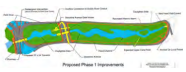
WEEK 7 At a Glance

Weekly Question:
How can people prevent or slow erosion?

Texts



Vocabulary and Language
Days 1 & 2: Introduce Weekly Words: *evaluate, intervene, propose, protect, recommend, recommendation, respond, restore*
Day 3: Shades of Meaning: Verbs
Day 4: Shades of Meaning: Verbs
Day 5: Making New Words

Text Talk
Day 1: *Erosion: Changing Earth's Surface* and *Soil Erosion and How to Prevent It*
Day 2: The Muddy River (slides)
Day 3: Taking a Stand (slides)
Day 4: Taking a Stand (discussion)
Day 5: Choosing a Recommendation for Popham Beach

Stations
Guided Independent Reading

Listening & Speaking: Listen & Respond (What Can Grass Do? slides)
Science Literacy: How do scientists and engineers work together to solve problems (like slowing or preventing erosion)?
Vocabulary: Choose 3!, Talk About It
Word Work: select from activities
Writing: follows from Text Talk Days 1 and 3

Science and Engineering (4 days)
Lessons 1 & 2: Testing Approaches to Slowing and Preventing Erosion: Walls, Windbreaks, and Terracing
Lesson 3: Presenting Investigations about Slowing and Preventing Erosion
Lesson 4: Testing Approaches to Slowing and Preventing Erosion: Walls, Windbreaks, and Terracing

Studios:
Continue from previous week.

Children plan and record next steps for erosion investigations.

Writing: Explanation
Days 1-4: Individual Construction; Thinking and Feedback; Explanation Assessment; Individual/Small Group/Whole Group instruction
Day 5: Peer-to-Peer Feedback

WEEK 7 Days 1 & 2

Vocabulary & Language

Weekly Words

Weekly Question	How can people prevent or slow erosion?
Language Objectives	I can talk with my classmates about words. (SL.1.2) I can define and use new words. (L.5) I can connect words to my own real-life experiences. (L.5.2.a)
Vocabulary	**evaluate**: to judge the value of **intervene**: to become involved in something to change what happens **propose**: to put forward an idea for others to consider **protect**: to keep safe from harm **recommend** (v): to suggest, to present as a good idea **recommendation** (n): suggestion **respond**: to do something as a reaction to something else **restore**: to return something to the way it used to be
Materials and Preparation	Choose four words to teach each day, following the steps of the Weekly Words routine. ● Week 7 Weekly Words cards ● chart paper Create the week's Weekly Words chart by writing out the Weekly Words and their definitions. Add icons, sketches, or images as needed.
Opening Day 1	*This week's Weekly Words are ones we can use to talk about how people can have an impact on the land by preventing or slowing erosion. Today's words are: _____, _____, _____, and _____.* As children rate their knowledge of each word, ask a few children to share their ideas about the word. Use this opportunity to highlight connections, similarities, and differences to other words used in the classroom,

	remarking on parts of speech and morphology and affirming children's word knowledge. As children respond to the Think, Pair, Share prompts, encourage them to use the word as they speak. Offer sentence stems where it might be helpful.
Day 2	*Let's continue learning our words for this week. Today's words are: _____, _____, _____, and _____.*
Teaching the words	**evaluate** (verb) Elaboration: *Look in the middle of this word: we can see the word "value." These judges are watching very closely, and they will give a score, based on what they value—what they think is important about a diver's performance: how she jumps, how she holds her body in the air, and how she enters the water. They will evaluate lots of divers and decide who is the best!* Think, Pair, Share prompt: *How do you evaluate a book?*
	intervene (verb) Elaboration: *Look! All these dominoes would have fallen down, but someone decided to intervene—they put their hand up to prevent the rest of the dominoes from toppling.* Think, Pair, Share prompt: *When you see two friends arguing, what can you do to intervene, or to prevent the argument from getting bigger?*
	propose (verb) Elaboration: *You might think of **propose** as when one person asks someone else to marry them. This is one kind of proposal—one person has an idea about getting married and shares that idea with the person they love to see what they think about it. But you can propose any kind of idea for others to think about.* Think, Pair, Share prompt: *If I asked you for an idea of a game we could play together at recess, what would you propose?*

	protect (verb) Elaboration: *Animals protect themselves in lots of ways—they run away; they warn other animals to stay away; they hide; they change color; and sometimes they fight. These penguins are acting all together to protect their offspring, or babies.* Think, Pair, Share prompt: *In a big rain storm, how can people protect their feet and the rest of their bodies from getting soaked?*
	recommend (verb) Elaboration: *Doctors and nutritionists recommend that we all eat more fruit and vegetables than junk food. They recommend actions that will keep people healthy.* Think, Pair, Share prompt: *Remember what we recommended for the Our Schools Project. Why do you think that was important to recommend?*
	recommendation (noun) Elaboration: *This word, "recommendation," is "recommend" with a suffix. Let's see how this suffix changes the meaning.* *When you tell a friend to read a favorite book, you make a recommendation. This image is from an online news story that makes recommendations about books for kids that were published last year.* *The suffix changes the verb into a noun.* Think, Pair, Share prompt: *What is a recommendation of a book or something else that you can make right now to your partner? Why are you making this recommendation?*
	respond (verb) Elaboration: *When someone says hello, a simple way to respond is to wave or say hello back. We can respond with words, actions, or facial expressions. When you propose an idea, others respond with their ideas.*

	We can also respond to a challenge, such as erosion, by coming up with a plan. Think, Pair, Share prompt: *When something spills, like this milk, how do you respond?*
	restore (verb) Elaboration: *We can restore objects, buildings, and relationships. Here an old house has been restored so that it looks more like it did when it was first built.* Think, Pair, Share prompt: *Do you have something that you would like to restore—such as a broken toy or other object?* *Or, what have you seen around your neighborhood that could be restored?*
Closing	*This week we are thinking about how people can impact the land by preventing or slowing erosion. The words we're studying this week will help us to talk about this, our texts, and other experiences we're having together.*
Standards	**SL.1.2** Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups. **L.5** Demonstrate understanding of figurative language, word relationships, and nuances in word meanings sufficient for reading, writing, speaking, and listening. **L.5.2.a** Identify real-life connections between words and their use (e.g., describe foods that are spicy or juicy).
Ongoing assessment	Use information gathered from each lesson to plan for embedded opportunities for teaching and reinforcing words. How do children interact with new and familiar words? Are they playful, curious, perplexed, disengaged? Do children connect words to personal experiences? What connections do children make between words they are learning and familiar words? How do children respond when they discover an error in their understanding or use of a word? How flexible are they when confronted with new definitions?

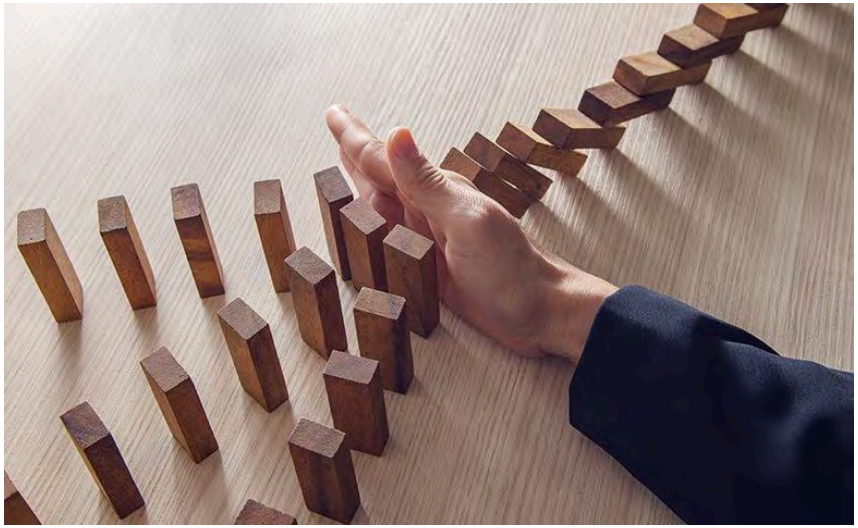
	How do children talk with peers about new words—do they use gestures, substitute familiar words, dig for descriptions, tell stories? Keep a list to follow each child's vocabulary growth over time.

