

Eureka Math Parent Guide

A GUIDE TO SUPPORT PARENTS AS THEY WORK WITH THEIR STUDENTS IN MATH.

GRADE 4
MODULE 6

GRADE FOCUS

Fourth grade mathematics is about (1) developing understanding and fluency with multi-digit multiplication and division; (2) developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; and (3) understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

- Module 1: Place Value, Rounding, and Algorithms for Addition and Subtraction
- Module 2: Unit Conversions and Problem Solving with Metric Measurement
- Module 3: Multi-Digit Multiplication and Division
- Module 4: Angle Measure and Plane Figures
- Module 5: Fraction Equivalence, Ordering, and Operations

» Module 6: Decimal Fractions

- Module 7: Exploring Multiplication

LET'S CHECK IT OUT!

MODULE 6 FOCUS

In Module 6, students explore decimal numbers and their relationship to decimal fractions ($\frac{1}{10}$, $\frac{1}{100}$, etc.), learning to express a given quantity in both fraction and decimal forms. Students build on the work they did with fractions in Module 5, apply the same reasoning to decimal numbers, and set the stage for decimal operations in Grade 5.

MORE SPECIFICALLY, CHILDREN WILL LEARN HOW TO:

- Understand decimal notations for fractions, and compare decimal fractions.
 - » Express a fraction with denominator 10 as an equivalent fraction with denominator 100.
 - » Use decimal notation for fractions with denominators 10 or 100.
 - » Compare two decimals to hundredths by reasoning about their size.
- Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals.

TOPIC OVERVIEW

Topics are the lessons within a module that help children master the skills above. Here are the lessons that will guide your child through Module 6:

- Topic A: Exploration of Tenths
- Topic B: Tenths and Hundredths
- Topic C: Decimal Comparison
- Topic D: Addition with Tenths and Hundredths
- Topic E: Money Amounts as Decimal Numbers

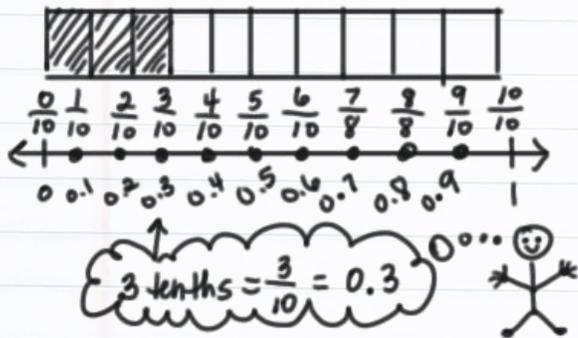
WORDS TO KNOW

- **Decimal number:** number written using place value units that are powers of 10
- **Decimal expanded form:** e.g., $(2 \times 10) + (4 \times 1) + (5 \times 0.1) + (9 \times 0.01) = 24.59$
- **Decimal fraction:** a fraction with a denominator of 10, 100, 1,000, etc.
- **Decimal point:** period used to separate the whole number part from the fractional part of a decimal number
- **Fraction expanded form:** e.g., $(2 \times 10) + (4 \times 1) + (5 \times \frac{1}{10}) + (9 \times \frac{1}{100}) = 24 \frac{59}{100}$
- **Hundredth:** place value unit such that 100 hundredths equals 1 one
- **Tenth:** place value unit such that 10 tenths equals 1 one

SAMPLE PROBLEMS

SAMPLE 1

Number line and tape diagram models of decimal and fraction relationships



SAMPLE 2

3 tens, 4 ones, and 3 tenths: Fraction Expanded Form and Decimal Expanded Form



Fraction Expanded Form

$$(3 \times 10) + (4 \times 1) + (3 \times \frac{1}{10}) = 34\frac{3}{10}$$

Decimal Expanded Form

$$(3 \times 10) + (4 \times 1) + (3 \times 0.1) = 34.3$$

SAMPLE 3

Students have seen place value charts as early as Grade 1 in A Story of Units. In Module 1 of Grade 4, we made extensive use of the place value chart to the millions, practicing our skills with large whole numbers such as renaming units and comparing numbers. Now that we are working with fractions and decimal numbers, we focus on the part of the place value chart (above) that supports this learning.

Students use the chart to model numbers in the form of a provided template or a quick hand-drawn sketch as they work on a problem. In Module 6, we spend a considerable amount of time and effort learning to write decimal numbers in expanded form and the place value chart works as an important organizing tool. The chart is a powerful reminder of what each digit in each place value represents.

The chart is also a useful tool to pictorially support students in renaming numbers. Just as 12 is 1 ten 2 ones or 12 ones, 0.79 is 7 tenths 9 hundredths or 79 hundredths. Renaming units is an important skill, previously practiced with whole numbers and now extended to decimal numbers supporting such concepts as comparing, ordering, rounding, and adding decimal numbers.

Place Value Chart with decimal numbers to the hundredths, showing how to decompose the number 378.73

Hundreds	Tens	Ones	.	Tenths	Hundredths
3	7	8	.	7	3

3 hundreds + 7 tens + 8 ones + 7 tenths + 3 hundredths

Use the place value chart to answer the following questions. Express the value of the digit in unit form.

hundreds	tens	ones	.	tenths	hundredths
8	2	7	.	6	4

- The digit _____ is in the hundreds place. It has a value of _____.
- The digit _____ is in the tens place. It has a value of _____.
- The digit _____ is in the tenths place. It has a value of _____.
- The digit _____ is in the hundredths place. It has a value of _____.

HOW YOU CAN HELP AT HOME

- Continue to practice and review multiplication and division math facts — this greatly supports work with fractions.
- In any decimal number, ask your student the value of each digit, e.g., the 4 in 5.4 is 4 tenths.