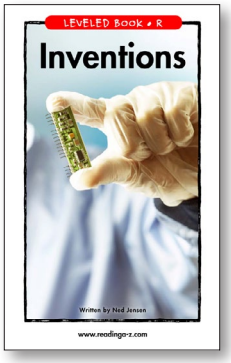

About the Book

Text Type: Nonfiction/Informational **Page Count:** 20 **Word Count:** 1,187

Book Summary

Inventions is an informative book about many different inventions. It explains why people invent, as well as how inventions pave the way for other inventions. Some of the inventions highlighted in the book include the wheel, the engine, the lightbulb, and computers. Photographs, illustrations, and timelines support the text.

About the Lesson

Targeted Reading Strategy

- Ask and answer questions

Objectives

- Ask and answer questions to understand text
- Understand and identify cause and effect relationships
- Recognize and use adjectives
- Recognize and use synonyms

Materials

Green text indicates resources available on the website

- Book—*Inventions* (copy for each student)
- Chalkboard or dry erase board
- Thesauruses
- KWLS / ask and answer questions, cause and effect, adjectives, synonyms worksheets
- Discussion cards

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

Vocabulary

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

- **Content words:**

  Story critical: ***engine*** *(n.),* ***invention*** *(n.),* ***inventors*** *(n.),* ***patent*** *(n.),* ***process*** *(n.),* ***products*** *(n.)*

  Enrichment: *digital (adj.), integrated circuits (n), microprocessors (n.), programmed (v.), software (n.), transistor (n.)*

Before Reading

Build Background

- Write the word *invention* on the board. Ask students to share what they know about the meaning of the word. Explain that an invention is a new device or process.
- Invite students to name inventions they know about. Ask them to explain why they think the device or process was invented.

- 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. As various topics are discussed, fill in the first column (*K*) on the board with information students know about the topic. Have students complete the same section of their KWLS chart.
- Ask students what they would like to know about inventions. Have them fill in the second lightbulb (*W*) 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 and what it might be about.
- Show students the title page. Discuss the information on the page (title of book, author's name).

Introduce the Reading Strategy: Ask and answer questions

- Discuss 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 would like to have answered about inventions. For example, the second section is titled "Inventions Follow Inventions." This makes me wonder which inventions have followed another and why this happens. I'll have to read the book to find out. I'll write this question on the chart.*
- Have students look at the other section titles. Have them write any questions they have based on the covers and table of contents in the *W* lightbulb of their KWLS chart.
- Have students preview the rest of the book, looking at illustrations, photos, and captions. Show students the glossary and index. Have them add any additional questions they might have on their KWLS chart. Invite students to share their questions aloud. Write shared questions on the class chart.

Introduce the Comprehension Skill: Cause and effect

- Review or explain that a *cause* is an event that makes something happen, and the *effect* is what happens because of, or as a result of, the event. Create a two-column chart on the board with the headings *Cause* and *Effect*. Write the following sentence on the board under the heading *Cause: I hit a baseball through a window.* Model identifying cause-and-effect relationships.
- **Think-aloud:** *If I hit a baseball through a window, certain events might happen as a result of this cause. For example, I might have to pay for the window. I also might have to apologize for breaking the window. Sometimes there is more than one effect, or event, that happens as a result of a cause.*
- Ask students to identify from the discussion the two effects that might happen as a result of hitting a baseball through the window (paying for the window, apologizing for breaking the window). Write these under the heading *Effect*.
- Invite students to explain other possible effects for hitting a baseball through the window.

Introduce the Vocabulary

- As students preview the book, ask them to talk about what they see in the photos and illustrations. Reinforce the vocabulary words they will encounter in the text.

- Explain to students that sometimes they will not find any context clues that define an unfamiliar word. Model how students can use the glossary or a dictionary to locate a word's meaning. Have a volunteer read the definition for *engine* in the glossary. Have students follow along on page 7 as you read the sentence in which the word *engine* is found to confirm the meaning of the word.
- Write the word *engine* on the board. Read the definition of *engine* in the glossary. List examples of vehicles that have engines, such as cars and buses. Ask students to give examples of other vehicles that have engines and list them on the board.
- Have students locate each of the remaining content vocabulary words in the glossary. Read and discuss their definitions as a class.

