

LESSON OVERVIEW

Lesson 4 Describing Cause and Effect

Lesson Objectives

Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text using language that pertains to . . . cause/effect.

Reading

- Describe the cause–effect relationship between a series of ideas in a scientific text.
- Identify and use words that signal cause and effect.

Writing

- Gather information from sources; take brief notes and sort evidence into categories.

Speaking and Listening

- Ask questions to check understanding of information presented.
- Explain their own ideas and understanding.

Language

- Use sentence-level context as a clue to the meaning of a word or phrase.
- Use academic and domain-specific words and phrases.

Academic Talk

See **Glossary of Terms**, pp. TR2–TR9

- cause
- relationship
- effect

Learning Progression

Grade 2

Students describe the connections between a series of ideas or concepts in a scientific text.

Grade 3

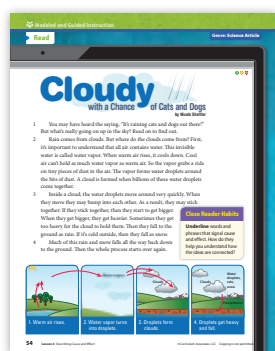
Building on Grade 2, students use language that pertains to cause-and-effect when describing the relationship between scientific ideas or concepts in a text. The replacement of the word “connection” with “relationship” in this standard introduces an awareness of the dynamics between ideas and concepts.

Grade 4

Students use specific information in texts to explain events, ideas, or concepts in a scientific text, including what happened and why.

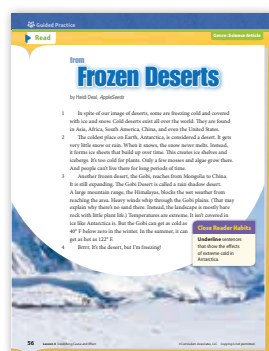
Lesson Text Selections

Modeled and Guided Instruction



Cloudy with a Chance of Cats and Dogs
by Nicole Sheffler
Genre: Science Article

Guided Practice



Frozen Deserts
by Heidi Deal
Genre: Science Article

Independent Practice



How Hail Happens
by Val Dumitrescu
Genre: Science Article

Lesson Pacing Guide

Whole Class Instruction 30–45 minutes per day

Day 1

[Teacher-Toolbox.com](#) Interactive Tutorial

Check the Teacher Toolbox for Interactive Tutorials to use with this lesson.

Introduction pp. 52–53

- **Read** Describing Cause and Effect 10 min
- **Think** 10 min
Graphic Organizer: Cause-and-Effect Chart
- **Talk** 5 min
Quick Write (TRB) 5 min

Day 2

Modeled and Guided Instruction pp. 54–55, 58

- **Read** Cloudy with a Chance of Cats and Dogs 10 min
- **Think** 10 min
Graphic Organizer: Cause-and-Effect Chart
- **Talk** 5 min
- **Write** Short Response 10 min

Day 3

Guided Practice pp. 56–57, 59

- **Read** Frozen Deserts 10 min
- **Think** 10 min
- **Talk** 5 min
- **Write** Short Response 10 min

Day 4

Independent Practice pp. 60–65

- **Read** How Hail Happens 15 min
- **Think** 10 min
- **Write** Extended Response 15 min

Day 5

Independent Practice pp. 60–65

- Review Answer Analysis (TRB) 10 min
- Review Response Analysis (TRB) 10 min
- Assign and Discuss Learning Target 10 min

Language Handbook

Lesson 29 Using a Dictionary or Glossary, pp. 454–455
20 min (optional)



Ready Writing Connection

During *Ready Reading* Days 1–5, use:
Lesson 1 Writing to Inform: Report

- **Step 1** Study a Mentor Text
- **Step 2** Unpack Your Assignment
- Review the Research Path
- Read Source Text
- **Step 3** Find Text Evidence
- Reread Source Text

See *Ready Writing TRB*, p. 1a
for complete lesson plan.



Small Group Differentiation

[Teacher-Toolbox.com](#)

Reteach

Ready Reading Prerequisite Lesson

Grade 2

- Lesson 3 Describing Connections Between Historical Events
- Lesson 4 Describing Connections Between Scientific Ideas
- Lesson 5 Describing Connections Between Steps

Teacher-led Activities

Tools for Instruction

- Identify Cause and Effect

Personalized Learning

[i-Ready.com](#)

Independent

i-Ready Close Reading Lesson

- **Grade 3** Describing Cause and Effect



Introduction

Get Started

- Explain to students that in this lesson they will be learning about cause-and-effect relationships.
- Point out that cause-and-effect relationships occur often in everyday life. Share an example with students:

The last time it rained, I didn't have my umbrella with me. When I walked home, I got really wet. What happens if it rains and you forget your umbrella? You get really wet. Forgetting my umbrella was a cause. Getting wet was the effect. I got wet *because* I forgot my umbrella.

- Ask students to share other examples of everyday cause-and-effect relationships they've experienced. Guide them in identifying the cause and effect in each example, and write that relationship on the board.
- Read aloud the Learning Target to set the purpose for the lesson.
- Display the Academic Talk words. Tell students to listen for these words and their meanings as you work through the lesson together. Use the Academic Talk Routine on pp. A48–A49.

