Lesson 1.2
Observations About Landforms
Lesson Overview

In order to understand how it’s possible for a landform such as the cliff to change, students must first gain a solid understanding of what landforms are and what they are made of. Students begin the lesson using an Anticipatory Chart to explore ideas and questions they have about what landforms are made of. Students use their initial ideas to create a diagram of a landform. They are then introduced to the unit’s reference book, *Handbook of Land and Water*, and preview the landforms and bodies of water included in the book. Students also use the reference book to gather evidence to support the idea that landforms are made of rock. At the end of the lesson, students return to the Anticipatory Chart and their diagrams to discuss how their ideas about landforms have changed based on evidence. The purpose of this lesson is for students to learn that landforms are made of rock.

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

**Investigative Phenomenon:** There are landforms on Earth like mountains, cliffs, and valleys.

Students learn:

- Landforms are made of rock.
- Water can be found in the ocean, rivers, lakes, and ponds.
- Evidence is information that supports an answer to a question.
- Observations can be used as evidence to answer a question.
Previewing Handbook of Land and Water

Students preview *Handbook of Land and Water* and discuss different landforms and bodies of water in the book.

### Instructional Guide

1. **Introduce purpose for reading.**

   We just shared ideas about what we think landforms are made of. I remember in *Landform Postcards* Annie’s grandfather stated landforms are made of rock. Let’s investigate this idea using something called a reference book.

2. **Hold up a copy of the unit’s reference book, *Handbook of Land and Water*.** Let students know that this is a reference book. Explain that reference books are useful places to look for information about a particular topic. Introduce the book as a tool that will help students investigate the question *Are landforms made of rock?*

   When scientists want to find more information about a particular idea, they often use a reference book. A reference book is a kind of book that is not read cover to cover. Reference books are a useful place to look for information about a particular topic.

   In our work as geologists, we are going to use *Handbook of Land and Water* to determine whether landforms are made of rock. Let’s first explore the different sections of the book.

3. **Designate partners and distribute books.** Give students a few minutes to browse through the book.

4. **Have students turn to page 3 in *Handbook of Land and Water*.** Demonstrate using the table of contents to discuss landforms and bodies of water as students follow along in their books.

   The table of contents lists landforms and bodies of water. Since we are investigating what landforms are made of, we will only need to read pages that contain information on landforms.
5. Have students turn to page 10 in *Handbook of Land and Water*. Read the text aloud and discuss the images on the page as students follow along in their books.

- What bodies of water can you read about in this book? [Lakes, ponds, ocean, rivers, streams, and waterfalls.]
- What is similar about all of these examples? [There is water in all of them.]
- Do you recognize any of the landforms shown on this page? Accept all responses.
- Let’s make observations about one of the landforms shown on page 10 to determine whether landforms are made of rock.

**Teacher Support**

**Background**

About the Book: *Handbook of Land and Water*

*Handbook of Land and Water* is the reference book for this unit, providing students with a place to look for information about all kinds of landforms and bodies of water. It includes entries on beaches, caves, the ocean, rivers, islands, mountains, and more. Each entry includes an introduction to the landform or body of water, several photos showing how it can vary, a photo paired with a map of a real location, a three-part diagram showing how that kind of landform or body of water can change slowly, and a photo or series of photos showing how it can change fast. In addition, the book’s introduction gives detailed directions for how to read a map and how to relate it to a real location on Earth. Students read the reference book to find evidence to support concepts about erosion that they learn throughout the unit, including the idea that landforms are made of rock and that lots of small changes add up to big changes in landforms. *Handbook of Land and Water* is used throughout the unit to provide evidence that supports students’ firsthand investigations.

**Background**

**Literacy Note: About Reference Books**

Reference books provide in-depth information about specific topics and are typically read for particular purposes. For this reason, students do not read every section in reference books, nor do they read reference books from beginning to end. Rather, they search for the information they need and then read the relevant sections carefully. In this lesson, students are introduced to the table of contents and will be given the opportunity to explore the book. This will prepare students to use the reference book in later lessons in this unit, as a scientist might, and it encourages students to read complex text both purposefully and carefully.
Instructional Suggestion

Providing More Experience: Characteristics of Reference Books

Gather a variety of reference books and ask students to work in small groups to look through the books and make observations about how they are organized, what kinds of information they contain, and what text features are present. Make a class chart of these characteristics and reflect on the usefulness of the various reference materials in particular situations.
Gathering Evidence from the Book

Students use *Handbook of Land and Water* to make observations and gather evidence about whether landforms are made of rock.