Notes

evaluate

verb

https://www.theaustralian.com.au/sport/after-an-almost-four-year-break-loudy-wiggins-has-made-a-strong-start-for-her-olympic-diving-bid/news-story/a16da01c6e923ae5187fffaf211a769a



intervene

verb

https://safestart.com/news/why-dont-workers-intervene-when-they-see-unsafe-acts/

propose

verb

https://www.india.com/viral/leap-year-proposal-girls-propose-a-guy-today-and-if-he-refuses-he-gifts-you-a-gown-12-gloves-992765/, https://www.quora.com/How-do-you-propose-an-idea-to-a-company

protect

verb

https://assets3.thrillist.com/v1/image/2550282/size/tmg-article_tall.jpg

recommend

verb

https://pixabay.com/photos/woman-doctor-nutritionist-fruit-5591780/

recommendation

noun

https://www.npr.org/2020/08/31/905804301/welcome-to-story-hour-100-favorite-books-for-young-readers

respond

verb

https://meteamedia.org/12349/opinions/split-milk-in-some-eyes-is-the-same-as-split-blood-in-others/

restore

verb

https://www.riverfronttimes.com/newsblog/2018/03/01/board-bill-would-remove-mckee-exemption-for-code-violations

WEEK 7 Day 3

Vocabulary & Language

Shades of Meaning: Verbs

Weekly Question	How can people prevent or slow erosion?
Language Objective	I can generate closely related verbs. (L.5.2.b)
Vocabulary	**verb**: a word that expresses a physical action, mental action, or state of being **meaning**: definition **similar**: almost the same
Materials and Preparation	• Shades of Meaning: Verbs slides Make a digital copy of the slides for the class to edit. Note: This lesson uses slides 1-6.
Opening	*This week we will distinguish the shades of meaning among closely related verbs.* *Today we will look at some of our Weekly Words and come up with other closely related verbs. Tomorrow we will take these sets of verbs and talk about their shades of meaning.*
Discussion slide 2	*"Recommend" is one of our Weekly Words.* Review the definition.
slide 3	*"Propose" is another Weekly Word.* Review the definition.
slide 4	*"Recommend" and "propose" have similar meanings. Let's think of other verbs that have a similar meaning to these words.* On the slide, record at least one verb generated by children that have a similar meaning to "recommend" and "propose," such as "suggest" and "urge."

slide 5	*"Impact" was a Weekly Word a few weeks ago.* Review the definition.
slide 6	*Let's think of other verbs that have a similar meaning to "impact."* On the slide, record at least two verbs generated by children that have a similar meaning to "impact," such as "affect" and "change."
Closing	*Today we generated synonyms for the verbs "recommend," "propose," and "impact." Tomorrow we will talk about the shades of meaning among these verbs.*
Standards	**L.5.2.b** Distinguish shades of meaning among closely related verbs (e.g., toss, throw, hurl) and closely related adjectives (e.g., thin, slender, skinny, scrawny).
Ongoing assessment	Reflect on the lesson. Do children generate closely related verbs for each word?

Notes

WEEK 7 Day 4

Vocabulary & Language

Shades of Meaning: Verbs

Weekly Question	How can people prevent or slow erosion?
Language Objective	I can distinguish shades of meaning among verbs by placing them on a continuum and discussing their meanings. (L.5.2.b)
Vocabulary	**verb**: a word that expresses a physical action, mental action, or state of being **meaning**: definition **similar**: almost the same
Materials and Preparation	• class copy of Shades of Meaning: Verbs slides, from Day 3 Add the words generated during the Day 3 lesson to slides 7 and 8.
Opening	*Today we will look at the sets of verbs we created yesterday and discuss their shades of meaning.*
Discussion slide 7	Use the following steps to discuss each of the three (or more) words on the slide. 1. Read the word. 2. Ask a child to dramatize the word. 3. Ask another child to use the word in a sentence. *These four verbs have similar meanings, but there is some difference among them. Let's put them in order from least intense to most intense.* Move the word boxes on the slide to arrange the verbs by intensity. Facilitate further discussion of the nuances in word meanings. Move words on the slide as necessary to demonstrate these nuances.
slide 8	Use the following steps to discuss each of the three (or more) words on the slide. 1. Read the word.

	2. Ask a child to dramatize the word. 3. Ask another child to use the word in a sentence. *These three verbs have similar meanings, but there is some difference among them. Let's put them in order from least intense to most intense.* Facilitate further discussion of the nuances in word meanings.
Closing	*Today we discussed the shades of meaning among similar verbs. Thinking about how similar words have slightly different meanings can help us use more precise language when we are speaking and writing.*
Standards	**L.5.2.b** Distinguish shades of meaning among closely related verbs (e.g., toss, throw, hurl) and closely related adjectives (e.g., thin, slender, skinny, scrawny).
Ongoing assessment	Reflect on the lesson. Do children use these verbs in sentences? How do they order the verbs? What do children notice about the nuances in word meanings?

Notes

WEEK 5 Day 5

Vocabulary & Language

Making and Using New Words

Weekly Question	How can wind change land, and why does it matter?
Language Objective	I can work with my classmates to make new words by identifying root words and changing or adding parts. I can use the words we make in a sentence. (SL.1.2, L.4.2.b)
Vocabulary	**evaluate**: to judge the value of **intervene**: to enter a situation to change what is happening **propose**: to suggest **protect**: to keep safe from harm **respond**: to answer, in words or in another way **restore**: to return to the way something was before
Materials and Preparation	• Week 5 Making and Using New Words sheets, one for each small group • pencils, one or two for each small group • Week 5 Weekly Words cards, those listed above • chart paper and markers (2 different colors)
Opening	*This week we are using the Making and Using New Words routine. All of the words you might use are verbs. When you change them, you might find that you turn them into another tense, like the past tense.*
Key Activity	Distribute sheets and send children to work. Circulate to help children strategize through the routine, encourage equitable participation, observe interpersonal dynamics, and glean understanding about children's knowledge about how words are formed. While children work, select one group to present their response to the class. Have the group identify one or two members who will present the words they made and read their sentence aloud.

	After about 7 minutes, signal for children to finish their answers and return to the whole group. Invite the presenter(s) from the selected group to share the word they started with, new words they made, and then the sentence they wrote. *Please read your sentence slowly so I can write it down.* Write the sentence on the chart paper. *Let's see which Weekly Word they used and changed! I'll read the sentence again, and you can let me know when you hear the word that came from one of our Weekly Words.* Read the sentence aloud, slowly, and pause as children identify the Weekly Words. Circle that word with the contrasting marker. *Let's think together about how this word changed and how that changed its meaning.* Invite children from other groups to share any ways that this group's work resembles their own.
Closing	*We can see that changing a word's ending changes its meaning and how it's used.*
Standards	**SL.1.2** Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups. **L.4.2.b** Determine the meaning of the new word formed when a known prefix is added to a known word (e.g., happy/unhappy, tell/retell).
Ongoing assessment	Listen to children's conversations as they work. What knowledge do children demonstrate about parts of words? What contributions do they make to the construction of a response to a specific question? Observe children's interactions. How effectively do children work in their groups? What roles do they take on? Reflect on the whole group sharing of one group's response. What more was revealed about children's understanding of how words' meanings change according to their parts? Review each sheet. Use children's answers to inform planning for successive lessons, revisiting words and suffixes, and informal conversations with individual children.

Date: _____

Names: _____

Choose one Weekly Word. Underline the base word. Make new words by adding or changing suffixes. Write the words. Check to make sure they make sense. What do the new words mean?

Weekly Words	Suffixes	New Words
evaluate intervene propose protect respond restore	- s - ed - ing - es	_____ _____ _____ _____

Write a sentence with one of the new words.

_____

_____

_____

WEEK 7 Day 1

Text Talk

Erosion: Changing Earth's Surface (pages 20-21)

and

Soil Erosion and How to Prevent It (page 26)

Big Ideas	The changing shape of the land impacts people. Changes happen over time.
Weekly Question	How can people prevent or slow erosion?
Content Objectives	I can ask and answer questions to help clarify key details in a text. (R.4.2) I can describe some ways that people can slow or prevent erosion. (2.T2.4)
Language Objective	I can describe key ideas or details from a text read aloud. (SL.2.2.a)
Vocabulary	**windbreak**: a row of trees or a fence, wall, or screen that provides protection from the wind **terracing**: sloping land that has been formed into a number of level flat areas resembling steps
Materials and Preparation	• *Erosion: Changing Earth's Surface,* Robin Koontz • *Soil Erosion And How to Prevent It,* Natalie Hyde • Terracing and Windbreaks slides • projector and screen • chart paper, three pieces Prepare the Weekly Question Chart. Prepare two Slowing and Preventing Erosion charts, with at least half of the space left empty for work in Week 7, if not already prepared. • Examples of Approaches to Slowing and Preventing Erosion cards, from Week 6, Day 2: the two Windbreak and three Terracing

	examples • glue stick
Opening 2 minutes	Refer to the Slowing and Preventing Erosion charts from previous days. *We have started discussing ways in which people might slow or prevent erosion.* Set a purpose for reading. *Today's Text Talk highlights two different approaches to slowing or preventing erosion. Both involve planting, and both work to keep soil in place. But they are a bit different from our other examples about planting.* *As we read and look at images, we will ask and answer questions about key details to learn about these approaches.*
Text and Discussion 20 minutes *Erosion: Changing Earth's Surface* page 20	Begin with *Erosion: Changing Earth's Surface*. Read the first paragraph on page 20. Introduce vocabulary. *Farmers plant trees to block the wind. This is known as a* ***windbreak***. *The trees provide protection from the wind by creating a sort of wall. The wind can go through the trees, of course, but not as much wind or as strongly as if the trees were not there. What else besides trees might work as a windbreak?* Harvest a few ideas. If children do not suggest it, add that some farmers might install fences or walls as windbreaks, as well.
page 20	Read the first paragraph on page 20 once more. *Farmers plant seeds in strips. Let's stop here and ask ourselves, What does this word, "strips," mean?* Give children a moment to respond. ***Strips*** *are long, narrow pieces. The illustration here helps clarify this* [point to the strips of seedlings]. *It's important to pay attention to the words <u>and</u> to the illustrations to understand the meaning of the text.* *Why might planting in strips be beneficial for slowing or preventing erosion?*
pages 20-21	Finish reading pages 20 and 21. *Turn to a partner. Let's review key details of what we have read. What are some strategies people use to slow down erosion?*
Soil Erosion and How to Prevent It	Turn to *Soil Erosion And How to Prevent It.* Read page 26 aloud. *This question will show what we understand from the text: What is plowing? Turn to a partner to share your ideas.*

