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How to Use This Product

Kit Components

6 copies of 20 books

Teacher's Guide

Digital and Audio Resources
How to Use This Product (cont.)

Teacher’s Guide

Each five-day lesson sequence is organized in a consistent format for ease of use.

Overview

• The overview page includes learning objectives, a materials list, and a suggested timeline for the lesson.

Day 1

• Students are introduced to the book and the math concept or skill.
• Students build, expand, and apply understanding of the math concept or skill with concrete, representational, and abstract activities.

Days 2, 3, and 4

• Students complete reading and writing activities, as well as the “Let’s Explore Math” sidebars.

Day 5

• Students take what they’ve learned and apply it in context in the Problem Solving activity.
• Students take the reading and mathematics assessments.
How to Use This Product (cont.)

Student Activity Sheets and Assessments

- clear directions and activities that promote higher-order thinking skills
- reading and math quizzes with text-dependent questions
Introduction

How to Use This Product (cont.)

Pacing and Instructional Setting Options

The following pacing and instructional setting options show suggestions for how to use this product. *Mathematics Readers* is flexibly designed and can be used in tandem with a core curriculum within a mathematics block, literacy block, or both. Teachers should customize pacing according to student need (instruction may need to be extended over more days) and the teacher’s preferred instructional frameworks, such as Guided Math or Guided Reading. This suggestion reflects one lesson per book for each of the 20 books. Each lesson spans 5 instructional days and requires 30–45 minutes, for a total of approximately 65 hours over the course of 100 days.

<table>
<thead>
<tr>
<th>Day</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
<td>Before Reading and Mathematics Investigation</td>
<td>During Reading</td>
<td>During Reading (cont.)</td>
<td>After Reading</td>
<td>Problem Solving and Assessments</td>
</tr>
<tr>
<td>Instructional Time</td>
<td>45 minutes</td>
<td>30 minutes</td>
<td>30 minutes</td>
<td>45 minutes</td>
<td>45 minutes</td>
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*Mathematics Readers* within the Guided Math and Balanced Literacy Frameworks

**Classroom Environment of Numeracy and Literacy**—The books in *Mathematics Readers* contribute to an environment of numeracy and literacy by immersing students in real-world connections to mathematics and by giving students the opportunity to learn outside of content-area silos.

**Whole-Class Instruction**—The Before Reading activity in each *Mathematics Readers* lesson is a great opportunity to activate students’ prior knowledge and capture their interest in a topic.

**Small-Group Instruction**—The lessons in *Mathematics Readers* offer flexibility that allows students to complete Before Reading, Mathematics Investigation, During Reading, and After Reading activities in small groups or any other preferred instructional setting, depending on student need. These activities have differentiation suggestions and targeted objectives and give students time to work with manipulatives and models.

**Workshop**—The During Reading, After Reading, and Problem Solving activities in each *Mathematics Readers* lesson can be completed during Math or Reading Workshop, in centers or at workstations, depending on students’ previous learning experiences and their need for teacher support.

**Conferencing**—The Problem Solving activity and assessments in each *Mathematics Readers* lesson offer multiple opportunities for teachers and students to confer about concepts and ideas.

**Assessment**—*Mathematics Readers* offers multiple formative and summative assessment opportunities. Teachers can gain insight into student learning through reading and mathematics quizzes, small-group observations, analysis of written assignments, and a culminating activity.
Fun and Games: Mazes: Perimeter and Area

Materials
- Fun and Games: Mazes: Perimeter and Area books
- copies of student activity sheets (pages 208–213)
- square tiles (16 per student)
- The Maze (themaze.pdf)
- Graph Paper (graphpaper.pdf)

Learning Objectives
- Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade-appropriate topic or subject area.
- Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.
- Solve real-world mathematical problems related to the perimeter and area of rectangles where dimensions are whole numbers.

Mathematical Practices and Processes
- Reason abstractly and quantitatively.
- Model with mathematics.
- Attend to precision.
- Look for and express regularity in repeated reasoning.

