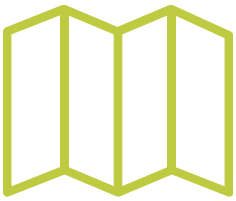


Lesson 1.1

Pre-Unit Assessment

Lesson Overview

Students' Initial Explanations

Students are introduced to their role as geologists and the problem they will investigate throughout the *Changing Landforms* unit: how the edge of a particular cliff got to be closer to a flagpole than it used to be. Students write initial explanations of what they think ocean waves could do to a landform over many years. Students' written explanations serve as a Pre-Unit Assessment for formative purposes, designed to reveal students' initial understanding of the unit's core content, both unit-specific science concepts and the crosscutting concept of Scale, Proportion, and Quantity, prior to instruction. As such, students' explanations offer a baseline from which to measure growth of understanding over the course of the unit. These explanations can also provide the teacher with insight into students' thinking as they begin this unit. This three-dimensional assessment will allow the teacher to draw connections to students' experiences and to watch for preconceptions that might get in the way of students' understanding. After students write their initial explanations, they read the book *Landform Postcards* to become familiar with what a landform is and to learn about different types of landforms. The purpose of this lesson is to introduce the unit, to allow students to demonstrate their current understanding of how landforms change, and to provide a shared understanding of landforms.

Anchor Phenomenon: The cliff where Oceanside Recreation Center is situated appears to be receding.

Students learn:

- A landform is a feature of Earth's surface, such as a mountain, a cliff, or a valley.
- A geologist is a scientist who studies the solid part of Earth.
- Reflecting on what you understand and don't understand allows you to prepare for learning new things.

Lesson at a Glance

ACTIVITY

1 **Introducing the Unit** (15 min)
Students are introduced to the unit and the central problem they will solve. This helps provide motivation and context for students' investigations throughout the unit.

TEACHER-LED DISCUSSION

2 **Writing Initial Explanations** (20 min)
Students complete a pre-unit writing assessment to demonstrate what they already know about how landforms change and to provide a baseline from which to measure growth in understanding over the course of the unit.

WRITING

3 **Partner Reading** (25 min)
Reading *Landform Postcards* builds students' familiarity with different types of landforms.

READING

Materials & Preparation

Materials

For the Classroom Wall

- section headers: Key Concepts, Vocabulary
- Unit Question: *Why is the shape of the land different than it used to be?*
- Chapter 1 Question: *How did the edge of the cliff get to be so close to the flagpole?*
- 2 vocabulary cards: *geologist*, *landform*

For the Class

- Pre-Unit Writing: Explaining the Arch copymaster
- 1 sheet of chart paper*
- marker, wide tip*
- masking tape*
- stapler*

For Each Pair of Students

- 1 copy of *Landform Postcards*

For Each Student

- 1 copy of the Pre-Unit Writing: Explaining the Arch student sheets
- *Changing Landforms* Investigation Notebook (pages 1, 3–5)

*teacher provided

VOCABULARY

- geologist
- landform
- observation
- stable

UNPLUGGED?

Digital Devices Not Required

Students can complete this lesson without the use of digital devices.

DIGITAL RESOURCES

Partner Reading Guidelines

Pre-Unit Writing: Explaining the Arch copymaster

Assessment Guide: Interpreting Students' Pre-Unit Explanations About the Arch

Changing Landforms Investigation Notebook

Preparation

Before the Day of the Lesson

1. **Familiarize yourself with the unit-level references.** If you haven't yet checked out Getting Ready to Teach, you can find it at under Planning for the Unit at the unit level. Also included at the unit level are a number of references and resources to which you may want to refer over the course of the unit. They address what students learn, why it's important, and how they learn it.
2. **Prepare an area of the classroom wall for posting the Unit Question, Chapter Questions, key concepts, and vocabulary.** You will add items to this wall throughout the unit.
3. **Locate the following materials (in your *Changing Landforms* kit) and set them aside until needed.**
    - Unit Question
    - Chapter Questions (4)
    - section headers: Key Concepts, Vocabulary
    - key concepts (10)
    - vocabulary cards (11)
4. **Prepare Investigation Notebooks.** Whether you chose to purchase additional copies or make copies of the *Changing Landforms* Investigation Notebook (from the PDF file provided in Digital Resources) for your students, gather the notebooks so you are ready to distribute them during this lesson.
5. **Download PDF of Investigation Notebook for projection purposes.** In order to project notebook pages during the lessons, you will need to download the PDF file provided in Digital Resources. To save time, download the PDF now and keep the file on your desktop for easy access throughout the unit. (The PDF for the notebook is only posted in this lesson and at the unit level.)
    - To project a specific page, go to the Table of Contents and select the page you would like to project. Your screen will "jump" to that page.
    - In each lesson in which you introduce a notebook page to students, possible student responses for that page will appear in the Possible Responses tab in the instructional guide.
6. **Gather the following materials for the classroom wall:**
    - section headers: Key Concepts, Vocabulary
    - Unit Question: *Why is the shape of the land different than it used to be?*
    - Chapter 1 Question: *How did the edge of the cliff get to be so close to the flagpole?*
    - 2 vocabulary cards: *geologist*, *landform*

