

Analyzing Text Structure

LAFS

7.RI.2.5: Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to the development of the ideas.

Theme: *What Makes Us Us?*

Authors “build” their texts carefully, the way carpenters build a house. Like a carpenter, a writer first chooses his or her materials. In this case, though, the materials are the ideas that will be used to develop a topic.

The way the author decides to organize those ideas—the **text structure**—determines how each part supports and relates to others; it also brings meaning to the whole text. Sections, chapters, and even paragraphs in a book or magazine must all be arranged in a logical way.

Think about the kind of text structure that might be used in each chapter shown in the Table of Contents below. Also consider how the chapters themselves are organized.

What Makes Us Us?	
Chapter 1 6 What Is Genetics?	Chapter 4 31 What DNA Can Tell us
Chapter 2 13 Solving the Problems of Heredity	Chapter 5 50 The Argument of Genes vs. Environment
Chapter 3 25 How DNA Was Discovered	

The ideas might be arranged to explain a set of problems and their solutions.

This chapter might use a chronological text structure to describe the way “DNA” was discovered.

Study the chart below, and note the description of each text structure. Think about how each structure might be used to present the central idea in a piece of writing.

Structure	Purpose
Chronological	presents steps or events in time order
Problem-Solution	describes a problem along with solutions
Cause-Effect	shows how one event makes other events happen
Compare-Contrast	points out similarities and differences between two or more subjects

When you read a text, remember that the author has made choices about the organization of ideas. Use the text structure to help you understand the relationships between ideas, which all help develop the central idea. Each chapter, section, or paragraph has a role to play.



Read the first three paragraphs of a scientific article about the discovery of DNA.

Genre: Scientific Article

from “The Discovery of DNA’s Structure”

They were hardly modest, these two brash young scientists who in 1953 declared . . . that they had “found the secret of life.” But James Watson and Francis Crick’s claim was a valid one, for they had in fact discovered the structure of DNA, the chemical that encodes instructions for building and replicating almost all living things.

Watson and Crick’s discovery didn’t come out of the blue. As early as 1943 Oswald Avery proved what had been suspected: that DNA . . . carries genetic information. But no one knew how it worked.

[Then, in 1951 at] King’s College in London, Rosalind Franklin and Maurice Wilkins were studying DNA. Wilkins and Franklin used X-ray diffraction as their main tool—beaming X-rays through the molecule yielded a shadow picture of the molecule’s structure. . . .

(continued)

Explore how to answer these questions: “What seems to be the main text structure in this article? Why has the author chosen it?”

The way ideas in a text are organized helps you know what to expect and what is most important. Text structures may present events in simple time order, or they may compare and contrast details, describe causes and effects, or explore problems and their solutions.

Reread the passage, looking for hints to the text structure. Then complete the chart, explaining why you think the author chose that structure.

Central Idea	Structure	Purpose
The ideas of many scientists came together, leading to the discovery of DNA’s structure.	Chronological order	

With a partner, discuss the text structure of the passage, explaining why it is a good choice for an article about the discovery of DNA’s structure. Also discuss how and why the structure of the first paragraph differs from the others.



Close Reading

Underline the sentence that shows the most important idea in the first paragraph on this page. How did the overall text structure help you understand the importance of this idea?

Hint

Pay attention to the events described in the two paragraphs. How do they relate to ideas in earlier paragraphs?

Continue reading about the discovery of DNA. Use the Close Reading and the Hint to help you answer the question.

(continued from page 96)

Referring to Franklin's X-ray image known as "Exposure 51," James Watson is reported to have said, "The instant I saw the picture, my mouth fell open and my pulse began to race." Shortly after, Watson and Crick made a crucial advance when they proposed that the DNA molecule was made up of two chains paired in such a way to form a double helix, like a spiral staircase.

For their work, Watson, Crick, and Wilkins received the Nobel Prize in 1962. Despite her contribution to the discovery of DNA's helical structure, Rosalind Franklin was not named a prize winner: She had died of cancer four years earlier, at the age of 37.

Circle the correct answer.

How does the information in these paragraphs contribute to the central idea of the article?

