

About the Book

Text Type: Nonfiction/Informational Page Count: 16 Word Count: 379

Book Summary

In this book, readers learn about four different kinds of simple machines: levers, inclined planes, pulleys, and wheels and axles. Common examples of each type demonstrate how simple machines such as hammers, knives, and ramps are used on a daily basis to make tasks easier. Illustrations support the text.

About the Lesson

Targeted Reading Strategy

- Ask and answer questions

Objectives

- Ask and answer questions to understand text
- Identify problem and solution in text
- Identify vowel digraph ee
- Identify adjectives
- Identify suffix *ing*

Materials

Green text indicates resources available on the website

- Book—*Simple Machines* (copy for each student)
- Chalkboard or dry-erase board
- Problem and solution, vowel digraph ee, adjectives, suffix *ing* 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

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

- Content words:

Story critical: **axle** (n.), **inclined plane** (n.), **lever** (n.), **pulley** (n.), **screw** (n.), **wedge** (n.)

Enrichment: *compound* (n.), *distance* (n.), *hinged* (n.), **machines** (n.), **simple** (adj.), **wheel** (n.)

Before Reading

Build Background

- Ask students whether they have ever used or watched anyone use a hammer. Ask them what a hammer is used for (pounding nails), whether the job could be done with a different object (such as a rock), or whether it could be done without a tool. Ask students whether they have ever used or watched anyone use a bottle opener. Explain to students that these two uses of tools are examples of simple machines.

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. (Accept any answers students can justify.)
- Show students the title page. Discuss the information on the page (title of book, author's name, illustrator's name).

Introduce the Reading Strategy: **Ask and answer questions**

- Review or explain to students that good readers often ask themselves *I wonder* questions before and during reading. This strategy helps them better understand and remember information in the book.
- Model asking and answering questions using the front cover.
Think-aloud: When I looked at the front cover of the book, I wondered about the connection between the objects. Also, I don't think of a hammer as a machine, so I wondered what it is about a hammer that makes it a machine. I'll have to read the book to find the answers to my questions.
- Encourage students to share any questions they may have about simple machines, based on the pictures on the covers.
- As students read, encourage them to use other reading strategies in addition to the targeted strategy presented in this section.

Introduce the Vocabulary

- Write the following words from the content vocabulary on the board: *pulley*, *axle*, and *wedge*.
- Point out that these three words can be found in the text and that knowing what they mean will help students understand what's happening as they read the book. Have students work in small groups. Give each group three pieces of blank paper and have them write one of the three vocabulary words on each page. For each word, have them write or draw what they know about the word. Create a definition for each word using students' prior knowledge.
- Have students follow along on page 10 as you read the sentence in which the word *pulley* is found to confirm the meaning. Repeat the exercise with the remaining vocabulary words.

Set the Purpose


- Have students read the book to find out more about simple machines and reflect on whether they use any in their daily life. Remind students to stop to ask themselves questions and find the answers as they read.

During Reading

Student Reading

- **Guide the reading:** Have students read to the end of page 8. Encourage those who finish early to go back and reread.
- Model asking and answering questions.
Think-aloud: The first time I read about an inclined plane on page 7, it didn't make sense to me, and I wondered what it was. When I read it again, I noticed the word ramp. Then I looked at the illustration, and I saw that a ramp was being used to get large barrels into the truck. By rereading the section and looking at the illustration, I answered my question, and I understood that an inclined plane is a ramp used to help move objects up. Then I was confident that I had read it correctly.
- Ask students how asking and answering questions, rereading, and looking at the illustrations helped them understand and make sense of the text.
- **Check for understanding:** Have students read to the end of page 10. Ask them to share examples of how they asked and answered questions while reading.

- Have students read the remainder of the book.

 Have students make a small question mark in their book beside any word they do not understand or cannot pronounce. These can be addressed in the discussion that follows.

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:** *On page 10, I wondered about the connection between the flag and the other object shown in the illustration. After I read the page, I looked closely at the illustration and saw the pulley at the top of the flagpole. I understood how the pulley made it easier to raise and lower the flag by pulling on the rope.*
- Have students share any other questions they had while they were reading.
- Discuss additional strategies students used to understand and remember what they read.

