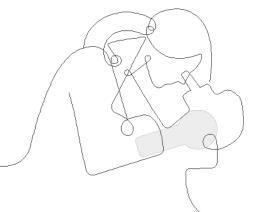
Amplify Science

K Writing in Science

Strengthening workshop-Part 3



LAUSD

March 2023

Presented by Jolene Hori



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

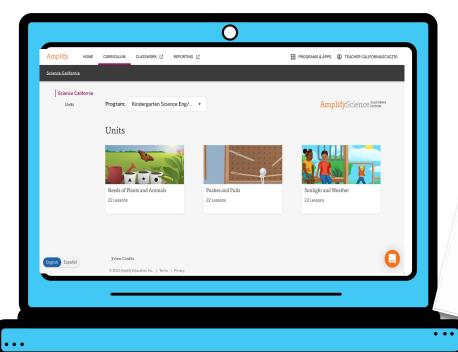
Norms: Establishing a culture of learners

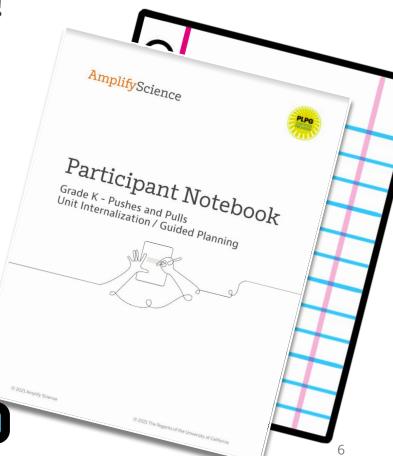
- Take risks: Ask any questions, provide any answers.
- Participate: Share your thinking, participate in discussion and reflection.
- Be fully present: Unplug and immerse yourself in the moment.
- Physical needs: Stand up, get water, take breaks.

5

Welcome to Amplify Science!

Log in through your Schoology account





Schoology

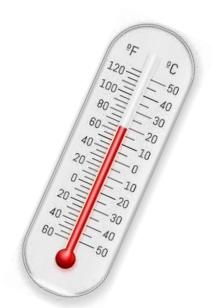
To join Amplify ES Group: W4PK-W466-63F5B



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



Overarching goals

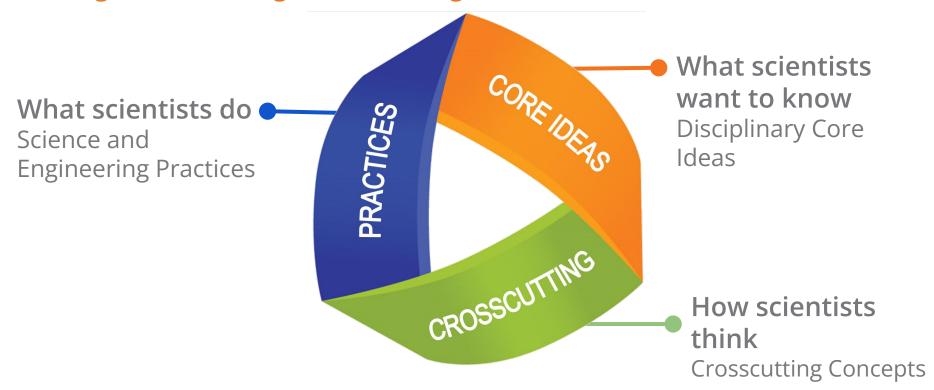
- Identify specific characteristics and genres unique to science writing
- Describe how the Amplify Science writing approach supports students to engage in science practices, make sense of science ideas, and develop as writers
- Be ready to teach specific writing activities in an Amplify Science unit

Plan for the day

- Introduction and framing
- Writing in Amplify Science
 - Writing as part of a multimodal experience
 - Lesson Level
 - End of Chapter
 - End of Unit
- Supporting students with writing
- Closing

Figuring out phenomena

Using 3-D teaching and learning

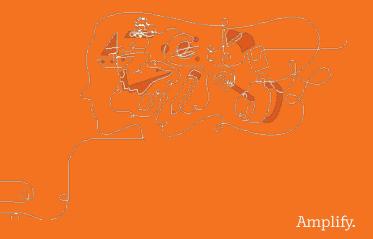


Science and Engineering Practices

- 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

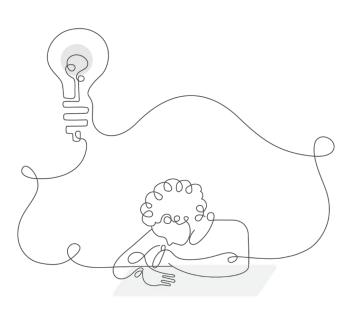
Why do scientists write?