**Instructional Guide**

1. **Introduce the word** *observation*.

   - We will use the images in *Handbook of Land and Water* to make observations about whether landforms are made of rock.

   - When scientists make observations, they use any of their five senses to gather information about something. We will use our sense of sight to make observations of the images in the book.

   Post the *observation* vocabulary card on the classroom wall.

2. **Project notebook page.** Have students turn to page 7, Observations of Landforms, in their notebooks. Explain the directions.

   - You will use the images throughout the book to make observations of landforms.

   - The observations you make can be used as evidence to support the idea that landforms are made of rock. You will record your observations in the table on this page.

   - Let’s make observations of caves and practice recording our observations in the table.

3. **Review the cave images on pages 15–18.** Have students follow along in their books as you make observations about each page.

   - When I look at the cave images on the different pages, I observe rock walls, rock on the bottom of caves, and fallen rocks.
Do my observations of caves support the idea that landforms are made of rock? [Yes, because we observe rock in most of the images.]

4. Project notebook page again and model how to record observations in the table. Have students turn to page 7, Observations of Landforms, in their notebooks.

- Write “cave” in the “Landform” column on the projected notebook page.
- Write “rock walls, rock on bottom of the cave, and fallen rock” in the “Observations” column on the projected notebook page.

5. Have pairs complete the notebook page. Pairs should select at least two other landforms to read about and record observations about. Remind students to use all of the images of each landform to help them make their observations.

6. Have pairs share observations with the class. As students share their responses, have them point out the page numbers and specific images so their classmates can turn to those pages as they explain their ideas.

Based on your observations of landforms in Handbook of Land and Water, do we have evidence that supports the idea that landforms are made of rock?

Accept all responses at this point, even if some students disagree.

7. Collect all copies of Handbook of Land and Water.

8. Return to Landform Postcards. Discuss information from Landform Postcards that supports the idea that landforms are made of rock.

Remember that in Landform Postcards Annie’s grandfather stated that landforms are made of rock. Let’s use this book to see if it provides additional information about what landforms are made of.
Let’s read about the first landform in the book, plains, to see what it says about what landforms are made of.

Read aloud or ask a student to read aloud page 6.

Based on what we just read, what are plains made of? What information in the text supports your ideas?

[Plains are made of rock. The book says that even though you can’t see the rock, you can picture the rock under the grass.]

10. Project pages 8–9 from Landform Postcards. Read aloud or ask a student to read aloud page 8.

Based on what we just read, what are mesas made of? What information in the text supports your ideas?

[Mesas are made of rock. The book says that mesas are made out of red, orange, and yellow rock.]
Teacher Support

Background

Literacy Note: Finding Evidence in Informational Texts
A major goal of the Amplify Science curriculum is to deepen students’ awareness of and experience with the genres of science writing they will encounter in school and in their lives outside of school. Learning effective strategies and approaches for comprehension of informational text is extremely important for success in school, yet reading these texts can be challenging for many students. Students may need support using *Handbook of Land and Water* to find evidence that supports the idea that landforms are made of rock. Some readers may struggle with understanding where to look. The use of teacher modeling before students make their own observations of the reference book is one way to support students.

Background

Data and Visual Representations: About Tables
Scientists organize information in tables because tables allow for different kinds of comparisons to be made easily. A table allows you to compare information based on the variables in the rows or columns. In this unit, students have the opportunity to read, interpret, and create tables for many different purposes. In this lesson, students use a table to organize their observations from *Handbook of Land and Water*. You will model how to complete one row of the table. You may wish to provide additional modeling for your students if necessary.

