Getting Started

Show the cover and read the title aloud. Ask the students how they know how big something is. Provide a few examples: A grownup is bigger than a 10-year-old when we compare their heights. A baseball is bigger than a tennis ball when we compare their weights. A python is bigger than a worm when we compare their lengths.

Point out that the cover photo has been altered to show how a subway train compares to the Great Pyramid at Giza. Show two or three other photos in the book and read a few entries from the Contents to give students an idea about the information in the book. Explain that instead of reading the entire book at once, you will look only at the page that shows the photo on the cover. Then use the following lesson ideas in the order they appear.

LESSON IDEAS

Introduce a Problem

• Turn to page 13 and read the text aloud. Show the photo and ask: What shape is the base of the pyramid? What shape are its sides?

• Define its height: Imagine a vertical line going from the middle of the pyramid’s base straight to its tip. That is the height of the pyramid. It is shorter than the slant height of the pyramid.

• Run your finger along the train from the ground to the tip. Say: Talk to a partner about how you could figure out the length of one subway car.
Discuss Strategies

- When everyone is ready, have students share their ideas with the class. As students report, record their ideas on the board. They will serve as a reference for students to use when they solve the problem. Then add to the list any of the following strategies that weren't suggested.
  - Guess the length of a train car and multiply by the number of cars. Then compare it to the height and adjust the number.
  - Guess the slant height by comparing it to the vertical height. Halve the slant height to get the length of four cars, then halve it twice more.

Solve the Problem

- Tell students that the slant height of the Great Pyramid is 610 feet or 186 meters. Remind them the vertical height is 449 feet or 137 meters. Sketch a pyramid on the board and indicate the measurements.

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slant height = 610 ft or 186 m
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- Explain that feet are a **height = 449 ft or 137 m** in the U.S. Customary system and that meters are a measurement of length in the metric system. Say: **Work in pairs to figure out the length of one subway car. Use either feet or meters, whichever you like. Show your work with words, numbers, and pictures.**

- When all pairs are ready, ask students to present their solutions and strategies to the class. Point out that their solutions are as accurate as they can be, but that they are estimates because measurement is never exact.

Solve and Discuss Another Problem

- Organize students into five groups and give each a copy of the book. Have them look through the book to locate three photographs that they like. Say: **For each photograph, create a problem that compares the objects shown. Your problem should describe the objects you are comparing, contain the measurements, and end in a question. You can include a drawing, if you want. Write each problem on a separate piece of paper.**

- Collect the problems and redistribute them, giving one to each pair of students. Have students solve the problem on a different piece of paper.

- Collect the problems again and repeat the activity on another day.