my question	Other ways to investigate my question
Do organisms that look similar have variation?	Page: 6 <i>Bats look similar but have variation. The bats are different sizes.</i>	
	Page:	
	Page:	


I read on page 6 that bats can be very different sizes. Bats look similar, but they have variation.

That helps answer our question. **Let's record the page where we found it.**

Name: _____ Date: _____

Asking Questions When Reading:
Blue Whales and Buttercups

- Directions:
1. As you read the book, record questions you have in Column 1.
 2. If you find the answers to your questions as you read, record your answers in Column 2. Be sure to include the page number from the book where you found the information so you can discuss these ideas with the class.
 3. In Column 3, record other ways you could investigate your questions.

Question	Information from the book that helps answer my question	Other ways to investigate my question
Do organisms that look similar have variation?	Page: 6 Bats look similar but have variation. The bats are different sizes.	
	Page:	
	Page:	



What are other ways we could investigate this question?

Organisms Get Around in Different Ways

All animals move, but different animals often move very differently. Animals may walk, run, fly, swim, or slide. Plants don't move around the way animals do, but their seeds get from place to place in different ways. We can see lots of variation in the many ways that different organisms get around.



8

Turn to page 8 of *Blue Whales and Buttercups*.



As you **read** the rest of the book together, **record your own questions and answers** in your notebooks.

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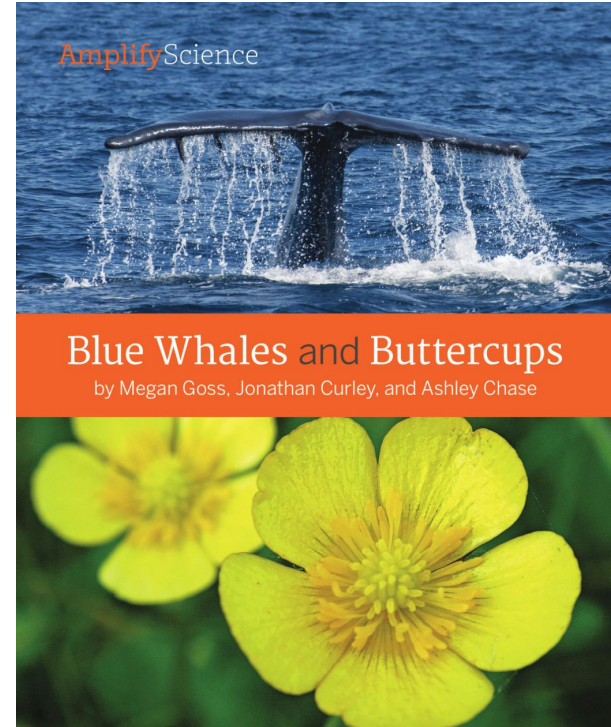
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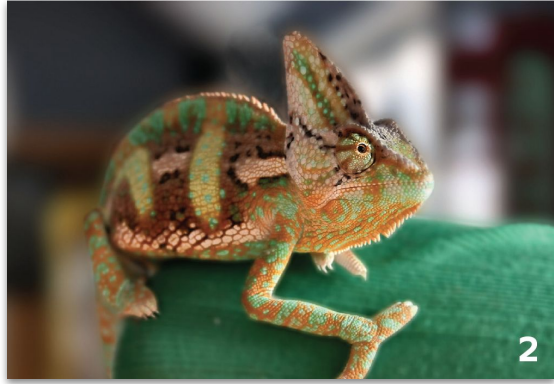
Reflecting on small write 1

Recording questions while students read is a small writing opportunity.

What are your ideas about the **purpose and role of writing** in this small write activity?



Small write 2: Recording and analyzing observations



Small write 2: Recording and analyzing observations

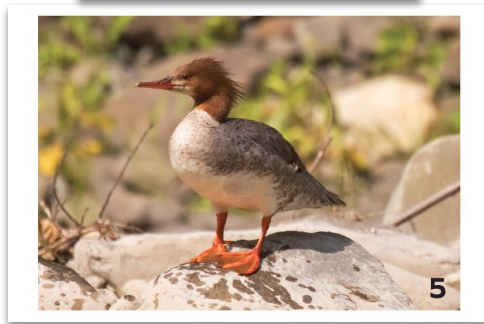
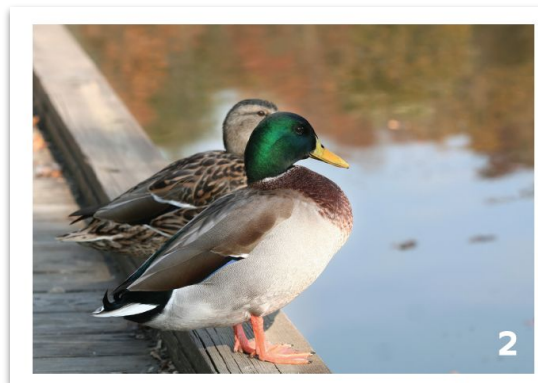
Name: _____ Date: _____