Instructional Suggestion

Supporting English Learners: Vocabulary Word Forms
Some scientific words in this unit, such as *observation*, are posted to the Vocabulary section of the classroom wall in the noun form. Many students will read, hear, and use these words in other forms—other tenses and parts of speech (e.g., *observe*, *observing*, *observed*). To support students’ flexible understanding and appropriate use of the various forms of these words (and for English learners to refer to in their writing, listening, and speaking), you might want to consider introducing and posting other forms of the words on the wall next to the unit vocabulary words.

Possible Responses

Investigation Notebook
Observations of Landforms (page 7)

Answers will vary. Examples:
- **Landform**: beach; **Observations**: Rocks scattered on the beach; Rocks in the ocean
- **Landform**: island; **Observations**: Large rock under the lighthouse; Rock under the grass on the hillside
| Landform: mountain; Observations: Rock under the trees on the mountains; Small rocks on the path of the mountain; Jagged rocks on the tops of the mountains; Small and large rocks in the landslide photo |
| Landform: valley and canyon; Observations: Large rock walls; Rocks in the water of the Grand Canyon and flood photos |
Reflecting on Landforms

Students return to the Landform Anticipatory Chart to revise their ideas about the Investigation Question.

Instructional Guide

1. **Return to the Landform Anticipatory Chart.** Read the question aloud.

   What are landforms made of?

2. **Review previous student responses.** Ask students if they would like to revise any of their ideas or add new ideas.

3. **Record new or revised ideas on the chart.** Ask students to support their ideas with information from *Handbook of Land and Water* and *Landform Postcards*.

4. **Introduce the word evidence.**

   The new ideas you have about what landforms are made of is called evidence. Evidence is information that supports an answer to a question. The question we are investigating is *What are landforms made of?*

   Based on the evidence you have gathered from *Landform Postcards* and *Handbook of Land and Water*, we can conclude that landforms are made of rock.

   Post the *evidence* vocabulary card on the classroom wall.

5. **Introduce and post the first key concept.** Let students know that throughout the unit, you are going to post statements of important science ideas. Read aloud the first key concept.

   Landforms are made of rock.

   Post the key concept on the classroom wall under the Key Concepts header.
6. **Have students turn to page 8, Revising What Landforms Are Made Of, in their notebooks.** Explain that students should draw new diagrams based on the evidence they gathered about what landforms are made of.

   Scientists base their ideas on evidence. If they gather new evidence that makes them change their ideas about something, they revise their diagrams to show their new ideas.

7. **Have students create new diagrams in their notebooks.** As you circulate the classroom, remind students to use the evidence they gathered from the books to help them create their new diagrams.

8. **Conclude the lesson.** Let students know that in the next lesson, they will use what they know about landforms to begin thinking about how geologists figure out how something, such as a landform, changed when they can’t observe it changing.

**Teacher Support**

**Background**

**Science Practices: About Evidence**
The concept of evidence and the idea that scientists must base their thinking on evidence are absolutely central to this unit—and to science itself. In all disciplines, evidence is information that is more certain than the claims it is used to support. If the information serving evidence is questionable, then it is hard to use it to support anything! In science, evidence takes the form of data recorded from observations or measurements, or of ideas drawn from texts that are trusted, often because they have their own roots in empirical data. In science, new ideas are only accepted if they can be supported by evidence. As appropriate, take every possible opportunity to reinforce this idea with your students and encourage them to ground their discussions—both in science inquiry lessons and during reading of informational text—in available evidence. Make sure students know that they can support their statements with evidence they observe directly with their senses or evidence they derive from books they have read. Various forms of the question *What is your evidence?* should become a regular refrain in the classroom.

**Background**

**Science Note: About Landforms Being Made of Rock**
While nearly all landforms are primarily composed of rock, many landforms also include a relatively small component of sediment, such as sand or soil (e.g., the layer of soil covering a hill or the sand found in the floor of a canyon). There are even some landforms that are primarily composed of sediment, such as a beach or a sand dune. Most sediment is itself composed in large part of tiny particles of rock, although there are some sands with a high proportion of material from shells, and some soil has a high proportion of organic material. Later in this chapter, students read that sand can be formed from larger rocks. In Chapter 4, students will consider landforms composed of loose materials rather than solid rock.

