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# 19 Describing Text Structures: Cause and Effect, Comparing and Contrasting

## Common Core State Standard

**RI.4.5** Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.

## THEME: Putting the Information Together

### 1 Introduction

Read, or have students read, the instructional text. Work through the example as a class. Students should closely read the text to find the structure used. They should be able to identify ways of organizing text, including cause and effect and compare and contrast.

CCSS RI.4.5 Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.

**LESSON 19** Describing Text Structures: Cause and Effect, Comparing and Contrasting

**1 Introduction** **THEME: » Putting the Information Together**

Informational texts can be organized in a number of ways. A writer might compare and contrast events, ideas, or concepts. When using this **text structure**, the writer shows how one thing is similar to or different from another. For instance, the writer might compare and contrast horses and donkeys. Certain words and phrases can offer clues to the text structure the writer is using. Words and phrases that indicate a **comparison** are like, as, similar, and alike. Words that indicate **contrast** are different, differ, and in contrast.

When authors use a cause-and-effect text structure, they describe an event, or a cause, and then they tell what happens as a result of that event. They show how one event causes another to happen. For instance, they might explain how a glass falls to the ground, and as a result, it shatters into many pieces. The cause is the glass falling. The effect is the glass breaking. Look for signal words that show a cause and an effect in the text. Verbs like *creates, makes, and happens* can tell about a cause. Examples of words and phrases that signal a **cause** are because, since, reason for, due to, and on account of. Words like so, then, in order to, as a result, led to, happens, and effect indicate an **effect**.

**Read the paragraph. Then fill in the cause-and-effect chart.**

Water on Earth is always moving and changing forms. Whether it is a solid, liquid, or gas, the amount of water on Earth stays about the same. One way to track water's movement is through rainfall. The sun heats up the water in Earth's oceans, rivers, lakes, puddles, and other water sources. Then the water reaches a certain temperature, and it becomes water vapor, which is a gas. It rises up into Earth's atmosphere. This is called evaporation. The vapor mixes with other tiny objects in the air like dust or salt. As a result, clouds are formed. Next, cool air causes the vapor to condense, which means it turns back into liquid. Raindrops build up in the clouds. Finally, the air cannot hold all of the liquid so it falls to Earth as rain.

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**1 Introduction** Lesson 19

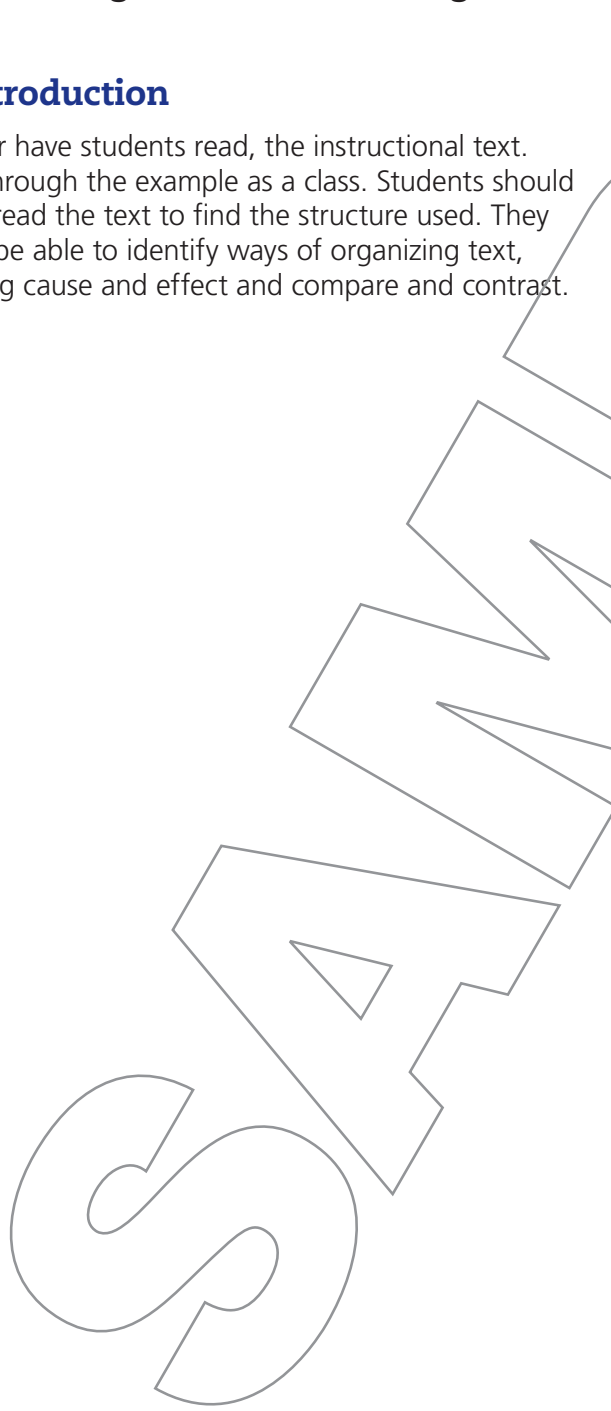
Think about the things that happen and what causes them to happen. Then fill in the table with the cause and its effect.