English Language Learners

Genre Focus

Read

- Read aloud the Read section as students follow along.
As you read, stop and look for the cause-and-effect relationships. Ask yourself what happened and why it happened to understand the events and ideas the author is presenting.
- Have students work with a partner to read the cartoon and identify the cause-and-effect relationship it shows.
- Remind them that signal words will help them figure out cause-and-effect relationships. You may wish to list cause-and-effect signal words on a chart for students to use as a reference tool.

Lesson 4
Describing Cause and Effect

Learning Target

Understanding cause-and-effect relationships will help you understand how and why events happen.

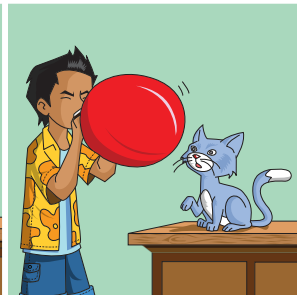
Read A heavy storm hits, and a large tree falls. The storm is the **cause**, or the reason the tree falls. The fallen tree is the **effect**, or what happens as a result of the storm. The connection between these two events is an example of a cause-and-effect **relationship**. Understanding cause and effect can help you see how events and ideas are related.

Writers often use words such as *because, if/then, since, so, therefore,* and *as a result* to signal and explain a cause-and-effect relationship.

Read this cartoon. What cause-and-effect relationship do you see?



Henry got a balloon at the party.



Henry blew up the balloon.



The balloon popped because Henry blew it up too much.

English Language Learners
Build Meaning

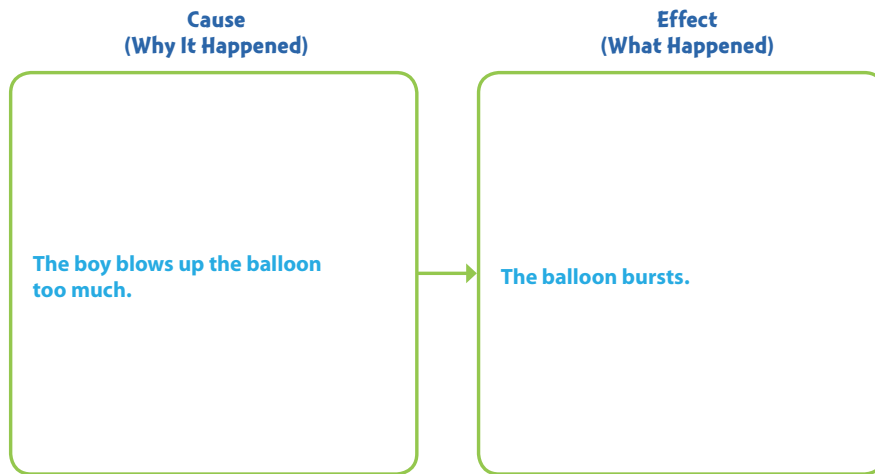
- Frontload Academic Talk** To talk about cause-and-effect relationships effectively, students need to be able to recognize and use signal words.
- Reread the last panel of the cartoon: *The balloon popped because Henry blew it up too much.* Write the sentence on the board. Underline the word *because*. Talk about the cause and effect shown.
 - Rewrite the sentence using different signal words: *If Henry blows up the balloon too much, then it will pop. Since Henry blew up the balloon too much, the balloon popped. Henry blew up the balloon too much, so it popped.*

Genre Focus
Science Article

A science article is a type of informational text that presents information about a science topic. Photographs, diagrams, maps, or sidebars often provide additional information about the topic. Writers of science articles may include subheads to show the important ideas in the text. Science articles often contain cause-and-effect relationships to help explain the topic and show how the ideas are related.

Provide some examples of science articles from magazines such as *Ask, Kids Discover, Muse, National Geographic Kids,* and *Ranger Rick.*

- **Think** Look at the cartoon again. Fill in this cause-and-effect chart to tell what happened.



Write one or two sentences describing what happened. Use words such as *because*, *so*, or *as a result* to show cause and effect.

Sample response: The boy blew up the balloon too much,

so the balloon exploded.

- **Talk** Imagine there is a fourth box in the cartoon. What do you think the cat would do? Why? Describe that cause and effect. Use a signal word in your description.



Academic Talk

Use these words to talk about the text.

• cause

• effect

• relationship

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Think

- Read aloud the Think section. Explain that the Cause and Effect Chart will help them organize the information that they find in the cartoon.
- Have partners complete the chart together. Remind students to use the details in the text and illustrations in the cartoon to explain what happened and why it happened.
- As students work, circulate and provide assistance as needed. Then ask volunteers to share what they wrote in their charts.
- Make certain that students understand that the effect, or what happened, is that the boy's balloon popped. The cause, or why it happened, is that he blew up the balloon too much.

Talk

- Read aloud the Talk prompt.
- Have partners discuss what the cat might do next and why. Encourage students to use a signal word or phrase in their responses; for example, *The cat might try to play with the pieces of the balloon because it thinks the boy is playing a game.*
- Remind them to listen carefully to their partner and then build on what their partner said. Use the Talk Routine on pp. A52–A53.

Quick Write Have students write a response to the following prompt:

Write a cause-and-effect relationship. Tell what it is. Then explain what happens and why that happens.

- You may wish to share some situations, such as *dropping an ice cream cone*, *tripping on a rock*, *planting seeds in a garden*, or *it's snowing outside*.

Monitor Understanding

Wrap Up

- Invite students to share what they've learned so far. Encourage them to use the Academic Talk words in their explanations.

