

Let's Build a Bike

by Ravi Green



Overview

Machines have different parts that work together. This text looks closely at the parts of a bike and explains how they make the bike move. (Big idea: Scientists study how things move and work.)

Suggested purposes

This book supports the following **comprehension strategies**:

- forming and testing hypotheses about texts **H**
- identifying the main ideas **MI**
- summarising the main ideas. **SUM**

It supports the following **non-fiction strategies**:

- using close-up photographs
- reading diagrams to understand how things work.
- using a glossary (boldface type)

Key vocabulary

The vocabulary that is focused on includes:

- Anchor words – *forces, machines, move, parts, work*
- Content words – *bell, bikes, brakes, build, chain, control, frame, gears, handlebars, levers, lights, pedals, seat, tyres, treads, wheels*
- High-frequency words – *along, around, next, people, some, such*

Features of the text

- Non-fiction features:
 - cover flap, which provides support for identifying the big ideas and anchor words
 - the topic (machines), which expands on pages 14 and 15 of the anchor book *Being a Scientist*
 - preview question on the back cover
 - headings
 - close-up photographs and visual features that highlight the bike parts (blue highlight, arrows, labels)
 - captions
 - pedal and brake diagrams
 - contents page, glossary (boldface type), and index
- Word study:
 - prefixes – “bi-”, “tri-”, “uni-”
 - digraphs – “th”, “wh”, “ch”
 - vowel combinations – *too, smoothly, wheels, steep, squeezing, treads, road*
 - contractions – *it’s, let’s, there’s, won’t, you’ll, you’re*
 - prepositions – *around, on, onto, over, to, without*



Setting the scene

If you have already introduced the topic using the whole-class lesson plan and the anchor book (*Being a Scientist*), you can review the discussion and show the students pages 14 and 15 of the anchor book.

Have the students pretend that a Martian is visiting Earth and wants to know what a bike is. The students have to explain what a bike is, how it works, and what parts it has.

If possible, bring a bicycle into the classroom to refer to as you work your way through the lesson.

ELL support

ELL students may sometimes feel discouraged and disengaged because they don't understand the language. Therefore, it's important that they take ownership of their learning. One way to do this is to provide choice in their assignments.

The first reading

Page 2 – Explain that the contents page tells us what information is in the book. Look at the heading “A Strong Skeleton”. *What is a skeleton?* (Refer to the glossary if the students are unsure.) *Why is it important to have one? What part of a bike is like a skeleton?*

MI **Page 3** – Discuss the meaning of the anchor word “machines” (see vocabulary activity). **(Main idea)** *Why is a bike a machine?*

MI **Page 4** – **(Main idea)** *How important is the frame of a bike? Point out “frame”.* Explain that it is a key word giving information about a bike. Look up “frame” in the glossary. *Could a bike work without one? Why/why not?*

Page 5 – *Why do you think it is important that a bike frame isn't too heavy?*

MI **Pages 6 and 7** – Look at the photographs. **(Main idea)** *What do they show about the number of wheels bikes have?* Read the question on page 7. The students can predict what a one-wheeled bike is called. Prompt them to think of other words that begin with “uni” (unicorn, uniform). Write “uni” on the board and explain that “uni” means “one”. Explain that we use this prefix before “cycle” so we know it has only one wheel.

Pages 8 and 9 – Discuss the close-up photographs. Explain that a close-up photograph shows more detail. Ask the students to compare the two treads. *What words would you use to describe each tread? Which tread*

Introducing the book

Front cover – Discuss the title and the cover photograph. *What do you think the boy is doing?*

Back cover – Read aloud the preview question. Lead a discussion with the students to build their background knowledge.

Using the flap – Read aloud the text on the flap, and (if relevant) remind the students that they have read this in *Being a Scientist*. Read aloud the anchor words on the other side of the flap. Tell the students that they can point out the words when they find them in the book. Ask them to leave the flap open as they read.

Title page – Look at the photographs. *What parts of a bike can you see? Could you build a bike using only these parts? What parts are missing?*

would be better for riding on the road? Which would be better for mountain-bike riding?

Pages 10 and 11 – **(Forming and testing hypotheses)** **H** Before reading these pages, ask the students to suggest how pedals make a bike move. *What are pedals for?* (somewhere to place your feet as well as to power the bike) Test their hypotheses using the classroom bike. Refer them to the diagram on page 11. *Were you correct? How?*

Pages 12 and 13 – Look at the photograph on page 12. *Which part is shaded in blue?* Prompt the students to use the content word “gears”. **(Forming and testing hypotheses)** **H** *How do you think gears make riding easier? Why does a bike have gears?* Have the students read on and reflect on the answers to the questions. **(Main idea)** **MI** Observe how the classroom bike moves in different gears.

Pages 14 and 15 – **(Forming and testing hypotheses)** **H** *Why are handlebars such an important part of this machine? What would happen if they weren't there?*

Pages 16 and 17 – **(Main idea)** **MI** Discuss the heading “Brake!” *What is a brake? Why does a bike need brakes? What would happen if there weren't any brakes?* Look at the diagram on page 17 and check the students' understanding of how brakes work. Have them use the brake lever on the classroom bike to see the brake pads pressing and releasing.