Set the Purpose

- Have students think about what they already know about inventions as they read the book to identify causes and effects related to inventions. Remind them to find answers to their questions and write what they learned in the *L* lightbulb of their KWLS chart.

During Reading

Student Reading

- **Guide the reading:** Have students read to the end of page 8. Remind them to look for information about inventions that will answer questions on their KWLS chart. Encourage students who finish early to go back and reread.
- When students have finished reading, have them circle any questions on their KWLS chart that were answered and add any new questions that were generated.
- Model answering a question and filling in the third lightbulb (*L*) on the KWLS chart.
  Think-aloud: *I wanted to know what inventions have followed another and why this happens. I found out that the invention of the wheel led to the invention of the cart. The cart was pulled by animals, which made it easier to carry goods and people farther distances. This invention led to the invention of an engine that moved the carts so that animals were not needed. Eventually, better engines were invented that move people through the air and even into space. I wonder what devices were invented because people began traveling into space. I will write this question on my chart.*
- Have students write answers for the questions they circled in the *L* lightbulb on their KWLS chart and additional questions they raised in the *W* lightbulb. 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.
- Write *the wheeled cart was invented* on the cause-and-effect chart on the board under the heading *Cause*. Ask students to use the text and think-aloud discussion to identify the effects of this invention (the cart provided an easier way to carry goods and people, it was less work than walking and made it easier to travel farther distances). Write this information on the chart under the heading *Effect*.
- Introduce and explain the cause-and-effect worksheet. Ask students to identify a cause-and-effect relationship for the invention of different engines and write it on their worksheet. (Cause: engines were invented; Effects: new types of vehicles were invented to move people and goods from place to place, people traveled farther in less time, people could travel into space.)
- **Check for understanding:** Have students read to page 12. Have them write answers they found while reading in the *L* lightbulb of their KWLS chart and additional questions they raised in the *W* lightbulb. 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.
- Write *people traveled into space* on the cause-and-effect chart on the board under the heading *Cause*. Ask students to use the text to identify effects of this cause (a special spacesuit was invented to keep people safe, a backpack was invented to make moving in space easier). Have them write this cause-and-effect relationship on their worksheet.

- Have students read the remainder of the book. Remind them to look for and write answers to their KWLS chart questions, as well as to look for cause-and-effect relationships. Encourage them to add new questions they might have to their chart 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 the word and figure out what it means.

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 devices were invented because people began traveling into space. I learned that a special suit was invented to keep people safe in space. I also learned that several other products were invented due to space travel, such as baby food, better golf balls and swimsuits, and smoke detectors.*
- Ask students to share questions they added to their KWLS chart while reading, and ask them what questions were answered (or not answered) in the text.
- Reinforce that asking questions before and during reading, and looking for the answers while reading, keeps readers interested in the topic. It also encourages them to keep reading to find answers to their questions and helps them understand and remember what they have read.
- Point out to students that all of their questions may not have been answered in this text. Brainstorm other sources they might use to locate additional information to answer their questions. Invite students to fill in the final lightbulb (*S*) with information they would still like to know about inventions.

Reflect on the Comprehension Skill

- **Discussion:** Have students reread the "Think About It" section on page 7. Ask them to identify a cause-and-effect relationship from this section and write it on their worksheet. (Cause: the car was invented; Effects: other devices were invented, such as traffic lights, gas pumps, and expressways.)
- Ask students to identify other devices that were likely invented as a result of the invention of the car (toll booths, car parts stores, drive-in movie theaters, and so on)
- **Independent practice:** Have students locate one additional cause-and-effect relationship in the text and write it on their worksheet. If time allows, discuss their responses.
- **Enduring understanding:** In this book, you learned that the need for something often causes people to invent a device or process to fill that need or solve a problem. Now that you know this information, what needs do you think the world currently faces and what might be invented to fill those needs?

