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Measuring Our World

Summary

This book presents tools of measurement—including a thermometer, compass, weathervane, and speedometer—that can be used to measure the attributes of direction, length, weight, quantity, time, and speed.

Science Focus

The Nature of Science

- Objects can be described in terms of their physical properties (attributes).
- Tools such as rulers, thermometers, scales, and magnifiers often give more information about something observed.
- Things in nature and things people make have different sizes, weights, ages, and speeds.

INTRODUCTION TO THE READING

Vocabulary and Comprehension Mini-Lesson

Differentiated Lessons: Before you begin a mini-lesson, determine the students' levels of language proficiency (see page 4) and group students accordingly. For the activities, you will need the following materials:

- mini-lessons provided on the following pages
- *Measuring Our World*
- *Measuring Our World* photo card
- chart paper or a whiteboard
- crayons or colored pencils
- large index cards
- drawing paper



Measuring Our World

INTRODUCTION TO THE READING Vocabulary and Comprehension Mini-Lesson

LEVEL: Intermediate

Content Vocabulary: clock, measure, ruler, scale, thermometer, tool

Vocabulary Application

- Show the *Measuring Our World* photo card and ask, “What is the boy holding? Why do we use this tool?” Then say, “The boy is holding a thermometer. A thermometer measures temperature.” Continue by saying, “We use other tools to help us measure. Can you name some measuring tools that we have in our classroom?” Encourage students to name and point to measuring tools around the classroom. Write students’ responses on chart paper or a whiteboard.
- Write all the vocabulary words on the chart paper or whiteboard. As you write, say the words aloud. As a class, write a definition for each of the vocabulary words. (Sample definitions are provided in the Glossary.) Together, read aloud the words and definitions.
- Distribute large index cards and crayons or colored pencils to students. Ask each student to draw one of the tools on the card. Once students are finished, have them attach their cards next to the appropriate words on the chart paper or whiteboard.

Comprehension—using charts to organize information

- Read the words and definitions from the Vocabulary Application activity. Then say, “We have listed many tools that measure. Let’s create a chart that lists tools and what they measure.” Tell students to scan the book for tools to add to the list. Draw a T-chart on chart paper or a whiteboard. Use the following T-chart as a guide:

Measuring Tools	Use

- Record students’ answers on the chart. Then distribute drawing paper. Ask each student to draw a picture of a person using one of the listed tools. Divide students into pairs so they can describe their pictures to each other.

READ-ALoud

After completing the INTRODUCTION TO THE READING activities, read *Measuring Our World* aloud as students follow along with their individual readers.

Measuring Our World

INTRODUCTION TO THE READING Vocabulary and Comprehension Mini-Lesson

LEVEL: Advanced

Content Vocabulary: clock, compass, gauge, instrument, measure, rain, ruler, scale, thermometer

Vocabulary Application

- Show the *Measuring Our World* photo card and ask, “What is this boy holding? How does this tool or instrument help him to know what he should wear outside?” Then say, “The boy is holding a thermometer. A thermometer is an instrument that measures temperature.” Continue by saying, “We use other tools or instruments to help us measure. Can you name some other tools that we have in our classroom?” Write students’ responses as complete sentences on chart paper or a whiteboard. For example, a student could say, “We use a ruler to measure distance.” Encourage students to point to the instruments as they say them.
- Write all the vocabulary words on the chart paper or whiteboard. As you write, say the words aloud. As a class, write a definition for each of the vocabulary words. (Sample definitions are provided in the Glossary.)
- Distribute large index cards and crayons or colored pencils to students. Ask each student to illustrate one of the listed sentences on his or her card. Once students are finished, have them attach their cards next to the appropriate sentences on the chart paper or whiteboard. As a class, read aloud the words and definitions.