Cause	Effect
The sun heats up water in the ocean.	The water becomes vapor and evaporates.
Water vapor mixes with dust and salt.	Clouds are formed.
Cool air causes water vapor to condense.	Vapor turns to water droplets.
Raindrops build up in clouds.	Rain falls from the sky.

Write any signal words from the paragraph.  
then, as a result, causes, so

It is important to notice the structure of a text, or how a piece of writing is organized. When you come to recognize a cause-and-effect structure, you can better understand how one event makes another one happen. When you become familiar with a compare-and-contrast text structure, you can see how two things are alike and different.

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**2 Focused Instruction** Lesson 19

Read the first part of the passage. Then answer the questions.

### Why Do Leaves Change Color?

- 1 In the summer, when you are playing in the hot sun, the green trees in the parks and forests work to keep you cool. Trees use sunlight to convert water and carbon dioxide into sugar. This is called photosynthesis.
- 2 Then in autumn, the trees take a break. Photosynthesis no longer takes place, so the leaves change color from green to yellow, bright orange, or red. The effect is that you know the trees are beginning their long winter's rest.

**Where do leaf colors come from?**

- 3 Leaf color comes from pigments in the leaves. Pigments are natural substances produced by leaf cells. There are three pigments that color leaves. Green leaves come from chlorophyll. Carotenoid creates yellow, orange, and brown leaves. Red leaves are produced by anthocyanin.
- 4 Chlorophyll and carotenoid are in leaf cells all the time during the growing season. But the chlorophyll covers the carotenoid—that's why summer leaves are green, not yellow or orange. Most anthocyanins are produced only in autumn, and only under certain conditions. Not all trees can make anthocyanin.

**Think About It**

How do the leaves on trees stay shiny and green in the summer?

The effect is that the leaves on the trees stay shiny and green. What is the cause?  
trees use sunlight to convert water and carbon dioxide into sugar for food

How do leaves on trees stay shiny and green in the summer? In the process of photosynthesis, trees use sunlight to convert water and carbon dioxide into sugar for food. This keeps their leaves shiny and green.

The author also uses a compare-and-contrast text structure. What does the author compare and contrast? chlorophyll, carotenoid, and anthocyanin

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**2 Focused Instruction**

**Title:** Why Do Leaves Change Color?  
**Genre:** Nonfiction: Science  
**Lexile® Measure:** 910L

Guide students as they work together as a class, in pairs or groups, or individually. Offer assistance to students as needed.

**Vocabulary**

To help with comprehension, review these vocabulary words with students before they read the passage. Write the words on the board and keep them displayed so students can refer to them when they read independently.

**anthocyanin, carotenoid, chlorophyll, photosynthesis, pigments**

**2 Focused Instruction** Lesson 19

Continue reading the passage. Then answer the question.

**How do leaves change color?**

- 5 As Earth travels around the sun, some places receive fewer hours of sunlight at certain times of the year. Here, the days become shorter and the nights get longer. The temperature slowly drops. Autumn comes, and then winter.
- 6 Since there is less sunlight, trees produce less chlorophyll. Soon, a tree stops producing chlorophyll. When that happens, the carotenoid already in the leaves finally shows through.

**Do leaves change because of weather?**

- 7 Temperature and cloud cover make a difference in a tree's red colors from year to year. When a number of warm, sunny, autumn days and cool but not freezing nights come one after the other, it will be a good year for reds. In the daytime, the leaves can produce lots of sugar, but the cool night temperatures prevent the sugar sap from flowing through the leaf veins and down into the branches and trunk. Some trees produce anthocyanins. These pigments are a form of protection that allow the tree to recover nutrients in the leaves before they fall. Anthocyanins give leaves their bright, brilliant shades of red, purple, and crimson.
- 8 The amount of rain in a year affects leaf color. A severe drought delays the arrival of fall colors by a few weeks. A warm, wet period during fall lowers the brightness of autumn colors. A severe frost kills the leaves, turning them brown and causing them to drop early.