- A** It emphasizes why Franklin and Wilkins believed that the X-ray image would inspire other scientists.
- B** It explains the makeup of the DNA image known as "Exposure 51."
- C** It proves the accuracy of the author's claim that the young scientists were quite brash.
- D** It shows how the scientists depended on each other's work to make their final discovery.



Show Your Thinking

How does the text structure help support the author's main point about the discovery of DNA?

Discuss with a partner why the author ended the article with a sentence about Rosalind Franklin's death. How did this affect the text structure, and what final point did the author make by doing so?



Read the scientific account. Use the Study Buddy and Close Reading to guide your reading.



As I read, I'll note the structure the author chose to organize his ideas in each paragraph. Then I can figure out how each part helps develop the central idea about DNA.

Close Reading

Underline any clues in the first, third, and fourth paragraphs that help you determine the structure the author has used to develop his ideas.

What is the text structure in the final paragraph?

Circle words that help you figure it out.

Genre: Scientific Account

It's All in Our DNA *by Max West*

- 1 Kate's mother, father, and three brothers all have brown eyes and brown hair, but Kate has blue eyes and red hair. She is her parents' biological child, so why does she look so different?
- 2 Kate knows that the genes we inherit from our parents create our physical traits. Why wouldn't the genes that caused the rest of her family to have brown eyes and brown hair create the same result in her? Some traits are dominant, which means brown hair wins out over red, and brown eyes over blue. But those genes only increase the chances of children inheriting the dominant traits. Sometimes recessive genes can surface instead, creating someone like Kate: the first red-headed family member in generations.
- 3 A very simple trait that our genes, or DNA, determine early on in our development is whether we are male or female. As a fetus grows, it is female unless the SRY gene on the Y chromosome is activated. By the time a child is born, a female has two X chromosomes, and a male has one X and one Y chromosome.
- 4 DNA also determines eye color. This might sound like a simple process, but eye color is caused by at least four genes. Eye color is called a "complex trait" because several different genes work together to create the final result. Scientists can analyze these multiple genes and classify a person into one of three groups of eye color: light, dark, or hazel.
- 5 Scientist hope that the information they're gathering about DNA can help them solve complex problems in the future. By isolating genes that make us vulnerable to certain diseases, for example, those diseases might be avoided. At the very least, scientists might be able to analyze the DNA of someone like Kate and determine early in life if she is prone to a particular illness. If she is, then precautions can be taken to prevent that illness from developing. The more we understand how DNA makes us who we are, the more we'll be able to take care of ourselves and our loved ones in the future.



Hints

Is the author listing events in time order, comparing and contrasting ideas, giving a problem and solution, or telling how one thing causes another?

What problem does the final paragraph focus on?

Look back at the clues you underlined for the paragraph you chose. How do they help develop the author's central idea?

Use the Hints on this page to help you answer the questions.

- 1 How does the text structure in the second paragraph contribute to the account as a whole?
 - A The author uses cause and effect to explain how genes can cause some family members to have different traits from the others.
 - B The author lists the sequence of events that allows recessive genes to surface instead of dominant ones.
 - C The author presents the problem of people like Kate not knowing why they look different and then gives the solution.
 - D The author compares and contrasts brown-eyed and brown-haired individuals with those that have blue eyes and red hair.
- 2 The author uses a problem-and-solution text structure in the final paragraph to communicate which of the following important ideas?
 - A Kate might have other genetic traits in common with her parents.
 - B Understanding how DNA works might help us take precautions against some illnesses.
 - C If people learn they're prone to certain diseases, they can prepare for the worst.
 - D Studying DNA can allow people to control the hair and eye color of future generations.
- 3 Choose either the first, the third, or the fourth paragraph. Explain how the paragraph you choose contributes to the author's development of ideas. Use at least two specific details from the text in your response.



Read the scientific article. Then answer the questions that follow.

Nature Versus Nurture: The Great Debate

by Isaac Sekada

1 Experts have long argued over the nature-versus-nurture debate. What factors are most responsible for making people who they are? Members of the nature camp argue that genes are the biggest factor in shaping a person's health, personality, and perhaps even his or her choices in life. Many of these experts believe that we are all hardwired from birth to be the adults we later become.