**Rationale**

**Discourse Routine: Returning to the Anticipatory Chart**
Returning to the Landform Anticipatory Chart in this lesson gives students the opportunity to revisit their initial ideas and questions and revise them based on evidence. Returning to the chart helps students reflect on what they have learned since the start of the unit.
Rationale

Pedagogical Goals: Key Concepts
Key concepts—statements of important science ideas that are posted on the wall—are a central feature of this unit. Key concepts help make learning explicit for students. Printed key concepts are provided for you to post on the classroom wall throughout the unit at the appropriate time. Encourage students to use the key concepts as a reference for what they have been learning and as a source of scientific language to use in discussions and in their writing. This support allows students to reflect on and express the most powerful ideas they have learned.

Background

Science Practices: About Revising Diagrams
An important part of science is revising ideas about how the world works as new evidence and new knowledge comes to light. Understandings of phenomena progress with time, and scientists represent their evolving ideas through conceptual models such as diagrams. Though it may feel repetitive to some students to redraw their diagrams in this lesson, the opportunity to reflect on their evolving ideas and revise their diagrams engages them in an important practice of science. Students will continue to revise diagrams based on evidence throughout the unit.

Possible Responses

Investigation Notebook
Revising What Landforms Are Made Of (page 8)
Revising What Landforms Are Made Of

Directions:
1. In the box below, draw the same landform that you drew on page 6.
2. Label the landform.
3. Below your diagram, explain what you think the landform is made of, based on the evidence you gathered from *Handbook of Land and Water*.

This landform is made of **rock**.
What Landforms Are Made Of

Directions:
1. Choose a landform to draw.
2. In the box below, draw the landform and label it.
3. Below your diagram, explain what you think the landform is made of.

This landform is made of _____________________________________________
___________________________________________________________________.
Observations of Landforms

Directions:
1. Choose at least two landforms to read about in *Handbook of Land and Water*.
2. In the “Landform” column of the table below, record the names of the landforms.
3. In the “Observations” column, record observations that help you figure out whether landforms are made of rock.

**Idea: Landforms are made of rock.**

<table>
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<th>Landform</th>
<th>Observations</th>
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</table>
Revising What Landforms Are Made Of

Directions:
1. In the box below, draw the same landform that you drew on page 6.
2. Label the landform.
3. Below your diagram, explain what you think the landform is made of, based on the evidence you gathered from *Handbook of Land and Water*.

This landform is made of _____________________________________________
___________________________________________________________________.
Previewing Handbook of Land and Water

Students preview *Handbook of Land and Water* and discuss different landforms and bodies of water in the book.

**Instructional Guide**

1. **Introduce purpose for reading.**

   Acabamos de compartir ideas acerca de lo que pensamos que están hechos los accidentes geográficos. Recuerdo que en *Postales de accidentes geográficos* el abuelo de Annie dijo que los accidentes geográficos están hechos de roca. Investiguemos esta idea empleando algo llamado libro de referencia.

2. **Hold up a copy of the unit’s reference book, *Handbook of Land and Water***. Let students know that this is a reference book. Explain that reference books are useful places to look for information about a particular topic. Introduce the book as a tool that will help students investigate the question *Are landforms made of rock?*

3. **Designate partners and distribute books.** Give students a few minutes to browse through the book.

4. **Have students turn to page 3 in *Handbook of Land and Water***. Demonstrate using the table of contents to discuss landforms and bodies of water as students follow along in their books.

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Lesson 1.2
Activity 2

Changing Landforms
Lesson Guides

5. Have students turn to page 10 in Handbook of Land and Water. Read the text aloud and discuss the images on the page as students follow along in their books.

¿Sobre qué cuerpos de agua pueden leer en este libro?
[Lagos, charcas, océano, ríos, arroyos y cataratas].

¿Qué es similar en todos estos ejemplos?
[En todos ellos hay agua].

¿Reconocen alguno de los accidentes geográficos que aparecen en esta página?

Accept all responses.

Hagamos observaciones sobre uno de los accidentes geográficos que aparecen en la página 10 para determinar si los accidentes geográficos están hechos de roca.

