



About the Book

Text Type: Nonfiction/Informational **Page Count:** 16 **Word Count:** 1,605

Book Summary

Would you ever consider a one-way ticket to Mars? With advances in technology and spaceship design, this opportunity may not be too far off! Traveling to Mars, however, presents challenges that astronauts and scientists have never had to face before. *So You Want to Go to Mars?* is a nonfiction informational book detailing these challenges and the creative solutions that may one day allow us to explore and occupy this barren planet.

About the Lesson

Targeted Reading Strategy

- Ask and answer questions

Objectives

- Ask and answer questions
- Author's purpose
- Recognize and use hyphenated compound adjectives
- Place words in alphabetical order

Materials

Green text indicates resources that are available on the website.

- Book—*So You Want to Go to Mars?* (copy for each student)
- Chalkboard or dry-erase board
- Diagram of the solar system
- Sheets of poster board
- Dictionaries
- Sheets of paper
- Ask and answer questions, author's purpose, hyphenated compound adjectives, alphabetical order 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: **colony** (n.), **compatibility** (n.), **feat** (n.), **gravity** (n.), **habitat** (n.), **radiation** (n.)

Enrichment: **barren** (adj.), **embark** (v.), **hydroponic** (adj.), **mass** (n.), **orbit** (n.), **simulate** (v.)

Before Reading

Build Background

- Write the title of the book, *So You Want to Go to Mars?*, on the board. Show students a diagram of the solar system and locate Earth on the diagram. Have a volunteer locate the Moon. Discuss with students what they know about space exploration to the Moon. Explain to students that in late 1960s the United States began sending astronauts to the Moon.

- Have students study the diagram of the solar system and discuss why astronauts and scientists might be interested in learning more about Mars and potentially being able to travel to the Red Planet.
- Create a KWLS chart on the board and hand out the [KWLS / ask-and-answer-questions worksheet](#). Review or explain that the *K* stands for knowledge we know, the *W* stands for information we want to know, the *L* stands for the knowledge we learned, and the *S* stands for what we still want to know about the topic.
- Discuss with students what they already know about Mars and any attempted space travel to Mars. Record this information in the *K* section of the chart on the board. Have students complete the same section on their KWLS / ask-and-answer-questions worksheet.
- Ask students what they would like to know about traveling to Mars. Have them fill in the *W* section of their chart. Write their questions on the class chart.

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: **Ask and answer questions**

- Discuss with students how having prior knowledge about the topic, and asking and answering questions while reading, can help readers understand and remember the information in a book.
- Direct students to the table of contents. Remind them that the table of contents provides an overview of the information in a book and how it is organized. After previewing the table of contents, use it to model asking questions.
Think-aloud: I can use the table of contents to think of questions I have about traveling to Mars. For example, the second section is titled "You're Going to Need a Bigger Rocket." I know that the rockets currently used for space exploration are pretty massive, so I am curious to know just how big a rocket must be to fly to Mars. Also, I want to know why you would need a bigger rocket to get to Mars and why we can't use the ones that we currently have. I will record these questions in the W section of the chart. As I read the second section of the book, I will be sure to look for answers to these questions. I will record any answers I find in the L section of my chart.
- Have students look at the other section titles. Have them write any questions they have on the basis of the covers and table of contents in the *W* section of their KWLS worksheet.
- Have students preview the rest of the book, looking at the photographs and diagrams. Invite students to read through the glossary. Have them add any additional questions they might have on their KWLS / ask-and-answer-questions worksheet. Invite students to share their questions aloud. Write shared questions on the class chart.
- As students read, encourage them to use other reading strategies in addition to the targeted strategy presented in this section.

Introduce the Comprehension Skill: **Author's purpose**

- Write the following headings on the board: *Entertain, Inform, Persuade*. Discuss with students the meaning of each word (*Inform*: to give someone information about something; *Entertain*: to amuse someone; *Persuade*: to try to make someone think the same way you do). Encourage students to give examples of their own writing where they have informed, entertained, or persuaded the reader. Point out that writers most often have one of these three purposes for writing but sometimes have all three. Explain to students that writers provide clues to readers that will help them figure out that author's purpose.
- Create a three-column chart on the board using the headings *Entertain, Inform, and Persuade*. Introduce and explain the [author's purpose worksheet](#). Explain to students that as they read, they will record different examples in the book that illustrate each of these purposes.

- **Think-aloud:** *To better understand and remember new information in a book, I can look at how an author is stating ideas to see what his or her purpose may be. I can decide whether the author's purpose is to inform, to entertain, or to persuade. I know that effective readers do this, so I will pause after each section to identify the author's purpose.*

Introduce the Vocabulary

- Write the following story-critical words on the board: *feat*, *gravity*, *habitat*, and *radiation*. Read the words aloud with students and ask them to share what they know about each word.
- Write each of the words listed on the board on a sheet of poster board and hang the posters in various places around the classroom. Have students work in small groups and assign each group a poster. Have students discuss what they know about the meaning of the word and write or draw a definition on the poster board. Rotate the groups and have them repeat the process with the remaining words.
- Review all four words as a class. Read the students' definitions aloud and discuss their prior knowledge. Create a single definition for each word and write it on the board.
- Assign each group one of the vocabulary words and ask them to find its definition in the dictionary. Have each group share the dictionary definition of the word with the class and discuss how it is similar to or different from their own definition.
- Have a volunteer read the definition for each word in the glossary. Compare students' definitions and the dictionary definition with the glossary definitions. Use the comparison to modify the definition for each word or phrase on the board. Have students locate each word in the text to verify its meaning in context.