Comprehension—asking and answering questions

- Write *who*, *what*, *where*, *when*, *why*, and *how* on chart paper or a whiteboard. Model asking questions using the vocabulary words and sentences from the Vocabulary Application activity.
- Divide students into pairs so students can ask each other questions. Remind students to respond in complete sentences. For example, one student could ask, “What do you use to measure how much an apple weighs?” This student’s partner could say, “I use a scale to measure how much an apple weighs.”
- Give each student a piece of drawing paper folded in half. Have students write questions on the outside and the answers with illustrations on the inside. Once students are finished, have them turn to their partners and ask the written questions. The partners should then answer the questions in complete sentences.

READ-ALoud

After completing the INTRODUCTION TO THE READING activities, read *Measuring Our World* aloud as students follow along with their individual readers.

Measuring Our World

GUIDED SESSION

Choose one of the teaching points based on your diagnosis of the class’s needs. Activate background knowledge and set a purpose for reading during the discussion about the teaching point. The teaching point will determine the purpose of the reading. Here are descriptions of several teaching points for *Measuring Our World*.

Teaching Points

Writing Craft	using the beginning-question technique, understanding contrast, using commas in a series
Text Features	analyzing captions and charts, using the glossary
Comprehension Strategy	making predictions, retelling
Decoding and Phonics Feature	scanning for repetition (<i>measure</i>), analyzing beginning sounds

Writing Craft—using the beginning-question technique

- Explain that a good writer knows how to get readers involved from the start. One way a writer can do this is by hooking a reader with a beginning question, as if to say, “Here’s a good question. Let’s find the answer together.”
- Have students turn to page 2. Ask, “What question does the author ask at the beginning of the book?” Students should say, “How big is this snake?” Help students recognize that, in the photo on the page, the snake is compared to a penny. This tells us the snake’s size.
- For fun, have students brainstorm a list of animals or objects that are around the same size as a penny. Encourage students to look for ways to measure size as they read the book.

Writing Craft—understanding contrast

- Introduce the idea of contrast by asking students to list some opposites they know, especially those related to the subject of measurement. Students might share the following answers: *small/big*, *heavy/light*, *tall/short*, and *wide/narrow*.
- Review the definition of *antonym*—a word that means the opposite of another word—and explain that the author of *Measuring Our World* presents information through the use of contrast. Tell students to silently read the text on page 3. Ask, “What antonyms do you see?” (*hot/cold*). Direct students to look for other opposites as they read the book.

Measuring Our World

GUIDED SESSION *(cont.)*

Text Features—analyzing captions and charts

- Have students scan *Measuring Our World*, making sure to look at all the pictures and captions. Tell students to make predictions about what they think they'll learn when they read the book. Then direct students to read the charts on pages 13 and 14. Ask, "What are the charts about? What can you learn from them?" Say, "Charts can help you make predictions about the text." Encourage students to include pictures, captions, and charts in their independent writing.

Decoding and Phonics Feature—scanning for repetition (*measure*)

- Say and write the word *measure* on chart paper or a whiteboard. Tell students to repeat the word. As a class, brainstorm other forms of the word, such as *measurement*, *measuring*, *measured*, *measurable*, and *immeasurable*. Have students watch for these various forms as they read.

INDEPENDENT READING

- Observe student groups as they read *Measuring Our World* independently. If students are struggling, provide just enough support with appropriate strategies or skills to help them continue reading independently. For students needing further reading practice and reinforcement, use the CD for an audio reading of the book. Students can follow along silently with the first reading of the story and then read aloud with the second reading.
- Address decoding problems as they arise. Encourage the student who is having difficulty with a specific word to consider the word's beginning sound. Ask, "What sound does the word begin with? Is there something in the picture that begins with that letter?" Instruct the student to look at the glossary to see what the word means.

WRITING AFTER READING

Strategy: Engage readers.

Target Skill: Practice using the beginning-question technique.

- Refer to the Writing Craft activity at the beginning of the GUIDED SESSION.
- Model how to use *how* in questions. For example, you could say, "How big is an elephant? How could we measure its size?"
- Distribute the small photo cards. Invite several students to ask *how* questions about the animals or objects shown on their photo cards. Later, with your guidance, have all the students write *how* questions about the animals or objects in their photos.
- Use literacy centers and journals for further opportunities to practice the skill.

