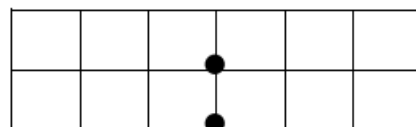
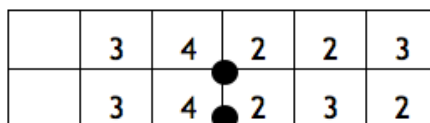


## Place Value and Decimal Fractions

In this first module of Grade 5, we will extend 4<sup>th</sup> grade place value work to multi-digit numbers with decimals to the thousandths place. Students will learn the pattern that one-tenth times any digit on the place value chart moves it one place value to the right. They will also perform decimal operations to the hundredths place.



34.223    ○    34.232



Place value chart for comparing decimals using  $<$ ,  $>$ ,  $=$

## Terms, Phrases, and Strategies in this Module:

**Thousandths:** related to place value (we have already studied tenths and hundredths)

**Exponents:** how many times a number is to be used in a multiplication sentence

**Millimeter:** a metric unit of length equal to one thousandth of a meter

**Equation:** statement that two mathematical expressions have the same value, indicated by use of the symbol  $=$ ; e.g.,  $12 = 4 \times 2 + 4$

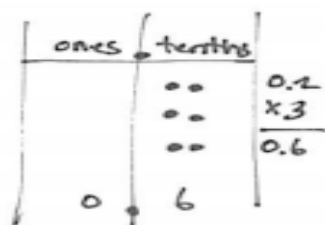
**Place value:** the numerical value that a digit has by virtue of its position in a number

**Standard form:** a number written in the format: 135

**Expanded form:** e.g.,  $100 + 30 + 5 = 135$

**Unit form:** e.g., 3.21 = 3 ones 2 tenths 1 hundredth

**Word form:** e.g., one hundred thirty-five



0.2 x 3 on the place value chart.

Notice how the dots for two tenths are simply repeated three times for a total of 0.6, or six tenths.

## What Comes After this Module:

In Module 2, we will continue to work with place value, moving to multiplication and division of decimal numbers. We move from concrete models to more abstract algorithms, always anchoring our work in our knowledge of place value patterns.

## + How you can help at home:

- When given a multi-digit number with decimal digits, ask your student what each digit represents (e.g., “What is the value of the 4 in the number 37.346?”)
- Help practice writing numbers correctly by saying multi-digit decimal numbers and having your student write them down. Students can create their own place value charts to help

## Key Common Core Standards:

- Understand the place value system**
  - Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and  $1/10$  of what it represents in the place to its left
  - Explain patterns in the number of zeros of the product when multiplying whole numbers by powers of 10
  - Read, write, and compare decimals to thousandths
  - Use place value understanding to round decimals to any place
- Perform operations with multi-digit whole numbers and with decimals to hundredths**
  - Add, subtract, multiply, and divide decimals to hundredths
- Convert like measurement units within a given measurement system**
  - Convert among different-sized standard measurement units within a given measurement system

Welcome to *A Story of Units!*

Each module's parent tip sheet will highlight a new strategy or math model your student will be working on.

**Place Value Chart** - In Module 1, students will make extensive use of place value tools, as they have done in earlier grade levels. Now, however, students work with the extended place value chart, which includes place values to the thousandths.

|          |                   |               |           |          |      |      |        |            |             |
|----------|-------------------|---------------|-----------|----------|------|------|--------|------------|-------------|
| Millions | Hundred Thousands | Ten Thousands | Thousands | Hundreds | Tens | Ones | Tenths | Hundredths | Thousandths |
|          |                   |               |           |          |      |      | ●      |            |             |
|          |                   |               |           |          |      |      | ●      |            |             |

(Above) Place Value Chart, with the thousandths place

(Below) 27.346 on the chart

|      |      |   |        |            |             |
|------|------|---|--------|------------|-------------|
| tens | ones | ● | tenths | hundredths | thousandths |
| 2    | 7    |   | 3      | 4          | 6           |

Read on to learn a little bit about *Eureka Math*, the creators of *A Story of Units*:

*Eureka Math* is a complete, PreK-12 curriculum and professional development platform. It follows the focus and coherence of the Common Core State Standards (CCSS) and carefully sequences the progression of mathematical ideas into expertly crafted instructional modules.

This curriculum is distinguished not only by its adherence to the CCSS; it is also based on a theory of teaching math that is proven to work. That theory posits that mathematical knowledge is conveyed most effectively when it is taught in a sequence that follows the “story” of mathematics itself. This is why we call the elementary portion of *Eureka Math* “*A Story of Units*.” The sequencing has been joined with methods of instruction that have been proven to work, in this nation and abroad. These methods drive student understanding beyond process, to deep mastery of mathematical concepts.

The goal of *Eureka Math* is to produce students who are not merely literate, but fluent, in mathematics. Your student has an exciting year of discovering the story of mathematics ahead!

Sample Problem from Module 1:  
(Example taken from Module 1, Lesson 10)

Teacher says:

“Subtract 2 ones 3 thousandths from 7 ones 5 thousandths.”

Students use place value chart to solve.

|      |        |            |             |        |
|------|--------|------------|-------------|--------|
| ones | tenths | hundredths | thousandths |        |
| 5    | 0      | 0          | 2           |        |
|      |        |            |             | 7.005  |
|      |        |            |             | -2.003 |
|      |        |            |             | 5.002  |