7. **Locate student books in your *Changing Landforms* kit.** Locate copies of *Landform Postcards*.
8. **Make copies of the pre-unit writing prompt.** Print out the Pre-Unit Writing: Explaining the Arch copymaster (in Digital Resources). There are two pages for this writing prompt. Make enough copies for each student to get one set. Staple each set together.
9. **Preview the Assessment Guide: Interpreting Students' Pre-Unit Explanations About the Arch (in Digital Resources).** You will refer to this guide when you review students' pre-unit writing.
10. **Create the Partner Reading Guidelines.** On a sheet of chart paper, create these guidelines. (See the PDF file in Digital Resources for what this should look like.) You will keep this posted throughout the unit. If you don't have enough wall space, you can take it down and repost it during the reading lessons.
11. **Preview the introductory slideshow.** Familiarize yourself with the content of the projections for this lesson.
    - To view projections, you can press on the box within the instructional step, and the projection will pop up on your screen at full size as you project.
    - Alternatively, you can download the PDF of projections provided in Digital Resources for each lesson that has projections, and the PDF will open as a separate tab. This will allow you to toggle back and forth between the projections and the instructional guide.
12. **Read *Landform Postcards*.** Familiarize yourself with the content of this book.
13. **Assign reading partners.** Throughout the unit, we recommend that students read with partners. You may choose to assign the same reading partners throughout the unit or switch reading partners with each book. (See the Differentiation section for more recommendations about reading partners.)
14. **Plan for students who need accommodations.** If a student in your class requires additional time or any other assessment modification, you may want to come up with a plan for that student before administering the assessment. For more information about modifying assessments for students with disabilities, see the note in the Differentiation section titled "Specific strategies to support students with disabilities."

Immediately Before the Lesson

1. **Post the two section headers: Key Concepts, Vocabulary.** Leave enough room under the appropriate headers to post 10 key concepts and 11 vocabulary words. (You will not post the first key concept until Lesson 1.2.)
2. **Post the Partner Reading Guidelines.** Post this in a place that will be easily visible to all students.
3. **Have on hand the following materials:**
    - materials for the classroom wall
    - copies of the Pre-Unit Writing: Explaining the Arch student sheets
    - copies of *Landform Postcards*

- *Changing Landforms* Investigation Notebooks
- masking tape

At the End of the Day

1. **Collect and review students' explanations.** Familiarize yourself with the Assessment Guide: Interpreting Students' Pre-Unit Explanations About the Arch (in Digital Resources). After this lesson, when you review students' explanations, you can refer to this to see what you can learn about students' initial ideas and background experiences.

Differentiation

Embedded Supports for Diverse Learners

Partner Reading. Reading with a partner provides opportunities for students to assist each other with reading and understanding complex text. Partner Reading encourages discussion of the text and allows students to share ideas with each other, notice illustrations and text features, and interact with the book.

Visual representations. The introductory slideshow in this lesson contains many visuals to help support students' learning. In addition, the photos in the book are specifically designed to clarify the meaning of the text. These visual representations are helpful for all students, especially English learners and students who find it challenging to process oral language.

Potential Challenges in This Lesson

Reading-centered. Reading science texts is challenging. Some students may benefit from additional reading supports. Consider whether any of your students would benefit from extra reading instruction in order to be successful with reading *Landform Postcards* in Activity 3.

Specific Differentiation Strategies for English Learners

Bilingual Spanish glossary. Having access to translations and definitions of new science terms in Spanish is helpful for English learners for whom Spanish is their primary language. Have students turn to pages 81–82, Glossary, in the *Changing Landforms* Investigation Notebook to see Spanish translations and definitions. Encourage students to refer to this glossary as needed throughout the unit.