Next, we'll read a science article and continue to explore cause-and-effect relationships. Being able to recognize what happens and why will help you better understand what the article is about.

Monitor Understanding

If... students struggle to identify cause-and-effect relationships,
then... model concrete examples for students, such as turning on the light at the switch, trying to read a book that is upside down, or writing legibly. Ask students to describe the cause-and-effect relationship in each example.

- **What happened? What is the effect?** (*The light came on. I can't read the book. I can read my writing.*)
- **Why did it happen? What is the cause?** (*You turned on the switch. The book is upside down. I wrote neatly.*)

Ask students to use the signal words to combine each cause and effect.

Get Started

Today you will read a science article. First, you'll read to understand what the author says. Then you'll read to identify and understand the cause-and-effect relationships in the article.

Read

- Read aloud the title of the article and the name of the author, and call attention to the diagram. Ask students to predict what the article will be about.
- Have students read the article independently. Encourage them to circle any confusing words and phrases. Remind students to look inside, around, and beyond each unknown or unfamiliar word or phrase to help them figure out its meaning. Use the Word Learning Routine on pp. A50–A51.
- When students have finished reading, clarify the meanings of confusing words and phrases. Use the questions below to check understanding. Encourage students to include details from the text in their answers.

Did the author talk about what you predicted before you read the selection?

What is water vapor? (invisible water in the air)

Look at the diagram. How does a cloud form? (Warm air rises. Water vapor turns into droplets. The droplets form a cloud)

What is the article mostly about? (the water cycle)

ELL English Language Learners

Word Learning Strategy

Explore

- Read aloud the Explore question on p. 55. Tell students they will closely reread the article with a partner to look for cause-and-effect relationships.
- Have students read aloud the Close Reader Habit on p. 54. Remind students that underlining text evidence is a habit of close and careful readers.

TIP Point out that if a paragraph contains cause-and-effect relationships, the author will usually use signal words to show these. You may wish to model locating a signal word and reviewing how it is used.

Cloudy

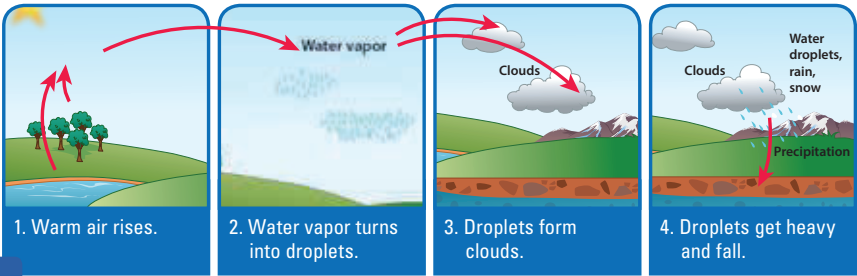
with a Chance of Cats and Dogs

by Nicole Sheffler

- 1 You may have heard the saying, “It’s raining cats and dogs out there!” But what’s really going on up in the sky? Read on to find out.
- 2 Rain comes from clouds. But where do the clouds come from? First, it’s important to understand that all air contains water. This invisible water is called water vapor. When warm air rises, it cools down. Cool air can’t hold as much water vapor as warm air. So the vapor grabs a ride on tiny pieces of dust in the air. The vapor forms water droplets around the bits of dust. A cloud is formed when billions of these water droplets come together.
- 3 Inside a cloud, the water droplets move around very quickly. When they move they may bump into each other. As a result, they may stick together. If they stick together, then they start to get bigger. When they get bigger, they get heavier. Sometimes they get too heavy for the cloud to hold them. Then they fall to the ground as rain. If it’s cold outside, then they fall as snow.
- 4 Much of this rain and snow falls all the way back down to the ground. Then the whole process starts over again.

Close Reader Habits

Underline words and phrases that signal cause and effect. How do they help you understand how the ideas are connected?



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ELL English Language Learners

Develop Language

Idioms Introduce students to idioms. Explain that the meanings of some phrases don’t mean exactly what the words say. Offer an example of an idiom.

At the end of the school day, suppose I said, “School’s over. It’s time to hit the road.” What do I mean by “hit the road”?

- Guide students to understand that the phrase doesn’t mean that you are really going to hit the road with a stick but that you are going to leave.
- Close by emphasizing to students that it’s important to know what an idiom means because it will help them understand the text.

Word Learning Strategy

Use Context Clues

- Reread the first sentence of the passage.

What do you think “It’s raining cats and dogs out there!” means? What is the topic of this text? What kind of storm would that sentence describe?
- Guide students to understand that the phrase means a heavy rainstorm. It does not mean that there are literally cats and dogs dropping from the sky.
- Then reread the title. Ask students what they think it means.