Build Skills

Grammar and Mechanics: Adjectives

- Write the following sentence on the board: *Vincent Van Gogh was an artist who created fantastic paintings.* Ask students to identify the nouns in the sentence *(Vincent Van Gogh, artist, paintings)*. Point to the word *paintings*. Ask students to identify how the paintings are described *(fantastic)*.
- Review or explain that *adjectives* are words that describe nouns or pronouns. An adjective tells *which one, how many,* or *what kind*. Point out that more than one adjective can describe a noun.
- Write the following sentences on the board: *In 1944, two inventors worked together to build an even bigger and better computer. There have been millions of inventions over the years. It had more than 300 glass tubes and used one mile of wire.*

- Read each sentence, one at a time. Ask students to count the number of adjectives in each sentence (3, 1, 4). Ask them to hold up the same number of fingers as there are adjectives in each sentence.
- Have volunteers come to the board and circle the adjectives in each sentence. Then have different volunteers underline the noun or pronoun that each adjective describes.

Check for understanding: Have students identify and circle all the adjectives on pages 17 and 18 in their book. Have them underline the noun each adjective describes. Discuss their findings as a group. Ask volunteers to identify whether the adjectives describe which one, how many, or what kind.

- **Independent practice:** Introduce, explain, and have students complete the adjectives worksheet. If time allows, discuss their responses.

Word Work: Synonyms

- Write the word *useful* on the board. Ask students to suggest a word that means almost the same thing (*beneficial, handy, helpful*). Review or explain that a word that means the same or almost the same as another word is called a *synonym*.
- Ask students to explain why the use of synonyms is important in writing (they help to describe something in text, they make the writing more interesting and varied, and so on).
- Write the following sentence on the board: *Thomas Edison's first lightbulb has had many improvements*. Circle the word *improvements*. Ask students to use the context clues in the sentence to suggest a word that means the same or almost the same as *improvements* (*changes, repairs,* and so on). Write these words on the board.
- Ask students to explain how the word *improvements* allows readers to get a more accurate description of the changes to Edison's invention, rather than just using its synonym *changes*. Point out that not all synonyms are the most appropriate in a sentence, so writers need to think carefully about which word best expressed the thought.
- Show students a thesaurus. Model how to locate synonyms for the word *improvement* in the thesaurus. Write the synonyms on the board. Encourage students to look for the root or base word if they cannot find the word they're looking for in the thesaurus.
- **Check for understanding:** Give pairs of students a thesaurus. Ask them to locate the synonyms for the word *better* and write them on a separate piece of paper. Then have them choose one of the synonyms and use it to write a sentence on the paper. If needed, provide additional practice using a thesaurus.
- **Independent practice:** Introduce, explain, and have students complete the synonyms worksheet. If time allows, check their responses.

Build Fluency

Independent Reading

- Invite students to read their book independently or with a partner. Encourage repeated timed readings of a specific section of the book.

Home Connection

- Give students their book to take home to read with parents, caregivers, siblings, or friends. Have students identify with someone at home cause-and-effect relationships in their daily lives.

Extend the Reading

Writing and Art Connection

Have students use the Internet to research inventions. Ask them to locate information such as: the name of the invention, the need it fulfilled, who invented it, when it was invented, and what it looks like. Have students present the information in a written report. Invite them to share their report with the class.

Math Connection

Review the dates of each invention presented in the Writing and Art Connection. Have students create an appropriately spaced timeline that displays each of the inventions and its corresponding date.

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 ask relevant questions about a topic prior to and during reading; locate answers to their questions and write them on a worksheet
- accurately understand and identify cause-and-effect relationships in the text during discussion and on a worksheet
- accurately recognize adjectives and the nouns they describe during discussion and on a worksheet
- correctly identify and use synonyms during discussion and on a worksheet; understand how to use a thesaurus to locate synonyms for words

Comprehension Checks

- Book Quiz
- Retelling Rubric