Similarities and Differences: Birds

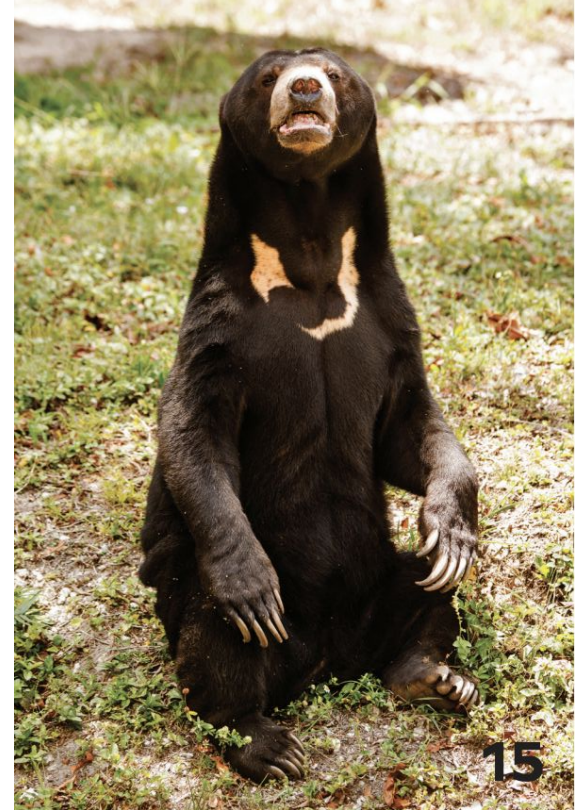
Directions:

1. With your partner, observe the Bird Cards.
2. In the Similarities column of the table, list the traits that you notice to be similar between birds.
3. In the Differences column, list the traits you notice to be different between birds.

Similarities	Differences



Small write 2: Recording and analyzing observations



Small write 3: Gathering evidence about the Elk Mountain Pack

Lesson 1.5: Variation in a Species

Activity 1

Chapter 1 Question

Why are wolves different even though they are all the same species?

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Graystone National Park

Elk Mountain Pack
Territory



Bison Valley Pack
Territory

Elk Mountain Pack



Elk Mountain Pack



Wolf 44 is part of the **Elk Mountain Wolf Pack**.

These posters show wolves in the pack and a map of Graystone National Park, where the pack lives and hunts.

We will be using the **Elk Mountain Pack Data Cards** to observe some of the wolves in the pack.



Vocabulary



data

observations or measurements recorded in an investigation

Name: _____ Date: _____

Similarities and Variations: Elk Mountain Pack

Directions:

1. Record the similarities and the variations you observe as you discuss the data about wolves.
2. Answer the question at the bottom of the page.

Similarities	Variations

What patterns do you notice?

Turn to page 12 in your notebooks.

You will **observe** the photos on the cards and use this page to record the **similarities** and **variations** you see.

Let's practice observing the wolves and looking for **patterns**.

One thing we can observe is that all these wolves have **pointy ears**.

Elk Mountain Pack



Interkane and Truitt—Elk Mountain Pack Data Cards—Lesson 1.5—AMPS0073 DA 3L34
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Image credit: Shutterstock

Elk Mountain Pack



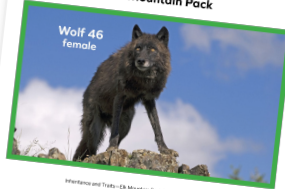
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Elk Mountain Pack



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Elk Mountain Pack



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Name: _____ Date: _____

Similarities and Variations: Elk Mountain Pack

Directions:

1. Record the similarities and the variations you observe as you discuss the data about wolves.
2. Answer the question at the bottom of the page.

Similarities	Variations
pointy ears	

What patterns do you notice?

Having pointy ears is a way all the wolves are similar.

We could write *pointy ears* under *Similarities*.



Now, let's think about **variations** we can observe.

We can see that some of the wolves on the cards have **thicker fur** than others.

Name: _____ Date: _____

Similarities and Variations: Elk Mountain Pack

Directions:

1. Record the similarities and the variations you observe as you discuss the data about wolves.
2. Answer the question at the bottom of the page.

Similarities	Variations
pointy ears	thicker or thinner fur

What patterns do you notice?

One variation in the wolves is the thickness of their fur.

We could write ***thicker or thinner fur*** under ***Variations***.