page 26	*Now turn to a new partner. What is special about plowing when farmers use terracing?*
Windbreaks and Terracing slides slide 2	Show slide 2. *This photograph by Dorothea Lange probably looks familiar to you. What do you remember about it?*
slide 3	Show slide 3. *This photograph was taken in the same time period, by a different photographer.* Read the sign. Allow quiet time for children to look at the photograph. *Turn and talk about your thoughts and guesses about this photograph.* Click on the slide to bring up the caption. Read it, encourage children to make connections, and offer clarification. *This sign was put up to warn farmers about erosion in Texas and to persuade them to use terracing.*
slides 4-7	Show the slides, reading captions and pausing for children to make connections and ask questions.
slides 8-9	Show slides 8 and 9. *Here are some images of windbreaks. How do you think the windbreaks in these images are working? How do the photographs help you understand windbreaks?*
Key Activity and Discussion: Slowing and Preventing Erosion Charts 15 minutes	*Our reading today highlights two different approaches to erosion.* Introduce the first new Slowing and Preventing Erosion chart. *Windbreaks keep the soil in flat areas in place by interrupting the wind.* Record this idea next to "Approach:" windbreaks. *Why are these trees planted in a line?* *We'll write that on the next line, "Reason:" to break, or interrupt the wind over flat land.* Record. *This next line is where we will write the specific example of a windbreak made of trees.* Turn back to *Erosion: Changing Earth's Surface*, page 20. *Since the text doesn't tell us where this example is from, we'll just record the title of the book and page number, so we remember*

	where we saw it when we look back later. *Do the slides give us more specific information? Let's look.* Show slides 7 and 8 again. Use the captions to identify the specific places where these windbreaks are found, and then affix the two cards with examples of windbreaks to the chart. Turn to and, with children's input, complete the next Slowing and Preventing Erosion chart. *Terracing keeps soil on slopes in place by preventing running water from washing plants away, down the slope.* Record this idea next to "Approach:" Terracing. *Why are farmers using terracing in this approach?* Return to slide 2 as a reminder, and record on the line, "Reason." Record examples from text and slides, with the cards with examples of terracing.
Writing Station Response 1 minute	Introduce the Writing Station Response. *This week at the Writing Station, you will describe how terracing is working in an image.* Show the Writing Station Response sheet. *Let's read the prompt together and answer any questions you might have. Look at the image. How do you think the terracing in this place is helping slow or prevent erosion? Give examples of how the picture and texts we read today support your reasoning.* Read the entire prompt aloud. Then read it a second time, inviting the children to read along. Clarify children's questions about the prompt.
Closing 1 minute	*Today we read and looked at images, asking and answering questions to learn about two approaches to slowing and preventing erosion: terracing and windbreaks.*
Weekly Question Chart 2 minutes	Begin the Weekly Question Chart. *Throughout this week, we will be asking and answering this question: How can people prevent or slow erosion? We will record our ideas here.* *In the book and slides today we learned about weathering and windbreaks and how they can slow erosion. Let's add this to our chart: Terracing keeps soil in place and this can slow erosion.* Record this idea to model how the Weekly Question Charts will be used. *We can add more to our chart during the week.*

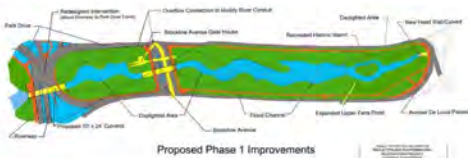
Standards	**R.4.2** Ask and answer questions about who, what, when, where, how, and why. **SL.2.2.a** Recount or describe key ideas or details from a text read aloud or information presented orally or through other media. **2.T2.4** Explain and describe human interaction with the physical world (the environment). **2-ESS2-1.** Investigate and compare the effectiveness of multiple solutions designed to slow or prevent wind or water from changing the shape of the land.
Ongoing assessment	How do children ask questions to clarify the text and slides? Are children stopping to monitor their comprehension? Are they asking and answering questions about key details? How do they make sense of the two approaches for slowing and preventing erosion? Can they identify reasons for windbreaks and terracing?

Notes

Writing Station Response: ***Erosion: Changing Earth's Surface, Soil Erosion And How to Prevent It,*** and Terracing and Windbreaks slides

Name: _____ Date: _____

Look at the image. How do you think the terracing in this place is helping to slow or prevent erosion? Give examples of how the picture below and the texts we read today support your thinking.



WEEK 7 Day 2

Text Talk
The Muddy River (slides)

Big Ideas	Wind and water can change the shape of the land. People can change the shape of the land. The changing shape of the land impacts people. Changes happen over time.
Weekly Question	How can people prevent or slow erosion?
Content Objective	Based on details in the slides, I can describe changes in the Muddy River over time. (R.6.2.b) I can explain how people tried to address erosion in their environment, specifically with the Muddy River. (2.T2.4) I can apply my understanding of erosion in different contexts around the world to discuss the problem of the Muddy River. (2-ESS2-1.)
Language Objective	Based on my growing knowledge of erosion, I can ask and answer questions about how people are responding to erosion along the Muddy River. (SL.2.2.b)
SEL Objective	I can talk with my partner and together evaluate the problem with the Muddy River. (Relationship Skills, Decision Making)
Vocabulary	**context**: the situation in which something happens **bank**: slope that borders a stream or river **dredge**: to clean out the bed (bottom) of a river, lake, or other body of water by scooping out mud, weeds, and rubbish **landscape architect**: a person who builds with land, plants, and water **restoration**: the act of bringing something back to how it used to be (***restore**)

Materials and Preparation	● The Muddy River slides ● projector and screen ● Muddy River Images: Map, Photograph, and Plans, copy for each pair of children ● crayons, for Matching Crayons routine ● chart paper Prepare a new chart, Slowing and Preventing Erosion, with at least half of the space left empty for work in Week 7, if not already prepared. ● Examples of Approaches to Slowing and Preventing Erosion, from Week 6, Day 2: Muddy River image ● gluestick
Opening 1 minute	Introduce the slides and set a purpose for reading. *Today we will learn about a river known as the Muddy River. This river is located in a city called Boston, in Massachusetts. We will look at some slides. We'll ask and answer questions about how the Muddy River has changed over time and how people are addressing the problem of erosion along the river.*
Text and Discussion 33 minutes slide 2	*Frederick Law Olmstead was born about 200 years ago.* Read the caption on the slide, noting that this portrait is by a noted American painter, dated about 130 years ago. *Frederick Law Olmstead is famous as a **landscape architect**: someone who designs and builds with land, plants, and sometimes water. He is known for creating many large parks in cities all around the country, including around the White House in Washington, DC and Central Park in New York City. And…* Click to the next slide.
slide 3	*… this park, Franklin Park, in Boston. Olmstead believed that parks should be places where all kinds of people in a community could gather and relax. Here we see Olmstead's drawn plans for the park, and an entrance to the park today.* *Does this remind you of any parks near us?*
slide 4	*Here is an old postcard* [ca. 1930-1945] *showing the park from an artist's **aerial perspective**—as seen from the air.*

slide 5-6	*People noticed that the Muddy River, which runs right through the city of Boston, was sometimes flooding. The water was getting dirty and people were getting sick.* *This happened in many cities, and one approach to this problem has been to bury the river and make it run through pipes instead of over the land. In Boston, this was part of a plan to address the problem of the Muddy River.*
slide 7	*Frederick Law Olmstead believed that the river could be healthy and enjoyed by all. Here is his plan. He designed a park that includes the Muddy River,- it is called the Emerald Necklace.*
slide 8	Distribute the Muddy River Images: Map, Photograph, and Plans. Refer to the slide and to the corresponding map on the children's copies. *Describe what you see. How was the Muddy River included in the park?* *An **emerald** is a green stone. You probably know what a **necklace** is. When you look at this map, can you guess why the park along the Muddy River has the name "Emerald Necklace?"*
slide 9	*How about now, when you look at this photograph from above? The Emerald Necklace has been an important park in this city for a long time.*
slide 10	*This slide shows a part of the Emerald Necklace called the Fens. Put your thumbs up if you have ever been there.*
slides 11-12	*The parks along the river are important and beautiful but have also had some problems.*
slide 13	*Here's one more picture of the river.* Click the animation for two ovals to appear. Use the Matching Crayons routine so that children can exchange ideas with new partners and to insert a movement break. Make sure each pair has a copy of the printed images. Have children turn to the corresponding image in their copies. *Do you notice how these two trees are leaning over the water? What do you think might make this happen? Does this remind you of any other place we have looked at?* *Turn and talk to a partner about your ideas. Make sure to ask your partner what they are thinking, too.*