How could you rewrite the title so it means exactly what each word says? (Cloudy with a Chance of Heavy Rain)

Explore

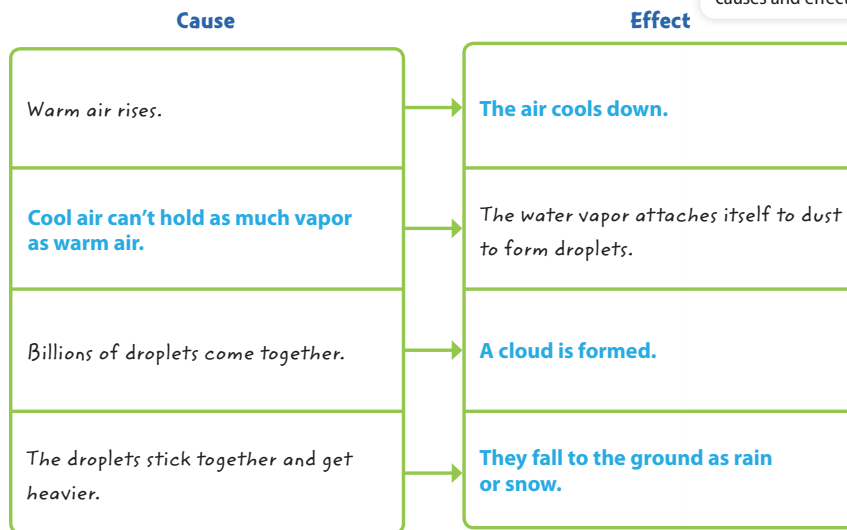
How do cause-and-effect relationships help explain how rain is formed?



When you read, pay attention to how and why things happen. This will help you spot causes and effects.

Think

- 1 Finish this chart to show cause-and-effect relationships from the article about rain.



Talk

- 2 Work with a partner to explain each cause-and-effect relationship from the chart. Use signal words to show how the ideas are connected.

Write

- 3 **Short Response** What happens inside a cloud that causes rain or snow to fall? Use signal words to explain the cause-and-effect relationship. Use the space provided on page 58 to write your answer.

HINT Begin by making a list of the key details in paragraph 3 of the article.

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Think

- Read aloud the Think section. Explain to students that you will reread the first two paragraphs of the article. Then you will model how to find text evidence to fill in the chart. Use the **Think Aloud** below to guide your modeling.
- Revisit the Explore question. Guide students to determine that they need to look for more details to complete the chart.
- Have students work with a partner to continue rereading the passage and to complete the Cause and Effect Chart. Remind students that the Buddy Tip will help them find the information they need.
- Ask volunteers to share their completed charts.
- Make certain students understand how each cause-and-effect relationship in the chart leads to the next one.

Talk

- Read aloud the Talk prompt. Have partners respond to the prompt. Use the Talk Routine on pp. A52–A53.
- Circulate to check that students use signal words as they discuss the connection between the ideas in their charts.
- Ask volunteers to share their understandings with the class.

Write

- Ask a volunteer to read aloud the Write prompt. Have students explain what the prompt is asking them to do.
- Read aloud the HINT, and remind students to use it and the information in their charts to write an explanation of what causes rain or snow to fall.
- Have students write their responses on p. 58.
- Use Review Responses on p. 58 to assess students' writing.

Wrap Up

- Ask students to recall the Learning Target. Have them explain how recognizing the cause-and-effect relationships in the text helped them understand why it rains and snows.

Think Aloud

- I know that the cause is why something happened and the effect is what happened. I need to remember the difference as I reread to gather text evidence.
- First I need to find the effect, or what happened, of warm air rising. I will look in the article to see where the writer talks about warm air rising.
- Here it is in paragraph 2: *When warm air rises, it cools down.* I'll underline *When warm air rises.* I know this is the cause, so this is why something happens. I'll ask myself what happens, or what the effect of this is. I think the effect is that *it cools down*, meaning that the warm air cools down. I'll draw a box around *it cools down*.
- I can check this by using signal words to rewrite the sentence: *When warm air rises, the effect is that the air becomes cooler.* The revised sentence makes sense, and it says what the original sentence says. This proves the cause-and-effect relationship. I'll write *The air cools down.* in the first Effect box of the chart.
- In the next row of the chart, we see the Effect. So we know what happens. You and your partner need to go back to the text to figure out why this happens.

Guided Practice

Get Started

Today you will read another science article. First you will read to understand what the article is about. Then you will reread with a partner to identify cause-and-effect relationships.

Read

- Read aloud the title of the passage. Ask students to share what they know about deserts. See the Build Background note at the bottom of this page.
- Ask students to describe the photograph on p. 56.
What do you predict this selection will be about?
- **Read to Understand** Have students read the article independently to understand what the text says. Remind them to circle any confusing words and phrases as they read. Remind students to look inside, around, and beyond each unknown word or phrase to help them figure out its meaning. Use the Word Learning Routine on pp. A50–A51.
- When students have finished reading, clarify the meanings of confusing words and phrases. Use the questions below to check understanding. Encourage students to include details from the text in their answers.

Was your prediction correct?

What is the article about? (*Cold deserts in the world*)

Where do cold deserts exist? (*Asia, Africa, South America, China, the United States, and Antarctica*)

What makes Antarctica a desert? (*It actually gets very little snow or rain.*)

What causes a rain shadow desert? (*Large mountains block rain or snow from reaching a place.*)

● Build Background

● Word Learning Strategy

- **Read to Analyze** Have students read aloud the Close Reader Habit on p. 56. Remind students that underlining text evidence is an action of close and careful readers.
- Tell students they will closely reread the article with a partner and look for cause-and-effect relationships.
- Have students reread the article with a partner and discuss what they learn about cold deserts.