Measuring Our World

WHOLE-GROUP GUIDED WRITING

Strategy: Alert your readers to a list in the text.

Target Skill: Practice using commas in a series to present a list.

- Tell students, “Writers alert their readers to a list by including commas in a series. They let you know when it is ending by saying the word *and* just before the last listed item.”
- Begin by modeling this activity. Tell students to turn to page 4. Read aloud the second sentence with expression. Say, “The sound of your voice helps you recognize that there are items in a list.” Have students scan the rest of the book for commas in a series, notating their findings. Then ask volunteers to share their lists using expression.
- Distribute the small photo cards to students. Encourage them to look at their photos and say sentences that contain lists. Ask for volunteers to share their lists using expression so that everyone can hear the commas. Then, with your guidance, have students write one or two sentences containing commas in a series and an *and*. Use literacy centers and journals for further opportunities to practice the skill.

SCIENCE CONNECTION

- Review the text and photos from *Measuring Our World*. Have volunteers retell the measuring tools they learned about. Write students’ responses on chart paper or a whiteboard. Then divide students into groups, providing each group with a list of objects to be measured. Tell the groups to look at the chart paper or whiteboard and select the best tool for measuring each object. Use page 14 with this activity.

ASSESSMENT AND STUDENT PAGES

- Use page 13 to assess students’ understanding of the information presented in *Measuring Our World*. Distribute photocopies for students to complete. Evaluate students’ responses to determine progress.
- Use pages 14 and 15 to reinforce the vocabulary in *Measuring Our World*. Distribute photocopies for students to complete. Review answers as a class or independently.

Assessment

Measuring Our World

Name: _____ Date: _____

Directions: Think about measuring tools you read about in *Measuring Our World*. Follow the four steps below.

Steps

1. List three tools that you read about in *Measuring Our World* (One tool has already been provided for you)
2. Write the key words about these tools in the chart.
3. Using complete sentences, answer the questions about the listed tools.
4. Use the Editor’s Checklist to help you proofread your writing.

Measuring Tools	Key Words
tape measure	distance, length

Questions

1. Look at the four measurement tools in the chart. Which of the four is easiest for you to use? Why?

2. Which of the four measurement tools is hardest for you to use? Why?

Editor’s Checklist

I have answered both questions using complete sentences.
 I have explained my answers.
 I started each sentence with a capital letter and ended it with a period.

Measuring Our World

Name: _____ Date: _____

Directions: Think about measuring tools you read about in *Measuring Our World*. Follow the four steps below.

Steps

1. List three tools that you read about in *Measuring Our World*. (One tool has already been provided for you.)
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1. Look at the four measurement tools in the chart. Which of the four is easiest for you to use? Why?

2. Which of the four measurement tools is hardest for you to use? Why?

Editor's Checklist

- I have answered both questions using complete sentences.
- I have explained my answers.
- I started each sentence with a capital letter and ended it with a period.

Measuring Our World

Name: _____ Date: _____

Directions: Look at the classroom objects in the first column. Then look at the type of measurement wanted. Choose the best tool to measure each object. Write your choices in the third column. Then measure each object and write your answer in the fourth column. An example has been done for you.

Object	Type of Measurement	Tool Needed	Actual Measurement
pencil	length	ruler	6 inches
math book	width		
box of crayons	weight		
poster	length		
desk (to door)	distance		
cup of water	temperature		

Measuring Our World

Name: _____ Date: _____

Directions: Fill in the blanks using the words in the Word Box.

Word Box

balance

compass

scale

calendar

measuring tape

thermometer

clock

ruler

weathervane

1. You use a _____ to measure length.
2. You use a _____ to measure temperature.
3. You use a _____ or a _____ to measure weight.
4. You use a _____ to measure distance.
5. You use a _____ to find out what direction you are facing.
6. You use a _____ to tell which way the wind is blowing.
7. You use a _____ to measure long periods of time.
8. You use a _____ to measure time in hours, minutes, or seconds.