Teacher Support

Background

About the Book: Handbook of Land and Water
Handbook of Land and Water is the reference book for this unit, providing students with a place to look for information about all kinds of landforms and bodies of water. It includes entries on beaches, caves, the ocean, rivers, islands, mountains, and more. Each entry includes an introduction to the landform or body of water, several photos showing how it can vary, a photo paired with a map of a real location, a three-part diagram showing how that kind of landform or body of water can change slowly, and a photo or series of photos showing how it can change fast. In addition, the book’s introduction gives detailed directions for how to read a map and how to relate it to a real location on Earth. Students read the reference book to find evidence to support concepts about erosion that they learn throughout the unit, including the idea that landforms are made of rock and that lots of small changes add up to big changes in landforms. Handbook of Land and Water is used throughout the unit to provide evidence that supports students’ firsthand investigations.

Background

Literacy Note: About Reference Books
Reference books provide in-depth information about specific topics and are typically read for particular purposes. For this reason, students do not read every section in reference books, nor do they read reference books from beginning to end. Rather, they search for the information they need and then read the relevant sections carefully. In this lesson, students are introduced to the table of contents and will be given the opportunity to explore the book. This will prepare students to use the reference book in later lessons in this unit, as a scientist might, and it encourages students to read complex text both purposefully and carefully.
Instructional Suggestion

Providing More Experience: Characteristics of Reference Books
Gather a variety of reference books and ask students to work in small groups to look through the books and make observations about how they are organized, what kinds of information they contain, and what text features are present. Make a class chart of these characteristics and reflect on the usefulness of the various reference materials in particular situations.
Gathering Evidence from the Book

Students use *Handbook of Land and Water* to make observations and gather evidence about whether landforms are made of rock.

**Instructional Guide**

1. **Introduce the word observation.**

   Usaremos las imágenes en el *Manual de la tierra y el agua* para hacer observaciones sobre si los accidentes geográficos están hechos de roca.

   Cuando los científicos hacen observaciones, usan cualquiera de sus cinco sentidos para reunir información acerca de algo. Usaremos nuestro sentido de la vista para hacer observaciones de las imágenes en el libro.

   Post the *observation* vocabulary card on the classroom wall.

2. **Project notebook page.** Have students turn to page 7, Observations of Landforms, in their notebooks. Explain the directions.

   Ustedes usarán las imágenes de todo el libro para hacer observaciones de los accidentes geográficos.

   Las observaciones que hagan se pueden usar como evidencia para respaldar la idea de que los accidentes geográficos están hechos de roca. Apuntarán sus observaciones en la tabla en esta página.

   Hagamos observaciones de las cuevas y practiquemos apuntar nuestras observaciones en la tabla.

3. **Review the cave images on pages 15–18.** Have students follow along in their books as you make observations about each page.

   Cuando miro las imágenes de cuevas en las diferentes páginas, observo paredes de roca, roca en el fondo de las cuevas y rocas caídas.
4. **Project notebook page again and model how to record observations in the table.** Have students turn to page 7, Observations of Landforms, in their notebooks.

   - Write “cave” in the “Landform” column on the projected notebook page.
   - Write “rock walls, rock on bottom of the cave, and fallen rock” in the “Observations” column on the projected notebook page.

5. **Have pairs complete the notebook page.** Pairs should select at least two other landforms to read about and record observations about. Remind students to use all of the images of each landform to help them make their observations.

6. **Have pairs share observations with the class.** As students share their responses, have them point out the page numbers and specific images so their classmates can turn to those pages as they explain their ideas.

   ¿Mis observaciones de cuevas respaldan la idea de que los accidentes geográficos están hechos de roca? [Sí, porque observamos roca en la mayoría de las imágenes].

Accept all responses at this point, even if some students disagree.

7. **Collect all copies of Handbook of Land and Water.**

8. **Return to Landform Postcards.** Discuss information from Landform Postcards that supports the idea that landforms are made of rock.

   Recuerden que en Postales de accidentes geográficos el abuelo de Annie dijo que los accidentes geográficos están hechos de roca. Usemos este libro para ver si proporciona información adicional acerca de lo que están hechos los accidentes geográficos.
Leamos sobre el primer accidente geográfico en el libro, llanuras, para ver lo que dice acerca de lo que están hechos los accidentes geográficos.