Numbered Heads Together



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



Writing in Amplify Science

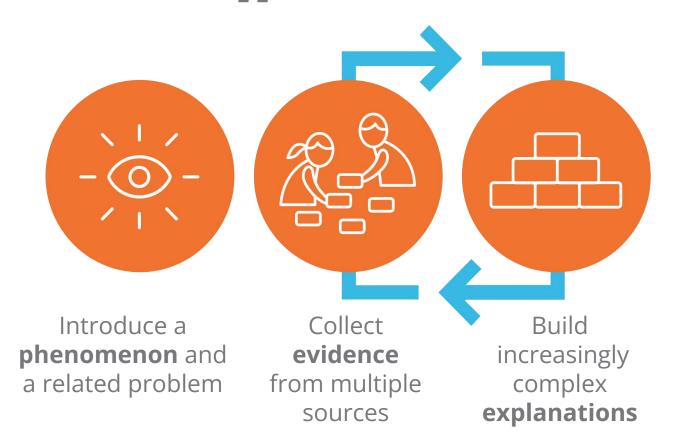
Purposeful communicative writing is an integral part of the Amplify Science curriculum

Plan for the day

- Introduction and framing
- Writing in Amplify Science
 - Writing as part of a multimodal experience
 - Lesson Level
 - End of Chapter
 - End of Unit
- Supporting students with writing
- Closing

"Children's speaking and listening lead the way for their reading and writing skills, and together these language skills are the primary tools of the mind for all future learning" (Roskos, Tabors, & Lenhart, 2009).

Instructional approach

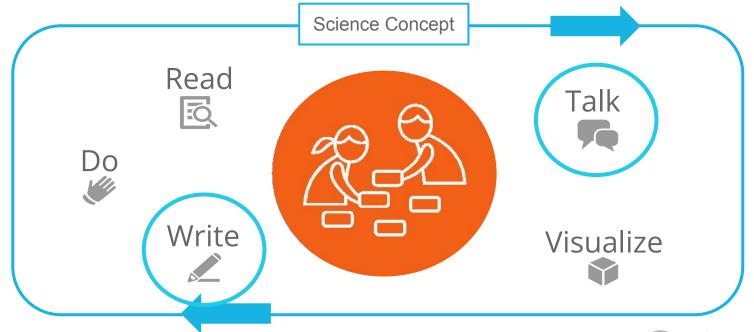


Apply knowledge to a different context



Multimodal learning

Students gather and make sense of evidence from multiple sources in multiple ways







Evidence

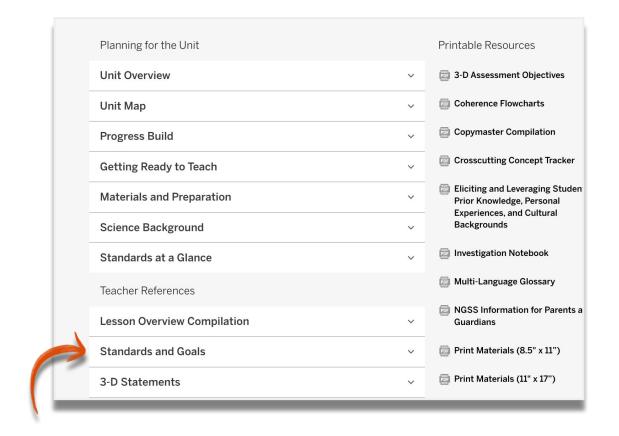




Instructional approach



Standards and Goals



The Unit Landing Page: Standards and Goals

Sunlight and Weather-Speaking And Listening

Speaking and Listening

- CCCSS.ELA-LITERACY.SL.K.1: Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
- CCSS.ELA-LITERACY.SL.K.2: Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
- CCSS.ELA-LITERACY.SL.K.5: Add drawings or other visual displays to descriptions as desired to provide additional detail.

The Unit Landing Page: Standards and Goals

Sunlight and Weather- Writing

Writing

- CCSS.ELA-LITERACY.W.K.2: Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.
- CCSS.ELA-LITERACY.W.K.7: Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).
- CCSS.ELA-LITERACY.W.K.8: With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

The Unit Landing Page: Standards and Goals

Sunlight and Weather- California ELD Standards addressed in this unit

Part I: Interacting in Meaningful Ways

- A. Collaborative: Engagement in dialogue with others
- B. Interpretive: Comprehension and analysis of written and spoken texts
- C. Productive: Creation of oral presentations and written texts

Multimodal Learning: Do, Talk, Read, Write, Visualize Sunlight and Weather

- **Do.** With increasing independence, students apply their ideas about cause and effect to plan investigations.
- Talk. Students engage in student-to-student talk when they gather
 evidence, either from firsthand investigations or from text. Many of the
 prompts focus on providing opportunities to discuss what has caused
 certain observed effects.
- Read. In Getting Warm in the Sunlight, students read about the effects of sunlight on different desert surfaces throughout the course of a day. The book shows how, for much of the day, sunlight causes surfaces to get warmer over time. In addition, the book shows that the sunlight causes dark surfaces to get hotter than pale surfaces.
- Write. Students connect causes and effects in oral and written explanations with the support of explanation language frames—sentence structures that support linking specific causes and mechanisms to effects by using the words *so* or *because*.
- Visualize. Students use visualization as they think about how they might design investigations to find support for their ideas about causes for observed effects.