Alternate means of expressing ideas. Some English learners may experience more success expressing their ideas when provided a few different options. It may be appropriate for these students to express their ideas for the Pre-Unit Assessment by using labeled drawings or diagrams rather than providing purely written responses. After students have recorded their responses, you may wish to invite them to elaborate orally as you record their ideas. Providing alternate ways of expressing understanding can ensure that you will have a baseline from which to measure students' growth of understanding over the course of the unit. Allow English learners, particularly those at the Emerging level of English

language proficiency, to discuss the prompt with a partner using their primary language, if they desire to do so. Students may also be permitted draw a picture or to write their initial ideas in their primary language, as well as English, in order to accurately capture students' knowledge of the science concepts prior to moving through the unit.

Strategic partnering. Throughout the unit, students will often work with partners. Extended academic discourse that is equitable (that is, all students have an opportunity to engage) is critical for developing both language and content knowledge. Strategic partnering is essential for English learners as they develop understanding of new content. Therefore, consider carefully which partner to assign for each English learner in your class and assign a partner who has slightly higher English language skills than the student in question. Opportunities for English learners to engage in conversations that are slightly above their language-proficiency levels can accelerate second-language learning and increase students' confidence with engaging in science discourse. Try to assign each English learner a partner who will be likely to engage in discussion at the appropriate language level. We suggest assigning different pairs over the course of the unit so an English learner who serves as a language mentor for another English learner in one lesson gets a partner with more advanced English in another lesson. When assigning partners, consider which partnering structure will be most supportive for your students.

Multiple Meaning Words. Words with multiple meanings may present an obstacle for English learners. To help avoid confusion, before reading, explain that some words have more than one meaning. Discuss some examples likely to be familiar such as *fly* or *play*. Then, have partners work together to complete the optional activity on page 4, Multiple Meaning Words: *Landform Postcards*, in the Investigation Notebook.

Cognates. Many of the academic words that students will be learning over the course of this lesson and unit are Spanish cognates. Cognates are words in two or more different languages that sound and/or look the same or very nearly the same, and that have similar or identical meanings. At several points in this unit, a note will be provided in this section listing relevant Spanish/English cognates. You may decide to support students by keeping a running list on chart paper of cognates that students encounter in this unit, or by encouraging students to keep their own lists that they can refer to as needed. The Spanish cognates that will be helpful for students in this lesson are: *geologist/el geólogo* or *la geóloga*, *observe/observar*, and *arch/arco*. Cognates are especially rich linguistic resources to exploit for academic English language development and for biliteracy development.

Academic language support. Developing science language and literacy is a complex process that includes, yet is broader than, vocabulary knowledge and usage. Science texts include general academic and discipline-specific vocabulary, and they also include disciplinary ways of using language, such as grammatically complex sentences and texts that are structured in more academic ways than everyday language. These broader aspects of academic language in science can be highlighted to students.

Vocabulary support. The charts and vocabulary list posted on the classroom wall provide resources for vocabulary that students can use in their writing. These resources can remind students of important words and concepts to include in their writing. It can also help ensure that students focus on expressing their ideas rather than worrying about spelling.

Specific Differentiation Strategies for Students Who Need More Support

Specific strategies to support students with disabilities. Accommodations and modifications play important roles in helping students with disabilities demonstrate what they know and can do. There may be students in your class who have Individualized Educational Plans (IEPs) or 504 Plans and require assessment accommodations or modifications. Accommodations (including alternate ways of presenting knowledge, responding to questions, additional time, or a change in location or scheduling of the assessment) do not reduce the learning or performance expectations. They allow students with disabilities to complete the assessment so that they are provided equitable access to the assessment. If a student in your class requires additional time or another accommodation, you may want to come up with a plan for that student before administering this Pre-Unit Assessment. For example, you can plan for that student to continue the assessment into the next period or for an instructional aide to read aloud the questions to that student in a quiet place. On the other hand, modifications that adjust the assessment and change what is expected or measured should be used with caution, as they alter, lower, or reduce learning expectations for students with disabilities.

Refer to specific strategies for English learners. Throughout this unit, the strategies listed in the Specific Differentiation Strategies for English Learners section are often good strategies for a variety of learners. Students who need more support for reading, writing, talking, and using academic language will often benefit from those suggestions. However, it is important to keep in mind that although suggested strategies for English learners may also be of benefit, students with disabilities have their own unique needs, which should be acknowledged, and be provided specific support per Individualized Education Plans (IEPs) or 504 Plans.