**How is a severe drought different from a severe frost?**

- A A severe drought produces red leaves, while a severe frost kills leaves.
- B** A severe drought delays the arrival of fall colors, while a severe frost causes leaves to turn brown.
- C A severe drought and a severe frost both lower the brightness of autumn colors.
- D A severe drought and a severe frost both cause leaves to produce anthocyanins.

**How does temperature affect the color of fall leaves?**

**DISCUSS IT**  
 With a partner, identify at least two causes and two effects in the passage. Discuss whether this was an effective way for the author to present the information.

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**Speaking/Listening Activity**

In pairs or small groups, have students share what their favorite season is and why they like that season best.

**ELL Support**

Have students share what the climate is like in their native country. Do they experience a lot of seasonal changes? Does it get very cold or very hot? Do they have a lot of a certain type of weather?

**3 Guided Practice**

**Title:** Roll With It!

**Genre:** Nonfiction: Science

**Lexile® Measure:** 830L

Students should complete the Guided Practice section on their own. Offer assistance as needed, pointing out the A Closer Look and Hint call-out boxes along the left side of the page.

**Vocabulary**

electrons, neutrons, protons, repel, static electricity

**Media/Research Activity**

Have students use Internet and library resources to learn how static electricity causes lightning.

**3 Guided Practice** Lesson 19

Read the passage. Then answer the questions.

**Roll With It!**

**A CLOSER LOOK**  
There are several text structures used in this passage. Underline one example of compare and contrast and one example of cause and effect.

1 Have you ever touched a doorknob and felt a shock? The spark was created by static electricity (*static* means “nonmoving”). An electric charge built up on the doorknob. This happens when the air around an object is dry. If you live in a cold climate, you probably experience static electricity during the winter. Indoor heating creates dry air.

2 To explain how static electricity works, you need to think about atoms. Atoms are in everything! Atoms are very small. You can only view them with magnification. Atoms contain small particles, or specks, called protons, neutrons, and electrons. Protons produce positive electrical charges, while electrons produce negative electrical charges. Neutrons do not produce any charge.


3 Two particles with the same charge repel, or push each other away. Have you heard the phrase, “opposites attract?” Particles with opposite charges (one positive and one negative) attract each other. The diagram of an atom shows that protons and neutrons live in the nucleus, which is the center of an atom. Electrons bounce around the outer parts of the nucleus, and can jump from one atom to another one if they are attracted to other protons.

4 Sometimes electrons get rubbed off their atom. This leaves the atom with more protons than electrons. Now, another object (your shirt sleeve, for example) has extra electrons on it, so the proton will attract more electrons when something comes close to it as long as the air is dry. When there is moisture or humidity in the air, the charges flow through the dampness.

5 Try this experiment to see the attracting charges at work.

**You will need:**

- 1 empty soda can
- a table to work on
- your hair
- 1 inflated balloon



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**3 Guided Practice** Lesson 19

1. Put the soda can on its side on the table. Make sure that it is completely still and the table does not get bumped during the experiment.

2. Rub the balloon quickly on the hair on your head. (This process removes electrons from your hair and puts them on the balloon.)

3. Place the balloon as close to the can as possible without letting it touch the can.

4. Observe what happens! The can will roll toward the balloon. The extra electrons on the balloon will pull protons toward it!

**Read paragraph 3 and look at the diagram. What happens when different kinds of particles meet?**

1 What happens when protons and electrons are close together?

A They attract each other and pull closer together.

B They repel or push each other away.

C Nothing happens when they are near each other.

D They both become negative charges.

**Why is rubbing a balloon on your hair important to the experiment?**

2 What is the effect of rubbing a balloon quickly on your hair?

A Protons move from your hair onto the balloon.

B Protons move from the balloon onto your hair.

C Electrons move from the balloon onto your hair.

D Electrons move from your hair onto the balloon.

**How are protons and neutrons alike? How are they different?**

3 Compare and contrast protons and neutrons. Use details from the passage and the diagram to support your answer.

Protons and neutrons are alike in that they are both located in the nucleus of an atom. They are different in that protons have a positive charge while neutrons have a neutral charge.

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**4 Independent Practice** Lesson 19


Read the passage. Then answer the questions.

**How the Moon Affects Tides on Earth**

1 Gravity attracts the moon and Earth to each other. In fact, all objects in the universe are attracted to one another by gravity. The closer objects are to each other in space, the stronger gravity pulls them together. The moon is the closest large object to Earth, so it has a greater pull on Earth than other planets or the sun.