Name: _____ Date: _____

Similarities and Variations: Elk Mountain Pack

- Directions:
- Record the similarities and the variations you observe as you discuss the data about wolves.
 - Answer the question at the bottom of the page.

Similarities	Variations

What patterns do you notice?



Observe the wolves on the cards.

Record similarities and variations on **your own notebook page**.



Elk Mountain Pack



Inheritance and Traits—Elk Mountain Pack Data Cards—Lesson 1.5—AMP615573.04-3LSA
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Image credit: Andy Gehrig/E+/Getty Images

Elk Mountain Pack



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Reflecting on small writes 2 and 3

As students narrow their definition of a species, they record their observations about a number of different organisms.

What are your ideas about **purpose** and **role of writing** in these small write activities?

Name: _____ Date: _____

Similarities and Variations: Elk Mountain Pack

Directions:

1. Record the similarities and the variations you observe as you discuss the data about wolves.
2. Answer the question at the bottom of the page.

Similarities	Variations

What patterns do you notice?

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Shared writing: End of chapter explanation

Scientific Explanation: Wolf Variation

Question: Why are wolves different from one another even though they are all the same species?

Elk Mountain Wolf Pack



What Is a Scientific Explanation?

1. It answers a question about how or why something happens.
2. It is based on the ideas you have learned from investigations and text.
3. It uses scientific language.
4. It is written for an audience.

Sample Shared Write: End of chapter explanation

Some wolves are different than others even though they are all the same species because there is variation of traits within a species.

This means that even though the wolves are the same species and can have similarities in their traits, there can also be variation in each of their traits.

For example, the wolves have different color fur. Some of the wolves have a trait for gray fur, and others have a trait for black fur.

Reflecting on the small writes

How did the short writing opportunities in this chapter support students as they worked towards writing the more formal end-of-chapter explanation?

Small Writes
Recording questions while reading <i>Blue Whales and Buttercups</i>
Recording similarities and differences among organisms
Recording similarities and differences among Elk Mountain Pack wolves

Writing across a chapter: *Inheritance and Traits* Chapter 1

Lesson 1.1	Lesson 1.2	Lesson 1.3	Lesson 1.4
<div>Pre-unit assessment: Writing initial explanations</div> <div>Scavenger Hunt</div>	<div>Asking questions in <i>Blue Whales and Buttercups</i></div> <div>Reading reflection</div>	<div>Similarities and differences: Birds</div> <div>Daily Written Reflection</div>	<div>Daily Written Reflection</div>

Writing across a chapter: *Inheritance and Traits* Chapter 1

Lesson 1.5	Lesson 1.6	Lesson 1.7
Similarities and differences: Elk Mountain Pack	Evidence About Trait Variation	Gathering information about wolves
Asking Science Questions	Word Relationships	Reflecting on why wolves Are different
Daily Written Reflection		Shared Writing
		Daily Written Reflection

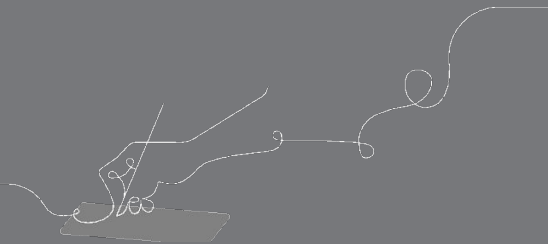
Writing across a chapter: *Inheritance and Traits* Chapter 1

Lesson 1.5	Lesson 1.6	Lesson 1.7	
Similarities and differences: Elk Mountain Pack	Evidence About Trait Variation	Gathering information about wolves	Record data / observations
Asking Science Questions	Word Relationships	Reflecting on why wolves are different	Reflect on understanding or activate background knowledge
Daily Written Reflection		Shared Writing	Organizing or keeping track of ideas
		Daily Written Reflection	Explain

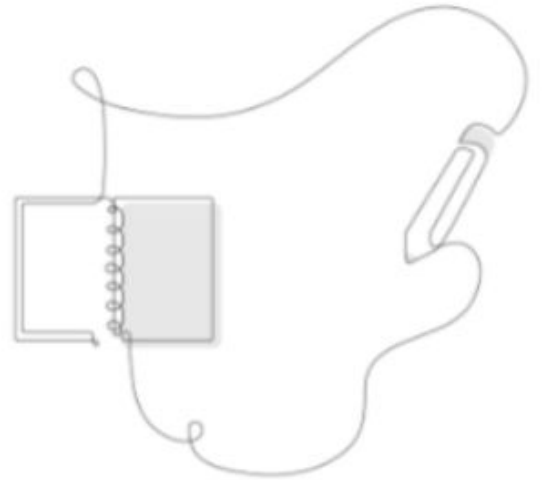
Key takeaway

As they gather evidence, students engage in writing and discussion. They make sense of evidence they gather through these through small writes, with embedded supports.