Anticipation Guide. For each book, we provide an optional Anticipation Guide in the Investigation Notebook. Anticipation Guides can help support students by activating prior knowledge before reading, promoting engaged reading, and encouraging students to monitor their comprehension. If you choose to use this optional activity, have students turn to page 3, Getting Ready to Read: *Landform Postcards*, in the Investigation Notebook. To use this activity, explain that students should work with a partner to decide if they agree or disagree with each statement. After reading, ask partners to revisit the statements and discuss whether they want to change any responses based on their reading. Encourage students to refer to the text as they discuss.

Specific Differentiation Strategies for Students Who Need More Challenge

Reading Reflection. A Reading Reflection activity for each book is included in the Investigation Notebook. These are optional written activities designed to reinforce concepts in the books and provide prompts to encourage further thinking about the text. These activities are designed for early finishers to use during Partner Reading and can also be used in a variety of other ways, such as to reinforce concepts on a second read of the book or as homework. The Reading Reflection for this book (on page 5, Reading Reflection: *Landform Postcards*, in the Investigation Notebook) asks students to describe landforms they have observed or landforms they would like to observe.

Standards

Key
Practices Disciplinary Core Ideas Crosscutting Concepts

3-D Statement

Students write initial explanations about how landforms change (cause and effect) and obtain and evaluate information about different types of landforms from the book *Landform Postcards*.

Next Generation Science Standards (NGSS)

NGSS Practices

- **Practice 1:** Asking Questions and Defining Problems
- **Practice 6:** Constructing Explanations and Designing Solutions
- **Practice 8:** Obtaining, Evaluating, and Communicating Information

NGSS Disciplinary Core Ideas

- **ESS1.C: The History of Planet Earth**:
  - Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. (2-ESS1-1)
- **ESS2.A: Earth Materials and Systems**:
  - Wind and water can change the shape of the land. (2-ESS2-1)
- **ETS1.A: Defining and Delimiting Engineering Problems**:
  - Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1)

NGSS Crosscutting Concepts

- Cause and Effect
- Stability and Change

Common Core State Standards for English Language Arts (CCSS-ELA)

- **CCSS.ELA-LITERACY.RI.2.4:** Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.
- **CCSS.ELA-LITERACY.W.2.8:** Recall information from experiences or gather information from provided sources to answer a question.
- **CCSS.ELA-LITERACY.SL.2.1:** Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.
- **CCSS.ELA-LITERACY.L.2.4:** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 2 reading and content, choosing flexibly from an array of strategies.

Common Core State Standards for Mathematics (CCSS-Math)

CCSS-Math Practices

- **CCSS.MATH.PRACTICE.MP1:** Make sense of problems and persevere in solving them.
- **CCSS.MATH.PRACTICE.MP2:** Reason abstractly and quantitatively.

1 TEACHER-LED DISCUSSION
Introducing the Unit

Introducing the Unit

15 MIN

Students are introduced to their role as geologists and explore the *Changing Landforms* Investigation Notebook.

Instructional Guide

1. Introduce the unit and the problem students will be solving.

We're about to begin a new science unit during which we'll be learning about why the shape of land can be different than it used to be.

- **Project Oceanside Recreation Center.**

This is Oceanside Recreation Center. Students come here on field trips to learn about leadership, collaboration, and teamwork. The center is on a beautiful cliff next to the ocean.

- **Project Students Hiking and Observing Nature.**

When they are at the center, students get to go on hikes and observe nature.

- **Project Recreation Center Cabins.**

Sometimes they get to stay for a whole week and sleep in cabins overnight.

- **Project Summer Camp.**

In the summer, when school lets out, kids can go to summer camp at Oceanside Recreation Center.

They do team-building activities and learn how to be better leaders.