	Bring the group back together, collect the crayons, and facilitate a short conversation to make the connection to the trees Popham Beach losing soil to hold their roots. *Might that same thing that we see on Popham Beach be happening here?* Speak especially slowly and clearly so that children can create a mental picture: *One thing that happens when the **banks**, or sides, of a river erode is that when the water rises—maybe because of a big rainstorm or because more water is flowing into the river—it floods. The natural borders of the river can't hold the water. Maybe you have seen this happen in your investigations in the Landforms and Water Table.* Continue explaining: *With big rains, the Muddy River flooded. It flooded because the river was clogged up or stopped in some places, and the water couldn't flow through as it naturally would. The pipes weren't big enough to carry the water fast enough. The banks of the river were eroded, so they couldn't contain, or keep in, all the water. The water spilled out over the banks of the river into streets, sidewalks, parks, parking lots, and train stations.* *Can you imagine how this would feel here in our town?* *Turn and talk to a partner about what you are picturing. Listen carefully to see if the pictures in your minds match!* In the whole group, invite a few children to share their mental pictures.
slides 14-15	*How does what you imagined compare with these photographs?* *So what do we do about this?* *A group of engineers have been working on this project for several years.*
slide 16	*This graphic shows how the river looked before the project started. There is a lot of information included in this graphic. Let's focus on the river itself. What color is used to represent the river here?* [blue] *Take a look with your engineer's eyes. Can you see any sections where the river might have been forced through pipes underground? Do you see any areas that might experience flooding?*

slide 17	*This graphic shows the plan for the project to change how the Muddy River is flowing.*
slide 18	*Notice the difference in the path of the river from the first graphic.* Refer children to the page with printed plans, corresponding with this slide, and redistribute the crayons to use the Matching Crayons routine with new partners. *What do you notice about these plans? How do you think the new design will change the river?* *This project is called a **restoration** project. Restoration includes the word **restore**, which means to return something to how it used to be. This project's goal is to make the Muddy River more like it was in Frederick Law Olmstead's time, when he first designed the Emerald Necklace park.*
slide 19	*The restoration project is continuing today!*
Introduce Slowing and Preventing Erosion Chart 5 minutes	Introduce a new chart. *Today we'll fill in this chart with information from our look at the Muddy River.* *At the Muddy River, people have approached the problem of erosion by restoring the river, rebuilding parts of it as it used to be naturally. We'll write that here.* Record this idea next to "Approach." *Why are they doing this?* *We'll write that on the next line, "Reason:" to keep the river from flooding and to make the river healthier again.* Record. *This next line is where we will write the specific example of the Muddy River.* Record and affix the card. Note: This is the final Slowing and Preventing Erosion chart. All charts will be used again during Text Talk Week 7, Day 5.
Closing 1 minute	*Today we explained how people responded to the problem of erosion at the Muddy River over time.* *Have you noticed any kind of erosion near us?*

Standards	**R.6.2.b** Describe the relationship between a series of events, ideas, or concepts, using language that pertains to time, sequence, and cause/effect. **SL.2.2.b** Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue. **2.T2.4** Explain and describe human interaction with the physical world (the environment). **2-ESS2-1.** Investigate and compare the effectiveness of multiple solutions designed to slow or prevent wind or water from changing the shape of the land. **SEL.** Relationship Skills **SEL.** Decision Making
Ongoing assessment	The unit is beginning to wrap up, and children have examples from near and far to draw on in order to approach this story and problem of the Muddy River. What connections do they make? What understandings do they draw on to discuss this situation? How flexible is their thinking? Listen in to children's partner conversations and take notes that will serve to support them as they consolidate understanding and develop a recommendation for Popham Beach at the end of Week 7 and into Week 8.

Notes

WEEK 7 Day 3

Text Talk
Taking a Stand (slides)

Big Ideas	Wind and water can change the shape of the land. People can change the shape of the land. The changing shape of the land impacts people.
Weekly Question	How can people prevent or slow erosion?
Content Objectives	I can determine the author's argument and identify the reasons she uses to support that argument. (R.10.2.a) I can determine the meaning of words in a text on erosion. (R.7.2.b)
Language Objective	I can discuss changing behavior as an approach to preventing or slowing erosion. (SL.1.2, 2-ESS2-1)
SEL Objective	I can evaluate and decide what I think about changing behavior in response to erosion. (Decision Making)
Vocabulary	**approach** (n): a way of doing or dealing with something (*Week 4) **behavior**: the way someone acts **hazard**: a source of danger *** intervene**: to become involved in something to change what happens *** respond**: to do something as a reaction to something else
Materials and Preparation	● Taking a Stand slides ● projector and screen ● United States or world map ● "Do Nothing" informational text and question sheet, one copy for each child ● writing tools ● chart paper Prepare the following chart.

	<table><tr><td colspan="2">How should we respond to erosion?</td></tr><tr><td>Try to change nature</td><td>Change our behavior</td></tr><tr><td></td><td></td></tr></table> On the whiteboard, write the questions on the sheet: What is the author's argument? What reasons support the author's argument? What does **shapes** mean, in the sentence, "Erosion changes and shapes the coast."? A. triangles, squares, and circles B. different types of bodies C. changes the way the land is formed
Opening slide 2 5 minutes	*Yesterday we learned about a river in the city of Boston, the Muddy River. There are a few things I didn't tell you. What engineers and workers have done at the Muddy River has made the water cleaner and the city more beautiful. At the same time, it is a huge, long, complicated, and expensive project. For example:* *The section of the river where work is being done is about three and a half miles through the city. That has impacted people's lives by creating more traffic while roads are closed to do the work.* *The project has taken almost five years so far.* *And if all of the plans are completed, it will cost over 90 million dollars. For this reason, the engineers are not sure if they will complete the project.*
slide 3	*One more thing: This project needed to happen because, even though the river was fine on its own, once people built a city around it and forced parts of the river to go underground, flooding started.* Show slide 3.
	Set a purpose for the day's Text Talk. *Today we will read an informational text called "Do Nothing." As we*

	read, we will determine the author's argument and identify reasons the author gives to support that argument. Then, today and tomorrow, we will evaluate different approaches to slowing erosion. Should we intervene with nature? Should we change our own behavior? We will use evidence from information we have learned through texts and discussions to take a stand about what we should do.
Text and Discussion 19 minutes	*We have been thinking a lot about the effects of erosion on landforms and communities and how people respond. On your own, you will read a short passage about another way to respond to erosion.* *As you read, annotate your reading. You can underline words or phrases you think are important and write question marks when there is something you wonder about or don't understand.* Distribute copies of the text and questions and writing tools. As children read and annotate, support them in identifying key words and phrases to underline and in marking sections they are wondering about. After children have a few minutes to read and annotate, bring children's attention back to the group. Echo read the prompts on the board and on their sheets. Then, have children respond to the prompts in writing. Bring the group back together. Facilitate a conversation to digest the reading together. *What did you find out while you were reading?* *What is the author's argument? What reasons does she give to support her argument?* *What questions do you have?* Children may take more time to respond to this text at the Writing Station.
How should we respond to erosion? Chart 15 minutes	Show the chart. *Here is the question for today and tomorrow: How should we respond to erosion? We have two options. The first is "Try to change nature." This is what we have been talking a lot about. When people plant grass or trees or build barriers to prevent or slow erosion, they are working to change nature so that they can continue to live and work in areas affected by erosion.* Write these approaches on the left side of the chart. *The second option is "Change our behavior." Changing our behavior could include doing nothing—leaving eroded areas alone. It could*

	also include not building in areas that are eroding, or moving out of these areas. Write these approaches on the right side of the chart. *Let's look at some slides with examples of changing behavior.*
slide 4	*Moving a lighthouse is an example of changing behavior. Instead of trying to change the land, people moved the lighthouse away from the cliff—they changed what they were doing instead of changing the land.*
slide 5	*Remember this photo of a house on Plum Island? What if they had not built their house so close to the sea?* *In some areas where erosion is affecting people's homes in this way, they decide to build a house in a different place or to move away. This is another way of changing behavior.* Think, Pair, Share. *Why might we decide to change our behavior, rather than change nature?*
Closing 1 minute	*Tomorrow we are going to explore this question some more: How should we respond to erosion? You will choose one option—we should change nature or we should change our behavior. Then, we will have a class debate, presenting and arguing our ideas.*
Standards	**R.10.2.a** Describe how reasons support specific points the author makes in a text. **R.7.2.b** Use provided resources to determine the meaning of words and phrases in a text. **SL.1.2** Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups. **2-ESS2-1.** Investigate and compare the effectiveness of multiple solutions designed to slow or prevent wind or water from changing the shape of the land. **SEL.** Decision Making
Ongoing assessment	Listen in to the conversations children are having. What do children understand about changing behavior in response to erosion? What is still confusing? What support will they need to argue this point in the next Text Talk?

Name: _____ Date: _____

Read the article. Then answer the questions.

Do Nothing

The erosion of land along the shore is a natural process. It takes place over a long period of time. Erosion changes and shapes the coast.

Doing nothing is a good solution for erosion. If the erosion is natural and does not cause a problem for buildings or roads, doing nothing is usually the cheapest choice. It is also best for the environment.

What is the author's argument?
What reasons support the author's argument?

What does **shapes** mean, in the sentence, "Erosion changes and shapes the coast."?

A. triangles, squares, and circles

B. different types of bodies

C. changes the way the land is formed

Which words or phrases from the first paragraph helped you choose your answer?