from
Frozen Deserts

by Heidi Deal, *AppleSeeds*

- 1 In spite of our image of deserts, some are freezing cold and covered with ice and snow. Cold deserts exist all over the world. They are found in Asia, Africa, South America, China, and even the United States.
- 2 The coldest place on Earth, Antarctica, is considered a desert. It gets very little snow or rain. When it snows, the snow never melts. Instead, it forms ice sheets that build up over time. This creates ice shelves and icebergs. It's too cold for plants. Only a few mosses and algae grow there. And people can't live there for long periods of time.
- 3 Another frozen desert, the Gobi, reaches from Mongolia to China. It is still expanding. The Gobi Desert is called a rain shadow desert. A large mountain range, the Himalayas, blocks the wet weather from reaching the area. Heavy winds whip through the Gobi plains. (That may explain why there's no sand there. Instead, the landscape is mostly bare rock with little plant life.) Temperatures are extreme. It isn't covered in ice like Antarctica is. But the Gobi can get as cold as 40° F below zero in the winter. In the summer, it can get as hot as 122° F.
- 4 Brrrr. It's the desert, but I'm freezing!

Close Reader Habits

Underline sentences that show the effects of extreme cold in Antarctica.

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● Build Background

Characteristics of the Desert

- They have ten inches or less of rain in a year.
- There isn't much water for animals to drink.
- Many times, the rain evaporates before it can hit the ground!
- They are very hot during the day but very cold at night.
- The Sahara Desert is the largest hot and dry desert in the world.
- The animals that live in the desert have bodies that require very little water.
- Many animals bury themselves in the ground during the day because it's so hot and then hunt for food at night.
- Some desert animals include birds (road runners and owls), snakes, lizards, scorpions, and camels.

● Word Learning Strategy

Use Context Clues

- Discuss the meaning of the word *extreme* in paragraph 3: *Temperatures are extreme.*
What does the word *extreme* mean as it is used in this sentence? (*outside of what is ordinary or expected*)
What words in the sentence help you figure out the meaning? (*the difference between the high and low temperatures*)
- Point out that authors often give examples to illustrate an extreme, such as Heidi Deal did when she included the high and low temperatures in the Gobi. Ask students to talk about how those examples provide context and help them understand the extremes of temperature in the Gobi Desert.

Think

- 1 This question has two parts. Answer Part A. Then answer Part B.

Part A

In Antarctica, why do ice sheets build up over time?

- A because Antarctica gets very little snow or rain
- B** because when it does snow, the snow doesn't melt
- C because there are few plants to stop the ice from forming
- D because there aren't enough people to break up the ice

Part B

What are **two** other effects of the extreme cold in Antarctica?

- A** Ice shelves and icebergs form.
- B The plants become tougher and stronger.
- C It snows all the time.
- D Strong winds blow away any snow.
- E** People can't stay there long.
- F There is no snow.

Remember that one cause can have many effects, and one effect may have many causes.

Talk

- 2 Reread paragraph 3 and discuss with a partner what the Gobi Desert looks like. What is one possible reason that there is no sand in the Gobi Desert?

Write

- 3 **Short Response** Why is the Gobi Desert a desert? Explain at least two cause-and-effect relationships that might have caused this. Use the space provided on page 59 to write your answer.

HINT What effect do the Himalayas have on the area where the Gobi Desert formed?

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Think

- Have partners work to complete item 1, Parts A and B. Draw their attention to the boldface word **two** in Part B.

TIP Students may have difficulty understanding that one cause can have many effects. If needed, display the chart on p. TR14 to facilitate your explanation.

Answer Analysis

When students have finished, discuss responses.

1 Part A

The correct choice is B. This article states explicitly that instead of snow melting, ice sheets build up over time.

- A** does not explain how or why the ice sheets form. **C** and **D** are incorrect. Nothing in the article connects the plants and people to the formation of the ice sheets.

Part B

The correct choices are A and E. Both are explicitly presented as effects in the article.

- B** is incorrect because although readers may infer that the few plants are tough, the article doesn't provide that information. **C** and **F** are incorrect because the article states that there is *little* snow or rain. So it doesn't snow constantly, and there is at least a small amount of rain. **D** is incorrect because the strong winds are mentioned in the paragraph about the Gobi Desert.

DOK 3

Monitor Understanding**Integrating Standards****Talk**

- Have partners discuss the prompt. Remind them to focus on the Gobi Desert and to look for cause-and-effect relationships related to the Gobi Desert's lack of sand.

Write

- See p. 59 for instructional guidance.

Wrap Up

- Ask students to recall the Learning Target. Discuss how understanding the cause-and-effect relationships helped them understand more about frozen deserts.

Integrating Standards

Use the following questions to further students' understanding of the article:

- Why is there little plant life in Antarctica and the Gobi Desert? Use evidence from the text to identify at least one cause-and-effect relationship that might have caused this.** (*Antarctica is very cold, and there is little snow or rain available for plants to use, so most plants can't live there. Because of the wind and extremes in temperature in the Gobi Desert, most plants can't live there.*)

DOK 3

- What is this article mostly about?** (*what causes frozen deserts and how difficult it is to live there*)

DOK 2

Monitor Understanding

If... students have difficulty finding text evidence to answer item 1,

then... use a Cause and Effect Chart that shows one cause and multiple effects. Work with students to transfer the information they underlined in paragraph 2 into the correct boxes in the chart. Make certain students understand that the Cause box should indicate that Antarctica is a frozen desert.

Write

- Remember to use the Response-Writing Routine on pp. A54–A55.

