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To **Create** a World in which
Children Love to **Learn!**

Teacher Created Materials
PUBLISHING

MATHEMATICS READERS

Teacher's Guide

Table of Contents

Introduction

Unit 1: Place Value

Unit 2: Operations and Algebraic Reasoning

Unit 3: Measurement and Data

How to Use This Product

Kit Components

6 copies of 20 books

Teacher's Guide
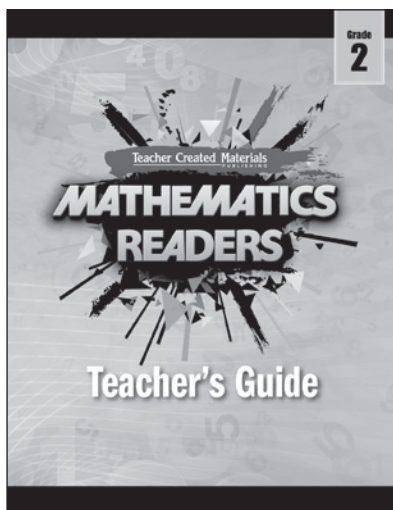
Digital and Audio Resources
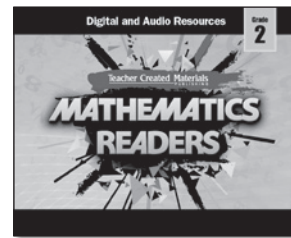
How to Use This Product *(cont.)*

Teacher's Guide

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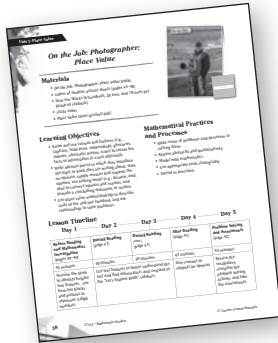
Overview

- The overview page includes learning objectives, a materials list, and a suggested timeline for lesson.
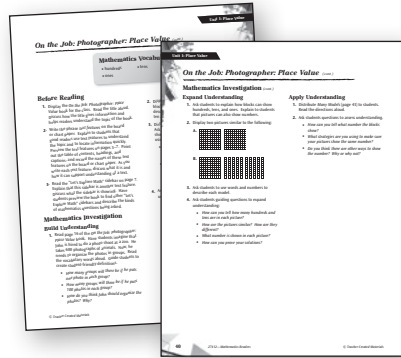
Day 1

- Students are introduced to the book and the math concept or skill.
- Students build, expand, and apply understanding of the math skill with concrete, representational, and abstract activities.
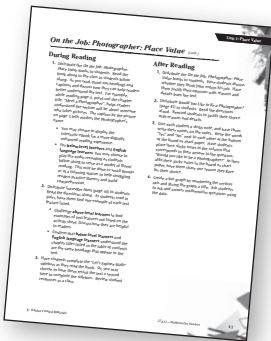
Days 2, 3, and 4

- Students complete reading and writing activities, as well as the "Let's Explore Math" sidebars.
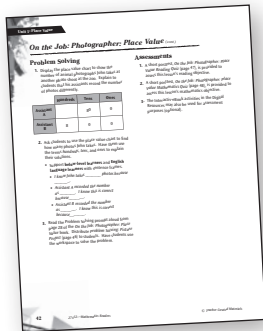
Day 5

- 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

Many Models

Name: _____ Date: _____

Directions: Draw 900 in two different ways. Use ▢ to stand for ▢.

▢ to stand for ▢, and ▢ to stand for ▢.

Would You Like to Be a Photographer?

Name: _____ Date: _____

Directions: Circle your answer to the question. Give reasons for your choice.

Would you like to be a photographer?

Yes   No

Reason: _____

Reason: _____

45

Problem Solving: Picture Perfect

Name: _____ Date: _____

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

46   27412—Mathematics Readers

reading and math quizzes with text-dependent questions

On the Job: Photographer: Place Value Reading Quiz

Name: _____ Date: _____

Directions: Read each question. Choose the best answer. Fill in the bubble for the answer you have chosen.