Text adapted from
https://www.seagrant.umaine.edu/coastal-hazards-guide/coastal-wetlands/do-nothing

WEEK 7 Day 4

Text Talk
Taking a Stand (discussion)

Big Ideas	Wind and water can change the shape of the land. People can change the shape of the land. The changing shape of the land impacts people.
Weekly Question	How can people prevent or slow erosion?
Content Objective	I can effectively write reasons for an argument I am making. (W.1.2.b, W.3)
Language Objective	I can support my argument with reasons drawn from experience, text, and discussion. (SL.4.2, 2-ESS2-1)
SEL Objectives	I can work with my classmates to analyze and explain the reasons for our argument. (Relationship Building, Decision Making)
Vocabulary	**approach** (n): a way of doing or dealing with something (*Week 4) **debate**: when people with different ideas or opinions present arguments to each other, trying to convince the other side to think differently **hazard**: a source of danger * **intervene**: to become involved in something to change what happens * **recommendation**: suggestion * **respond**: to do something as a reaction to something else
Materials and Preparation	• markers • How should we respond to erosion? chart, from Day 3 • chart paper, 2 pieces Create the two following Taking a Stand charts.

	<u>Taking a Stand</u> We should try to change nature because… [children write names here] <u>Taking a Stand</u> We should change our behavior because… [children write names here] ● writing tools ● sticky notes, one for each child, plus several extra ● all Slowing and Preventing Erosion charts, from previous lessons Children will work in two large groups, in separate spaces, each group using one of the charts (changing nature or changing behavior). On opposite sides of the room (one area for each group), provide needed resources: the Slowing and Preventing Erosion charts for the group supporting changing nature, and the chart generated by the class on Day 3 for the group supporting changing behavior. On the whiteboard, write the following prompts. I think _____ because _____. I believe _____ because _____. --- I used to think _____. Now I think _____ because _____. I still think _____ because _____.
Opening 2 minutes	Show the chart, How should we respond to erosion? *Yesterday we began to discuss this question: How should we respond to erosion? We talked about some reasons why people might want to change their own behavior, rather than change nature, and we imagined what might happen in those cases.* *Today you are going to choose one side—either trying to change nature or changing people's behavior—and take a stand. This is a*

	complicated question, and there is no right or wrong answer. You might not even be sure about what you think—that's okay! Your job is to choose a side and make an argument for it, based on your thoughts and experiences and what you have learned while we've been studying the forces of wind and water on land. *After you decide with your group how you will take a stand about one idea or the other, we will come together to have a debate! You may remember from Kindergarten and first grade that a **debate** is when people with different ideas or opinions present arguments to each other, trying to convince the other side to think differently.*
Writing and Charting 15 minutes	*Take a few minutes to think about your response. Do you think that we should respond to erosion by trying to change nature, or by changing our behavior? When you have chosen a side, come up and write your name on that chart.* Give children several minutes to think and then choose a side. Distribute writing tools and sticky notes. Refer to the Taking a Stand charts. *Think about the argument you are going to make. If you said that we should try to change nature, write one reason for that argument on your sticky note. If you think that we should change our behavior, write one reason for that argument on your sticky note.* Set up the pieces of chart paper on opposite sides of the room, with sufficient space for the large groups to work. *For about 10 minutes, our class will split into two groups, according to the argument you chose. Make sure each person in the group has a chance to say their idea out loud and put the sticky note on the chart. You might notice that more than one person has the same idea, and those sticky notes could be grouped together on your chart. If the group comes up with new ideas, be sure to write those on the paper as well. Then we will come back together and have a discussion.* Send the children to work in groups, according to the side they chose. Move between the two groups to help them clarify their ideas, manage sharing ideas, and organize notes on the charts.
Debate 22 minutes	Bring the children back to the meeting area, sitting with their groups and in a large circle so that everyone can see each other. Display the two charts for children to reference during the class discussion.

	Now let's debate our question: How should we respond to erosion? Focusing on the question, facilitate a debate in which children take a stand for the side they chose. Refer to and encourage children to use the first set of prompts on the board: I think _____ because _____. I believe _____ because _____. Assume the role of facilitator, rather than of participant. Encourage the children to direct their comments to each other. Encourage them to build upon each other's ideas and to ask clarifying questions as needed. Prompt them to cite evidence to support their arguments. Toward the end of the debate, recap the main points of the conversation. Ask if anyone has changed their mind. Refer to and encourage children to use the second set of prompts: I used to think _____. Now I think _____ because _____. I still think _____ because _____. Do not expect to reach consensus (although this may happen).
Closing 1 minute	*Today we debated an important question: How should we respond to erosion? As we study the natural world, we need to think about how we interact with it. Knowing that Popham Beach is an important place, we are considering what we can do to protect it. Tomorrow we will choose an approach to erosion that we will recommend to other second graders, and even to people who work on and make decisions about Popham Beach.*
Standards	**W.1.2.b** Gather information from provided sources and/or recall information from experiences in order to answer questions. **W.3** Routinely produce a variety of clear and coherent writing in which the development, organization, and style are appropriate to the task, audience, and purpose **SL.4.2** Produce complete sentences when appropriate to the task and situation in order to provide the requested detail or clarification. **2-ESS2-1.** Investigate and compare the effectiveness of multiple solutions designed to slow or prevent wind or water from changing the shape of the land. **SEL.** Relationship Building **SEL.** Decision Making
Ongoing	Reflect on children's practice of taking a stand.

assessment	To what extent do children cite evidence to support their argument? How comfortable are they debating with minimal teacher intervention? How did they question each other and build upon each other's ideas? Review children's sticky notes. How clearly do children represent their reasons in writing?

Notes

WEEK 7 Day 5

Text Talk
Choosing a Recommendation for Popham Beach

Big Ideas	Wind and water can change the shape of the land. People can change the shape of the land. The changing shape of the land impacts people.
Weekly Question	How can people prevent or slow erosion?
Content Objectives	I can apply my knowledge of approaches to erosion to make a recommendation for erosion on Popham Beach. (2-ESS2-1). I can use evidence from investigations to support my claim. (W.1.2.b, W.3)
Language Objective	I can recount my experiences in Science and Engineering, Text Talk, and Studios to make a recommendation for Popham Beach. (SL.4.2)
SEL Objective	I can discuss differing opinions in a respectful way and make decisions about approaches to slowing erosion at Popham Beach. (Relationship Building, Decision Making)
Vocabulary	**approach** (n): a way of doing or dealing with something (*Week 4) **data**: information *** intervene**: to become involved in something to change what happens *** recommendation**: suggestion
Materials and Preparation	The children will work in five groups for this lesson, with each group discussing one of the Slowing and Preventing Erosion charts (the Restore the River chart will be discussed by the whole class). Before the lesson, assign children to groups, matching them, as possible, to approaches that they have tested. ● all Slowing and Preventing Erosion charts

	Before the lesson, add to the bottom of each chart, using the following example. **Slowing and Preventing Erosion** Approach: *planting* Reason: *to keep the soil in place* Example(s): *planting schoolyard gardens in New Orleans* - *Cape Cod - beach* - *North Dakota - prairie* - *Vietnam - farm* - *Kenya - farm* - *Marram grass on a beach* - *Soil Erosion and How to Prevent It, page 25* --- Will this work on Popham Beach? Yes No Maybe Why or why not? ● Science and Engineering packets used to record observations from Week 6 and Week 7 investigations ● markers ● Problem at Popham Beach slides, from Week 6, Day 2, for children's reference ● Weekly Question Chart
Opening 1 minute	*Now that we have tested different approaches to slowing and preventing erosion, we are ready to think about which approach would work best on Popham Beach. Today we will review each approach to decide if it would work on Popham Beach and why or why not. Then, we will review all of the possible approaches and choose the one that we think would be most effective.*
Text and Discussion	*Let's go through the process as a class with one approach. Then you will work in small groups to discuss the other approaches.* Review the Restore the River chart. *Will this approach work at Popham Beach?* [No]

Restore the River Chart 4 minutes	*Why not?* [Popham Beach is not a river and cannot be restored in the same way the Muddy River was.] If needed, take a moment to clear up any misunderstandings.
Small Group Decision Making 19 minutes	*Now you will work in small groups to have these conversations about other approaches. There are five more approaches to explore.* *As a group, review the approach on the chart. Think about the examples of places where this approach is used. Then think about investigations you conducted to test this approach, and review your notes. As a group, decide together whether this approach will work at Popham Beach, and circle Yes, No, or Maybe. Then, use data from your investigations to write why this approach will, will not, or might work.* Distribute Science and Engineering packets, and send the children to work for about twelve minutes. As they work, circulate to support them. Encourage children to refer to data from their investigations. When the groups have finished, gather the class back together.
Whole Group Decision Making 10 minutes	Collect all of the charts, separating those that would not and those that would or might work at Popham Beach. Refer to approaches that children have determined would not work at Popham Beach. *Some of you have determined that your approaches would <u>not</u> work on Popham Beach.* Invite these groups to briefly share their thinking. Record any additional ideas at the bottom of corresponding charts. *You did some good thinking to arrive at your conclusions, and you have helped us all narrow down the possibilities of what we might recommend.* Refer to approaches that children have determined would or might work at Popham Beach. *These are approaches that our investigations tell us <u>could</u> work at Popham Beach. Our job now is to choose which we think would be the most effective approach.* Invite these groups to briefly share their thinking. Record any additional ideas at the bottom of corresponding charts. *Take a moment to think, and then turn and talk to a partner.*

	Let's talk about this all together. Engage the class in a discussion about which approach would be the most effective for Popham Beach. During the discussion, prompt the children to cite evidence from their investigations to support their claims. As is useful, remind children about approaches that have previously been tried at Popham Beach (barriers: seawalls and dikes) and ask them to consider this in their thinking. After choosing one approach, add under the Why? section of the chart any new reasons and evidence that surfaced during the discussion.
Closing 1 minute	*We have learned a lot about the ways people respond to erosion, and now we have a recommendation for how to slow erosion at Popham Beach:* _____ [name chosen approach]. *Next week we will decide on the best way to communicate our recommendation to other second graders—and to people who work at and make decisions about Popham Beach.*
Weekly Question Chart 5 minutes	Refer to the Weekly Question Chart. Read the chart together. Add any essential ideas that may be missing. Identify and color-code two or three themes that emerge. Some themes might be: Sometimes the best approaches to erosion are to intervene with nature. Sometimes the best approach to erosion is to do nothing. Save this chart for use in Week 8.
Standards	**W.1.2.b** Gather information from provided sources and/or recall information from experiences in order to answer questions. **W.3** Routinely produce a variety of clear and coherent writing in which the development, organization, and style are appropriate to the task, audience, and purpose **SL.4.2** Produce complete sentences when appropriate to the task and situation in order to provide the requested detail or clarification. **2-ESS2-1.** Investigate and compare the effectiveness of multiple solutions designed to slow or prevent wind or water from changing the shape of the land. **SEL.** Relationship Building **SEL**. Decision Making
Ongoing assessment	Take notes about children's discussions, focusing on the following questions: How effectively do children argue for their ideas? How do children negotiate choosing one idea for the group? Are children's ideas appropriate for the audience?