Review Responses

After students complete the writing activity, help them evaluate their responses.

- 3 Responses may vary but should show an understanding of the cause-and-effect relationships of ideas in the article. See the sample response on the student book page.
- DOK 2

 **Write** Use the space below to write your answer to the question on page 55.

Cloudy
with a Chance of Cats and Dogs

- 3 **Short Response** What happens inside a cloud that causes rain or snow to fall? Use signal words to explain the cause-and-effect relationship.

HINT Begin by making a list of the key details in paragraph 3 of the article.

Sample response: The water droplets bump into each other. Sometimes they stick together. They get bigger and heavier. Therefore, the cloud can't hold them. As a result, they fall to the ground.



Don't forget to check your writing.

 Scaffolding Support for Reluctant Writers

If students are having a difficult time getting started, use the strategies below. Work individually with struggling students, or have students work with partners.

- Circle the verbs in the prompt that tell you what to do, such as *describe*, *explain*, or *compare*.
- Underline words and phrases in the prompt that show what information you need to provide in your response, such as *causes*, *reasons*, or *character traits*.
- Talk about the details from the text that you will include in your response.
- Explain aloud how you will respond to the prompt.

Write Use the space below to write your answer to the question on page 57.

from Frozen Deserts

3 Short Response Why is the Gobi Desert a desert? Explain at least two cause-and-effect relationships that might have caused this.

HINT What effect do the Himalayas have on the area where the Gobi Desert formed?

Sample response: The Gobi Desert is a desert because the Himalayas block any wet weather from reaching the area, so very little can grow. The Gobi also gets very cold and very hot. This would make it hard for anything to live there.

Check Your Writing

- ☐ Did you read the prompt carefully?
- ☐ Did you put the prompt in your own words?
- ☐ Did you use the best evidence from the text to support your ideas?
- ☐ Are your ideas clearly organized?
- ☐ Did you write in clear and complete sentences?
- ☐ Did you check your spelling and punctuation?



Write

- Ask a volunteer to read aloud the Write prompt.
- Invite students to tell what the prompt is asking them to do. Make sure they understand that they need to look for cause-and-effect relationships that explain why the Gobi Desert is a desert.
- Call attention to the HINT.
- Remember to use the Response-Writing Routine on pp. A54–A55.

Review Responses

After students complete the writing activity, help them evaluate their responses.

- 3** Responses may vary, but students should include two cause-and-effect relationships that explain what might have caused the Gobi Desert to exist. See the sample response on the student book page.

DOK 2

Teacher Notes

Independent Practice

Get Started

Today you are going to read another science article about weather. You'll use what you have learned about science articles and how authors use cause-and-effect relationships to connect the important ideas.

- Ask partners to talk about why making connections between what happened and why will help them understand science articles. Encourage students to use the Academic Talk words and phrases in their responses.

English Language Learners

Read

- As you read this science article on your own, remember to think about what happens and why it happens. Look for signal words that might lead you to causes and effects. Also, remember that a cause may have more than one effect and that an effect may have more than one cause.
- Read aloud the title of the passage, and then encourage students to preview the text, paying close attention to the diagram.
 - Point out the Word to Know on p. 60. Remind students to look inside, around, and beyond unknown words and phrases. Explain to students that they can use the Glossary of Words to Know in the back of the Student Book if they struggle to determine meaning from context, or to confirm their understanding of the word.
 - If students need support in reading the passage, you may wish to use the Monitor Understanding suggestions.
 - When students have finished, have them complete the Think and Write sections.

Monitor Understanding

Read

How Hail Happens

by Val Dumitrescu

WORDS TO KNOW

As you read, look inside, around, and beyond this word to figure out what it means.

conditions

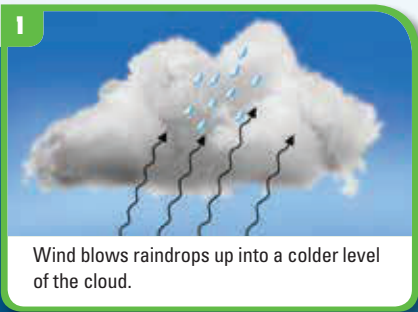
1 A soft rain is falling on the roof. You smile. Suddenly, the sound gets louder. It sounds like golf balls are bouncing off the roof. You race to the window. Outside, round balls of ice cover the ground. It is hailing! How did rain turn into hard hail in a matter of seconds?

Inside a Storm Cloud

2 It actually takes longer than a few seconds for hail to form. It all starts with a storm cloud. Storm clouds are made of water droplets. Large storm clouds are both very wide and very tall. At the top, air is much colder than it is lower down. Raindrops start to form at the bottom of the cloud, where it is warmer.

Journey of a Raindrop

3 As wind moves the storm cloud, it also moves some of the raindrops inside of it. Some of the raindrops move toward the top of the cloud. If the raindrops meet the very cold air there, then they turn to ice. These new "ice drops" get heavier. As a result, they fall to the ground as hailstones.



English Language Learners
Build Meaning

Frontload Concepts Preview the article, focusing on the diagram at the bottom of the student book pages.

What do you see in the pictures? What stays the same? (the cloud) What changes? (what happens to the cloud and what happens in the cloud)

Read aloud the number and each caption in the diagram. Point out how the picture shows what the words say.