1. What does the chapter heading on page 16 tell readers?
   Ⓐ This chapter describes equipment.
   Ⓑ This chapter describes weddings.
   Ⓒ This chapter describes what happens during a photo shoot.
   Ⓓ This chapter describes sports photography.

2. Which text feature can readers use to find page numbers where chapters start?
   Ⓐ heading
   Ⓑ caption
   Ⓒ sidebar
   Ⓓ table of contents

3. What do the captions on pages 22 and 23 help readers understand?
   Ⓐ John uses a computer to edit and choose photos.
   Ⓑ John likes to take photos.
   Ⓒ The girl in the photos is John's daughter.
   Ⓓ John works in an office.

4. Photographers work hard to _____ exciting moments on film.
   Ⓐ hire
   Ⓑ vary
   Ⓒ distract
   Ⓓ capture

On the Job: Photographer: Place Value Mathematics Quiz

Name: _____ Date: _____

Directions: Solve each problem to show what you know.

1. Which of these statements is true?
   Ⓐ 700 is 1 more than 600.
   Ⓑ 700 is 10 more than 600.
   Ⓒ 700 is 100 more than 600.

2. Which of these statements is true?
   Ⓐ 20 ones = 200
   Ⓑ 20 tens = 200
   Ⓒ 20 hundreds = 200

3. Pencils are packed 10 per box. Maynard needs to pack 300 pencils. How many boxes does Maynard need? Use words, numbers, or pictures to show your thinking.

48   27412—Mathematics Readers

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.

Day	1	2	3	4	5
Activity	Before Reading and Mathematics Investigation	During Reading	During Reading *(cont.)*	After Reading	Problem Solving and Assessments
Instructional Time	45 minutes	30 minutes	30 minutes	45 minutes	45 minutes

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.

Amazing Animals: Honeybees: Place Value

Materials

- *Amazing Animals: Honeybees: Place Value* books
- copies of student activity sheets (pages 54–59)
- base-ten blocks (10 hundreds, 10 tens, and 10 ones per group of students)
- *Place Value Mats* (pvmats.pdf)

Learning Objectives

- Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
- Recall information from experiences or gather information from provided sources to answer a question.
- Apply place value understanding to determine the number of hundreds, tens, and ones in three-digit numbers.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Model with mathematics.
- Use appropriate tools strategically.
- Attend to precision.

Lesson Timeline

Day 1 .... **Day 2** .... **Day 3** .... **Day 4** .... **Day 5**

Before Reading and Mathematics Investigation (pages 50–51)	During Reading (page 52)	During Reading *(cont.)* (page 52)	After Reading (page 52)	Problem Solving and Assessments (page 53)
45 minutes	30 minutes	30 minutes	45 minutes	45 minutes
Preview the images in the text and write questions in a KWL chart. Use models to identify three-digit numbers and show that numbers can be represented in multiple ways.	Read the text in small groups, identify steps in the bees' honey-making procedure, and respond to the "Let's Explore Math" sidebars.		Review the text, taking notes to answer a question.	Review the vocabulary, complete the problem solving activity, and take the assessments.

Amazing Animals: Honeybees: Place Value (cont.)

Mathematics Vocabulary

- digit
- hundreds
- ones
- place value
- tens

Before Reading

1. Explain to students that *procedure* means "steps that are followed in a certain order to complete a task." Ask students to describe procedures they use to complete tasks in their daily lives.

2. Distribute the *Amazing Animals: Honeybees: Place Value* books. Explain that one of the topics included in the book is the procedure honeybees follow to make honey.

3. Explain to students that asking and answering questions about the text can help them monitor their comprehension and become more active readers. Create a KWL chart on the board or chart paper. Ask students what they already know about how honeybees make honey. Record their responses in the *K* column of the KWL chart.