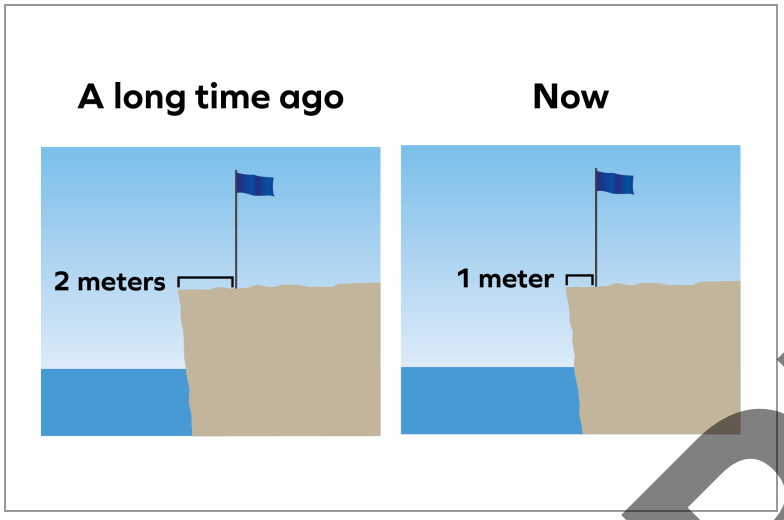
Ask students if they've ever been to summer camp or to a place like Oceanside Recreation Center.

- **Project Eroded Nearby Cliff.**

Nearby Cliff

The director at Oceanside Recreation Center, Director Higgins, just found out a cliff near the recreation center recently collapsed, or fell down. He is worried this might happen to the recreation center's cliff, putting visitors at risk.

- **Project Flagpole Comparison Diagram.**



After doing a little research on the recreation center's cliff, Director Higgins found some important information. He found that the edge of the cliff is in fact closer to the flagpole than it used to be.

The cliff seems to be changing—maybe even disappearing! It is not as stable as Director Higgins once thought. Director Higgins is worried the cliff might collapse like the nearby cliff.

2. Introduce students to their role as geologists investigating the cliff.

Director Higgins has hired all of you as geologists to help decide whether the recreation center's cliff is safe. As geologists, your role is to help Director Higgins decide whether or not he needs to close the recreation center because visitors are in danger.

3. Introduce the word *geologist*.

A geologist is a scientist who studies the solid part of Earth. Sometimes geologists use the word *landform* to describe the parts of Earth's surface they study. Examples of landforms are mountains, cliffs, and valleys.

4. Post the *geologist* vocabulary card under the Vocabulary header on the classroom wall. Let students know that as they learn new words, you will post them here for reference.

5. Introduce and post the Unit Question.

Our work as geologists will be to think about why the shape of one type of landform, a cliff, is different than it used to be.

Post the Unit Question to the area of the classroom wall where you will also be posting the Chapter Questions.

6. Introduce the Investigation Notebook and its purpose. Hold up a copy of the *Changing Landforms: The Disappearing Cliff* Investigation Notebook. Let students know that scientists use notebooks in many ways, including to keep track of what they observe.

In this unit, you'll be investigating why the shape of the cliff is different than it used to be, and you will keep track of what you observe and read in your notebooks.

7. Distribute Investigation Notebooks. Distribute one notebook to each student. Give students a minute to look through their notebooks.

8. Project notebook and review Safety Guidelines for Science Investigations. Have students turn to page 1 in their notebooks and read along as you quickly review each safety guideline. Let students know they will be doing hands-on activities later in the unit.

Teacher Support

Rationale

Pedagogical Goals: Why Designate a Dedicated Wall Space?
For this unit, you will need a dedicated wall space in your classroom on which to post central ideas of the unit—questions, key concepts, and a bank of vocabulary words. Refer to this section of the classroom wall often so students begin to use it as a reference for the ideas they are learning. Although this will take up extra space in your classroom, it provides an invaluable resource for students as they talk and write about science ideas.

Rationale

Pedagogical Goals: Unit Question
Posting questions on the wall throughout the unit is a valuable way to focus students' attention on the most important content of the lessons. The Unit Question posted in this lesson frames what students will investigate throughout the entire unit. It acts as a reminder to students of their goals for learning and helps them relate specific experiences to a broader idea. It can be rewarding for students to see their own progress in being able to answer the Unit Question more and more completely as they progress through the unit.

Background

Literacy Note: Using Vocabulary Before Formally Defining It
The vocabulary words for this unit were strategically selected to support students' learning about changing landforms as well as the practices scientists use when investigating. At the beginning of the unit, it is expected that students will vary in their proficiency in receptive (listening, reading) and productive (speaking, writing) use of the words. Throughout the unit, words are formally introduced after students have had multiple opportunities to hear and see them in context. Exposure to words in print and conversation is a first step in making connections to their meanings. As an example, in this lesson, the word *stable* is not formally introduced. (It will be introduced in Lesson 1.3.) You may want to clarify the meaning of the word when discussing the recreation center's cliff without pausing to formally introduce the word.