Writing is a key part of the multimodal approach as students figure out a phenomenon.



What specific strategies
are embedded into the
curriculum to support
students to write like
scientists?



Embedded writing supports

- Smaller pieces of writing build to larger pieces of writing
- Informal talk opportunities: partners and small groups
- Sentence starters and/or language frames
- Classroom wall and other environmental print
- Word banks
- Discourse routines
- Multimodal instruction
- Gradual release of responsibility

Work time

Analyze the purpose of writing

Choose a writing activity your students recently completed, or one that's upcoming.

- What's the purpose of the small write?
- What writing supports are embedded into the activity?
- How could you provide additional support to students who need it?

If you have extra time, choose another small write to analyze.

Writing Build in *Inheritance and Traits*



Ch. 3	Review guidelines	Independent writing
Ch. 2	Review guidelines; introduce a fifth guideline	Shared writing of topic sentence; independent writing of explanation
Ch. 1	Introduce guidelines	Shared writing of entire explanation

Key takeaway

Units leverage a **gradual release of responsibility model** for the formal writes.

As students work through a unit, their writing becomes more independent and sophisticated while the science content builds in complexity.

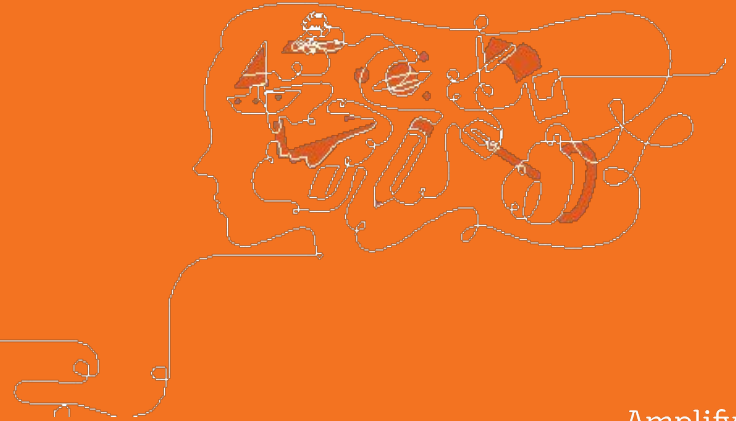




Plan for the day

- Introduction and framing
- Writing in Amplify Science
 - Writing as part of a multimodal experience
 - Writing a culminating explanation or argument
- Supporting students with writing
- Closing

Scientific Explanations and Scientific Arguments



Share

What do you think the difference is between a scientific explanation and a scientific argument?

An explanation **describes** to an audience **the invisible mechanisms or causes** that led to a phenomena.

An argument is to **convince** an audience that a **claim** (which is usually about how or why something happens) **is the best claim** given what we know.

Explanations and Arguments

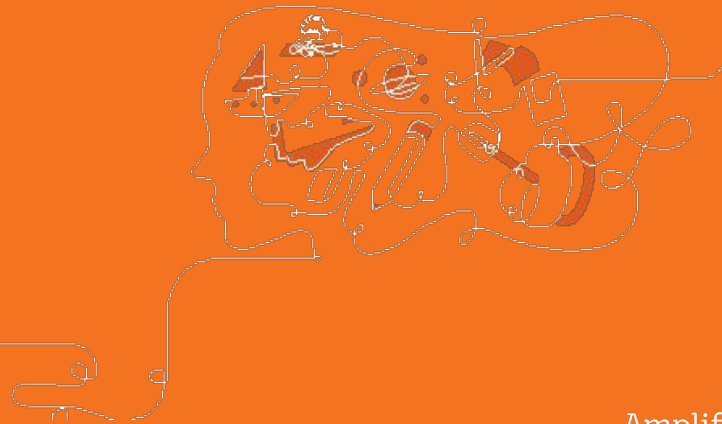
Explanation Guidelines:

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

Argument Guidelines:

1. It answers a question with a claim about the natural world.
2. It includes evidence to support the claim. Evidence can be data and ideas.
3. It connects the evidence to the claim by linking different pieces of evidence together to show how they support the claim.
4. It uses scientific language.
5. It is written for an audience.

End-of-Unit Writing: Explanations or Arguments



End of Unit Assessment for Changing Landforms

There are 2 parts to this summative assessment.

Chapter 3: How did the recreation center's cliff erode without the director noticing?