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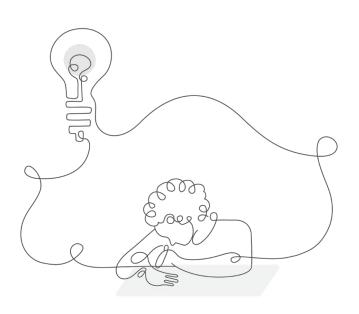
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Write. Students connect causes and effects in oral and written explanations with the support of explanation language frames—sentence structures that support linking specific causes and mechanisms to effects by using the words so or because.

Remember, this is why we 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

Grade K: Sunlight and Weather

What you will notice in this first lesson is an instructional sequence of oral language, building background, and vocabulary opportunties prior to the small write that comes at the end of the lesson.

Jot down what you notice as I move through the slides.



Amplify Science Approach

Why are the playgrounds at two schools different temperatures?

Introduce a **phenomenon** and a related problem



Why does only Woodland Elementary School's playground flood?

Apply knowledge to solve a different problem

Initial Problem:

Students at Carver Elementary School are too cold during morning recess, while students at Woodland elementary School are too hot during afternoon recess.

Role:

Weather Scientists

Coherent Storylines



Why do the playgrounds get warm?



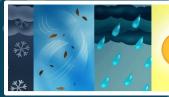
Why are the playgrounds warmer in the afternoon?



Why is Woodland Elementary Schol's playground always warmer during recess?



Why does only Woodland Elementary School's playground flood?



What is the weather like on the playgrounds?

Unit Question:

How do sunlight and different types of weather affect places?

The Sunlight and Weather unit provides the foundation for understanding the mechanism underlying all weather—how the sun warms Earth's surface. In their role as weather scientists, students are driven to understand this phenomenon as they solve the problem of why students at one fictional school are too cold during morning recess while students at another school are too hot during afternoon recess, which serves as the anchor phenomenon of this unit.

Explaining the phenomenon: Science Concepts

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

Let's take a look...

Sunlight and Weather: Progress Build

Assumed prior knowledge (preconceptions): Students are assumed to be generally aware that the sun is in the sky during the daytime. They may have some experience with different aspects of weather and have some experiences with touching or walking on surfaces that are very hot due to sunlight and/or darker colors.

Level 1

When light from the sun shines on a surface, the surface gets warmer.

Level 2

The longer that sunlight shines on the surface, the warmer it gets.

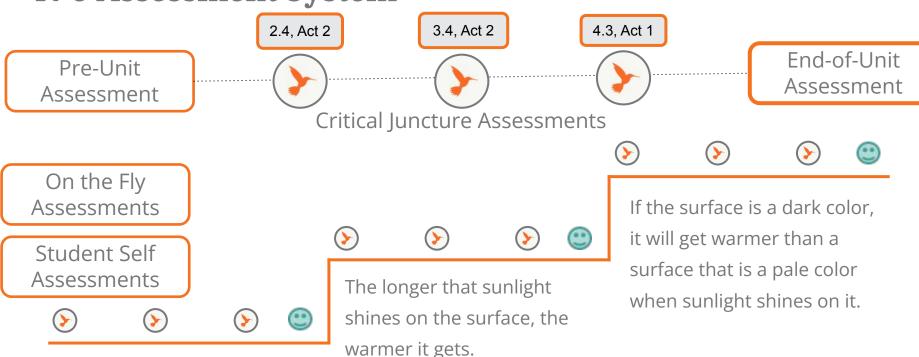
Level 3

If the surface is a dark color, it will get warmer than a surface that is a pale color when sunlight shines on it.

Prior knowledge

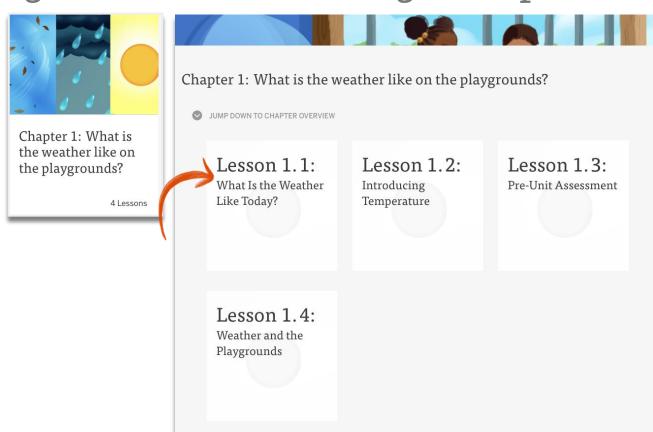
Deep, causal understanding





When light from the sun shines on a surface, the surface gets warmer.

