

About the Book

Text Type: Nonfiction/Biography Page Count: 16 Word Count: 1,588

Book Summary

As a young boy growing up in New York City, Neil deGrasse Tyson was fascinated by the sky above. Tyson followed his interest in space to become an icon in the field of astrophysics. As the director of the Hayden Planetarium, Tyson became well known for his role in the debate surrounding Pluto's status as a dwarf planet. In the tradition of Carl Sagan, Tyson educates the public as the host of the History Channel's television series *Cosmos: A Spacetime Odyssey*. Tyson's love of science and learning serves as a stellar example for kids and adults alike.

About the Lesson

Targeted Reading Strategy

- Summarize


Objectives

- Summarize to understand text
- Identify elements of a biography
- Identify and use dashes
- Recognize and use synonyms and antonyms

Materials

Green text indicates resources are available on the website.

- Book—*Neil deGrasse Tyson: Star Man* (copy for each student)
- Chalkboard or dry-erase board
- Sheets of paper
- Elements of a biography, dashes, synonyms and antonyms worksheets
- Discussion cards

 Indicates an opportunity for students to mark in the book. (All activities may be demonstrated by projecting the book on an interactive whiteboard or completed with paper and pencil if the books are reused.)

Vocabulary

*Boldface vocabulary words also appear in a pre-made lesson for this title on VocabularyA-Z.com.

- Content words:
 Story critical: **astronomy** (n.), **astrophysicist** (n.), **classified** (v.), **debate** (n.), **physics** (n.), **planetarium** (n.)
 Enrichment: **commissions** (n.), **debris** (n.), **demoted** (v.), **doctorate** (n.), **infamous** (adj.), **supernovas** (n.)

Before Reading

Build Background

- Write the word *astronomy* on the board. Ask students to share what they know about the word *astronomy*. Circle the prefix *astro* and explain to students that it means relating to the stars or outer space. Explain to students that astronomy is a field of science involving the study of stars, planets, comets, and other things found in space. Ask students to share their experiences learning about space or gazing up at the night sky.

- Write the word *astrophysicist* on the board. Circle the prefix *astro-* and remind students that *astro-* means relating to the stars. Explain to students that an astrophysicist is a scientist who studies the physical nature, or science, of stars and other objects in space. Engage students in a discussion about how a person might become an astrophysicist and what he or she might need to study in school. Explain to students that they will be reading about a very famous astrophysicist named Neil deGrasse Tyson.

Preview the Book

Introduce the Book

- Give students their copy of the book. Guide them to the front and back covers and read the title. Have students discuss what they see on the covers. Encourage them to offer ideas as to what type of book it is (genre, text type, and so on) and what it might be about.
- Show students the title page. Discuss the information on the page (title of book and author's name).

Introduce the Reading Strategy: **Summarize**

- Direct students to the table of contents. Remind students that the table of contents provides an overview of what the book is about. Ask students what they expect to learn in each section.
- Have students preview the rest of the book, looking at photographs, captions, and other text features. Show students the glossary and explain or review its purpose.
- Explain to students that one way to understand and remember information in a book is to write a summary, or a brief overview, of the most important information in each section. Point out that a summary often answers the questions *who*, *what*, *when*, *where*, and *why*.
- Create a chart on the board with the headings: *Who*, *What*, *When*, *Where*, and *Why*.
Think-aloud: As I read this book, I am going to stop every now and then to remind myself about the information I have read so far about Neil deGrasse Tyson. Doing this helps me remember what I'm reading and makes me think about new information. I can use a chart like this one to help me keep track of the important details. When I finish reading the book, I will be able to tell, in my own words, some of the most important information from each section of the book.

Introduce the Comprehension Skill: **Elements of a biography**

- Ask students to explain the difference between a biography and a story (biography: the story of a real person's life written by someone else; story: made up by the author, with characters who may or may not be real.) Explain that this book is a biography. A biography includes information about the person's personality, accomplishments, and influence on the world.
- Write the words *Personality*, *Accomplishments*, and *Influence* in a three-row chart on the board. Discuss with students the meaning of each of these words (personality: the qualities that make each person unique; accomplishments: success achieved through practice or training; influence: an effect on someone or something).
- *Think-aloud: As I read through each section of this book, I am going to stop and think about what I have learned about Neil deGrasse Tyson. As I read, I can organize the information about him into three categories: personality, accomplishments, and influence. By categorizing the information in this way, I know I will understand more about Tyson and the events of his life.*

Introduce the Vocabulary

- Write the following content vocabulary words on the board: *classified*, *debate*, *physics*, and *planetarium*.
- Point out that these four words can be found in the text and that knowing what they mean will help students understand what they are reading. Divide students into pairs and give each set of students a blank piece of paper. Have students divide the paper into four sections and label each section with one vocabulary word. Invite them to draw and write what they know about each word and create a definition using their own prior knowledge.