	Do children's reasons effectively support their arguments?

Notes

WEEK 7 Stations

Station	Activities	Materials Writing tools at each station
Guided Independent Reading		• individual book bags
Teacher groups: strategic small group instruction		
Listening & Speaking	Listen and Respond	• What Can Grass Do? Slides • technology for viewing slides • conversation prompts
Science Literacy	How do scientists and engineers work together to solve problems (like slowing or preventing erosion)?	• Unit 2 Science and Engineering packets • colored pencils
Vocabulary	Choose 3!	• **Week 7** Weekly Words cards • Recording sheets • Choose 3! menu
	Talk About It: Based on what you know about erosion and approaches to slowing and preventing erosion, what do you think is going on in this image?	• **Week 6** and **Week 7** Weekly Words cards • Week 7 image, 2 copies cut apart • Week 7 sheets
Word Work (align skills with literacy program) Provide activity directions cards	Writing words, using them in sentences	• Week 7 Look Cover Write Check sheets
	Marking r-controlled syllables	• Week 7 Read It, Write It, Mark It sheets
Writing	Prompt from Text Talk Day 1: Describing an image of terracing with evidence from three texts	• Writing Station Response sheet
	Continued work from Text Talk Day 3: responding to the informational text “Do Nothing”	• “Do Nothing” informational text and questions

"What Can Grass Do?" Conversation Prompts: Cut apart and provide with slides.

Slide 3: How is this grass different from the grass you might find in a park? **"What Can Grass Do?"**	**Slide 6:** Volunteers do not get paid for their work. Why do you think the people in the photos are planting grass on the shoreline? **"What Can Grass Do?"**
Slide 10: Which plant do you think would be the hardest to pull out of the ground? Why? **"What Can Grass Do?"**	I agree with you. I also think ___. Why do you think that? I don't think I agree with you because ___.

Talk About It

https://sswm.info/sswm-solutions-bop-markets/improving-water-and-sanitation-services-provided-public-institutions-0/field-trenches

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https://sswm.info/sswm-solutions-bop-markets/improving-water-and-sanitation-services-provided-public-institutions-0/field-trenches

Talk About It

Name: _____ Date: _____

Based on what you know about erosion and approaches to slowing and preventing erosion, what do you think is going on in this image?

Look carefully at the image. **Talk** with your partner, **draw and write** about your ideas, and then **share** your writing. Use important vocabulary words as you talk and write. **Circle** the important words you use.

_____

_____

_____

_____

_____

Name: _____

Look	Cover	Write	Check √
night			
carry			
something			
world			
answer			
different			

Skills: recognize and read grade-appropriate irregularly spelled words.

Use it in a Sentence

night

carry

something

world

answer

different

Name:_____

Read It	Write It	Mark It

Read the word. Write the word. Mark only r-controlled syllables:

1. Underline the syllable.
2. Circle the r-controlled sound.
3. Write **r** below the line.

sport	
lark	
march	
boxes	
storm	

acorn	
crack	
cold	
farm	
torn	

Skills: Know and apply grade-level phonics and word analysis skills in decoding words.

WEEK 7 Lesson 1

Science and Engineering: Earth's Systems

Testing Approaches to Slowing and Preventing Erosion: Walls, Windbreaks, and Terracing

Big Ideas	Wind and water can change the shape of the land. The changing shape of the land impacts people. Changes happen over time.
S & E **Guiding Question**	What resources can we use to understand changes in the shape of the land?
Content Objectives	I can draw and write plans for an investigation. (W.1.2.a) I can work with a group to plan an investigation about slowing and preventing erosion. (Practice 3, 2-ESS2-1)
Language Objective	I can talk with classmates to plan an investigation. (SL.1.2.b, SL.1.2.c)
Vocabulary	**approach**: a way of doing something **terracing**: sloping land that has been formed into a number of level flat areas resembling steps **windbreak**: a row of trees or a fence, wall, or screen that provides protection from the wind
Materials and Preparation	Assign children to stable, small groups (about four children each) to work together during Lessons 1 and 2. ● Erosion Control slides ● collection of materials such as sticks, popsicle sticks, straws, rocks ● scraps of wood, container lid, pieces of fabric ● Science and Engineering packets, one for demonstration ● writing tools ● aluminum trays, one for each group outdoors Note: Be sure to provide fresh trays, preserving the Week 6 investigation trays for this week's Lesson 3.

	● scraps of paper, one for each group, to label trays of materials at the end of the lesson
Opening 10 minutes	*Last week you planned investigations to test barriers and planting as approaches for slowing and preventing erosion. This week you will go through the same process to test other approaches: walls, windbreaks, or terracing.* Briefly review the three Approaches to Slowing and Preventing Erosion slides. *Today you will work with a small group to plan an investigation to test one approach. Like last week, we will plan today and then conduct the investigations tomorrow.* Open a packet to the Week 7 Slowing Erosion Investigation Planning page. *This is the page your group will use to plan your investigation; it's the same one you used last week. The first line says "Approach." According to which group you are in, you will write "walls," "windbreaks," or "terracing" on this line.* *Below is space to draw a diagram. Again, like last week, you will test your approach on an island. In the box, first draw an island, and then draw a diagram showing your approach. As a group, plan where on the island you will build your wall or windbreak or plant your terrace, and what this area will look like.* Show the bin of materials. *Your investigation will be a model of an approach to slowing or preventing erosion. Here are some materials you might choose to use. If you are building a wall, which materials do you think might be useful?* [container lid, piece of cardboard or wood, rocks, fabric] *If you are building a windbreak, which materials might you use to represent trees or a fence?* [sticks, popsicle sticks, straws] *If you are forming terracing, what could you use as tools to shape the land?* [sticks, popsicle sticks, straws] *In addition to these materials, you might find something else in the classroom that would be useful for your model.* Refer again to the Slowing Erosion Investigation Planning page. *With your group, decide which materials you will use, and record them here, under "Materials needed."*

	Hold up an aluminum tray. *As your group identifies materials, send one group member to gather them in this tray, so you will be ready to do your investigation tomorrow.* Refer again to the Week 7 Slowing Erosion Investigation Planning page. *The last section is labeled "Prediction." Here you will record what you think might happen in this investigation. After building a wall, windbreak, or terracing, what do you think will happen when wind and water hit the island?*
Investigation 20 minutes	Divide the class into the small groups, with two groups each planning walls, windbreaks, and terracing. As children plan, circulate to support their work. Help them identify and gather classroom materials to use in their investigations.
Discussion	*Discussion about this experience will happen in Lesson 3.*
Closing	Make sure that children label their group's tray. *Next time you will conduct your investigations and record the results!*
Standards and Practices	**W.1.2.a** Investigate questions by participating in shared research and writing projects. **SL.1.2.b** Build on others' talk in conversations by linking their comments to the remarks of others. **SL.1.2.c** Ask for clarification and further explanation as needed about the topics and texts under discussion. **2-ESS2-1.** Investigate and compare the effectiveness of multiple solutions designed to slow or prevent wind or water from changing the shape of the land. * Clarification Statements: • Solutions to be compared could include different designs of dikes and windbreaks to hold back wind and water, and different designs for using shrubs, grass, and trees to hold back the land.
Ongoing assessment	Review each group's plan. What materials did children choose? Are they appropriate? Are there other materials that might be helpful? What predictions have children articulated? Are they plausible? What understandings about approaches to slowing and preventing erosion do children's plans reflect?

