Teaching Math Everywhere!

Interest Level: Grades 3–4
Reading Level: Grade 3

LERNER SOURCE™

Titles in this series:

Ball Game Math
Kitchen Math
Math on the Move
Shopping Trip Math

Standards

Common Core Mathematics

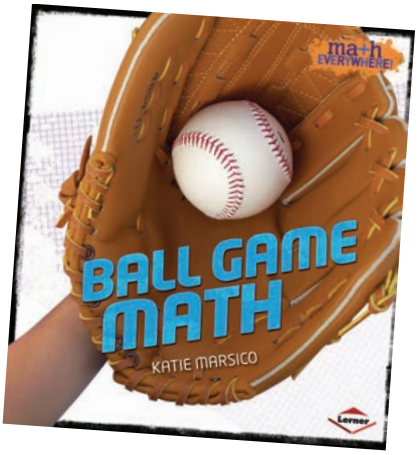
- Operations and Algebraic Thinking
- Number and Operations—Fractions
- Measurement and Data
- Geometry

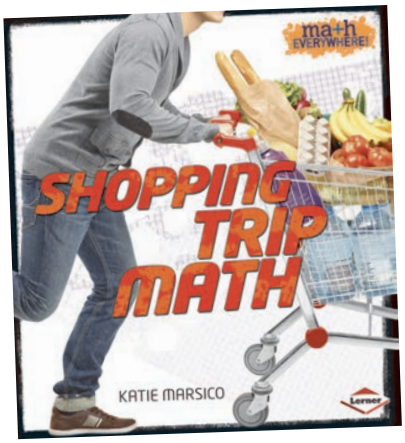
Common Core Reading (Informational Text)

- Key Ideas and Details
- Craft and Structure
- Integration of Knowledge and Ideas
- Range of Reading and Level of Text Complexity

Multiple Intelligences Utilized

- Verbal-linguistic, visual-spatial, logical-mathematical, interpersonal, intrapersonal





LernerClassroom™
ISBN 978-1-4677-5137-7

Lesson 1
Look It Up

Purpose
Students will look up unfamiliar words in a glossary and a dictionary.

Materials
- Math Everywhere! series
- paper
- pencils

Prepare
- Prepare a simple three-column chart to show on the board. The left column will be called New word. The middle column will be called My guess. The third column will be Glossary or dictionary definition.
- Gather print dictionaries or prepare for students to access an online dictionary, such as http://www.wordcentral.com/.
- Choose a Math Everywhere! book to use as an example.

Pretest
- When you are reading, what do you do when you come to an unfamiliar word?
- What is a glossary? What is a dictionary?

Model
- Display your sample three-column chart on the board.
- As a class, read one story line from the example Math Everywhere! book. Invite students to choose a word they don't know.
- Ask how students could find out what the word means. Help them come up with guesses as to what the word means by looking at surrounding words.
- Point out the glossary on page 32 of the Math Everywhere! book. Explain that many unfamiliar words will be listed and defined in a book's glossary. Demonstrate how to look for a word and read its definition.
- Tell students that not all unfamiliar words will be listed in the glossary. If students need to find a different word, they should check a dictionary. Demonstrate how to look up a word and read its definition in the dictionary.

Read
- Read books from the Math Everywhere! series.

Practice
- Students will copy the three-column chart into their notebooks.
- Assign books from the Math Everywhere! series to small groups of students.
- In small groups, students will read their books and make lists of unfamiliar words.

In their groups, students will discuss each word. They will try to guess the words' meanings by looking at surrounding words. Then students will use the books' glossaries and dictionaries to find the actual definitions.

Discuss
- How easy or difficult was it to guess a word's meaning based on surrounding words?
- What are the benefits of using a glossary or a dictionary?

Evaluate
- Evaluate teamwork and students' understanding of how to find definitions.

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Lesson 2
Key Words in Story Problems

Purpose
Students will identify key math words in story problems and figure out what the words mean.

Materials
- Math Everywhere! series
- Key Words p. 7
- pencils

Prepare
- Copy Key Words p. 7 for each student or for each small group.

Pretest
- What are key words?
- What are story problems?

Read
- Read one book from the Math Everywhere! series.

Model
- Review Key Words p. 7 with students. Discuss the terms on the sheet and how students can look for key words in story problems.
- Review the selected Math Everywhere! book with students. As a class, identify some key words that tell you what information the kids in the book (or the readers) need to answer the questions.

Practice
- Using Key Words p. 7 as a reference, students will work in small groups to solve the problems in one or more scenarios from a Math Everywhere! book.

Discuss
- Did identifying key words help you solve the problems?
- Did any of the key words confuse you? Why?
- What other clues could you use to help you figure out what the problem is asking for?

Evaluate
- Assess students' answers to the questions in the Math Everywhere! book.

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Lesson 3
How to Approach Story Problems

Purpose
Students will learn the most effective way to read and solve story problems.

Materials
- Math Everywhere! series
- Break It Down p. 8
- pencils

Prepare
- Copy Break It Down p. 8 for students. Alternatively, prepare to show it electronically.
- Write the following story problem on the board:
  Sunny opened a bank account. She deposited $100. Each month she adds $20 to the account. And each month she earns 2 percent interest on her savings. That is 0.02 times whatever her account balance is. How much money will she have in her account after four months?