4. Ask students to look at the photographs in the book. Ask them what questions they have about how honeybees make honey. Record students' questions in the *W* column of the KWL chart. Save the KWL chart for later use.

5. Have students preview the text and the "Let's Explore Math" sidebars to find a two- or three-digit number. Have them read their numbers to a partner.

## Mathematics Investigation

Build Understanding

1. Read aloud from page 10 of the *Amazing Animals: Honeybees: Place Value* book. Point out that bees can flap their wings close to 200 times per second. Read the vocabulary words aloud. Guide students to create student-friendly definitions.

   - *What does "two hundred" look like when written as a number?*

   - *What does each digit tell you about the number?*

   - *How could you represent 200 using only hundreds? Using only tens? Using only ones?*

2. Distribute base-ten blocks to students. Have students imagine that a bee flaps its wings 198 times. Ask students to use the blocks to build 198.

   - Have **above-level learners** use base-ten blocks to build 198 in multiple ways.

   - Have **below-level learners** use the *Place Value Mats* (pvmats.pdf) from the Digital Resources labeled with hundreds, tens, and ones to organize their base-ten models.

   - Have **English language learners** say *hundreds*, *tens*, and *ones* aloud as they organize their base-ten models.

3. Ask students guiding questions to build understanding.

   - *How do you know when to use hundreds, tens, or ones to represent numbers?*

   - *How many ones does it take to make a ten?*

   - *How many tens does it take to make a hundred?*

   - *How do you know how many hundreds, tens, and ones you will need to build a model?*

   - *How are digits and numbers different?*

Amazing Animals: Honeybees: Place Value (cont.)

Mathematics Investigation (cont.)

Expand Understanding

1. Ask students to explain how their models show 198. Explain to students that drawings, or representations, can also show numbers. Discuss how representations do not need to look just like the objects they stand for. Display examples similar to the following that show quick ways to draw hundreds, tens, and ones:

       1 hundred   1 ten   1 one
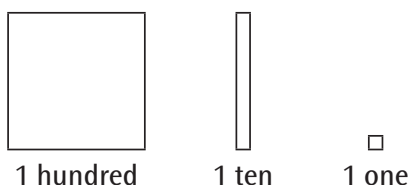
2. Distribute *Place Value Mats* (pvmats.pdf) from the Digital Resources to students. Ask students to predict the number of times a bee might flap its wings that is close to, but not equal to, 200 or 198. Ask students how they can show the number on their place value mats by drawing representations.

3. Ask students guiding questions to expand understanding.

- *When might you want to draw a picture of a base-ten block?*
- *Why do you think it doesn't matter the picture does not look exactly like the object?*
- *How can you prove that your drawing represents your number correctly?*
- *How many other drawings can you make to represent your number?*
- *What happens when there are more than 10 units in a place value?*

Apply Understanding

1. Distribute *Mystery Number* (page 54) to students. Read the directions aloud. Remind students to write their guesses after reading each clue to keep track of their thinking.

2. Ask students questions to assess understanding.

- *Which clues are most helpful for identifying the mystery number? Why?*
- *Why do you think it is important to keep track of your guesses?*
- *How can you check to be sure your mystery number is correct?*
- *How does understanding hundreds, tens, and ones help you guess the mystery number?*

Name: _____ Date: _____

Mystery Number

Directions: Guess the number after you read each clue. Then, explain your thinking.

Clues	Guesses
The number has three digits.	
The number is greater than 299 but less than 499.	
The hundreds digit is 3 less than the ones digit.	
The ones digit is represented by: ☐ ☐ ☐ ☐ ☐ ☐ ☐	
If you add the digits, the total is 17.	

The mystery number must be _____ because _____

_____

_____

_____

Name: _____ Date: _____

Making Honey

Directions: Draw lines to put the honey-making steps in order.

Step 1	Bees spit chewed nectar into the honeycomb part of the hive.
Step 2	Bees return to their hives and spit nectar into other bees' mouths.
Step 3	Bees flap their wings quickly to dry the nectar.
Step 4	Bees use their long tongues to drink nectar from flowers.
Step 5	Bees chew nectar for about 30 minutes.

