



Reading an Informational Text

“It All Started with Sputnik”

Middle Grades Lesson

OBJECTIVES

Students will

- read closely to determine main ideas.
- identify supporting details.
- provide textual evidence to support assertions.
- write in one or more modes in response to a specific writing assignment.

ACKNOWLEDGMENTS

“It All Started with Sputnik,” by Roger D. Launius.
From *Air & Space Magazine*, July 01, 2007. Fair
Use.

ABOUT THIS LESSON

In order for students to become college and career ready, they must learn to read and comprehend complex texts independently and proficiently. Students therefore need many opportunities to read and re-read complex, layered texts and need to practice strategies on how to deal with these complexities.

This lesson uses a nonfiction piece about the beginning of the Space Age, starting with the launch of Sputnik. The lesson focuses on how the main idea of the piece is established and supported throughout the text. Additional emphasis is placed on academic vocabulary.

TEXT COMPLEXITY

Passages for National Math and Science Initiative (NMSI) English lessons are selected to challenge students, while lessons and activities make texts accessible. Guided practice with challenging texts allows students to gain the proficiency necessary to read independently at or above grade level. The readability measure of this text places it above the middle grades text complexity reading band, so the pacing of this lesson may be slowed to offer students time to grapple with the text.

COGNITIVE RIGOR

English lessons for NMSI are designed to guide students through a continuum of increasingly complex thinking skills, including those outlined in taxonomies such as the Revised Bloom's Taxonomy and Webb's Depth of Knowledge Levels. The activities in this lesson require students to determine meanings of words from context and to locate facts and details in a text (DOK 1), to summarize text and identify main ideas (DOK 2), and to support inferences with textual evidence (DOK 3) as they move through Bloom's from Remember to Analyze.

This lesson is included in the module: *Creating STAAR Students Through Skill-Based Instruction for ELA*.

CONNECTION TO COMMON CORE STANDARDS FOR ENGLISH LANGUAGE ARTS

The activities in this lesson allow teachers to address the following Common Core Standards:

Explicitly addressed in this lesson

- R.1:** Read closely to determine what the text says explicitly and to make logical inferences from it. Cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
- R.2:** Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
- R.4:** Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.
- R.5:** Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene or stanza) relate to each other and the whole.
- R.6:** Assess how point of view or purpose shapes the content and style of a text.

- W.1:** Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
- W.2:** Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
- W.3:** Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
- L.6:** Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Implicitly addressed in this lesson

- W.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- L.1:** Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L.2:** Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

CONNECTIONS TO AP*

Analysis of informational texts is an integral part of the AP English Language Exam. When they sit for this exam, students are expected to read nonfiction texts independently and to evaluate the writer's diction, language, syntax, and organization to determine his/her purpose and/or attitude toward his/her subject. Frequent guided practice with these tasks at the middle grades will enable students to perform successfully at the high school and college levels.

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MATERIALS AND RESOURCES

- copies of Student Activity
- TED video: http://www.ted.com/talks/david_hoffman_shares_his_sputnik_mania.html OR some other short video that demonstrates the effect of the Sputnik launch (optional)

ASSESSMENTS

The following kinds of formative assessments are embedded in this lesson:

- guided questions
- short answer free response

TEACHING SUGGESTIONS

This lesson is designed for students to complete with guidance from the teacher, not as an independent homework or classwork assignment. It will probably require two or more class periods to complete.

Students who have limited experience with informational nonfiction texts may need more guidance as they approach a text like this one; even students with more experience will benefit from classroom discussion of the concepts introduced or reinforced in this lesson. Teachers might consider some of the following approaches:

- The Pre-Reading Questions may be completed as a whole group, small group, or individual activity, but share responses with the entire group to establish what knowledge—if any—students have about the original Sputnik satellite.
- If you choose to show the TED video, discuss the clip with students before having them read the article.
- This lesson is based on an excerpt from an article entitled “It All Started with Sputnik.” The text of the article is printed in the center column, with academic vocabulary words and space for paragraph summaries on the left and guided questions on the right. You may want to have students read the entire excerpt silently before you complete the activities. Completing a cold read of the article allows students to acquire a grasp of the article’s main ideas before you begin analyzing its components.
- Read the text aloud one paragraph at a time, guiding students as they determine the meanings of boldfaced words in the text. Allow time for students to write a short summary of each paragraph before moving on to the next paragraph.
- Ask students to answer the close reading questions to the right of the text (Questions 1

– 16) in cooperative learning groups and then share responses with the entire class.

- Younger or less experienced students may need guidance to complete Question 17; more experienced or older students may be able to complete this question independently. All students will benefit from a discussion of why the author organized the paragraphs as he did.
- Read aloud and discuss the information about author’s purpose in the shaded box. Then have students work in a small group or with a partner to complete Question 18. Since answers to this question will vary, you may want to use the following activity:
 - Before students complete Question 18, write on a separate sentence strip each of the purposes listed there and post these around the classroom.
 - Ask students to write on a sentence strip their explanatory statement for the purpose they have selected. Ask them to copy their two pieces of textual evidence on separate sentence strips.
 - Have students post their explanatory statements and textual evidence under the appropriate purpose.
 - Ask students to discuss why students might select different purposes for the same piece of text. Are the same pieces of textual evidence used to support more than one purpose? If so, why?