Read aloud or ask a student to read aloud page 6.

Basándose en lo que acaban de leer, ¿de qué están hechas las llanuras? ¿Qué información en el texto respalda sus ideas?

[Las llanuras están hechas de roca. El libro dice que aunque no podamos ver la roca, podemos imaginar la roca bajo el pasto].

10. Project pages 8–9 from Landform Postcards. Read aloud or ask a student to read aloud page 8.
Teacher Support

Background

Literacy Note: Finding Evidence in Informational Texts
A major goal of the Amplify Science curriculum is to deepen students’ awareness of and experience with the genres of science writing they will encounter in school and in their lives outside of school. Learning effective strategies and approaches for comprehension of informational text is extremely important for success in school, yet reading these texts can be challenging for many students. Students may need support using Handbook of Land and Water to find evidence that supports the idea that landforms are made of rock. Some readers may struggle with understanding where to look. The use of teacher modeling before students make their own observations of the reference book is one way to support students.

Background

Data and Visual Representations: About Tables
Scientists organize information in tables because tables allow for different kinds of comparisons to be made easily. A table allows you to compare information based on the variables in the rows or columns. In this unit, students have the opportunity to read, interpret, and create tables for many different purposes. In this lesson, students use a table to organize their observations from Handbook of Land and Water. You will model how to complete one row of the table. You may wish to provide additional modeling for your students if necessary.

Instructional Suggestion

Supporting English Learners: Vocabulary Word Forms
Some scientific words in this unit, such as observation, are posted to the Vocabulary section of the classroom wall in the noun form. Many students will read, hear, and use these words in other forms—other tenses and parts of speech (e.g., observe, observing, observed). To support students’ flexible understanding and appropriate use of the various forms of these words (and for English learners to refer to in their writing, listening, and speaking), you might want to consider introducing and posting other forms of the words on the wall next to the unit vocabulary words.
Possible Responses

Investigation Notebook
Observations of Landforms (page 7)

Answers will vary. Examples:
- **Landform**: beach; **Observations**: Rocks scattered on the beach; Rocks in the ocean
- **Landform**: island; **Observations**: Large rock under the lighthouse; Rock under the grass on the hillside
- **Landform**: mountain; **Observations**: Rock under the trees on the mountains; Small rocks on the path of the mountain; Jagged rocks on the tops of the mountains; Small and large rocks in the landslide photo
- **Landform**: valley and canyon; **Observations**: Large rock walls; Rocks in the water of the Grand Canyon and flood photos
Reflecting on Landforms

Students return to the Landform Anticipatory Chart to revise their ideas about the Investigation Question.

Instructional Guide

1. **Return to the Landform Anticipatory Chart.** Read the question aloud.

   ¿De qué están hechos los accidentes geográficos?

2. **Review previous student responses.** Ask students if they would like to revise any of their ideas or add new ideas.

3. **Record new or revised ideas on the chart.** Ask students to support their ideas with information from *Handbook of Land and Water* and *Landform Postcards*.

4. **Introduce the word evidence.**

   Basándonos en la evidencia que han reunido de *Postales de accidentes geográficos* y *Manual de la tierra y el agua*, podemos concluir que los accidentes geográficos están hechos de roca.

Post the *evidence* vocabulary card on the classroom wall.

5. **Introduce and post the first key concept.** Let students know that throughout the unit, you are going to post statements of important science ideas. Read aloud the first key concept.

   Los accidentes geográficos están hechos de roca.

Post the key concept on the classroom wall under the Key Concepts header.
6. Have students turn to page 8, Revising What Landforms Are Made Of, in their notebooks. Explain that students should draw new diagrams based on the evidence they gathered about what landforms are made of.

7. Have students create new diagrams in their notebooks. As you circulate the classroom, remind students to use the evidence they gathered from the books to help them create their new diagrams.

8. Conclude the lesson. Let students know that in the next lesson, they will use what they know about landforms to begin thinking about how geologists figure out how something, such as a landform, changed when they can’t observe it changing.