2 The moon actually pulls the ocean closer to it. Water is flexible and can be pulled by the force of gravity. Land is not as flexible and is only pulled slightly. If part of Earth is positioned so that the sun shines directly on the moon, you see a full moon. This occurs about every 27 days. The opposite is also true. When the moon is directly between the sun and Earth, you only see a dark moon. When sunlight hits the moon, you see moonlight. If the moon is between the sun and Earth, the moon blocks the sunlight from viewers on Earth. This is called a new moon. During a full and new moon, gravity from the moon is the strongest. At high tide, the ocean covers more land than it usually covers. When the tide is lowest, the ocean moves away from land exposing more of it than usual. Tides are highest and lowest during these stages of the moon.

3 As objects move farther from each other, the strength of the force decreases. The side of Earth facing the moon experiences a stronger pull of gravity than the side that is facing away from the moon. The side of Earth facing away from the moon will experience a weaker pull of gravity on the tides.



1 What happens as a result of the moon being between the sun and Earth?

A the moon appears dark

B the ocean tides stay the same

C the air temperature cools

D a full moon appears

**RI.4.5  
DOK 2**

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**4 Independent Practice**

**Title:** How the Moon Affects Tides on Earth

**Genre:** Nonfiction: Science

**Lexile® Measure:** 850L

Have students complete the Independent Practice on their own. Students can complete it at home, or during class.

**Vocabulary**

exposing, full moon, high tide, new moon

**4 Independent Practice Answer Analysis**

- 1 Choice A is correct. The moon blocks sunlight from reaching Earth. Viewers on Earth may only see a faint outline of the moon. The moon is not shining light on Earth at this time. Choice B is incorrect. The tides are constantly moving on Earth, regardless of the sun or moon's position. There is always a force of gravity working on our planet, only the strength of the force changes. Choice C is incorrect. The passage does not discuss changes in air temperature. Choice D is incorrect. A full moon appears when the sun shines directly on the side of the moon facing Earth.

**2 PART A** Choice D is correct. The first sentence of the article states, "Gravity attracts the moon and Earth to each other." Choice A is incorrect. Wind is not mentioned as a cause for pulling Earth and moon close to one another. Choices B and C are incorrect. They are mentioned in the passage, but they are not forces that cause the attraction between Earth and the moon.

**PART B** Choice C is correct. It explains that gravity is the cause of the objects being close together in space. Choice A is incorrect even though it is part of a sentence that supports the answer. It is not the part of the sentence that explains why or how Earth and the moon are close together. Choices B and D are incorrect. They do not explain why or how the two objects are attracted to each other.

**3** Choice B is correct. It is a description of a high tide. By contrast, "When the tide is lowest, the ocean moves away from land exposing more of it than usual." Choice A is incorrect. It is not relevant to the topic of high and low tides. Choices C and D are incorrect. They are related to the tides but they are not part of a comparison of the two tides.

**4** Answers should explain that whichever side of Earth is facing the moon has the stronger gravitational pull, and therefore has the higher tides.

Lesson 19

**4 Independent Practice**

**2 Part A**  
What force causes Earth and the moon to stay close?  
 A wind  
 B sunlight  
 C tides  
 D gravity

**Part B**  
What evidence from the passage best supports your answer to Part A?  
 A "The moon is the closest large object to Earth."  
 B "so it has a greater pull on Earth than other planets or the sun"  
 C "The closer objects are to each other in space, the stronger gravity pulls them together."  
 D "The moon actually pulls the ocean closer to it."

**3** Which sentence from the passage describes one difference between the tides?  
 A "When sunlight hits the moon, you see moonlight."  
 B "At high tide, the ocean covers more land than it usually covers."  
 C "As objects move farther from each other, the strength of the force decreases."  
 D "This occurs about every 27 days."

**4** The force of gravity between the moon and Earth changes depending on which side of Earth faces the moon. Explain these differences and why these changes happen. Support your answer with details from the passage.

**When a side of Earth faces the moon, the pull of gravity is strongest. This is when you can see the greatest changes in tide levels. If a side of Earth is not facing the moon, less gravity is pulling on Earth and the oceans. The tides will not change as dramatically until the side of Earth rotates toward the moon. The closer objects are to each other, the stronger gravity pulls them together.**

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RI.4.5  
DOK 2

RI.4.5  
DOK 2

RI.4.5  
DOK 3

**Writing Activity**

Have students write a journal entry about a real or imagined experience with waves and tides. Entries may involve a beach visit, a boat ride, or another experience with water.