

The Mighty Lever

Grade 3
Science



The Mighty Lever

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Book Summary

This nonfiction text gives information about levers and how they work. It also includes an activity for investigating levers.

Text Features

- mixed forms of text: narrative/nonfiction expository text
- procedural text
- illustrations and photographs support text
- table of contents
- content vocabulary in bold text
- labeled diagrams
- glossary
- follow-up questions

Content Words

tool, lever, forces, lever arm, fulcrum, load, simple machine, effort, compound levers, catapult

Working with Words

definitions

Skills and Strategies

- accessing prior information
- asking questions
- using text, photographs, illustrations, and diagrams to learn information
- importance of boldfaced words in text

Cross-Curricular Link
Science

ETA 273017
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GRL	DRA	EI
M	28	N/A
Text Type Narrative/procedure		

GRL = Guided Reading Level
DRA = Developmental Reading
Assessment Level
EI = Early Intervention Level

*Blackline Masters for InfoTrek books
can be found at our website:
www.etacuisenaire.com/infotrek*



Before Reading

Activating Prior Knowledge

- Bring in several tools for display—scissors, hammer, pliers, tongs, etc. Discuss why we need these tools and inform students that they are called simple machines. Explain that a simple machine is a tool that makes work easier by using only muscle power. Discuss how each tool on display makes work easier.

Introducing the Book

- Show the cover of the book and read the title. Talk about the machine on the cover. Note that this photo was taken in space. Ask, *What do you know about the Canadarm?*
- Look at the table of contents. Ask students where they would look to find out more about levers in space. Ask, *Is there a glossary? How do you think you might use it while you're reading the book?*



During Reading

Reading the Text

Pages 2-3: Explain to students that this book includes short narrative stories in which a character has a problem. These end with a problem to be solved and a question. Have students read pages 2 and 3 to find out about Sonia's problem.

Page 4: *Read to find out which tool Sonia uses. What other things could she have used to open the can?*

Pages 5-6: Read the main heading. Ask, *What do headings tell the reader?* Have students role-play pushing and then pulling. Explain that when they do this, they use force. Have them read to the end of page 6 to learn about pulling and pushing.

Page 7: *What makes a grocery cart and a bottle opener simple machines? What makes them work?*

Pages 8-9: Read the text together, looking

carefully at the illustration and photo. Read the labels. Notice that the labels are the same. Discuss whether or not these simple machines do the same job.

Page 10: *What is Sonia's problem?* Have students suggest possible solutions.

Pages 11-13: Look at the diagrams. After reading, have students explain what is happening in each photo.

Pages 14-15: Help students apply the information learned on page 14 to the problem Sonia is having with her dad on the seesaw. Compare to the suggestions they made for solving the problem on page 10.

Pages 16-17: Share students' responses to the questions.

Pages 18-19: Have students look at the diagrams and explain what is different about these levers compared to the paint-can opener and the seesaw. Ask students to explain how a compound lever works.

Page 20: Have students describe a catapult and how it works as a lever.

Page 21: *What is the Canadarm? How is it used?* Help students identify the white at the top of the photo as Earth, as seen from space.

Pages 22-23: In each photo, how is the simple machine working to move, stop, or lift something?

Reading Independently

Encourage students to read the book independently. You might want to ask some students to read aloud. Observe and assist individual students as necessary.

- Did students use visuals to cross-check meaning?
- Did students self-monitor comprehension?



After Reading

Revisiting the Text

You may choose to do some or all of these activities.

- Have students use their books to respond to questions 1–3 on page 24. Encourage personal responses to question 4.
- Have students go through the book to find the words in boldface. When they encounter them, have them look in the glossary to see what definition is given there and whether it matches the description in the text.
- Review with students how procedural, or “how-to,” text works. [tells you materials you will need, tells you the steps in order, usually includes diagrams or photos, tells measurements or exact amounts]
- Have students work in partners to do the experiment on page 11. Assemble the needed materials. One student reads the first step; the other student completes the action. Then they switch roles. Have them make and complete a chart like the one on page 13.
- Encourage students to reread the book together as a group, with a partner, or independently.



Extension Activities

Reading with Fluency

Read some or all of the text aloud to model fluency. Model reading pages 8 and 9 using the labels, illustration, and photograph to help you understand the words *lever arm*, *fulcrum*, and *load*. Then ask partners to find a page in the book to read aloud together.

Drawing a Diagram

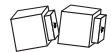
Have students pick one lever from page 16 or 17 and make a simple diagram to show how it works. Have them include labels.



Working with Words

Definitions

Using the glossary on page 24, have students write each word on one index card and its definition on another index card. Play “Concentration.” Turn all cards face down. A student turns over two cards, and if they match, the student scores a point. If not, the cards are turned over, and the next student has a turn.



Focusing on Alphabetical Order

Direct students’ attention to the glossary on page 24. Remind students that the words in the glossary appear in alphabetical order. When two words have the same first letter, such as *force* and *fulcrum*, then students need to look at the second letter to determine the alphabetical order. Select 8–10 Reading Rods® from the Sentence-Construction Kit that begin with the same consonant, or write 8–10 words on index cards. Ask students to build an alphabetical train, putting the Reading Rods in alphabetical order. Encourage students to tell where in the book’s glossary the words you selected would appear.



Cross-Curricular Link

Science

Bring in some levers and have students manipulate them. Let them feel whether or not they are pulling or pushing so that they understand the use of their muscles and the force needed to make the lever work.



ESL-ELL

Some students may benefit from making a drawing of a lever and labeling the load, fulcrum, and lever arm.

Student's Name: _____ Accuracy: _____ %
 Word Count: 144 (excerpt from book) Date: _____

Page	E	S.C.	Errors MSV	Self-Corrections MSV
<p>2 Sonia has a problem. She's helping her mother paint her bedroom. Sonia can hardly wait to get started. Her first job is to open the can of paint. She tries to pull the lid off, but she can't do it. The lid is sealed tight.</p>				
<p>3 Sonia takes the can downstairs to the workshop where the tools are. But there are so many tools, and they all look so different, Sonia doesn't know which one to use. Which tool will help Sonia lift the lid?</p>				
<p>4 Sonia uses this tool to open the can of paint. Without it, she wouldn't be able to lift the lid. This tool is a lever. A lever can help you lift or move objects. It makes work—such as opening a can of paint—a lot easier! Now Sonia and her mom can get started painting her bedroom.</p>				