Teacher Support

Background

Science Practices: About Evidence
The concept of evidence and the idea that scientists must base their thinking on evidence are absolutely central to this unit—and to science itself. In all disciplines, evidence is information that is more certain than the claims it is used to support. If the information serving evidence is questionable, then it is hard to use it to support anything! In science, evidence takes the form of data recorded from observations or measurements, or of ideas drawn from texts that are trusted, often because they have their own roots in empirical data. In science, new ideas are only accepted if they can be supported by evidence. As appropriate, take every possible opportunity to reinforce this idea with your students and encourage them to ground their discussions—both in science inquiry lessons and during reading of informational text—in available evidence. Make sure students know that they can support their statements with evidence they observe directly with their senses or evidence they derive from books they have read. Various forms of the question What is your evidence? should become a regular refrain in the classroom.

Background

Science Note: About Landforms Being Made of Rock
While nearly all landforms are primarily composed of rock, many landforms also include a relatively small component of sediment, such as sand or soil (e.g., the layer of soil covering a hill or the sand found in the floor of a canyon). There are even some landforms that are primarily composed of sediment, such as a beach or a sand dune. Most sediment is itself composed in large part of tiny particles of rock, although there are some sands with a high proportion of material from shells, and some soil has a high proportion of organic material. Later in this chapter, students read that sand can be formed from larger rocks. In Chapter 4, students will consider landforms composed of loose materials rather than solid rock.

Rationale

Discourse Routine: Returning to the Anticipatory Chart
Returning to the Landform Anticipatory Chart in this lesson gives students the opportunity to revisit their initial ideas and questions and revise them based on evidence. Returning to the chart helps students reflect on what they have learned since the start of the unit.
Rationale

Pedagogical Goals: Key Concepts
Key concepts—statements of important science ideas that are posted on the wall—are a central feature of this unit. Key concepts help make learning explicit for students. Printed key concepts are provided for you to post on the classroom wall throughout the unit at the appropriate time. Encourage students to use the key concepts as a reference for what they have been learning and as a source of scientific language to use in discussions and in their writing. This support allows students to reflect on and express the most powerful ideas they have learned.

Background

Science Practices: About Revising Diagrams
An important part of science is revising ideas about how the world works as new evidence and new knowledge comes to light. Understandings of phenomena progress with time, and scientists represent their evolving ideas through conceptual models such as diagrams. Though it may feel repetitive to some students to redraw their diagrams in this lesson, the opportunity to reflect on their evolving ideas and revise their diagrams engages them in an important practice of science. Students will continue to revise diagrams based on evidence throughout the unit.

Possible Responses

Investigation Notebook
Revising What Landforms Are Made Of (page 8)
Revising What Landforms Are Made Of

Directions:
1. In the box below, draw the same landform that you drew on page 6.
2. Label the landform.
3. Below your diagram, explain what you think the landform is made of, based on the evidence you gathered from Handbook of Land and Water.

This landform is made of rock.

mountain
De lo que están hechos los accidentes geográficos

Instrucciones:
1. Elige un accidente geográfico para dibujar.
2. En el cuadro debajo, dibuja el accidente geográfico. Identifica y nombra sus partes.
3. Debajo de tu diagrama, explica de qué crees que está hecho el accidente geográfico.

Este accidente geográfico está hecho de _____________________________

____________________________________________________________________.
Observaciones de accidentes geográficos

Instrucciones:
1. Elige por lo menos dos accidentes geográficos sobre los cuales quieres leer en el Manual de la tierra y el agua.
2. En la columna “Accidente geográfico” de la tabla debajo, apunta los nombres de los accidentes geográficos.
3. En la columna “Observaciones”, apunta observaciones que te ayuden a averiguar si los accidentes geográficos están hechos de roca.

Idea: Los accidentes geográficos están hechos de roca.

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<th>Accidente geográfico</th>
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Revisar de lo que están hechos los accidentes geográficos

Instrucciones:
1. En el cuadro debajo, dibuja el mismo accidente geográfico que dibujaste en la página 6.
2. Escribe el nombre del accidente geográfico.
3. Debajo de tu diagrama, explica de qué crees que está hecho el accidente geográfico, basándote en la evidencia que recolectaste del Manual de la tierra y el agua.

Este accidente geográfico está hecho de ______________________________
___________________________________________________________________.