▼ JUMP DOWN TO CHAPTER OVERVIEW

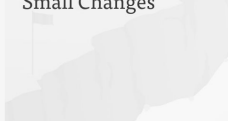
Lesson 3.1:
Introduction to Maps



Lesson 3.2:
Investigating
Differences in Scale



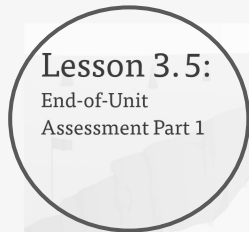
Lesson 3.3:
Accumulation of
Small Changes



Lesson 3.4:
Landform Change
Over Time



Lesson 3.5:
End-of-Unit
Assessment Part 1



Chapter 4: Could the recreation center's cliff erode quickly?

▼ JUMP DOWN TO CHAPTER OVERVIEW

Lesson 4.1:
Exploring How
Landforms Erode
Quickly



Lesson 4.2:
Modeling How
Landforms Erode
Quickly



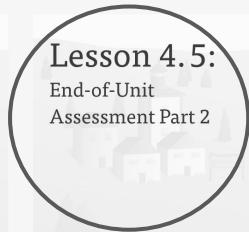
Lesson 4.3:
Making Models of
Streams



Lesson 4.4:
Making Sense of
How Landforms
Erode Quickly



Lesson 4.5:
End-of-Unit
Assessment Part 2



2 parts to this summative assessment.

[illegible]

Lesson 4.5- Part 2

Name _____ Date _____

End-of-Unit Writing: Explaining the Nearby Cliff

Directions:
Write a scientific explanation that answers the question below.

Question: Why did the nearby cliff erode overnight?

The nearby cliff eroded overnight because_____

79

Changing Landforms—Lesson 4.5
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End of Unit Assessment for Inheritance and Traits

There are 2 parts to this summative assessment.

Chapter 3: Why isn't Wolf 44 like the Bison Valley Pack in hunting style and size?

✓ JUMP DOWN TO CHAPTER OVERVIEW

Lesson 3.1:
Introducing Traits That Aren't Inherited

Lesson 3.2:
How the Sparrow Learned Its Song

Lesson 3.3:
Investigating What Determines Traits

Lesson 3.4:
The Role of the Environment

Lesson 3.5:
Making Sense of Traits

Lesson 3.6:
End-of-Unit Assessment Part 1

Chapter Overview



Chapter 4: How can scientists investigate questions about traits?

✓ JUMP DOWN TO CHAPTER OVERVIEW

Lesson 4.1:
Scorpion Scientist

Lesson 4.2:
End-of-Unit Assessment Part 2

Lesson 4.3:
Investigating Sparrow Offspring

Chapter Overview



There are 2 parts to this summative assessment.

End of Unit Assessments

Units with 2 Assessment Parts

Grade 2: Changing Landforms

Grade 3: Inheritance and Traits, Environments and Survival and Weather and Climate

Grade 4: Earth's Features

Grade 5: Earth System

Two versions to End-of-Unit Assessment (Grades 3-5)

Version B

Name: _____ Date: _____

End-of-Unit Writing: Explaining Wolf 44's Size

Directions:

1. Write a scientific explanation that answers the question below.
2. Your audience is the students of Graystone Elementary School.
3. Your explanation should include:
 - a **topic sentence** that answers the question.
 - supporting sentences that tell **what happens** and **why**.

Question: What makes Wolf 44 medium size?

Wolf 44 is medium size because _____

Its parents in the Bison Valley Pack _____

Wolf 44 lives with the Elk Mountain Pack _____

This means that _____

Inheritance and Traits—Lesson 3.6 (Version B)

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Rubrics for Assessing Students' Final Written Arguments

Three-dimensional

- Rubric 1: Assessing Students' Understanding of **science concepts (DCIs)**] summative
- Rubric 2: Assessing Students' Understanding of a **Crosscutting Concept**] formative (K-1)
summative (2-5)
- Rubric 3: Assessing Students' Performance of the a **Practice**] formative

Work time: End of unit Assessment Guide

Become familiar with your EOU Assessment Guide

- What is the prompt for students? (check in the Assessment Guide and in the lesson activity itself)
- What does each rubric assess?