Lesson Timeline

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Reading and Mathematics Investigation (pages 204–205)</td>
<td>During Reading (page 206)</td>
<td>During Reading (cont.) (page 206)</td>
<td>After Reading (page 206)</td>
<td>Problem Solving and Assessments (page 207)</td>
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<tr>
<td>45 minutes</td>
<td>30 minutes</td>
<td>30 minutes</td>
<td>45 minutes</td>
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</table>

- Identify unknown or unusual words and math terms in the text. Solve problems involving area and perimeter.
- Use strategies to determine the meanings of unknown words, and respond to the “Let’s Explore Math” sidebars.
- Write a fictional narrative about a walk through a maze.
- Review the vocabulary, complete the problem solving activity, and take the assessments.
Fun and Games: Mazes: Perimeter and Area (cont.)

Mathematics Vocabulary
• area
• length
• perimeter
• width

Before Reading

1. Distribute copies of The Maze (themaze.pdf) to students. Allow time for students to solve it.

2. Ask students to describe the strategies they used to solve the maze. Tell students that just like there are strategies that help people complete mazes, there are strategies that help readers determine the meanings of unknown words and phrases. Explain that synonyms, antonyms, examples, and definitions are all helpful in-text context clues.

3. Distribute the Fun and Games: Mazes: Perimeter and Area books and copies of the Unusual Words activity sheet (page 208) to students. Have students preview the text and record unknown or unusual words and math terms on their activity sheets. Save students’ activity sheets for later use.

Mathematics Investigation

Build Understanding

1. Have students examine the mazes on pages 7 and 10 of the Fun and Games: Mazes: Perimeter and Area books. Point out that although these mazes have twisting paths inside, the outer shapes are rectangles. Read the vocabulary words aloud. Guide students to create student-friendly definitions.

• What mathematical words can you use to describe the rectangles?
• How is describing the space covered by the mazes different from describing the distance around the mazes?

2. Distribute square tiles to each student. Ask students to use all 16 of their tiles to build rectangles that could hold a maze, and find the perimeters. (Note: Squares are valid solutions and can present rich discussion opportunities as to how they are special rectangles.)

• Challenge above-level learners to build all the possible rectangles with a perimeter of 16.
• Provide below-level learners and English language learners with a diagram of a rectangle with labels indicating length, width, area, and perimeter. Encourage them to refer to this diagram when solving area and perimeter problems to clarify their descriptions.

3. Ask students guiding questions to build understanding:

• What strategy did you use to find the perimeter and area of your rectangle? Are there different strategies that could be used?
• How does knowing the length and width of the rectangle help you to find the perimeter and area?
• How many different rectangles can be built using 16 square tiles? Will the perimeters and areas change?
Mathematics Investigation (cont.)

Expand Understanding
1. Ask students to explain how square tiles can help problem solvers find perimeter and area. Explain to students that diagrams can also be useful to find perimeter and area.

2. Distribute two copies of Graph Paper (graphpaper.pdf) from the Digital Resources to each student. Tell students they will draw rectangles for mazes. On the first sheet of graph paper, have students draw a rectangle with an area of 32 square units. On the second sheet of graph paper, have students draw a rectangle with a perimeter of 32 units. Ask students to label the length, width, area, and perimeter of each rectangle.
   - Provide below-level learners with square tiles to build rectangles before they draw them on graph paper.

3. Ask students guiding questions to expand understanding:
   - What do you know about each rectangle? How can you use what you already know to help you solve the problem?
   - How can you confirm the area of the first rectangle is 32 square units and the perimeter of the second rectangle is 32 units?
   - What units are used to describe the dimensions of the rectangle? What units are used to describe the area and perimeter?
   - Is there more than one possible solution for each rectangle?

Apply Understanding
1. Distribute copies of the Missing Measures activity sheet (page 209) to students. Explain to students that different measures are given for each rectangle.

2. Ask students questions to assess understanding:
   - How do you find the area of a rectangle?
   - How do you find the perimeter of a rectangle?
   - Is there another way to find area and perimeter?
   - How can you find the missing length or width when you know the area or perimeter?
Unusual Words

Directions: Write five unusual words from the text. Make sure one of the words is a math word. Then, write the meanings of the words and the strategies you used to determine the meanings.

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Strategy</th>
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<tbody>
<tr>
<td>1.</td>
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<td>4.</td>
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<tr>
<td>5. Math word:</td>
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Problem Solving: Maze Design

Directions: Use the workspace to plan, solve, and explain your thinking about the problems on page 28 of the book.