WEEK 7 Lesson 2

Science and Engineering: Earth's Systems

Testing Approaches to Slowing and Preventing Erosion: Walls, Windbreaks, and Terracing

Big Ideas	Wind and water can change the shape of the land. The changing shape of the land impacts people. Changes happen over time.
S & E **Guiding Question**	What resources can we use to understand changes in the shape of the land?
Content Objective	I can test the effectiveness of an approach to slowing erosion.
Language Objective	I can discuss my observations.
Vocabulary	**approach**: a way of doing something **force**: great strength **impact**: to influence **terracing**: sloping land that has been formed into a number of level flat areas resembling steps **windbreak**: a row of trees or a fence, wall, or screen that provides protection from the wind
Materials and Preparation	Assign children to stable, small groups (about four children each) to work together during this pair of lessons. ● Erosion Slides ● Science and Engineering packets, one for demonstration ● writing tools ● each group's aluminum trays with chosen materials, from Lesson 1 Add to each tray: ● sand, 1 cup ● soil, 1 cup

	● straws, one for each child in the group ● containers for pouring water Plan to keep the trays intact until Week 7, Lesson 3
Opening 10 minutes	Gather children in the meeting area in the groups formed in Lesson 1. Distribute aluminum trays to each group. *Yesterday you planned investigations in groups to test approaches to slowing erosion. Today you will carry out your investigations.* *Take a moment with your group to review your plan and predictions.* Show the Slowing Erosion Investigation page in a packet. *This is the page you will use to record the results of your investigation. The first line says "Approach." Here you will write which approach you are testing.* *The next part says "Circle one or more force." Your choices are "waves," "strong wind," and "soft wind." Think about which force or forces you want to use in your investigation. If you create waves, circle "waves." If you create waves* and *use a strong wind, circle both. If you are testing windbreaks, it makes sense to use wind first, before the land is wet.* *After conducting the investigation, draw and write about the impact of the water or wind force on the land.* *We're going to set up the investigations together, and then your group will conduct the investigation you planned. After you conduct your investigation, talk with your group about how you will share your data with other scientist classmates tomorrow.* Send the children to the tables with their aluminum trays, writing tools, and Science and Engineering packets.
Investigation 20 minutes	Use the steps below to guide the set up of the investigation. 1. *Using sand and soil, build an island in the middle of the tray.* 2. *Pour water in the tray until it surrounds the island.* 3. *Referring to your planning sketch, set up your approach.* *Now talk to your group. What force or forces did you plan to test?* *Use your plan to conduct the investigation. Remember to discuss and record what happens to the island. If you decide to conduct*

	more than one investigation using different forces, be sure to use a new recording page.
Discussion	*Discussion about this experience will happen in Lesson 3.*
Closing	*Take a moment to reflect on the investigation. Ask yourself these questions:* *Did I use my five senses to gather information about an object or something that happened?* *Did I draw or write what I thought or observed?* *Tomorrow we will discuss our investigations.* To prepare for Lesson 3, review children's investigations from Weeks 6 and 7. Review the plans and observations recorded in Science and Engineering packets as well as the trays. Choose one group from each approach to share their work. (Because children have worked in different groups across these two weeks, each should be able to be part of a presenting group.) Let children know which work they will be presenting to classmates in the next lesson. For each of these groups, set aside the appropriate Science and Engineering packet(s) and tray (or prepare slides with photographs of the trays).
Standards	**2-ESS2-1**. Investigate and compare the effectiveness of multiple solutions designed to slow or prevent wind or water from changing the shape of the land.* Clarification Statements: • Solutions to be compared could include different designs of dikes and windbreaks to hold back wind and water, and different designs for using shrubs, grass, and trees to hold back the land. • Solutions can be generated or provided. **2-ESS2-2**. Map the shapes and types of landforms and bodies of water in an area. Clarification Statements: • Examples of types of landforms can include hills, valleys, riverbanks, and dunes. • Examples of water bodies can include streams, ponds, bays, and rivers. • Quantitative scaling in models or contour mapping is not expected.
Ongoing assessment	Observe and take notes as the children conduct investigations. What do the children observe? Are their observations accurate? How effective are their investigations?

WEEK 7 Lesson 3

Science and Engineering: Earth's Systems

Presenting Investigations about Slowing and Preventing Erosion

S & E **Big Ideas**	Wind and water can change the shape of the land. The changing shape of the land impacts people. Changes happen over time.
S & E **Guiding Question**	What resources can we use to understand changes in the shape of the land?
Content Objective	I can make a claim about how well an approach to slowing and preventing erosion works and support my claim with evidence.
Language Objectives	I can present my investigation orally. I can ask questions about and provide feedback on my classmates' investigations.
Vocabulary	**approach**: a way of doing something **replicate**: to copy, repeat
Materials and Preparation	● sticky notes ● trays and Science and Engineering packets chosen in Lesson 2 ● chart paper and markers Create a chart, Replicating Investigations, with each of the five approaches:

Replicating Investigations				
Barriers	Planting	Walls	Windbreaks	Terracing

	On the whiteboard, write: Which approach did you test? What happened during the investigation? What worked well? What did not work well? --- What feedback would help make this investigation more effective?
Opening 2 minutes	*You have been doing a lot of exciting investigations to test different approaches for slowing erosion at Popham Beach. Today we will hear about five investigations—one for each approach. Scientists share their investigations in different ways. One way is by presenting at a conference. We are going to have a small scientific conference to share your claims about your investigations.* Refer to the questions on the board. *When your group shares, you will answer these questions. Then there will be time for your classmates to give you feedback on the investigation.*
Discussion 25 minutes	One group at a time and using the questions on the board, invite children to present their investigations and related claims (five minutes per group). At the end of each presentation, provide time for classmates to ask questions (Why did you…?) and to give feedback (You could try...). Record questions and feedback on sticky notes and put them in corresponding Science and Engineering packets.
Closing 3 minutes	*Scientists often try their own investigations again; they also try to **replicate**, or copy, each other's investigations to see if they get the same results. Take a moment to think about what you would do if you were to replicate an investigation.* Note: You may choose to continue investigations in a Day 4 lesson.
Standards and Practices	**2-ESS2-2**. Map the shapes and types of landforms and bodies of water in an area. Clarification Statements: • Examples of types of landforms can include hills, valleys, riverbanks, and dunes. • Examples of water bodies can include streams, ponds, bays, and rivers. • Quantitative scaling in models or contour mapping is not expected. **2.K-2-ETS1-3**. Analyze data from tests of two objects designed to solve the same design problem to compare the strengths and weaknesses of how each object performs.* Clarification Statements: • Data can include

	observations and be either qualitative or quantitative. • Examples can include how different objects insulate cold water or how different types of grocery bags perform.
Ongoing assessment	Take notes as the children present and analyze investigations. What do the children identify as going well in the investigations? Why? What do they identify as not going well? What kinds of questions do children ask? What is the quality of feedback they provide?

Notes

WEEK 7 Lesson 4

Science and Engineering: Earth's Systems

Testing Approaches to Slowing and Preventing Erosion:
Barriers, Planting, Walls, Windbreaks, and Terracing

Big Ideas	Wind and water can change the shape of the land. The changing shape of the land impacts people. Changes happen over time.
S & E **Guiding Question**	What resources can we use to understand changes in the shape of the land?
Content Objectives	I can make a prediction about my group's approach to slowing and preventing erosion. (Practice 3, 2-ESS2-4 (MA)) I can compare my prediction to what I observed in my group's investigation. (Practice 4, 2-ESS2-1)
Language Objective	I can discuss my observations with my group. (SL.1.2)
Vocabulary	**approach**: a way of doing something **force**: great strength **impact**: to have a strong effect on someone or something **replicate**: to copy, repeat
Materials and Preparation	● Replicating Investigations chart, from Lesson 3 ● investigation trays, from Week 6, Lesson 3 and Week 7, Lesson 3 ● Science and Engineering packets ● writing tools ● collection of materials such as sticks, popsicle sticks, straws, rocks, scraps of wood, container lids, pieces of fabric Prepare a new tray for each group including: ● sand, 1 cup ● soil, 1 cup ● straws, one for each child in the group

	• containers for pouring water
Opening 5 minutes	Have children gather in groups according to their choices for replicating investigations. (Refer to the chart created at the end of the previous lesson.) Distribute a prepared aluminum tray to each group. *Yesterday you shared your investigations and received some feedback. You also decided which investigation you would like to replicate today.* *Take a moment with your group to review your investigation plan, thinking about the feedback you received yesterday.* Show the Replicating Investigations page. *Today you will use a new page to record the results of your investigation. Write the names of all group members, and then write which approach you are testing.* [Indicate these spaces on the page.] *On the next line, you will record your group's prediction. What do you think will happen?* *Then, as you have done before, circle the force or forces you want to use in your investigation.* *After conducting the investigation, draw and write about the impact on the land.* Turn to the Reflection page. *After conducting your investigation, compare your results with the results that were presented yesterday. Were your results the same or different? Check one box, and then write how your results were the same or different and why you think that is* Send the children to the tables with materials, packets, and writing tools.
Investigation 20 minutes	Guide the set up of the investigation as in previous lessons. As the children work, circulate to support them. Remind them to refer to and follow their plans, to discuss their observations, to record their findings, and to discuss and record their reflections.
Discussion 5 minutes	Gather the children back together for a brief discussion about their results and reflections.