Reflection prompt:

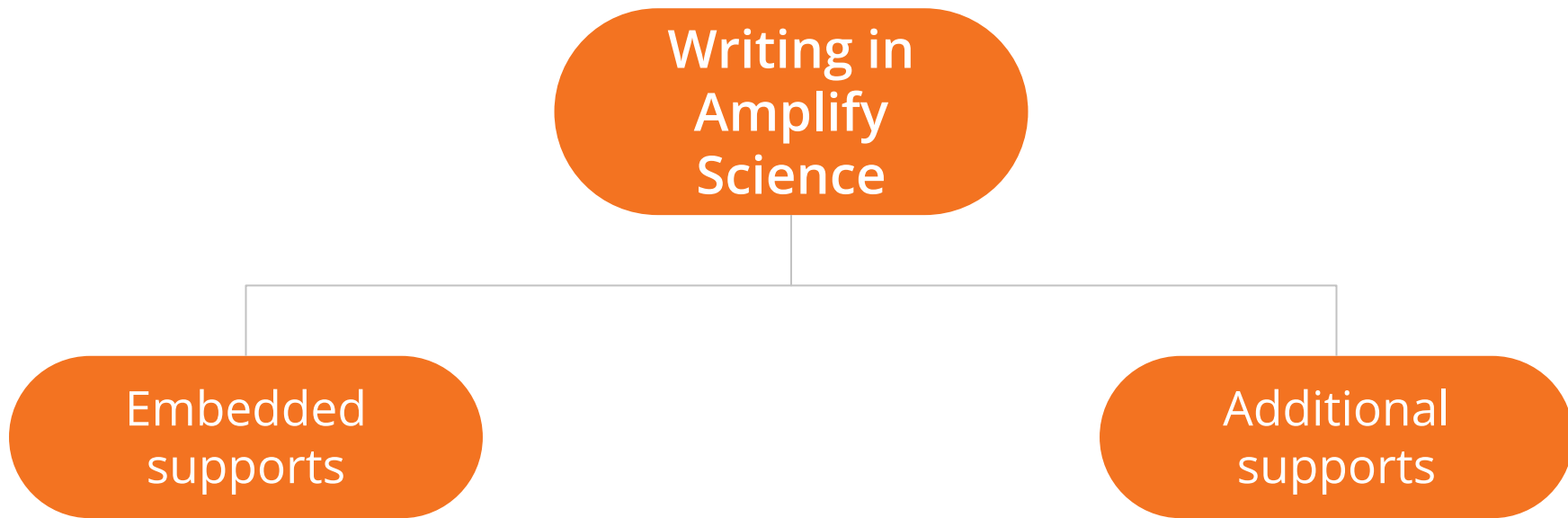
- How could the EOU Assessment Guide help your planning and instruction throughout the unit?



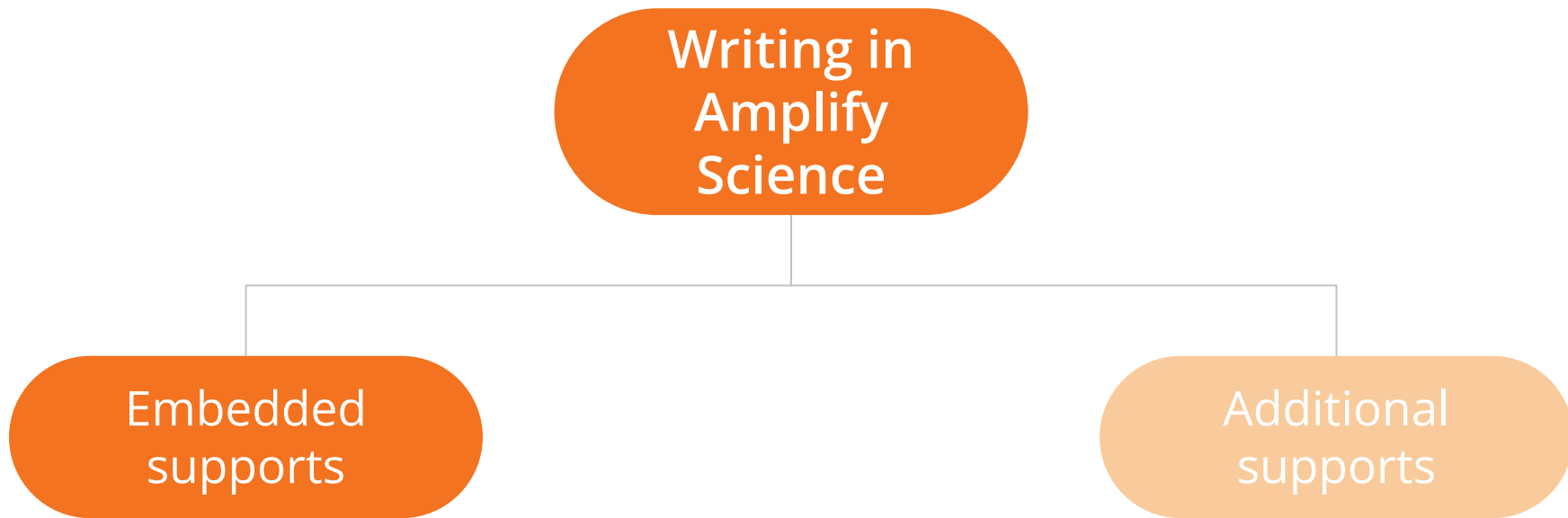
Plan for the day

- Introduction and framing
- Writing in Amplify Science
 - Writing as part of a multimodal experience
 - Writing a culminating explanation or argument
- Supporting students with writing
- Closing