Look at box number 1. Where are the raindrops? What do the arrows show? (the wind that is blowing the raindrops)

After reading the selection, you may have students draw their own sequence diagrams, label the pictures, and explain the diagrams to the group.



Clear and Cloudy Hail

- 4 Some hail is very clear. Other hail looks like pieces of white chalk. When the hailstone is clear, it is because there is little air in it. That happens when the raindrops freeze slowly. Then the air bubbles in the water have time to escape. Milky looking hailstones have many small air bubbles. That happens when the air at the top of the cloud is super cold. That cold air turns the raindrops into ice right away. The air bubbles are trapped inside.

Hailstones of Every Shape and Size

- 5 Sometimes, strong winds move up through a cloud. The wind can pick up the falling hailstones and push them back up. At the top, the hailstones meet the cold air again. There they get a new coat of ice. In a strong thunderstorm, that can happen several times. When you look carefully at a hailstone, you may see some rings. Each ring is one layer of ice. If you count the rings, then you will know how many times the hailstone has made the trip to the top of the cloud. This up-and-down movement causes hailstones to have very unusual shapes. It also makes the hailstones bigger. Some hailstones can be the size of a pebble. Other hailstones can be larger than a baseball!
- 6 Next time you see hail on your lawn, pick some up and look at it closely. It may have quite a story to tell!

3



Hailstones become larger and heavier.

4



Hail falls to the ground.

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● Monitor Understanding

If... students struggle to read and understand the passage,

then... use these scaffolding suggestions:

Question the Text Preview the text with students by asking the following questions:

- What types of text features has the author included? (diagram with captions, headings)
- Based on the title and the diagram, what do you predict the article will be about?
- What questions do you have about the text?

Vocabulary Support Define words that may interfere with comprehension, such as *layer* and *pebble*.

Read Aloud Read aloud the text with students. You could also have students chorally read the text in a small group.

Check Understanding Use the questions below.

- What is hail? (round balls of ice)
- What cause-and-effect relationship do steps 3 and 4 in the diagram show? (Hailstones in the clouds become larger and heavier [the cause] and the hail falls to the ground [the effect]).

Independent Practice

Integrating Standards

After students have read the article use these questions to discuss the text with them.

- **How are clear hailstones different from cloudy hailstones? How are they alike?**

(Clear hailstones are different from cloudy hailstones because they have fewer air bubbles inside them. Clear and cloudy hailstones are alike because they are both formed when water droplets meet cold air at the top of clouds.)

DOK 2

- **What is the main idea of the article? Provide two key details that support this main idea.**

(The hailstones that form inside a storm cloud can be very different depending on what happens inside the cloud. Hailstones form when raindrops move to the top of the cloud and turn to ice. Hailstones can be the size of a pebble or as large as a baseball.)

DOK 2

- **Reread the last paragraph of the article. What is the author’s point of view on hailstones?**

(The author thinks that hail is an interesting part of weather. He urges readers, if given the opportunity, to pick up a hailstone and examine it closely. He describes how hail happens very clearly, so he understands the topic very well.)

DOK 2

- **In small groups, discuss how the information in this article is like the information presented in “Cloudy with a Chance of Cats and Dogs.”**

(Discussions will vary. Students should mention that both passages discuss how water droplets form rain and hail.)

DOK 2

Theme Connection

Independent Practice

Think Use what you learned from reading the selection to respond to these questions.

- 1 This question has two parts. First, answer Part A. Then answer Part B.

Part A

How do raindrops become hailstones?

- A Warm clouds form hailstones.
- B** Raindrops in the cold air become ice.
- C The wind makes hailstones.
- D The soft rain makes hailstones.

Part B

Which sentence from the text **best** explains what causes raindrops to turn into hail?

- A** “If the raindrops meet the very cold air there, then they turn to ice.”
- B “As wind moves the storm cloud, it also moves some of the raindrops inside of it.”
- C “Raindrops start to form at the bottom of the cloud, where it is warmer.”
- D “At the top, air is much colder than it is lower down.”

- 2 Match each cause to an effect. Write the letter from the second column on the correct line in the first column.

Cause	Effect
<u>C</u> Wind moves the storm clouds.	A The raindrops turn to ice.
<u>D</u> Air bubbles are trapped inside the freezing water.	B They fall to the ground as hailstones.
<u>E</u> Hailstones move up and down in the cloud.	C Raindrops inside the cloud begin to move.
<u>A</u> Raindrops meet cold air.	D The hailstones are milky white.
<u>B</u> The ice drops become heavier.	E Layers of ice are added.

Theme Connection

- Remind students that the theme of this lesson is Weather and Climate.
- Ask students to share one fact or idea they learned about weather and climate from each article.
- Have pairs create a diagram with captions similar to the one in “How Hail Happens” for “Cloudy with a Chance of Cats and Dogs.” They should show how water vapor turns into clouds and raindrops.
- Allow time for pairs to share their diagrams. Talk about the similarities and differences among them.

- 3 Read this sentence from the article.

Storm clouds are made of water droplets.

Notice the word with the ending *-let*. That ending means “a small type of something.” According to the sentence, what are storm clouds made of?