Introduce the Comprehension Skill: Problem and solution

- **Discussion:** Direct students to page 6. Ask them what problem the man in the illustration is solving (the barrels are large and too heavy to pick up and lift into the truck). Ask what he is doing to solve the problem (pushing and rolling the barrels up a sloping, or inclined ramp).
- **Introduce and model:** Write the following words on the board: *problem* and *solution*. Review or explain that a *problem* is something that must be worked out or solved (such as not being able to move a large, heavy barrel). A *solution* is an act or a process of solving the problem (in this case, finding a tool to help move the barrels).
- Discuss with students how simple machines came to be invented. Point out that someone must have had a problem that needed to be solved. Ask students to share an example of another problem in daily life that required the invention of a simple machine (opening a bottle or can). Ask what solution was found (a bottle opener).
- **Check for understanding:** Have students turn to page 9. Ask them to name the two problems in the illustration (making two pieces of wood stay fixed together, making a lid stay tightly closed). Ask students what solutions were found (screws, screw-on lid).
- **Independent practice:** Introduce, explain, and have students complete the [problem-and-solution worksheet](#). If time allows, discuss their responses.
- **Extend the discussion:** Ask students to think of examples of other simple machines in addition to the ones mentioned in the text. Have them identify the problem that led to the invention, or solution.

Build Skills

Phonics: Vowel digraph ee

- Write the word *wheel* on the board and say it aloud with students. Have students say the long /e/ sound aloud. Then run your finger under the letters in the word as students say the whole word aloud. Ask students which letters together stand for the long /e/ sound in the word *wheel*.
- Underline the ee digraph. Explain to students that sometimes two vowels combine to make one sound. Point out that the ee digraph in the middle of the word *wheel* stands for the long /e/ sound.
- Have students practice writing the ee digraph on a separate piece of paper as they say the sound the digraph stands for.
- Ask students to turn to page 15 and circle all the words with the vowel digraph ee. Have students share their findings.

- **Check for understanding:** Write the following words on the board, leaving out the ee digraph: *need, sweep, seen*. Have students complete and write each word on a separate piece of paper. Then have students read each word aloud to a partner.
- **Independent practice:** Introduce, explain, and have students complete the [vowel digraph ee worksheet](#). If time allows, discuss their responses.

Grammar and Mechanics: **Adjectives**

- Write the following sentence on the board: *They are called simple machines*. Ask students to tell the word that describes the *machines* (*simple*). Explain to students that *adjectives* describe people, places, and things. An adjective tells *which one, how many, or what kind*. Review or explain that *machines* is a noun because it is a thing. *Nouns* name *people, places, or things*. The adjective *simple* describes the noun *machines*.
- ✍️ **Check for understanding:** Have students work in pairs to look through the rest of the book and circle all the adjectives and underline the nouns they describe. Have them write the adjectives on a list. Invite students to share their list of words.
- **Independent practice:** Introduce, explain, and have students complete the [adjectives worksheet](#). If time allows, discuss their answers.

Word Work: **Suffix ing**

- Write the word *doing* on the board. Ask students to identify the root word (*do*) and write it next to *doing*. Have students use each word in a sentence.
- Explain or review that a *suffix* is a syllable, or group of letters, added to the end of a word to alter or change its meaning or its verb tense. An example of a suffix is *ing*.
- Write the words *open* and *work* on the board. Have students work in pairs, to add the suffix *ing* to each word (*opening* and *working*). Discuss how the suffix *ing* changes the word and changes its meaning to an ongoing action (verb) or an adjective, depending on how it is used in the sentence.
- ✍️ **Check for understanding:** Have students turn to pages 13 and 14 and circle the words with the suffix *ing* (*steering, moving*).
- **Independent practice:** Introduce, explain, and have students complete the [suffix ing worksheet](#). If time allows, discuss their answers aloud after they are finished.

Build Fluency

Independent Reading

- Invite students to read their book independently. Additionally, invite partners to 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.

Extend the Reading

Writing Connection

Have students write about a simple machine they have used recently. Have them explain the different parts of the machine. Ask students to describe how they worked with the tool to help them accomplish a task. Have them identify the problem solved by the tool and encourage them to think about how much more difficult their task would have been without it.

Science Connection

Study simple machines as a science unit. Use this book to introduce the concept, to tie in the activities that the class is doing, or to solidify the information that has been taught in class as a culminating guided reading activity.

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 generate questions and find answers while reading
- accurately identify problems and solutions during discussion and on a worksheet
- correctly identify the vowel digraph *ee* in words during discussion and on a worksheet
- accurately identify adjectives during discussion and on a worksheet
- correctly identify suffix *ing*

Comprehension Checks

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