Rationale

Science Practices: About the Role of Notebooks
Recording ideas, observations, research, and data is a big part of what scientists do. This is not only to document findings for their own purposes, such as modifying an experiment or stimulating new trains of thought, but also for sharing findings with other scientists and more general audiences. The notebook provides a place for students to engage in a variety of types of writing (such as reflection, observation, and data collection), as well as a final written scientific explanation, in order to share findings with others. In addition, the notebook contains scaffolds, such as graphic organizers, sentence frames, and charts, to support students' thinking and writing.

Rationale

Pedagogical Goals: Why Set Up a Fictional Context for the Unit?
An important aspect of the Amplify Science Elementary curriculum is to enable students to inhabit the role of a scientist or engineer—having students engage in doing science and engineering for an actual purpose. In each unit, we have created a fictional context that creates that purpose. The goal of the fictional context is not to fool students; it is to create an authentic purpose for students to learn and use a set of science concepts and practices. In every case, we make sure that though the context is fictional, the problem to be solved is the kind of problem that scientists and engineers actually need to solve. We recommend, especially for older students, that you make clear that the context for the unit is fictional, but the kind of problem that students will be solving is authentic.

Rationale

Pedagogical Goals: Inhabiting the Role of a Scientist
Inviting students to take on the role of geologists during this unit can help generate motivation and can also help students engage more fully in the practices of real scientists. Playing the role of geologists advising the director of the Oceanside Recreation Center gives students a real-world reason to learn the science concepts and practices of the unit. By thinking of themselves as scientists, students will have reason to consider and reflect on what real scientists do as part of their work.

2 WRITING
Writing Initial Explanations

Writing Initial Explanations

20 MIN

Students write explanations about an arch. Their explanations reveal their initial understanding of key unit content.

Instructional Guide

1. Introduce the pre-unit writing task.

Before we begin our work as geologists, I'd like you to write your ideas about landforms. The landform you will be writing about is an arch.

2. Put students at ease.

Don't worry about this task. It is not a test. I don't expect you to understand everything about landforms. This is an opportunity for you to write your very first ideas about how landforms change.

Don't worry about whether your ideas are correct or incorrect. I want to know your first ideas before we start learning more about landforms.

3. Distribute student sheets. Distribute one set of the Pre-Unit Writing: Explaining the Arch student sheets to each student. Before students begin, point out that there are two pages for this writing task. There is information to read and a question to answer. Explain that you will help students understand what to do.

4. Review the directions. Read aloud the directions on first page. Then, have students follow along as you read aloud the information about the arch. Ensure that all students understand what they are being asked to do.

5. Have students write responses. Be sure to allow students to respond as independently as possible so you can get an accurate sense of their initial ideas about the unit content.

6. Collect all student sheets. When students are done, collect their written explanations.

Teacher Support

Rationale

Pedagogical Goals: Why Use a Pre-Unit Assessment?
Having students respond to this writing prompt before the unit begins provides a baseline from which to measure growth of understanding over the course of the unit. Further, it offers the opportunity to understand students' early ideas and initial understanding of the unit's core content, as well as their facility with the crosscutting concept of Scale, Proportion, and Quantity, which can help you adjust instruction to meet the needs of students in your class. Refer to the Assessment Guide: Interpreting Students' Pre-Unit Explanations About the Arch (in Digital Resources) to help you assess students' initial explanations.

Instructional Suggestion

Classroom Management: Reassuring Anxious Students
Students may feel anxious about being asked to write something about which they have little prior knowledge. Help students relax by reassuring them that you don't expect them to know all about what waves do to the arch; rather, explain that you are interested in students' first ideas—even if those ideas are incorrect. Let students know that they will have another chance at the end of the unit to explain how landforms can change.

3 READING
Partner Reading

Partner Reading

25 MIN

Students read the book *Landform Postcards* to learn about different types of landforms.

Instructional Guide

1. Introduce *Landform Postcards*. Hold up a copy of the book and remind students of the recreation center's disappearing cliff, and that cliffs are landforms.

Today, you will read a book called *Landform Postcards* to learn more about landforms. Learning more about landforms will help you as you investigate the cliff landform that the Oceanside Recreation Center is on.