Amazing Animals

Honeybees

Place Value

Kristy Stark

Table of Contents

The Lives of Honeybees

bee hive

One job that honeybees have is to build their homes. But they do not have to do it alone. Honeybees live in big groups called **colonies**. Colonies work together to build their homes. These homes are called hives. Most of the time, bees build their hives in trees.

The honey that people buy in stores comes from bee farms. The bees on farms do not build their hives in trees like wild honeybees do. The bees on farms live in big boxes that are used as their hives.

Bees on farms use boxes like these as their hives.

Look at the picture below. Find the number of honeybees.

Which of the following show the number of bees in the picture?

A. ▯▯▯▯▯▯▯▯

B. ▯▯▯▯▯▯▯▯▯▯

C. ▯▯▯▯▯▯▯▯▯▯▯

Honeybees have another job. They make honey from nectar. Nectar is a sweet juice found in flowers. Bees love the taste. They spend their days searching for nectar. One bee may drink nectar from hundreds and hundreds of flowers each day!

Honeybees use their long tongues to drink nectar from flowers. When they drink their fill, they go back to their hives. Once there, they spit into other bees' mouths. These bees chew the nectar for about 30 minutes. Then, they spit it into the honeycomb part of the hive.

bees in a honeycomb

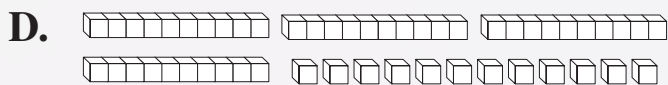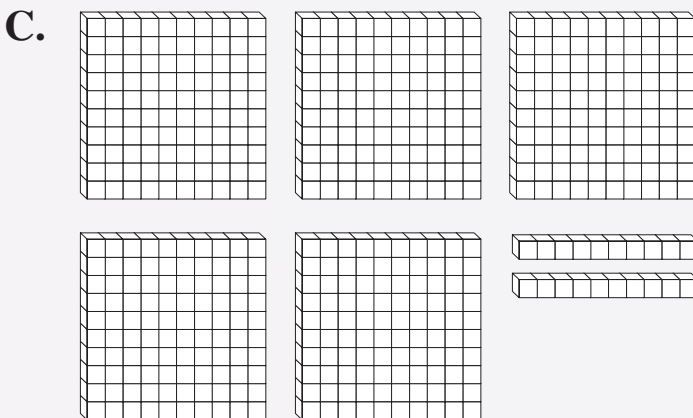A honeybee uses its tongue to suck up nectar from flowers.
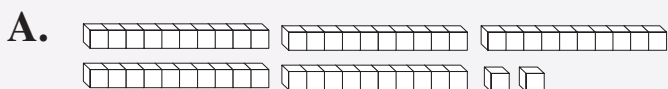
⚙ Problem Solving

José and Makayla have bees on their farm. First, the bees make honey. Then, they sell the honey.

1. José and Makayla have 52 hive boxes. Which of the following show 52?

A.

B.

C.

D.

2. José and Makayla add 8 more hive boxes. How many hive boxes do they have now? How do you know?

3. The bees on the farm make 108 pounds of honey in a month.

    a. Write 108 as a total of hundreds, tens, and ones.

    b. Draw the number line below, and plot 108.

$$\longleftarrow \overset{\textstyle 100}{|} \quad \overset{\textstyle 110}{|} \quad \overset{\textstyle 120}{|} \quad \overset{\textstyle 130}{|} \quad \overset{\textstyle 140}{|} \quad \overset{\textstyle 150}{|} \quad \overset{\textstyle 160}{|} \quad \overset{\textstyle 170}{|} \quad \overset{\textstyle 180}{|} \quad \overset{\textstyle 190}{|} \quad \overset{\textstyle 200}{|} \longrightarrow$$