- A smaller clouds
 - B warm drops of water
 - C tiny drops of water**
 - D heavy drops of water
- 4 What are **three** effects of hailstones moving up and down in the cloud?
- A The hailstones break apart.
 - B The hailstones add layers of ice.**
 - C The hailstones get stuck in a storm cloud and never fall.
 - D The hailstones warm up and turn back into raindrops.
 - E The hailstones grow larger.**
 - F The hailstones may take on unusual shapes.**
 - G The hailstones fill with air bubbles.
- 5 What causes rings to form in a hailstone?
- A the hail’s up-and-down movement in the clouds**
 - B escaping air bubbles
 - C the warm air at the bottom of the cloud
 - D the cold air at the top of the cloud

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• Monitor Understanding

If... students struggle to complete the items,
then... you may wish to use the following suggestions:

Read Aloud Activities

- As you read, have students note any unfamiliar words or phrases. Clarify any misunderstandings.
- Discuss each item with students to make certain they understand the expectation.

Reread the Text

- Have students complete a *cause-and-effect chart* as they reread.
- Have partners summarize the text.

Think

- Use the Monitor Understanding suggestions to support students in completing items 1–6.

• Monitor Understanding

Answer Analysis

When students have finished, discuss correct and incorrect responses.

1 Part A

The correct choice is B. It is the only choice that explains how hailstones are formed.

- A, C,** and **D** do not contain text-based information for forming hailstones.

Part B

The correct choice is A. It is the only choice that explains how water turns into ice.

- B** tells only the first step of how raindrops can turn to ice, or hailstones.
- C** describes how raindrops are formed.
- D** just describes the air.

DOK 2

2 See the answer on the student book page.

DOK 2

- 3 **The correct choice is C.** The suffix *-let* means “a small type of something.” So *droplet* means “a small drop.” None of the other choices is a definition of *droplet*.

DOK 2

- 4 **The correct choices are B, E, and F.** All three describe specific results of the hail moving up and down.

- A** is incorrect because the hail does not break apart.
- C** is incorrect because the hailstones do not get stuck.
- D** is incorrect because the article never says the hail turns back into rain.
- G** is incorrect because although the hailstones can fill with air bubbles, this is not part of the “up-and-down” process.

DOK 2

- 5 **The correct choice is A.** The rings are formed by layers of ice that are added as the hailstone moves up and down. None of the other choices is supported by the article.

DOK 2

Independent Practice

- 6 The correct choice is B. Clear hailstones have almost no air inside.
- A is incorrect because air bubbles form milky hailstones.
 - C and D are unrelated to why some hailstones are clear.

DOK 2

Write

- Tell students that using what they read, they will plan and compose an extended response to the writing prompt. Provide copies of the Cause and Effect Chart on p. TR14, and tell students to use it to help them complete numbers 7 and 8.

Monitor Understanding

Review Responses

After students have completed each part of the writing activity, help them evaluate their responses.

- 7 Display the Sample Response on the next page. Have students compare their charts with the sample. Are they missing any information?

DOK 3

- 8 Display or pass out copies of the reproducible 2-Point Writing Rubric on p. TR10. Have students use the rubric to individually assess their writing and revise as needed.

When students have finished their revisions, evaluate their responses. Answers will vary but should indicate how strong winds affect the size and shape of hailstones and include two details from the text in support. See the sample response on the student book page.

DOK 3

- 6 Why are some hailstones clear?
- A Air bubbles get caught inside the hailstones.
 - B There is almost no air inside the hailstones.
 - C The temperature inside the cloud is very cold.
 - D There are strong winds inside the cloud.



Write Hailstones can be as small as pebbles or as large as baseballs. Some also have very unusual shapes. How does that happen? Reread the text. Draw a box around the section that tells why hailstones can be different shapes and sizes.

- 7 Plan Your Response Reread paragraph 5. Underline details that explain how hailstones get their shape and size. You can use that information in your explanation.

- 8 Write an Extended Response Explain what causes hailstones to get as big as baseballs and develop odd shapes. Use two details from the passage to help you show cause and effect.

Sample response: Strong winds may push hailstones back up

to the top of the cloud. When that happens, the hailstones get

a new coat of ice. This can happen several times. As a result,

the hailstones can get bigger and bigger. The new ice may also

cause them to have unusual shapes.

Monitor Understanding

If... students don't understand the writing task, then... read aloud the writing prompt. Use the following questions to help students get started:

- What is the prompt asking you to write about?
- Do you need to reread the text to find more information?
- How will you identify the information you need to include?
- Have partners talk about how they will organize their responses.
- Provide a graphic organizer to assist students.

[illegible]

Learning Target

You've seen that knowing about cause and effect can help you understand connections between ideas. Explain why looking for causes and effects is especially important when you are reading science texts.

Many science articles explain how or why things happen. This means they are explaining causes and effects. So when I read a science text, I have to look for those relationships. Otherwise, I won't really understand the explanation, or how ideas are connected.

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7 Sample Response

Cause (why did it happen?)	Effect (what happened?)
Strong winds may push hailstones up to the top of the cloud again and again.	Hailstones get a new layer of ice.
	Hailstones can get bigger and bigger.
	Hailstones can have unusual shapes.

8 2-Point Writing Rubric

Points	Focus	Evidence	Organization
2	My answer does exactly what the prompt asked me to do.	My answer is supported with plenty of details from the text.	My ideas are clear and in a logical order.
1	Some of my answer does not relate to the prompt.	My answer is missing some important details from the text.	Some of my ideas are unclear and out of order.
0	My answer does not make sense.	My answer does not have any details from the text.	My ideas are unclear and not in any order.