2. Introduce and post the Chapter 1 Question.

As you read about different types of landforms in this book, I'd like you to think about the landform you are investigating—the recreation center's cliff. Keep the following question in mind: *How did the edge of the cliff get to be so close to the flagpole?*

On the classroom wall, post the Chapter 1 Question under the Unit Question.

3. Introduce the Partner Reading Guidelines. Let students know that they will read the book with a partner. Point out the guidelines that you posted on the wall and review them with the class. If Partner Reading is an unfamiliar activity for your students, let them know they can refer to the guidelines as they read.

4. Designate partners and distribute books. Distribute one copy of *Landform Postcards* to each pair of students.

5. Discuss the landforms contained in the book. Turn to page 3 of *Landform Postcards* and read aloud the different landforms as students follow along in their books.

Are any of these landforms familiar to you? Have you ever visited or observed pictures of any of these landforms?

Accept all responses.

6. Read pages 4–5 aloud. Point out and discuss the word *observe*.

The book says that Annie's grandfather is a geologist. He thinks it would be fun for Annie to observe landforms as she travels with her family. What do you think it means to observe something?

Accept all responses.

7. Connect observations to the work of geologists.

Geologists make observations as they study the solid part of Earth, and you will make observations as you read more about different types of landforms.

8. Have partners read the rest of the book.

9. Return to key vocabulary from the book. When students have finished reading, regain their attention. Explain that you want to look back at an important science word from the book.

10. Discuss the word *landform*.

- **Put the word in context.** Together, turn to page 4. Read the first paragraph on the page, focusing on the idea that landforms are parts of Earth's surface.
- **Discuss the meaning of the word.** Ask questions to help students think more deeply about the word, such as *What types of landforms did you read about in the book? Can you find landforms anywhere on Earth?* [Yes.] and *What observations did you make about landforms?* [They are different heights, colors, and sizes. Some are near water.]
- **Discuss other examples.** Have students give another example of a landform they've observed in their own lives.
- **Give the science meaning of the word.** Explain that a landform is a feature of Earth's surface, such as a mountain, a cliff, or a valley.

11. Post the *landform* vocabulary card on the classroom wall.

12. Point to the Chapter 1 Question posted on the wall.

Based on what you read about landforms, do you have any new ideas about how the edge of the cliff got to be so close to the flagpole?

Accept all responses.

13. Collect all books and conclude the lesson. Let students know that in the next lesson, they will investigate what landforms are made of.

Teacher Support

Background

About the Book: *Landform Postcards*

Landform Postcards is written from the perspective of a girl who is taking a road trip with her family. Her grandfather is a geologist, and she writes him postcards about the interesting landforms she sees around the United States. The book includes reproductions of the postcards she writes, along with beautiful photos of peninsulas, mountains, canyons, and more. The postcards and photo captions provide some basic information about various kinds of landforms and model the process of asking questions about natural phenomena. The final four pages of the book include more photos for students to explore, providing evidence that landforms are made of rock. This book sets the context for the unit by offering a friendly introduction to landforms and encouraging students to notice and ask questions about landforms in the world around them.

Rationale

Literacy Note: Partner Reading

Throughout this unit, we suggest that students read the books with a partner. This allows students time to apply and practice the reading strategies they're learning, keeps them focused on the task at hand, and provides opportunities for them to assist each other with reading. Of course, you can use any effective reading procedures you've already established with your class. Before reading this first book in the unit, you may need to provide instruction on how to read with a partner by using the Partner Reading Guidelines (provided in Digital Resources) or your own guidelines. Establishing procedures takes time at first, but will pay off in terms of student learning and management of the lessons. Over time, students gain practice working together and will need fewer reminders about reading together effectively.

Rationale

Literacy Note: Modeling Reading

Teacher modeling is an important component of teaching students to read informational texts effectively. As an expert reader, you already understand how to read these texts effectively and can use your expertise to model and make explicit your thinking processes for students. Think aloud as you read part of the text and model thinking about landforms. The goal of modeling is to help engage all students in deep and curious reading. The more you model how to read science text purposefully, the more successful you will be in motivating students to use the same strategies.

Rationale

Pedagogical Goals: Chapter Questions

Posting questions on the wall throughout the unit is a valuable way to guide students' investigations and help them build on previous knowledge and experience. In each chapter, you will pose a Chapter Question that asks students to think about the problem they are trying to solve. Chapter Questions are designed to build on one another throughout the unit. As students come to understand more and more about the nature of the problem and think more deeply about science ideas, they will be able to answer the Chapter Questions with greater detail and sophistication.