Closing	*Today you replicated investigations and compared the results of your investigation with previous results. Tomorrow during Text Talk we will look at all of the approaches we have tested and decide which we think will be the most effective for Popham Beach.*
Standards and Practices	**SL.1.2** Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups. **2-ESS2-1.** Investigate and compare the effectiveness of multiple solutions designed to slow or prevent wind or water from changing the shape of the land.* Clarification Statements: • Solutions to be compared could include different designs of dikes and windbreaks to hold back wind and water, and different designs for using shrubs, grass, and trees to hold back the land. • Solutions can be generated or provided. **2-ESS2-4(MA).** Observe how blowing wind and flowing water can move Earth materials from one place to another and change the shape of a landform. Clarification Statement: • Examples of types of landforms can include hills, valleys, riverbanks, and dunes. **Practice 3.** Planning and carrying out investigations **Practice 4.** Analyzing and interpreting data
Ongoing assessment	Observe and take notes as the children conduct investigations. What do the children observe? Are their observations accurate? How effective are their investigations? Collect and analyze the Replicating Investigations pages in children's Science and Engineering packets. How do children articulate similarities and differences in results? What do they understand about this comparison? What do the children understand about replicating investigations and getting the same or different results?

Notes

WEEK 7 Days 1-4

During Days 1-4, children continue to write independently and to receive feedback on their work using Thinking and Feedback (see Week 6, Day 5 for a detailed lesson). In addition, children's writing is assessed using the Explanation Observation Tool, and individual/small group/whole group lessons are added in response to children's needs.

Preparation:
Review children's Explanation Observation Tools. Note any trends that are emerging. Plan for individual, small group, or whole group instruction based on these needs. Areas of need may include, but are not limited to, the following.

Writing Explanation: (see the attached lessons for recommendations)
- explanation steps
- verbs
- nouns
- adjectives
- images

Conventions: (no suggested lessons included)
- writing and expanding complete sentences
- capitalization
- end punctuation, commas, and apostrophes
- applying rules and strategies taught in Fundations

Writing Behaviors: (no suggested lessons included)
- using spelling strategies, such as chunking and writing word parts
- using resources such as texts, environmental print, and *Fundations* posters for spelling
- re-reading own writing

Use the following sheet to plan instruction for Days 1-4. Make additional copies as necessary to plan for multiple individual or small group lessons.

Day 1

Target Students (individual, small group, or whole group?):

Topic:

Day 2

Target Students (individual, small group, or whole group?):

Topic:

Day 3

Target Students (individual, small group, or whole group?):

Topic:

Day 4

Target Students (individual, small group, or whole group?):

Topic:

Writing Explanation

Deconstruction and Revision: Explanation Steps

Materials:

- Explanation anchor chart, from Week 5, Day 2
- *Erosion: Changing Earth's Surface*, Robin Koontz; *How Do Wind and Water Change Earth?*, Natalie Hyde; Science and Engineering notebooks; available for children's reference
- children's explanations

Process (small or whole group):

- Show the Explanation anchor chart. Review the stages and language of procedure.
- Remind children that explanation steps include all steps needed to explain the phenomenon, in order.
- Guide children to read their explanations to others writing about the same type of erosion to identify whether they have included all steps, in order.
- Refer children to unit texts and Science and Engineering packets to support their knowledge of how a particular type of erosion works.
- Guide children to add missing steps or reorder steps, as needed.

Writing Explanation

Deconstruction and Revision: Verbs

Materials:

- Explanation anchor chart, from Week 5, Day 2
- mentor text for explanation: *Erosion: Changing Earth's Surface* (choose one explanation: Roaring Rivers, Frozen Erosion, or Whipping Wind) or a child's writing that uses present tense action verbs
- children's explanations

Process (small or whole group):

- Show the Explanation anchor chart. Review the stages and language of explanation.
- Read the mentor text.
- Together identify the present tense action verbs.
- Refer children back to their explanations. Have them underline the verbs.
- If children identify verbs that are not present tense action verbs, have them work with a partner or with teacher guidance to choose the appropriate replacement verbs.

Writing Explanation

Deconstruction and Revision: Nouns

Materials:

- Explanation anchor chart, from Week 5, Day 2
- mentor text for explanation: *Erosion: Changing Earth's Surface* (choose Frozen Erosion or Carving Caves) or a child's writing that uses general nouns
- children's explanations

Process (small or whole group):

- Show the Explanation anchor chart. Review the stages and language of explanation.
- Read the mentor text.
- Together identify the general nouns. Remind children that they are writing explanations about how that type of erosion occurs in many different landforms, not just the one they are using as an example.
- Refer children back to their explanations. Have them underline the nouns.
- If children identify specific nouns, have them work with a partner or with teacher guidance to change them to general nouns.

Writing Explanation

Deconstruction and Revision: Adjectives

Materials:

- Explanation anchor chart, from Week 5, Day 2
- mentor text for explanation: *Erosion: Changing Earth's Surface* (choose Carving Caves or Fast Erosion) or a child's writing that packs information with adjectives
- children's explanations

Process (small or whole group):

- Show the Explanation anchor chart. Review the stages and language of explanation.
- Read the mentor text.
- Together identify a sentence that includes adjectives to pack information.
- Refer children back to their explanations. Have them underline the nouns.
- Guide children to add adjectives by asking the following questions:

  How many/much?
  What kind?
  What like?
  Which ones? Whose?

Writing Explanation

Deconstruction and Revision: Images

Materials:

- Explanation anchor chart, from Week 5, Day 2
- mentor text for explanation: Sample Posters slides, from Week 5, Day 2 or a child's writing with clear images that demonstrate change over time
- children's explanations and Caption Templates

Process (small or whole group):

- Reinforce the importance of images on posters and in explanations.
- Remind children that their explanations show how a landform changes over time.
- Refer to the images on their Caption Templates. Discuss that that image is how the landform looks now. Have children match the image on the Caption Template to the last step in their explanation.
- Guide children to imagine what the landform looked like before it was affected by erosion.
- Have them illustrate each step of the explanation, showing how the landform has changed over time and matching the changing shape to the words in each explanation step.

WEEK 7 Day 5

Writing Explanation

Peer-to-Peer Feedback

Content Objective	I can use feedback to plan for revising my writing. (W.2.2.a, W.3.2, W.2, R.11.2.c, R.11.2.d)
Language Objective	I can discuss my writing with a partner, following the routine for providing feedback. (SL.1.2)
Vocabulary	**explanation**: a genre of writing whose purpose is to explain a phenomenon in sequence **explanation steps**: the phenomenon explained, in order **feedback**: specific, helpful suggestions given to improve work **image**: a representation of something in the form of a drawing, photograph, etc.
Materials and Preparation	• Explanation Feedback packet, one copy for each child • writing tools • children's writing folders, including their explanations Children will work with partners. Pair them strategically so that each child can give and receive meaningful feedback.
Opening 1 minute	*Today you and a classmate writing about the same type of erosion will provide each other with feedback.*
Peer-to-Peer Feedback Introduction 8 minutes	Show the Explanation Feedback packet, pointing to each part as it is discussed. *This is the packet you will use to give feedback. At the top, there is a space for the writer's name and the reviewer's name. If you are the person reading your own writing, you are the writer. If you are the person giving feedback, you are the reviewer.* *Here's how this will work: When you begin working with your partner, you, the writer, will lay out all of your explanation steps*

	pages, in order, and then read them out loud. *After listening to your explanation, your partner, the reviewer, will answer four questions. The first two questions are about the explanation steps. We used these questions when we gave feedback about our class explanation last week.* *The first question is, "Does it include all explanation steps?" If the explanation includes all steps, the reviewer will check "Yes." If not, they will check "No." If steps are missing, talk about what is missing, and write the steps in the box below.* *The second question is, "Are the explanation steps in the correct sequence?" If they are in the right order, the reviewer will check "Yes." If not, they will check "No." If the sequence needs to be changed, discuss the change that needs to be made and write a plan in the box.* *After discussing the explanation steps, you will look carefully at the images.* *The third question is, "Do the images clearly show how the landform changes over time?" If the images are clear and show the change, the reviewer will check "Yes." If not, they will check "No." If the images are unclear or do not show how the landform changes over time, talk about how they can be revised and write a plan in the box.* *The fourth and last question is, "Do the images match the words?" If they match, the reviewer will check "Yes." If not, they will check "No." If they do not match, discuss changes that can be made to the images or words to ensure that they match. Write the plan in the box below.* *After providing feedback to one partner, repeat the process to provide feedback to the other partner.*
Peer-to-Peer Feedback 20 minutes	Partner the children and send them to work with writing folders, writing tools, and Explanation Feedback packets. As the children work, circulate to support them. Have children store their Explanation Feedback packets in their writing folders.
Closing	*Today you provided each other with feedback to make your writing*

1 minute	*even better! Next week you will revise and publish your explanations.*
Standards	**R.11.2.c** Explain how specific visuals contribute to and clarify the meaning of a text. **R.11.2.d** Compare and contrast the information presented by two texts on the same topic. **W.3.2** Use a combination of drawing and writing to communicate a topic with a beginning, middle (including details), and an end. **W.2** Develop, strengthen, and produce polished writing by using a collaborative process that includes the age-appropriate use of technology. **W.2.2.a** With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing. **SL.1.2** Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.
Ongoing assessment	Observe and take notes as children provide feedback. What feedback are children given? Does it match your assessment? What next steps do children set for themselves? Are there any trends emerging?

Notes

Explanation Feedback

Writer's Name: _____

Reviewer's Name: _____

Explanation Steps

Does it include all **explanation steps**?

- ❑ Yes
- ❑ No

explanation steps to add:

Are the **explanation steps** in the right sequence?

- ❑ Yes
- ❑ No

explanation steps sequence plan:

Images

Do the **images** clearly show how the landform changes over time?

- ❑ Yes
- ❑ No

images plan:

Do the **images** match the words?

- ❑ Yes
- ❑ No

images plan: