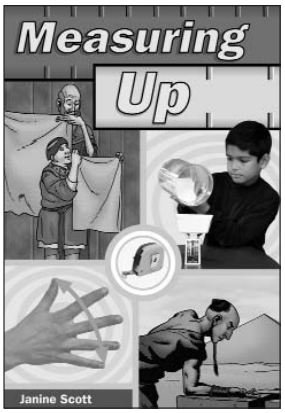
Measuring Up

by Janine Scott



Book Summary

People use all kinds of tools to measure distance, weight, area, and time. This book explains how these things were measured in the past and the history of the measuring tools and systems that we use today.

Features of the Book

- Comparison of past and present measuring systems
- Procedural text
- Specialized vocabulary – *thermometer, units, standard, area, milestone, paces, imperial*

Purpose

Measuring Up can be used to introduce and reinforce the following skills and understandings:

- **S** identifying problems and predicting outcomes;
- **S** making inferences and supporting them with evidence from the text;
- **S** exploring word families;
- **S** developing an argument based on information in the text;
- **S** exploring the ways that people measure distance, weight, area, and time.

Investigation Tools

- Digging Deeper – How Hot Is It?, page 4
- Looking Closer – Digits, Hands, and Spans, page 7
- What's the Background? – Royal Standards, page 11
- Making Connections – Imperial and Metric Measurements, page 13
- Step-by-step – Measure the Area of Your Foot, pages 24–25

The Guided Reading Lesson

- **S** Identifying problems and predicting outcomes
- **S** Making inferences and supporting them with evidence from the text

You may need to spend extra time familiarizing your students with the concepts and specialized vocabulary in this book. This lesson could be taken over two or more days.

Introducing the text

Write the following questions on the board:

- *Who in our group is the tallest?*
- *Who can run the fastest?*
- *Who lives the farthest from school?*

Ask the students to answer each question and to justify their answers. Include units of measurement and the names of measuring tools in the discussion.

Together, look at the cover of the book, then read the blurb on the back, the contents page, and the introduction.

– *How do you think people measured things in the past?*

Reading and discussing the text

Ask the students to read to the end of page 6, then look at page 7 together.

– *What problems do you think people had when they measured in this way?*
– *How could these problems be solved?*
– *What units of measurement do we use today?*
– *How do you think we got this system?*

Ask the students to read to the end of chapter 1.

– *Look at the picture on page 9. Which trader would you prefer to buy cloth from? Why?*
– *Why do you think some people didn't like using the king's measuring system?*

Encourage the students to support their answers with evidence from the text.

Ask the students to read pages 14 and 15.

– *How did people in the past measure distance?*
– *What problems would they have had?*
– *How could these problems be solved?*

Read page 16 together.

– *Do you think the invention of the mile would've solved these problems?*
– *What other unit is used to measure long distances?* (kilometers)

The students can now read the rest of the book independently. Write the following guiding questions on the board:

– *Why aren't heavy things measured in ounces or grams?*
– *Would you rather measure a regular shape or an irregular shape? Why?*
– *Why would a sundial be difficult to use?*

When they have read the book, discuss the questions. Encourage the students to support their answers with evidence from the text. Explain that good readers use what they already know as well as what the text tells them to draw conclusions. This helps them to learn more than what is in the text.

Revisiting the Text

The activities below can be used immediately after the guided reading lesson, during later reading sessions as mini-lessons, or as independent activities.

S Exploring word families

Write "kilometer" on the board. Draw a line between "kilo" and "meter."

– *What does "kilo" mean?* (a thousand)
– *What does "meter" mean?* (a unit of length)

With the students, check the meanings of both words in the dictionary. Ask them to find other words in the text that contain "kilo" or "meter" (kilogram, centimeter). The students can then use the dictionary to find more of these words and to check their meaning.

S Developing an argument based on information in the text

Write "Everybody should use the same measuring system" on the board. Underneath, write "For" and "Against." Encourage the students to write their ideas in the appropriate columns. Use the following questions to focus their thinking:

– *What problems can occur when people use different measuring systems?*
– *How would people decide which system to use?*

The students can use the blackline master on page 79 to develop their own argument either for or against this statement.

S Exploring the ways that people measure distance, weight, area, and time

On the board, write:
How could you measure:
the distance from home to school
the width of a table
the weight of an elephant
the area of a cake
the time it takes to read a book?
Discuss how you would measure these things. If you have the necessary equipment, the students could estimate and measure some of the items.