Conclude this lesson by assigning one or more of the following writing assignments.

Personal Narrative:

Describe a time in your life when you witnessed a significant historical event. Include details about the event itself and the impact the event had on you.

Expository:

According to the article, a U.S. Navy admiral characterized Sputnik as “a mere 184-pound ‘hunk of iron almost anybody could launch,’” but, to Homer Hickam, it was a “bright little ball, moving majestically across the narrow star field between the ridgelines of his home in Coalwood, West Virginia.” Write one or two paragraphs in which you explain why these two people described Sputnik in such strikingly different terms.

Analytical:

An author’s use of diction and details can reveal his or her attitude about the subject. Read the article carefully; then write an essay in which you explain how the author’s use of diction and details reveals the awe and admiration he feels toward the space program.

Persuasive:

The launch of U.S. space vehicles came to halt in July of 2011. Some people believe that the U.S. should completely abandon human space travel because of its cost, and others believe that we are making a mistake by discontinuing the space shuttle program and losing our place as leaders in space exploration.

Think about the costs and consequences of a U.S. space program; then write an essay in which you take a position either for or against the continuation of a U.S. space program.

Answers

Answers for this lesson are subjective and will vary. To obtain the maximum benefit of the lesson, ask students to go beyond the expected responses.

Suggestions for reading an informational text:

Since this text is not a narrative (story with a plot), you may need to read it more slowly than you would read a piece of fiction. You will also need to read it more than once.

As you read, pay attention to

the organization of the article (paragraphs as well as sentences within paragraphs).

facts and opinions in the article.

details that support opinions or illustrate facts.

Determine the author’s purpose and his/her intended audience.

Part One: Reading, Summarizing, and Finding the Main Idea

As you read the excerpt, write one or two sentences summarizing each paragraph. Then answer the guided questions that accompany each paragraph.

It All Started with Sputnik

An eminent space historian looks back on the first 50 years of space exploration.

By Roger D. Launius

Air & Space Magazine, July 01, 2007

What is the meaning of these words? Use your prior knowledge, context clues, or a dictionary to write their denotations.

ushered

destiny

cosmos

Write a one- or two-sentence summary of this paragraph.

With the launch of a basketball-size satellite on October 4, 1957, the Soviet Union **ushered** in the “Space Age” and changed the world. Sputnik 1, launched from the Soviet Union’s rocket test site near Tyuratam, Kazakhstan, was a mere 184-pound “hunk of iron almost anybody could launch,” as a U.S. Navy admiral characterized it, but it carried on its orbital trajectory¹ a symbolism far beyond its size. It was a first step beyond this planet, and we have never known a time since when there has not been some human-made object in Earth orbit. It reversed the image of the Soviet Union as a backwater and placed the country on an international footing near to that of the United States. It also established spaceflight

1. Notice the word “changed” in the first sentence. Underline other words in the paragraph that suggest change.
2. What is the main idea of this paragraph?
3. After reading the first paragraph, what do you think is the main idea of the article?
4. According to Launius, Sputnik established three important ideas. Circle or highlight those words in the paragraph.

¹ **orbital trajectory:** The terms trajectory and orbit both refer to the path of a body in space. Trajectory is commonly used in connection with projectiles and is often associated with paths of limited extent, i.e., paths having clearly identified initial and end points. Orbit is commonly used in connection with natural bodies (planets, moons, etc.) and is often associated with paths that are more or less indefinitely extended or of a repetitive character, like the orbit of the Moon around the Earth.

as evidence of progress and forward thinking among the nations of the world. Finally, it suggested to many that the **destiny** of humanity rested in the **cosmos** rather than on Earth. Belief in that destiny, for all its elusiveness, has motivated tens of thousands of people over the last 50 years to invent the machines and instruments and chart the course for planetary exploration and, perhaps, migration.

5. Explain the meaning of the following sentence: “Finally, it suggested to many that the destiny of humanity rested in the cosmos rather than on Earth.”

How does this sentence support the main idea of the paragraph?

What is the meaning of these words? Use your prior knowledge, context clues, or a dictionary to write their denotations.

momentous

plying

visionaries

inexorable

Write short summary of this paragraph.

The generation of Americans who were in school during that **momentous** shift in priorities **embraced space travel as a symbol of progress**. Raised on visions of human colonies on the moon and Mars, and great starships **plying** galactic oceans—brought to the public by the likes of media magnate Walt Disney and German rocketeer Wernher von Braun—they saw prospects of a bright, limitless future beyond a confining, overcrowded, and resource-depleted Earth. One of the **visionaries** thrilled by Sputnik was 14-year-old Homer Hickam, who grew up to be a NASA engineer and author of the memoir *Rocket Boys* (which began as a short piece in *Air & Space/Smithsonian* magazine and was later adapted for the 1999 feature film *October Sky*). He watched “the bright little ball, moving majestically across the narrow star field between the ridgelines” of his home

6. Consider the following sentence: “The generation of Americans who were in school during that momentous shift in priorities **embraced space travel as a symbol of progress**.”