Lesson Plan *(continued)*

Neil deGrasse Tyson: Star Man

- Model how students can use a dictionary to find the meaning of a word. Have them locate the word *classified* in the dictionary. Remind students to remove the suffix and identify the root word before searching in the dictionary. Ask a volunteer to name the root word of *classified*. Invite a volunteer to read the definition aloud.
- Show students the glossary on page 16. Have students locate the word *classified* in the glossary. Point out that the dictionary has multiple definitions for the word *classify*, depending on the usage. Have students compare the dictionary definitions with the glossary definition, and ask them which dictionary definition is the most similar. Ask them to compare this definition with their prior knowledge of the word.
- Ask students to locate the word *classified* on page 10 and read the sentence containing the word aloud. Repeat the exercise with the remaining vocabulary words. Have students compare and contrast the three sources: the dictionary, the glossary, and the text.

Set the Purpose

- Remind students to pause as they read to identify Neil deGrasse Tyson's personality, accomplishments, and influence on the world. Encourage students to summarize as they read to better understand the text.


During Reading

Student Reading

- Have students read pages 4 through 6. Model underlining important details to help summarize information and identify elements of a biography in the first two sections.
Think-aloud: I made sure to stop reading after the second section of the book to summarize what I have read so far. First, I thought about the information that answered the questions who, what, when, where, and why. Then, in my mind, I organized the most important information into a few sentences. After reading pages 4 through 6, I decided that these sections were a brief overview of how Neil deGrasse Tyson became interested in stars and how he started to follow his dream. Tyson was born in New York City, where he visited the local planetarium often as a kid. After Tyson had the opportunity to look at the real night sky through a pair of binoculars, he knew he wanted to learn more. Tyson worked hard all through junior high school to raise money to buy a telescope. In sixth grade, his teacher told him about local astronomy classes and he signed up. The more Tyson learned about stars, the more he wanted to know. I will underline this information in the text.
- Invite students to assist you in filling out this information in the chart on the board. Have them decide which facts go in various boxes of the chart. Point out that sometimes not all of the questions (*who, what, where, when, and why*) are answered in every section of the text. Create a summary with students on the basis of the information in the chart. (Neil deGrasse Tyson was born in New York City, where he visited the planetarium often as a child. Tyson wanted to learn more about stars and space, so he saved up money through lots of hard work to buy a telescope and take astronomy classes. This was the beginning of Tyson's life studying space.)
- Return to the elements of a biography chart and model how to record biographical details.
Think-aloud: After reading pages 4 through 6, I have learned some details about Tyson's personality. The first section tells how Tyson traveled to West Africa to see a solar eclipse and then rode a bus across the United States to go to astronomy camp—all at the age of fourteen! From this section, I can tell that Tyson was very dedicated to his love of space and very courageous to take on these adventures at such a young age. In the second section of the book, I learned that Tyson walked dogs all through junior high to raise money for a telescope. On the basis of this information, I can say that Tyson was independent and hardworking. I will write all of this information on my chart under the heading Personality.

Lesson Plan *(continued)*


Neil deGrasse Tyson: Star Man

- **Check for understanding:** Have students read to the end of page 9. When students have finished reading, have them work with a partner to identify the important information (Who: Neil deGrasse Tyson. What: Asked to speak about a rare comet at the City College of New York when he was in high school; met Carl Sagan, a famous scientists and writer; attended Harvard University and received a bachelor's in physics; attended University of Texas and earned a master's in astronomy; attended Columbia University and received his doctoral degree; worked at Princeton University doing research; became the director of the Hayden Planetarium; appeared on TV as an expert on space. When: 1973, gave talk at the City College of New York; 1980, graduated from Harvard; 1983, received his master's degree; 1991, completed his doctorate; 1995, accepted offer to become director of Hayden Planetarium. Where: in the United States. Why: Tyson had a love for learning about space.)
 - Have students work together on a separate piece of paper to create a summary of these sections.
 - Ask students to identify Tyson's personality, accomplishments, and influence from the discussion and from the text. (Personality: intelligent, persistent, determined, focused. Accomplishments: bachelor's, master's, and doctoral degrees; director of the Hayden Planetarium; appeared on TV as an expert on space. Influence: tore down the old Hayden Planetarium and built a new planetarium as part of the Rose Center for Earth and Space.)
 - Introduce and explain the [elements-of-a-biography worksheet](#). Write this information in the chart on the board, and have students write the information on their worksheet. Discuss with students the text from the book that supports the information on the chart.
 - Discuss how Tyson's personality might have influenced his accomplishments. Facilitate the discussion with questions such as: *How would you describe Tyson's personality? What characteristics of his personality might have influenced him to do the things he did when he finished school?*
 - Have students read the remainder of the book. Remind them to continue to pause to identify the main idea and supporting details.
-  Have students make a question mark in their book beside any word they do not understand or cannot pronounce. Encourage them to use the strategies they have learned to read each word and figure out its meaning.

After Reading

- Ask students what words, if any, they marked in their book. Use this opportunity to model how they can read these words using decoding strategies and context clues.