Supporting students with writing

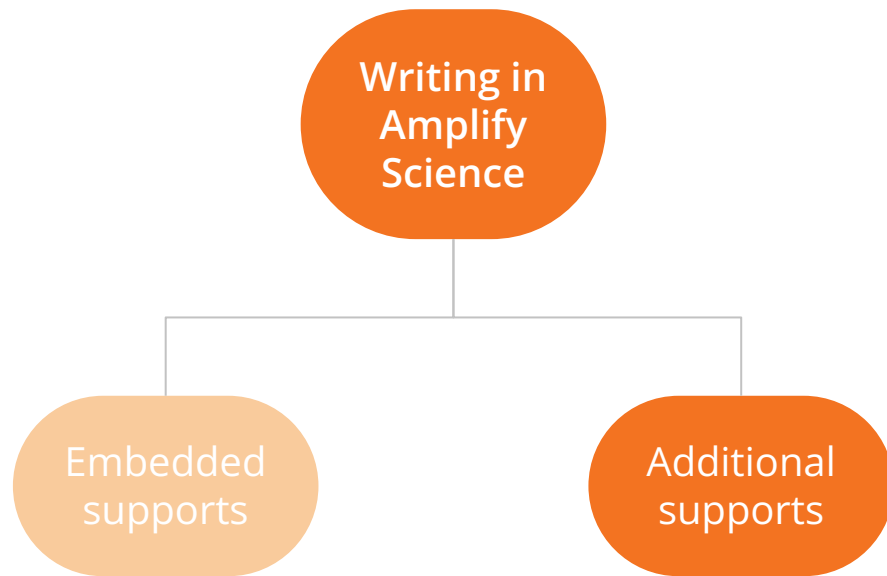


Supporting students with writing

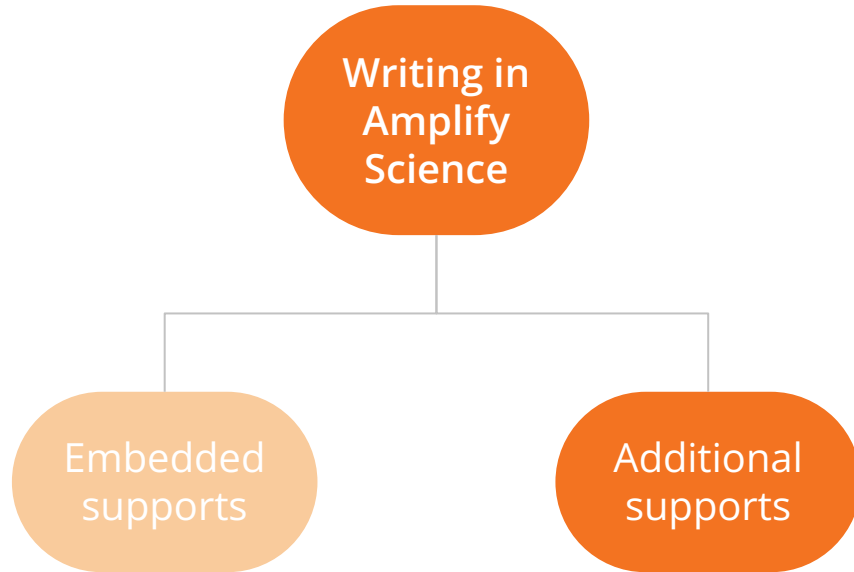


Supporting students with writing

What additional strategies could you use to support students with writing in Amplify Science?



Connecting strategies to writing purposes



Purposes for writing in Amplify Science

Activate background knowledge

Reflect on understanding

Engage in sense-making

Record data / observations

Organize ideas

Communicate ideas (to explain or persuade)

Key takeaway

Different writing activities play different roles within the curriculum.

Providing support for writing will look different depending on the activity.



Additional supports

- Teacher support notes
- Possible Responses
- Differentiation notes
- Embedded Formative Assessments



Supplemental Investigation Notebook Pages

Name: _____	Name: _____ Date: _____
What is something you to learn about sand?	Daily Written Reflection Write about one interesting thing you learned from reading <i>Blue Whales</i> and <i>Buttercups</i> .
<div></div>	<div></div>
Make a drawing if it h	Make a drawing if it helps you explain your thinking. Label your drawing.
<div></div>	<div></div>
Grade 2	Grade 3: Inheritance and Traits.
© 2018 The Regents of the University of California. All rights reserved. Permission granted to photocopy for classroom use.	8 Inheritance and Traits—Lesson 1.3 (optional) © 2018 The Regents of the University of California. All rights reserved. Permission granted to photocopy for classroom use.