Set the Purpose

- Have students read to find out more about the challenges of traveling to Mars. Encourage students to identify any questions as they read, and record this information in the *W* section of the KWLS chart.


During Reading

Student Reading

- **Guide the reading:** Have students read to the end of page 7. Remind them to look for information about traveling to Mars that will answer their questions on their KWLS / ask-and-answer-questions worksheet. Encourage those who finish early to go back and reread.
- When students have finished reading, have them circle any questions on their KWLS / ask-and-answer-questions worksheet that were answered and write and new questions that were generated.
- Model answering questions using details from the text to complete the *L* section of the KWLS chart.

Think-aloud: *As I read the first sections of the book, I made sure to pause and see if I came across any answers to the questions I recorded in the W section of my KWLS chart. I wanted to know exactly how big a rocket would have to be to make it to Mars. Although the author did not specifically state how big the rocket would need to be, I did learn that the rocket would be so big that it would have to be assembled in space. I will record this information in the L section of my chart. I also wanted to know why a bigger rocket would be needed. In the section "You're Going to Need a Bigger Rocket," I learned that Mars is much further away than the Moon, so the rocket would need to carry much more fuel. Also, because the trip to Mars will take a long time, there must be more space for the crew and all of their supplies. I will record this information in the L section of my chart. While I was reading the first two sections, a new question came to mind. In the first section, the author states that traveling to Mars presents challenges that astronauts have never had to face. I am curious to know what these challenges are. I will record this question in the W section of the KWLS chart.*

- Have students write answers to the questions they circled on their KWLS worksheet. Invite them to share the information they learned and the questions they generated as they read the book. Record shared responses on the class KWLS chart.
- Invite students to record any new questions in the *W* section of their chart. Have them share these questions with the class.
- **Check for understanding:** Have students read pages 8 and 9. Have them write any answers they found while reading in the *L* section of their KWLS worksheet and additional questions they raised in the *W* section. Invite them to share the information they learned and the questions they generated as they read pages 8 and 9. Write shared responses on the class KWLS chart.
- Invite students to pause and reflect on pages 4 through 9. Discuss with them the author's purpose. Remind students that the author's purpose is to inform, entertain, or persuade. Invite students to provide an example of the author informing the reader. Have students record the page number and evidence on the author's purpose worksheet.
- Remind students that an author may have more than one purpose for writing. Challenge students to find an example of the author writing to entertain or persuade on pages 4 through 9. Record these examples, with page numbers, on the author's purpose worksheet.
- Have students read the remainder of the book. Remind them to continue to look for and write answers to their KWLS worksheet questions, and to think about examples that are evidence of the author's purpose. Encourage them to add new questions they might have to their KWLS worksheet as they read.

 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

- **Think-aloud:** *I wanted to know what new challenges astronauts will be faced with when traveling to Mars. I learned that there are several challenges. First, astronauts will be faced with zero gravity for long periods of time that will cause problems in their bodies. Also, astronauts will face exposure to radiation while in the spaceship and on the surface of Mars. Another challenge facing the astronauts is that Mars is a barren and dusty place, making it impossible to farm and grow food on its surface. A final challenge explained by the author is that the astronauts will be in a small place with the same people for a long time, which can lead to conflict. I will record all of this information in the L section of my KWLS chart.*
- Ask students to share questions they added to their KWLS / ask-and-answer-questions worksheet while reading, and ask them what questions were answered (or not answered) in the text. Have students write answers they found while reading in the *L* section of their KWLS / ask-and-answer-questions worksheet.
- Reinforce that asking questions before and during reading, and looking for the answers, keeps readers interested in the topic. It also encourages them to keep reading to find answers to their questions and helps them enjoy what they have read.
- Point out to students that all of their questions may not have been answered in this text. Brainstorm to generate a list of other sources they might use to locate additional information to answer their questions. Invite students to fill in the *S* section of their KWLS/ask-and-answer-questions worksheet with information they would still like to know about traveling to Mars.