MI **Pages 18 and 19 – (Main idea)** Why does a bike need a seat? Why might a bell and lights be important?

Page 20 – The bike now has all its parts. What is missing? How will the bike move?

Pages 21 and 22 – Was your prediction correct?

SUM Focus on the anchor word “forces”. (**Summarising**) Summarise the important parts of the bike. Encourage the students to think about other machines and the forces that move them, such as skateboards, scooters, kayaks, and shopping trolleys.

Vocabulary activity

Focus word: machines

1. Turn to page 3 and reread the text. *Bikes are amazing machines.*
2. Write “machines” on the board. Say “*machine*” with me. Point out that the “ch” sounds like “sh” and the end has an “e” sound.
3. Explain that machines make our lives easier. They help us lift, push, pull, turn, cut, and join things. Machines have different parts. To make a machine move, it needs to have force applied. A bicycle needs feet to push the pedals.
4. Discuss different machines and how they work. For example, your hands make scissors move so they can cut things; you push a pizza cutter to make the round blade cut the pizza; you push the handles of a nutcracker to crush a nut. *What machines do you use?*
5. Tell the students you are going to name some items. With a partner, the students can discuss whether it is a machine or not a machine. If it is a machine, can they can tell how it works?
 - *Is an eggbeater a machine? Why/why not?*
 - *Is a can opener a machine? Why/why not?*
 - *Is a bed a machine? Why/why not?*
 - *Is a wheelchair a machine? Why/why not?*
 - *Is a wheelbarrow a machine? Why/why not?*
6. *What’s the word you’ve been learning that means a tool that does a task?* Ask the students to say “machines” again with you.

ELL activity

Language objective: Parts of speech – prepositions

- Write the following words on the board: around, on, onto, over, without.
- Read aloud the words. Demonstrate the meaning of “around”. Walk around a chair and move a pencil around a piece of paper. Have the students model the action of “around”.

- Explain that these words are prepositions. *Let’s say it together – preposition.* Explain that prepositions indicate location. They tell where something is or where something goes. For example, handlebars turn the front wheel so you can go around corners.
- *Let’s look at “without”.* How can we show the meaning of this word? Place a pencil container on the table. *Here is the pencil holder with pencils in it.* Take the pencils out of the holder. *Here is the pencil holder without pencils.* Model this again.
- Ask the students to model with a partner the meanings of the other words on the list. They can then model the meanings for the group.
- The students can now read the sentences in the book with these prepositions.
- As an extension, they can generate a list of other prepositions.

Ideas for revisiting the text

1. Review and check

- Listen as the students reread the text. Observe their self-monitoring and their use of reading strategies to make sense of the text (rereading, reading on, breaking words into parts).
- Monitor their confidence and fluency with key vocabulary.
- Ensure that the students understand that scientists put together and pull apart machines to figure out how they work. *Why would it be difficult to figure out how something works if we couldn’t pull it apart or build it? Could scientists figure it out another way?*

2. Stop and learn

a. Decoding/word attack activities

BLM – Using contractions

- Look at the cover and write “Let’s” on the board.
- *Why is there an apostrophe between “t” and “s”?* *What would the word be without the apostrophe?* Explain that “let’s” is a contraction and that the apostrophe marks the missing letters.
- Ask the students to skim and scan the text to identify other contractions.
- The students can complete the BLM by matching the contractions with the words. They can then write each word as a contraction, then write a sentence containing two contractions.

Using digraphs – “ch”

Draw a two-column chart on the board. Write “ch” (as in chop) and “ch” (as in chef) at the top of each column. Explain that these are different sounds that

“ch” can make. Ask the students to think of words that include “ch” and focus on the sounds that the letters make. In pairs, the students can find words from the book and/or a dictionary and include them under these headings.

b. Comprehension activities

BLM – Summarising

Have the students reread *Let's Build a Bike*. To summarise the information, they can write a short caption for each box explaining how the part works.

Using the index

Turn to the index. *What does an index do?* Ask the students to create a two-column chart with the headings “Page numbers” and “Facts”. They can find the index entry for “wheels” and write two facts about wheels for each page listed in the index.

c. Writing activities

- Ask the students to invent a machine of the future. They can draw a picture of their machine, name it, label the parts, and write a brief summary of how each part works.
- Have the students imagine they are part of a bike and write a fictional story from its point of view. Before writing the story, they can brainstorm what they might experience. Encourage them to think about their senses (touch, taste, smell, hear), their journeys, and their rider.

3. Suggestions for further activities

- In pairs, the students can conduct an interview with one person playing the role of the bike and the other of an interviewer. Encourage them to use information from the text to form questions and answers. Ask volunteers to share their interview with the class.
- Make a human bike by having each student role-play a separate part. Challenge the students to move as a whole bike around the room.
- Use the Internet to research famous bike races such as the Tour de France.