Daily Written Reflections

Example questions for Changing Landforms:

- What is something you know about sand? What is something you would like to learn about sand?
- What happens when a plant or animal can't meet its needs.

Example questions for Inheritance and Traits:

- Write about one interesting thing you learned from reading *Blue Whales* and *Buttercups*.

Supplemental Investigation Notebook Pages

<p>Name: _____</p> <p>Reading Reflection: Earthworms Undergrowth</p> <p>Directions:</p> <ol style="list-style-type: none">1. Turn to page 3, Contents, in <i>Earthworms Undergrowth</i>.2. Choose two sections to read again.3. Record the names of each section below.4. As you read each section, answer the question for each section. <p>First section</p> <p>Earthworms need _____</p> <p>What helps earthworms meet this need in their environment?</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Second section</p> <p>Earthworms need _____</p> <p>What helps earthworms meet this need in their environment?</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Grade 2: Changing Landforms</p>	<p>Name: _____ Date: _____</p> <p>Reading Reflection: Blue Whales and Buttercups</p> <p>Directions:</p> <ol style="list-style-type: none">1. Return to the measurements of different organisms on pages 6 and 7 of <i>Blue Whales and Buttercups</i>.2. Answer the questions below. <p>Is there an object in your classroom similar in size to the wingspan of the bat (1.5 meters) (4.92 feet)?</p> <p>_____</p> <p>_____</p> <p>Is there an object in your classroom similar in size to the tree frog (1 centimeter) (0.39 inches)?</p> <p>_____</p> <p>_____</p> <p>Is there an object in your school similar in size to the height of the elephant (3.5 meters) (11.48 feet)?</p> <p>_____</p> <p>_____</p> <p>Grade 3: Inheritance and Traits</p>
---	---

Reading Reflections for Changing Landforms

Reading Reflections for Inheritance and Traits.

Supplemental Investigation Notebook Pages

Scientific Explanation of Wolf 44's Fur Color

Directions:

1. Write a scientific explanation that answers the question below.
2. Your audience is the students of Graystone Elementary School.

Question: Why is Wolf 44's color similar to one pack but different from the other?

[illegible]

Version A

Scientific Explanation of Wolf 44's Fur Color

Directions:

1. Write a scientific explanation that answers the question below.
2. Your audience is the students of Graystone Elementary School.
3. Your explanation should include:
 - a **topic sentence** that answers the question.
 - supporting sentences that tell **what happens** and **why**.
 - **Discuss traits:** How do offspring get their traits?

Question: Why is Wolf 44's color similar to one pack but different from the other?

Wolf 44's color is similar to the wolves in the Bison Valley Pack because

Offspring inherit _____.

This means that _____.

This is why _____.

Version B

Optional
scaffolding
writing
copymasters

Key takeaway

In addition to the embedded supports for student writing, there are resources throughout the curriculum you can use to provide additional support.





Plan for the day

- Introduction and framing
- Writing in Amplify Science
 - Writing as part of a multimodal experience
 - Writing a culminating explanation or argument
- Supporting students with writing
- Closing

Reflection

Write:

- 2–3 new understandings or strategies from Amplify Science that you believe will make an impact in your classroom.
- 1 question you still have.

Overarching goals

By the end of this workshop, you will be able to:

- ☑ Identify specific characteristics and genres unique to science writing.
- ☑ Describe how the Amplify Science writing approach supports students to engage in science practices, make sense of science ideas, and develop as writers.
- ☑ Be ready to teach specific writing activities in an Amplify Science unit.

Additional Amplify resources



Program Guide

Glean additional insight into the program's structure, intent, philosophies, supports, and flexibility.

my.amplify.com/programguide

Amplify Help

Find lots of advice and answers from the Amplify team.

my.amplify.com/help

Additional Amplify support

Customer Care

Seek information specific to enrollment and rosters, technical support, materials and kits, and teaching support, weekdays 7AM-7PM EST.



scihelp@amplify.com



800-823-1969



Amplify Chat

When contacting the customer care team:

- Identify yourself as an Amplify Science user.
- Note the unit you are teaching.
- Note the type of device you are using (Chromebook, iPad, Windows, laptop).
- Note the web browser you are using (Chrome or Safari).
- Include a screenshot of the problem, if possible.
- Copy your district or site IT contact on emails.

Thank you for your feedback!

<https://www.surveymonkey.com/r/AmplifySciPLSurvey>

Presenter Name: **Presenter name**

Workshop Title: Writing in Amplify Science