Reflect on the Comprehension Skill

- Ask students to explain or show how identifying the author's purpose helped them understand and remember what they read. Review the three purposes from the chart on the board. Ask volunteers to share what they recorded on their author's purpose worksheet. Add examples to the chart on the board as students share.
- Discuss with students if they were mostly informed, entertained, or persuaded by the information in the book.
- Ask students to read examples of places in the text where they were informed (e.g. page 4: *Between 1969 and 1972, the United States sent astronauts on six round trips to Earth's nearest neighbor, the Moon;* page 10: *Mars is a barren planet covered with dust, dirt, and rocks. Violent towering dust storms often roar across its surface;* and so on).
- Ask students if this book entertained them. Point out that an author often uses particular word choices or styles to make the writing more entertaining. Ask students to identify examples of the author writing in a way to make the text more entertaining (e.g. page 7: *Great! So you can just hop on one of those puppies and go to Mars!* page 9: *So, engineers—to your workstations!;* and so on).
- Discuss with students if they were persuaded to travel to Mars by this book. Ask them to share information in the book that had the purpose of persuading (e.g. page 5: *Getting to Mars in one piece and staying alive won't be easy. In fact, it will be the greatest technological feat humans have ever accomplished. But here's the good news: The talk about a Mars mission is finally getting serious. Many people would love to make that trip. Maybe you're one of them;* page 10: *When you finally arrive at Mars, what awaits you on the surface? Let's just say, life on the Red Planet will be no picnic;* and so on).
- **Independent practice:** Have students complete the author's purpose worksheet by identifying at least one more example of each purpose. If time allows, have them share what they wrote in the remaining boxes of their worksheet.
- **Enduring understanding:** In this book, you learned that space travel to Mars will cost billions of dollars. Do you think this will be money well spent? Why or why not?

Build Skills

Grammar and Mechanics: Hyphenated compound adjectives

- Review or explain that *adjectives* are words that describe nouns and pronouns. An adjective tells *which one, how many, or what kind*.
- Write the following sentence on the board: *Red dirt and dust storms cover the surface of Mars.* Have a volunteer come to the board and circle the adjectives in the sentence (*red, dust*). Have a different volunteer underline the noun that each adjective describes (*dirt, storms*).
- Explain to students that some adjectives are hyphenated and that they are called *hyphenated compound adjectives*. Write the following sentence on the board: *It is the engineer's full-time job to design a spaceship that will make it to Mars.* Have a volunteer come to the board and underline the hyphenated compound adjective (*full-time*). Ask another volunteer to underline the noun that the adjective describes (*job*).
- **Check for understanding:** Write the following sentence on the board: *It is a well-known fact that traveling to Mars is extremely difficult.* Have students work with a partner to identify the hyphenated compound adjective (*well-known*) and the noun it describes (*fact*). Invite students to share their responses with the class.
- **Independent practice:** Introduce, explain, and have students complete the [hyphenated-compound-adjectives worksheet](#). If time allows, discuss their answers aloud after students finish.

Word Work: Alphabetical Order

- Review or explain the process of putting a list of words in alphabetical order. Remind students that if the first letter of two words is the same, they must compare the next two letters instead.

- Write the words *Mars* and *Earth* on the board. Have a volunteer explain which word would appear first in alphabetical order (*Earth*) and why (*because e comes before m in the alphabet*).
- Write the words *Moon* and *Mars* on the board. Point out that these words begin with the same letter. Ask a volunteer to tell which word would come first in alphabetical order and to explain why (*Mars*, because the second letter in *Mars* comes before the second letter in *Moon*).
- Write the words *Mars* and *Martian* on the board. Have a volunteer explain which word would appear first in alphabetical order (*Mars*) and why. Point out that all of the letters in *Mars* and *Martian* are the same until the letter *s* in *Mars*. Explain that because *s* comes before *t* in the alphabet, the word *Mars* comes first in alphabetical order.
- **Check for understanding:** Write the words *magnetic*, *spaceship*, *Martian*, *moon*, and *space* on the board. Have students write the words in alphabetical order and explain their rationale on a separate piece of paper. Discuss their answers aloud.
- **Independent practice:** Introduce, explain, and have students complete the [alphabetical order 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 asks questions then reflects on the answers while reading.

Extend the Reading

Expository Writing Connection

Provide print and Internet resources for students to find out more about the Biosphere 2 project. Citing information from their research and the book, have them write a report that includes at least five paragraphs, including an introduction, three supporting paragraphs, and a conclusion. Encourage students to add illustrations or photographs to their report. Have each student proofread and edit his or her book before submitting a final copy. Have students share their reports with the class or in small groups.

Visit WritingA-Z.com for a lesson and leveled materials on informational writing.

Science Connection

Provide print and Internet resources for students to learn more about other planets in our solar system aside from Mars. Have students work in small groups to collect data about their planet of choice. Invite students to consider whether it would be possible for humans to land on the planet and to explain why or why not. Have each group create a poster to display their findings. Encourage them to add illustrations, written facts, charts, diagrams, and photographs to their posters. Facilitate a group discussion once each group has completed their research.

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.

Monitor students to determine if they can

- consistently ask and answer questions to comprehend the text during discussion and on a worksheet;
- understand and accurately identify author's purpose in text, during discussion, and on a worksheet;
- correctly identify hyphenated compound adjectives in the text, during discussion, and on a worksheet;
- accurately place words in alphabetical order during discussion and on a worksheet.

Comprehension Checks

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