Sunlight and Weather: Writing in Chapter 1



Materials Needed

What We Know About Weather

Types of Weather





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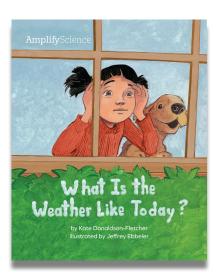
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How do sunlight and different types of weather affect places?





Key Concept:

Weather can be sunny, cloudy, windy, rainy, or snowy and different temperatures.

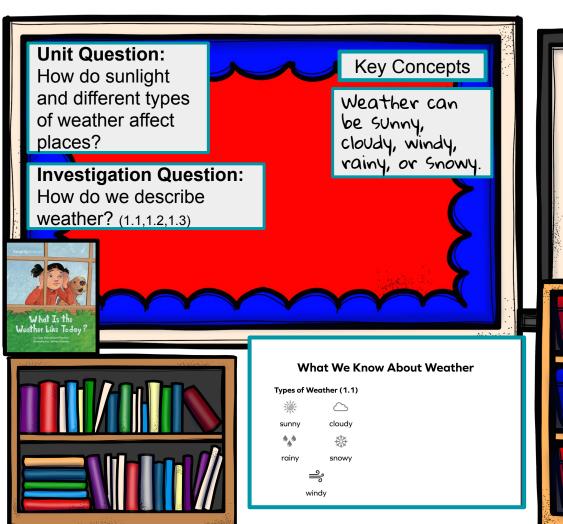
predict

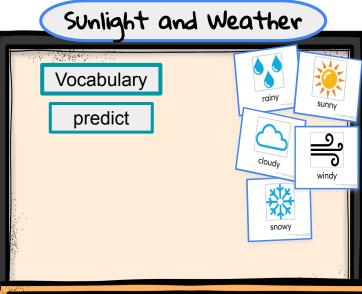
Investigation Question:

How do we describe weather? (1.1,1.2,1.3)

Potential Challenge in this Lesson:

Following a multistep procedure







Sample instructional sequence

Grade K: Sunlight and Weather

As I move through the slides, I will pause after each activity..

With your table:

- Discuss oral language events
- Discuss any building background opportunities
- Discuss any vocabulary
- Jot them down







Activity 1 Introducing the Unit



We are beginning a new unit in science.

We will work as **weather scientists**. We will **investigate** weather.



How do sunlight and different types of weather affect places?

Investigation Question:

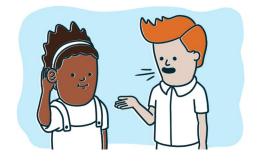
How do we describe weather?

Shared Listening



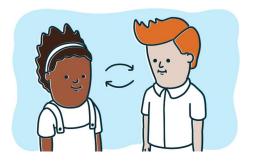
1

Partner A shares.
Partner B listens.



2

Partner B repeats. *I heard you say* . . .



3.

Partners switch.

Shared Listening Question:



What ideas do you have about weather?

Discuss Activity 1

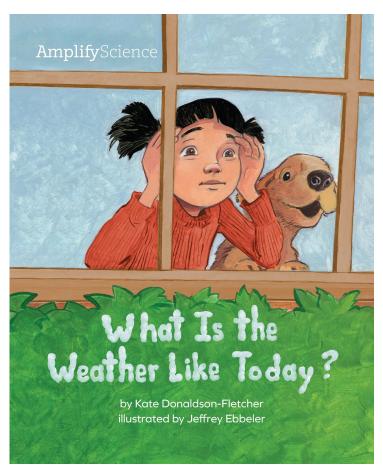
Describe oral language events, building background knowledge, or vocabulary opportunities with your table.

What did you notice?



Reading: What Is the Weather Like Today?





There are many types of weather.

We will read about a girl who **observes** the weather.



Every morning, I wake up with a question.

"What is the **weather** like today?"

Lesson 1.1: What Is the Weather Like Today?

Activity 2



To find out, I go to my window and look outside.

The weather today might be different than it was yesterday. Weather can be sunny, cloudy, windy, rainy, or snowy. There are other types of weather, too.



Some days I look outside and everything is wet. Drops of water are falling from the sky. I see puddles on the sidewalk.

What is the weather like today?



I can use what I know to make a prediction about what the weather is like today.



I can check my

prediction.

The weather today is rainy.

Gray clouds cover the sky. Rain is falling from the clouds. Sometimes the rain falls lightly. Sometimes it rains so hard I can barely see the houses across the street! It is raining hard today. I will wear my rain boots and raincoat and bring my umbrella to school with me.

Lesson 1.1: What Is the Weather Like Today?

Activity 2





Gray clouds cover the sky. Rain is falling from the clouds. Sometimes the rain falls lightly. Sometimes it rains so hard I can barely see the houses across the street! It is raining hard today. I will wear my rain boots and raincoat and bring my umbrella to school with me.



Some days when I look outside, the sky is blue and everything looks bright. Leaves are flying through the air. The grass is bending over and the bushes are swaying. The branches of the trees are moving back and forth.

What is the weather like today?