2 Members of the nurture camp, on the other hand, argue that upbringing, environment, and life experiences are the most important factors in making us who we are. Based on their view, a factor such as growing up in a rural setting rather than in an urban one, for example, might easily shape the kind of person we become.

3 But whose answer is more accurate? Is it nature or nurture that shapes who we are?

4 There is no doubt that many of our qualities are passed down through our genes. Facial features, hair color, and height are genetically passed from biological parents to their offspring. Do you have dimples? What about freckles? Are you nearsighted? Is your hair curly? If you answered "yes" to any of these questions, you can thank your biological parents for the genes they passed on to you.

5 Many diseases are also linked to genes. Cystic fibrosis, a disease that attacks the lungs and digestive system, is caused by a defective gene. In order for a person to have any symptoms of the disease, though, he or she must inherit the defective gene from both parents. Thus, many people who carry the defective gene will never pass cystic fibrosis on to their offspring.

6 Genetic links to other diseases are not as easy to pinpoint. For example, studies have shown that early-onset Alzheimer's, which can attack the brain in people as young as age thirty, is linked to genetic inheritance in most patients. However, experts believe that late-onset Alzheimer's, which affects people over sixty years old, may be caused by a combination of genetic factors, health choices, and the environment.

7 In other words, there is plenty of gray area in the nature-versus-nurture debate even when the science of genetics is the main focus. In many cases, genetic inheritance—the nature side of the debate—cannot fully explain why certain health issues occur.

8 Also, physical features and health issues do not necessarily determine the more subtle aspects of the people we turn out to be. Think of the people in your school. Why are some students lazy while others work hard? Why are some well behaved while others get into trouble? Why are some students shy while others are more outgoing?

9 To gain insight into such questions, researchers in England recently studied a large sampling of both identical twins and non-identical twins from areas all across England. The goal of the study was to find out whether nature or nurture was more responsible for shaping people. Experts gathered data about the test subjects' personality traits—forty-five types of traits in all—and then recorded that data on a map of England. The results of the study showed that in sixty percent of the country, children's behavioral traits were linked



more closely to genes than to their surroundings. So, as some experts reasoned, this proves that nature is a stronger force than nurture, right?

10 But there was a catch. The same study found that in London, England's capital city, the test subjects' environment played a stronger role than their genes. Experts think that the close proximity of families with diverse backgrounds in London's urban setting may have strongly affected the test subjects' personalities and behavior. For example, twin siblings raised in the same home may have chosen to associate with two entirely separate circles of friends. One sibling may have chosen to hang out with street gangs, while the other may have chosen to adopt a group of studious friends. This could shape the twins' personalities and behavior in very different ways.

11 After reading the findings of the above study, it would be easy to say that the nature-versus-nurture debate is a draw. The study seems to suggest that genes control who some people become and environment controls who other people become. But, as one of the researchers on the project explains, the study has shown that it is a person's environment that determines how the person's genetic makeup reveals itself. So, while nature and nurture work together to some degree, at least one group of experts believes it is nurture—the environment—that has the upper hand in shaping our unique personalities.

Answer Form

1	(A) (B) (C) (D)	Number Correct / 2
2	(A) (B) (C) (D)	

1 How do paragraphs 1 and 2 contribute to the structure of the article as a whole?

- A** They describe a problem and give a possible solution that the author will explain in detail.
- B** They introduce an argument that the author will then support with several reasons.
- C** They provide two opposing opinions that the author will continue to analyze.
- D** They present a sequence of events caused by a situation that the author will later describe.

2 How do paragraphs 6 and 7 contribute to the author's development of ideas in the article?

- A** They show that genes have more influence than environment.
- B** They show that the nature-versus-nurture debate is complicated.
- C** They suggest that environmental factors may cause certain illnesses.
- D** They say that the nature-versus-nurture debate is a pointless exercise.

**3**

Explain how paragraph 10 connects to the paragraph that comes before it and continues the analysis of nature versus nurture. Use at least **one** detail from the text in your response.

4

In paragraph 4, the author asks four questions, one right after the other. Explain why the author might have done this. Use at least **two** details from the passage to support your response.

**Self Check**

Go back and see what you can check off on the Self Check on page 86.