Pretest
- What do you think of story problems?
- What do you like about story problems? What makes them challenging?

Read
- Read a book from the Math Everywhere! series.

Model
- Read the instructions for Break It Down p. 8 with the class.
- Ask students to tell you the steps of figuring out and solving a story problem.

Practice
- As a class, use the steps in Break It Down p. 8 to answer the story problem you wrote on the board. Use additional tools, such as Key Words p. 7, as needed.

Evaluate
- As a class, discuss how breaking the process down into steps made it easier to figure out what kind of math to use and how to solve the problem.

Extend
- Use Break It Down p. 8 to help students solve one or more story problems from the Math Everywhere! books.

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Lesson 4
Math in Real Life

Purpose
Students use the examples in the Math Everywhere! series as inspiration for other everyday math scenarios.

Materials
- Math Everywhere! series
- paper
- pencils

Pretest
- How do we use math in everyday life?
- Where do you see math in the world around us?

Read
- Read books from the Math Everywhere! series.

Model
- As a class, make a list of real-life math situations that the kids in the books encounter.
- Invite students to come up with other real-life math situations. List them on the board.
- Choose a few of the situations to categorize. Some, for example, will be math used in the kitchen, as in *Kitchen Math*. Others might be math related to the weather or math used in planning a party.

Practice
- Invite students to come up with a real-life math category, or use one of the examples given.
- Ask them to make a list of real-life math scenarios in that category. (You may choose to use these lists for Lesson 5.) What kind of math would someone use in each scenario?

Discuss
- What kinds of everyday math do you see most often? Which ones are more rare?
- Do you think some kinds of everyday math are easier than others? Why do you think so?

Evaluate
- Evaluate participation and students' comprehension of the topic.

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Lesson 5
Write and Publish a Book

Purpose
Students will work in groups to write and publish their own Math Everywhere! book.

Materials
- Math Everywhere! series
- paper
- pencils
- art supplies or simple publishing software

Pretest
- What kinds of math story problems do you like best?
- Where do you most often see math in your everyday life?

Read
- Read books from the Math Everywhere! series.

Model
- As a class, compile a short list of everyday math categories. (You might use Lesson 4 for this.)
- Explain that students will work in groups to write a shorter version of a Math Everywhere! book.
- Assign groups or let students choose their groups based on their chosen categories.

Practice
- In teams, students will plan a short book in the vein of the Math Everywhere! series. Each student should write at least one realistic scenario, including math questions and answers for the answer key. The scenarios for a group should all fit the same general category, such as math in the kitchen or sports math.
- Students will draw or find pictures to illustrate their stories. Then they will publish their "books" either on paper or using simple publishing software.
- Students will share their finished books with their classmates.

Discuss
- Which book scenario was the most realistic? Which was the hardest to figure out?
- Did any of the math situations surprise you?

Evaluate
- Evaluate teamwork and the students' completed books.

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Name _____ Date _____

Key Words

Directions: Review the key words below. Note that several different words can be used to talk about the same kind of math operation. Which ones have you seen in story problems? Think of other ways to say these key words, and add your suggestions to the boxes. Then use the blank boxes to add other kinds of operations you might do in a story problem.

addition	plus, more than, increased by, combined, together, total of, sum, added to, perimeter
subtraction	minus, less, less than, fewer, fewer than, decreased by, difference between, difference of
multiplication	times, per, by, of, product of, multiplied by, area
division	into, per, out of, ratio of, fraction of
equals	same, is, are, was, were, will be, gives, yields, sold for

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Name _____ Date _____

Break It Down

Use the following steps to help you break down and solve story problems:

Step 1. Read. Read through the entire problem, visualizing the story in your head.

Step 2. Key words. Read the problem a second time, looking for the key words. Circle the key words. What kind of math does each key word tell you you'll need to do to solve the problem?

Step 3. Underline. Read the problem again. Underline numbers and other information that is important for solving the problem.

Step 4. Choose a strategy. Decide how you are going to solve the problem. Here are a few ways you might try:

- Guess and check. Guess what you think the answer might be. Check it. Was it correct?
- Make a chart. Draw a chart, and insert the information from the problem.
- Draw a picture. As you read the problem, draw the information on paper to help you visualize and understand it.
- Find a pattern. If there is a pattern described, write or draw it to help you solve the problem.
- Act it out. Use objects or people to act out the problem. Move them around and count, add, subtract, or do whatever the problem is asking for.
- Work backward. If the problem includes a series of events, start at the end and work backward, starting with the last thing that happened.
- Use logic. By figuring out what won't work, you will be able to narrow down the choices for what will work to solve the problem.

Step 5. Look back. Look back at the problem frequently as you try to solve it to make sure you have the right information and are using the right mathematical formula. Read the problem several times.

Step 6. Answer completely. Write your answer to the problem in a complete sentence.

Step 7. Check it. After you have solved the problem, go back and check it. Does your answer make sense? Did you miss anything? Some story problems have multiple-part answers. Is your answer complete?

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