Underline details in the paragraph that related directly to the bold-faced portion of the sentence.

7. What is the main idea of the paragraph?

8. Why does the author of the article use Homer Hickam as an example of someone who was influenced by Sputnik?

in Coalwood, West Virginia. It inspired him, and many like him, to devote their lives to the quest for space. Hickam recalled seeing it in the nighttime sky over his West Virginia home. “I stared at it with no less rapt attention than if it had been God Himself in a golden chariot riding overhead. It soared with what seemed to me **inexorable** and dangerous purpose, as if there were no power in the universe that could stop it.” Reflecting later that night on Sputnik, Homer Hickam decided that he wanted to be a part of what he considered a noble dream of space exploration.

What is the meaning of these words? Use your prior knowledge, context clues, or a dictionary to write their denotations.

vicarious

heed

render

Write short summary of this paragraph.

The first 15 years of the Space Age proved to be some of the most exciting of my lifetime—though I was probably four or five years old before I realized that rockets were not supposed to explode during launch. From the repeated failures of those early launch vehicles, we learned that spaceflight was not going to be easy; perhaps that is why the term “rocket science” entered our lexicon² as a measure of difficulty. But the pace of discovery in the early years was also dizzying. On January 31, 1958, just four months after Sputnik 1 caused a sensation, the United States launched its first Earth satellite—Explorer—which documented the existence of what became known as the Van Allen Belts, rings of charged particles encircling Earth. The following year, Pioneer 4 sailed past the moon (after four of the

9. How does this paragraph support the main ideas of paragraph 1?

10. Circle words and details in Paragraph 2 that relate to change.

11. What is the main idea of this paragraph?

12. How do you think the writer’s personal experiences with the “Space Age” affected him? (Hint: Look back at the title and the information given before the article.)

² **lexicon:** a wordbook or dictionary

aforementioned launch failures) and a Russian Luna probe crashed into it (on purpose). From the tentative first steps into space with satellites and suborbital astronaut flights through the breathtaking orbital missions of Mercury, Gemini, and Apollo, the 1960s offered a **vicarious** thrill ride igniting the imagination of millions. As a 15-year-old, I sat with friends on the hood of a car on the night of July 20, 1969, looking at the moon and listening to the Apollo 11 astronauts on it. I understood the feeling expressed by novelist Ray Bradbury, who captured the emotion of that early heroic era of spaceflight when he commented: “Too many of us have lost the passion and emotion of remarkable things... Let us not tear up the future, but rather again **heed** the creative metaphors that **render** space travel a religious experience. When the blast of a rocket launch slams you against the wall and all the rust is shaken off your body, you will hear the great shout of the universe and the joyful crying of people who have been changed by what they’ve seen.”

What is the meaning of these words? Use your prior knowledge, context clues, or a dictionary to write their denotations.

surrogate

ventured

descendants

audacity

The moon landings changed us. Certainly the Apollo program was one side of a political contest, a **surrogate** for war. But it also stretched our imaginations and made us believe that anything we set our minds to we could accomplish. “Yes, indeed, we are the lucky generation,” commented CBS television news anchor Walter Cronkite, for we “first broke

13. How does this personal anecdote support the main idea of the article?

14. The author quotes the writer Ray Bradbury as saying that people will be “changed by what they’ve seen.” What kinds of changes does he have in mind?

15. Consider this sentence: “The moon landings changed us.”

Underline details in this paragraph that support this statement.

our earthly bonds and **ventured** into space. From our **descendants**’ perches on other planets or distant space cities, they will look back at our achievement with wonder at our courage and **audacity** and with appreciation at our accomplishments, which assured the future in which they live.”

16. How does this statement support the main idea of the article?

17. Look back at the main ideas you identified for each paragraph. Then complete the statements below:

The first paragraph of the excerpt describes how the launch of Sputnik affected _____

The second paragraph describes how the launch of Sputnik affected _____

The third paragraph describes how the launch of Sputnik affected _____

The final paragraph describes how the launch of Sputnik affected _____

What do you notice about the way the writer organized these paragraphs? _____

Why do you think he organized them in this way? _____

Author’s purpose refers to the reason an author decides to write about a certain topic. What does he or she want to accomplish—to inform the reader about that topic? To persuade the reader to think a certain way or take an action? To entertain the reader? To explain something? To describe something unfamiliar to the reader?

18. Now that you have read and analyzed the article, choose ONE of the purposes below. Explain more specifically Launius’s purpose by completing the statement below the purpose you choose.

In “It All Started with Sputnik,” Roger Launius’s purpose is

- a. _____ to persuade readers that the space program is important to the future of the United States. He wants the reader to _____

- b. _____ to explain his interest in the space program. He wants the reader to understand that the space program _____

- c. _____ to describe a personal experience related to the space program. He describes how he _____

- d. _____ to entertain readers by telling an interesting story. He wants the reader to enjoy _____

In the space below, copy two pieces of textual evidence to support the purpose you selected.