Lesson 1.1: What Is the Weather Like Today?

Activity 2



The weather today is sunny and windy.

There are no clouds, and the sun is high in the sky. **Sunlight** is shining on houses, trees, people, and everything else. The wind is blowing. It blows leaves through the air and makes branches sway. The sunlight is very bright today, so I'm going to wear my sunglasses. I'll keep my hair tied back to keep the wind from blowing it around.



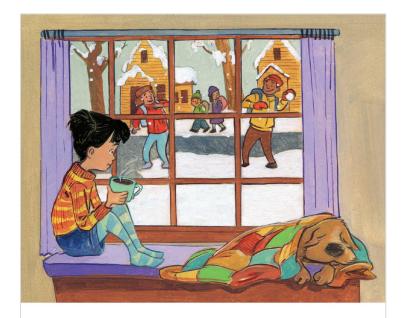
Some days I look outside and see ice crystals on my window. Outside, everything looks white and still. White flakes are falling to the ground. I can see the footprints of animals that have passed by in the night.

What is the weather like today?





What do you **predict** the weather will be like today?



The weather today is snowy.

When clouds get very cold, snowflakes form in the clouds. Then the snowflakes start falling to the ground. If enough snowflakes fall, they can form piles of snow. I am going to wear warm boots, a coat, and a scarf today.

10

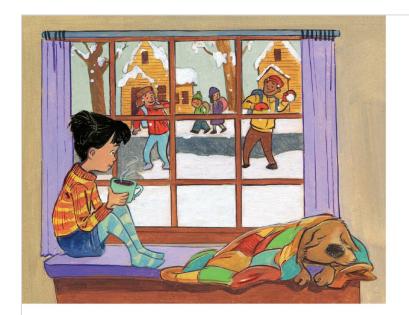
Let's keep reading to check our predictions.



What new information did we get from the reading and looking at the pictures? Did your prediction match?

Lesson 1.1: What Is the Weather Like Today?

Activity 2



The weather today is snowy.

When clouds get very cold, snowflakes form in the clouds. Then the snowflakes start falling to the ground. If enough snowflakes fall, they can form piles of snow. I am going to wear warm boots, a coat, and a scarf today.

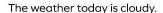


Some days I look outside and the sky is gray. It's daytime, but it's not very bright outside. I don't see the sun in the sky.

What is the weather like today?

Lesson 1.1: What Is the Weather Like Today?





When there are thick clouds in the sky above us, we can't see the sun. The sky looks gray and it is not bright outside. Even though we can't see the sun, it's still there behind the clouds.



There are many types of weather. On different days, the weather can be sunny, cloudy, windy, rainy, or snowy. There can even be more than one type of weather at a time.

I want to be ready for whatever the weather brings. I might need sunglasses to **prepare** for sunny weather. To prepare for rain, I might need a raincoat. I want to know what the weather will be like each day so I can always be prepared.

12

Vocabulary

predict

to use what you already know to decide what you think might happen

Discuss Activity 2

Describe oral language events, building background knowledge, or vocabulary opportunities with your table.

What did you notice?



Introducing Think and Walk



We are going to do a **Think and Walk** activity.

We will do activities like this one many times throughout the unit as we learn about weather.



There are **cards** showing five different **types of weather** around the room.

Think and Walk



1

Look at the picture I show you.



2

Think about what kind of weather it is.



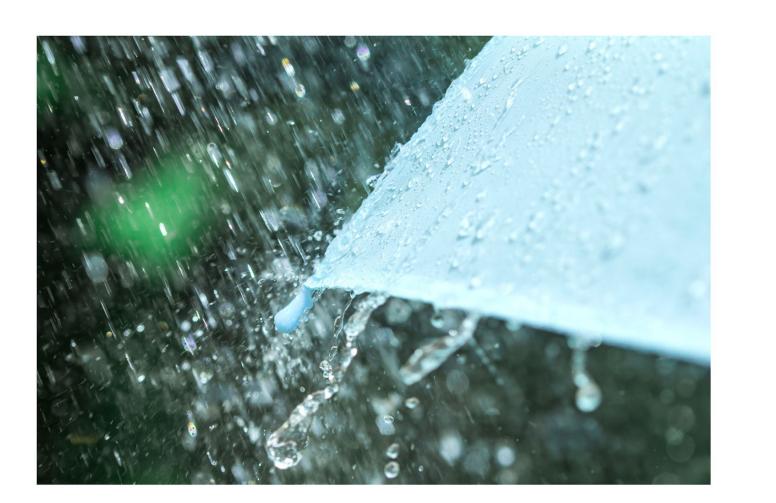
3.

Walk to the card that shows that type of weather.





















We have just looked at pictures of different types of weather.

Now we will look at ways to **act out** different types of weather.

Then we can **use our bodies** to show these different types of weather.

Weather Types Movement Routine

1. Sunny

Circle your arms over your head. Wiggle your fingers.

2. Cloudy

Make circles with your hands by your shoulders.

