



# YOUR Elementary School

## 4<sup>th</sup> Grade Mathematics Curriculum Overview

### Introduction

In Grade 4, the focus of mathematics content will be on three critical areas:

#### 1. Multiply and divide numbers with more than one digit

*Students will understand the meanings and relative sizes of place value up to 1,000,000.*

*Students will apply understanding of multiplication concepts from 3<sup>rd</sup> grade to develop methods for calculating more complicated multiplication problems.*

*Students will use a variety of strategies to calculate or estimate multiplication problems mentally.*

*Students will apply understanding of division concepts from 3<sup>rd</sup> grade to develop methods for calculating more complicated division problems.*

*Students will use a variety of strategies to calculate or estimate division problems mentally.*

*Students will be able to understand and explain why their multiplication and division procedures work, and interpret their answers in the context of the problem.*

#### 2. Calculating with fractions

*Students will understand that two different fractions can be equal and will look for ways to determine whether or not two fractions are equal.*

*Students will add and subtract fractions with like denominators.*

*Students will connect their understanding of fractions with their understanding of multiplication in order to multiply fractions by a whole number. For example,  $\frac{2}{3} \times 5$*

#### 3. Analyzing geometric figures by observing properties of their sides and angles

*Students will describe, analyze, compare, and classify two-dimensional shapes.*

*Students will observe parallel sides, perpendicular sides, and angle measures in order to identify and classify shapes.*

*Students will solve problems involving symmetry.*

## Quarterly Overview

While many of the mathematics topics are related and will be integrated throughout the school year, mathematics lesson topics will generally follow the schedule outlined below:

### First Quarter

- Extend place value understanding to 1,000,000
- Use addition, subtraction, multiplication, and division concepts from 2<sup>nd</sup> - 3<sup>rd</sup> grade to build a foundation for more complicated multiplication and division problems

### Second Quarter

- Multiply and divide by one-digit and two-digit numbers
- Solve word problems involving multiplication and division

### Third Quarter

- Identify equivalent fractions
- Add and subtract fractions with like denominators, and multiply fractions by whole numbers
- Extend understanding of fractions with place value to investigate decimal place values

### Fourth Quarter

- Measure length, mass, and volume using customary units as well as metric units
- Solve problems shapes, lines, angles, and symmetry

## Eight Mathematical Practices

Mathematics class is about much more than just “getting the right answer.” The goal is not to turn students into human computers. Rather, the goal is to help shape students (eventually) into fully-functioning adults who can think critically, communicate effectively, use resources wisely, and problem-solve creatively. The eight Mathematical Practices are “habits of mind” that help students form a deep understanding of mathematics concepts, but also extend far beyond the walls of the math classroom.

Therefore, in our math class, your student will have many opportunities to:

1. Be a good problem-solver, and not give up when something doesn't work perfectly the first time.
2. Think about problems in lots of different ways.
3. Communicate effectively to show and explain their thinking and learn from the way others think.
4. Understand how the concepts they learn relate to the world around them.
5. Use mathematical tools skillfully and wisely to help in the problem-solving process.
6. Pay attention to important details, but also keep the big picture in mind.
7. Analyze complicated problems and break them down into simpler parts.
8. Identify helpful patterns and find effective shortcuts to be more efficient in problem-solving.

Students who enjoy and are successful in mathematics are those who embrace being creative problem-solvers and who approach mathematics with a sense of curiosity and adventure.

## How to Support Student Learning at Home

You can help your student by reinforcing mathematical concepts at home. Sometimes that might mean going through flash cards for a few minutes a day, but the best mathematical support happens by highlighting the math that is already around you.

<p><b>Ask “how to share” questions... How would you share this candy with 2 friends? 3 friends? 5 friends?</b></p>	<p><b>Play card games, Monopoly, and Scrabble. Have your student be the scorekeeper or banker. Work on logic puzzles and Sudoku together.</b></p>	<p><b>Children should drink 5-8 cups of water per day. Track how much water you drink for a week (in terms of cups, pints, and quarts).</b></p>
<p><b>Give your student an allowance or pay them for chores. Talk about pay rates, saving money, and spending money.</b></p>	<p><b>Look for symmetry in the world – in leaves, in building designs, in floor tile patterns, in people’s faces, etc.</b></p>	<p><b>Count together by 2’s, 3’s, 4’s, 5’s, 6’s, 7’s, 8’s or 9’s. Take turns saying the next number.</b></p>
<p><b>Estimate how many M&amp;Ms (or similar) will fit into a cup. Then fill it up and count to find out.</b></p>	<p><b>Estimate how long something is. Then measure to find out.</b></p>	<p><b>Estimate how long something will take. Then test it out to see.</b></p>
<p><b>Estimate your grocery bill as you go grocery shopping.</b></p>	<p><b>Build an obstacle course. Time each other to see how long it takes to complete.</b></p>	<p><b>Time each other to see how long you can hula hoop or spin a top.</b></p>
<p><b>Highlight fractions everywhere. “What fraction of the people here are wearing hats?”</b></p>	<p><b>Make recipes together and measure ingredients creatively. “We need 1 ½ cups of flour, but only have a ¼ cup measuring cup. What can we do?”</b></p>	<p><b>Plant a garden. Discuss number of plants, spacing of plants, height and width of plants. Track rainfall with a rain gauge.</b></p>

Be relaxed and positive in these interactions, and your student will learn to relax and think positively about mathematics. Don’t put too much emphasis on speed or correct answers. Instead, ask questions about how they thought about the topic and share your thoughts. Try to think about things in different ways. (And don’t be surprised if you start to enjoy doing math with them too!)