Reflect on the Reading Strategy


-  Divide students into pairs. Assign each pair one of the remaining sections from the book. Remind them to underline information that answers the questions *who*, *what*, *where*, *when*, and *why* while reading. Have each group discuss the information they underlined in their section. Ask students to use the information to rehearse an oral summary of the section. When students have finished, have them share and discuss their summaries aloud.
- **Think-aloud:** *I know summarizing keeps me actively involved in what I'm reading and helps me remember what I've read. I know I will remember more about Neil deGrasse Tyson because I summarized as I read the book.*
 - **Independent practice:** Explain to students that one way to summarize is to give a brief overview of each section. Point out that a summary can also reflect the entire text. Challenge students to write a brief summary of the book *Neil deGrasse Tyson: Star Man* on a separate sheet of paper. Remind students that a summary includes only the most important details from the text. Have students work with a partner to share their summaries. If time allows, have students share their work with the class.

Reflect on the Comprehension Skill

- Discuss how Neil deGrasse Tyson followed his dream to learn about and study the stars. Talk with students about how, even at a young age, he worked hard and persevered to follow this dream.
- Have students return to the elements-of-a-biography worksheet. Invite them to include additional information about the personality, accomplishments, and influence of Tyson from the last sections of the book. Discuss their responses aloud as a class.
- **Enduring understanding:** In this book, you read about a man who knew what he was passionate about at an early age. What is something in your life that interests you greatly? What steps are you taking to follow this dream?

Build Skills

Grammar and Mechanics: Dashes

- Explain to students that a dash (—) is a punctuation mark that can be used for different purposes: to show an afterthought or summary at the end of a sentence or to “set off,” or clarify, information within a sentence.
- Write the following sentence on the board: *They sailed to West Africa to see a solar eclipse—an event so rare that most people never see one in their lifetime.*
- Explain to students that in this sentence, the dash is being used to add a thought or more information to the end of the sentence.
- Review or explain the difference between a dash and a hyphen. Remind students that hyphens are used in compound adjectives, adverbs, and nouns, such as *well-known scientist*. Point out that hyphens are shorter in length and are used to connect two or more words.
-  **Check for understanding:** Have students reread page 11 and highlight the sentences containing a dash. Ask a volunteer to explain how the dash is used (to clarify information within a sentence).
- **Independent practice:** Introduce, explain, and have students complete the [dashes worksheet](#). If time allows, discuss their answers aloud after students finish.

Word Work: Synonyms and antonyms

- Write the word *many* on the board. Ask students to suggest a word that means almost the same thing (*numerous*). Review or explain that a word that means the same or almost the same as another word is called a *synonym*. Ask students to suggest a word that means the opposite of *many* (*few*). Review or explain that a word that means the opposite of another word is called an *antonym*.
- Have students turn to page 5 and locate the second sentence in the second paragraph. Read the sentence aloud and record it on the board: *He saw distant planets and could make out craters on the Moon!* Circle the word *distant*. Ask students to suggest a word that means the same or almost the same as *distant* (*faraway, remote*). Ask students to suggest a word that means the opposite of *distant* (*close, near*).
- **Check for understanding:** Give pairs of students a thesaurus. Ask them to find the word *distant* and have them name the synonyms listed. If the thesaurus lists antonyms, have them find the antonyms for *distant*. If needed, provide additional practice using the thesaurus.
- Introduce, explain, and have students complete the [synonyms-and-antonyms worksheet](#). If time allows, discuss answers aloud after they are finished.

Build Fluency

Independent Reading

- Invite students to read their book independently. Additionally, partners can take turns reading parts of the book to each other.

Home Connection

- Give students their book to take home to read with parents, caregivers, siblings, or friends.
Have students demonstrate how a reader pauses while reading to summarize the information.

Extend the Reading

Informational Writing Connection

Discuss with students other people in the field of science who have become famous because of their research, such as Carl Sagan and Bill Nye. Have students choose one person to research. Provide students with print and Internet resources to conduct their research. Review the elements of a biography with the students. Have students collect information about the person's personality, accomplishments, and influence. Have students write a five-paragraph essay in which they identify and expand upon these aspects of a biography. Invite students to share their work with the class.

Social Studies Connection

Contact the local science center or planetarium and set up an opportunity for students to visit. If a fieldtrip is not possible, have local astronomers come to the classroom to discuss the steps they have taken in their lives to work in this field. Have students prepare questions for the presenters on the basis of the three components of a biography.

Skill Review

Discussion cards covering comprehension skills and strategies not explicitly taught with the book are provided as an extension activity. The following is a list of some ways these cards can be used with students:

- Use as discussion starters for literature circles.
- Have students choose one or more cards and write a response, either as an essay or as a journal entry.
- Distribute before reading the book and have students use one of the questions as a purpose for reading.
- Conduct a class discussion as a review before the book quiz.

Assessment

Monitor students to determine if they can

- consistently summarize to comprehend the text;
- accurately identify elements of a biography in the text and on a worksheet;
- correctly identify dashes in the text, during discussion, and on a worksheet;
- accurately identify synonyms and antonyms during discussion and on a worksheet.

Comprehension Checks

- **Book Quiz**
- **Retelling Rubric**