3. Windy

Move your arms back and forth carefully.

4. Rainy

Wiggle your fingers and move your hands down.

5. Snowy

Wiggle your fingers and wave your hands down.



Discuss Activity 3

Describe oral language events, building background knowledge, or vocabulary opportunities with your table.

What did you notice?

Experiencing the First Small Write



Activity 4 Recording New Ideas



What We Know About Weather

We will use this chart to keep track of what we know about **weather.**

By creating this chart, you are giving Istudents a chance to practice describing the things they read about, it provides students with access to observations they may not have noticed, and it creates a public artifact that students can continually reference as they continue thinking and learning about weather and sunlight.

What We Know About Weather

Types of Weather

We have learned there are many types of weather.

We have **words** we can use to talk about different types of weather.

What We Know About Weather

Types of Weather











snowy

Now our chart shows what we have learned about different types of weather.

Key Concept

Weather can be sunny, cloudy, windy, rainy,

or snowy.

End of Lesson



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Reflecting on the small writes

How did the oral language opportunities in this lesson support students as they worked towards the small write (What We Know About Weather chart)?

Oral Language & Small Writes

Describe weather

Building background knowledge and vocabulary: predict

Think and Walk

Organize and chart "Types of Weather"

Work time

Analyze the oral language, building background, and small writes.

Open the slide deck.

- Look for the small write in the lesson.
- What oral language, vocabulary, or building background supports are embedded into the activity?

Group 1	Lesson 1.2
Group 2	Lesson 1.3

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
- Discourse routines
- Multimodal instruction
- Gradual release of responsibility

Differentiation Supports



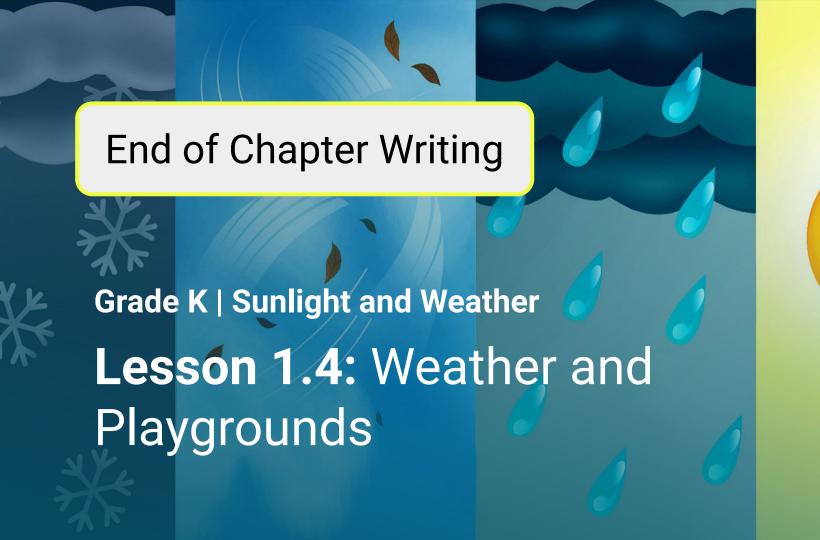


Specific Differentiation Strategies for Students Who Need More Challenge

Independent writing. If you have a few students who are more fluent writers, you can extend the Shared Writing by having these students use the Interpretation Language Frames to write their own sentences. Students can record their sentences in their notebooks or on a piece of paper while you record sentences on chart paper with the rest of the class.

Plan for the day

- Introduction and framing
- Writing in Amplify Science
 - Writing as part of a multimodal experience
 - Lesson Level
 - End of Chapter
 - End of Unit
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- Closing



Lesson 1.7: Explaining Variation

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.

Carver Playground



Woodland Playground



We are working as weather scientists to help solve a problem.

Let's review the playground problem.



What is the weather like on the playgrounds?

Lesson 1.4: Weather and Playgrounds

Carver Playground Weather Calendar

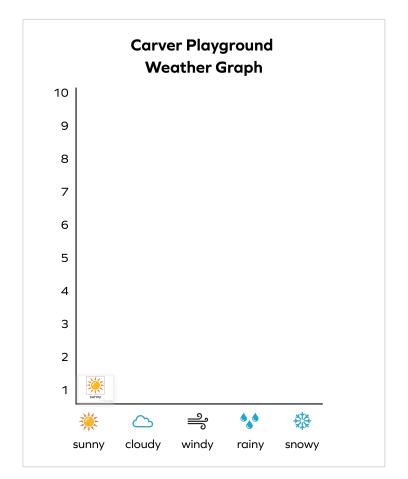
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
sunw	sunny	sunny	cloudy	windy	sunny	sunny
8	9	10	11	12	13	14
sunny	sunny	cloudy	rainy	sunny	sunny	cloudy

The principals from each school have been collecting **data** about the **types of weather** on their playgrounds.

We can put the data from the calendars onto the weather graphs.

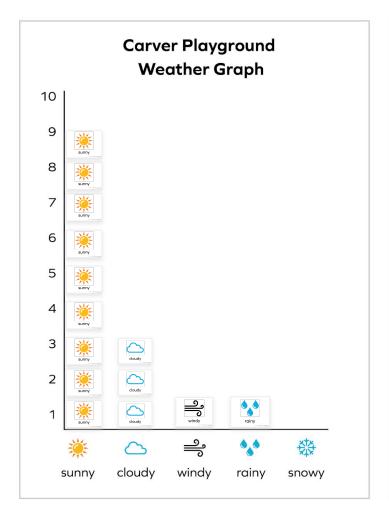


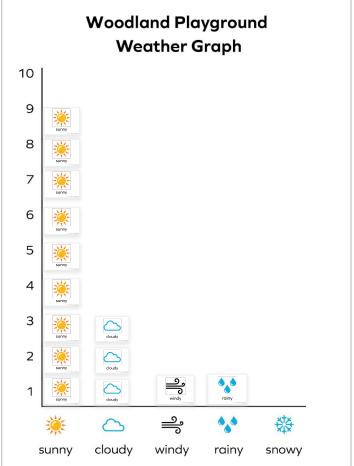
What type of **weather** did Carver have on the first day?

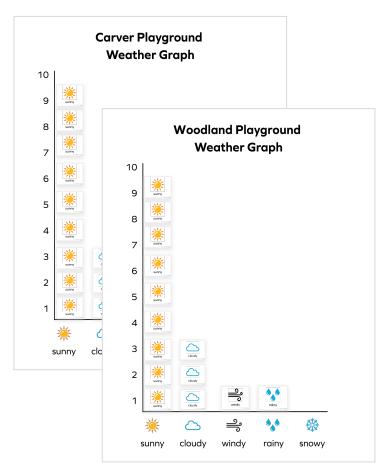


I will put this card in the first space above the sun on the graph, next to the number 1.

I'll show you a few more days, and then we will finish the graph together.



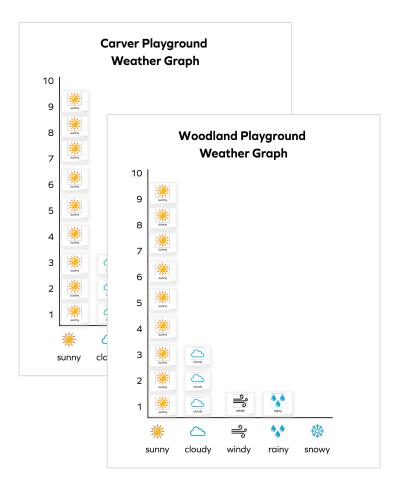




The playgrounds had the same number of days with each type of weather.



Do you think the **type of weather** causes the temperature difference?



The data in the graphs is evidence that different weather is **not** what is causing the differences in temperature.

Each time we **learn something new**, we can write to communicate what we have learned to the principals at Carver and Woodland Elementary schools.

Today, we will write an answer to our **Chapter 1 Question**.



What is the weather like on the playgrounds?

Shared Writing

What is the weather like on Carver's playground?



What is the weather like on Woodland's playground?

What is the same or different about the weather on the playgrounds?

Let's talk about our ideas together. Then, I'll write down our ideas.



Let's answer the questions together.

Sample Shared Write: End of chapter explanation

The weather at Carver Elementary and Woodland Elementary is similar. Both schools have many sunny days and some cloudy, windy, or rainy days. The type of weather at each school must not be causing the difference in their playgrounds' temperatures.









Chapter 4: Why is Woodland Elementary School's playground always...

4 Lessons



Chapter 5: Why does only Woodland Elementary School's playground flood?

6 Lessons

End of Chapter Shared Writes Let's dig in...

- 1. Open the slide decks.
- 2. Go to the specific Activity.

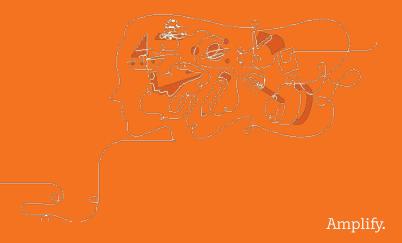
What are your findings?

2.4	Act 4
3.4	Act 4
4.3	Act 1 & 2

Plan for the day

- Introduction and framing
- Writing in Amplify Science
 - Writing as part of a multimodal experience
 - Lesson Level
 - End of Chapter
 - End of Unit
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- Closing

End-of-Unit Assessment: Student Explanations



The End-of-Unit Assessment for the Sunlight and Weather unit is designed as a one-on-one conversation between the teacher and individual students about the differences in temperature on the Carver and Woodland playgrounds.

Students are asked to explain the differences in temperature, accounting for differences between night and day, morning and afternoon, and Carver and Woodland.

Preparing for the End of Unit Assessment



Grade K Sunlight and Weather Lesson 5.5 Activity 4

Why is this activity important?

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

End of Unit Assessment

Work Time: Part 1

- 1. Go to the Lesson Brief for Lesson 5.6.
- 2. Open the slide deck.
- 3. Read the Assessment Guide.
- 4. Open and read the End of Unit Questions.
- 5. Compare the End of Unit Questions to the slide deck.

Grade K

Sunlight & Weather

Lesson 5.6

What are the rest of my students doing as I give this one-on-one assessment?

Work time:

 Each group will chart ideas for what students can do while you are assessing science.



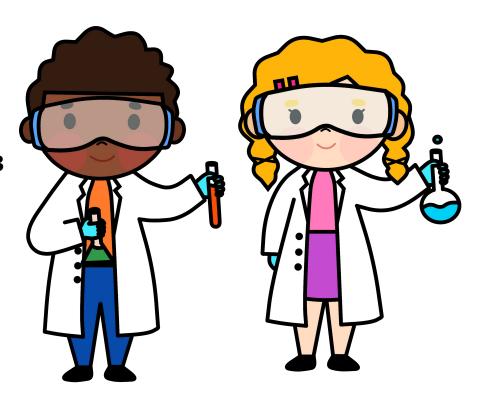


Plan for the day

- Introduction and framing
- Writing in Amplify Science
 - Writing as part of a multimodal experience
 - Lesson Level
 - End of Chapter
 - End of Unit
- Supporting students with writing
- Closing

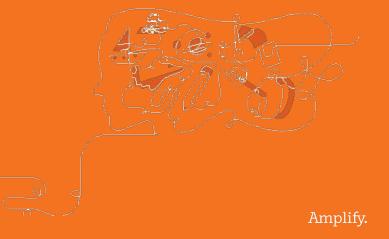
Additional supports

- Teacher support notes
- Possible Responses
 - O Grade K, Lesson 1.2, Activity 3
- Differentiation notes
- Embedded Formative Assessments



Writing at Grades K and 1: Expressive Language

Developmentally appropriate writing tasks set a foundation for the later grades.



Expressive Language Approach

- Leverages the relationship between oral and written language
- Opportunities to compose and record ideas through talking, drawing, and writing text
- Includes a strategic oral language build throughout the K-1 course



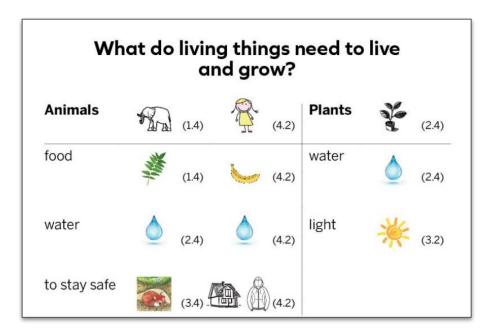
Students engage in writing for multiple purposes and in multiple forms.

Process and content supports are used to scaffold student writing.





Co-constructed charts



Purpose: To record important information, to think about the content, or to support sense-making.

- Co-constructed charts
- Shared writing

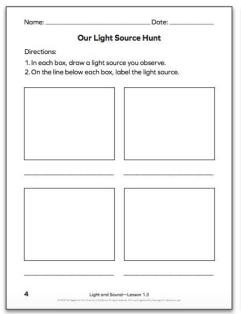
Shared Writing: Lesson 3.4 (Completed)

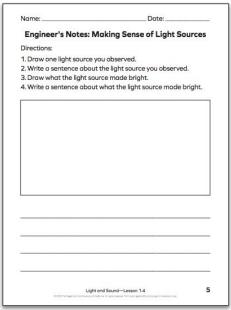
Why are the playground surfaces cooler in the morning than in the afternoon?

The surfaces are cooler because sunlight has been shining on them for a shorter time.

Purpose: To construct explanations; to answer the chapter questions using content understanding and scientific language.

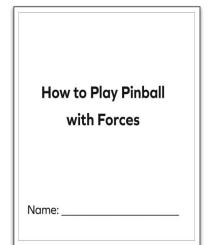
- Co-constructed charts
- Shared writing
- Investigation notebook

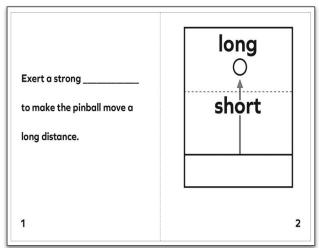




Purpose: To document thinking, observations, and steps to figure out science ideas.

- Co-constructed charts
- Shared writing
- Investigation notebook
- Mini-books





Purpose: To write independently, use vocabulary, and think through unit content.

Key takeaway

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

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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.

Closing reflection

Based on our work today, share:

Head: something you'll keep in mind

Heart: something you're feeling

Feet: something you're planning to do

Additional resources and ongoing support

Amplify Help

Find lots of advice and answers from the Amplify team.

Customer Care

For questions about Amplify Science, available weekdays 7AM-10PM EST and weekends 10AM-6PM EST.



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800-823-1969



Amplify Chat

