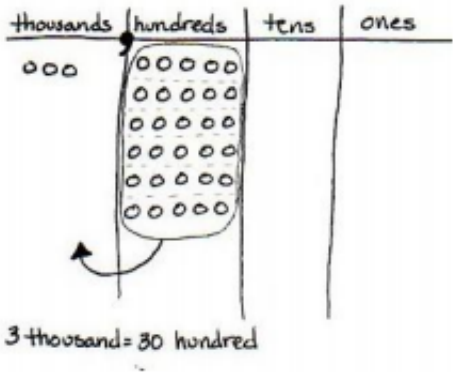
Eureka Math™ Tips for Parents

Grade 4 Module 1

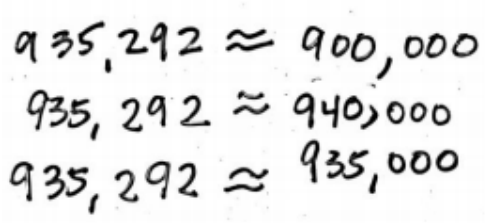
Place Value, Rounding, and Algorithms for Addition and Subtraction

In this first module of Grade 4, students extend their work with whole numbers, first with familiar large units (hundreds and thousands), and then develop their understanding up to 1 million. They practice and further deepen their facility with patterns in the base-10 number system.



Place value chart equivalence

4th grade students will learn to round large numbers to various place values.



We will also discuss which place value is appropriate to round to in different situations – what degree of accuracy is required?

What Comes After this Module:

In Module 2, students further deepen their understanding of the place value system through the lens of measurement and metric units. Students will recognize patterns as they use the place value chart to convert units, e.g. kilograms to grams, meters to centimeters, etc.

Terms, Phrases, and Strategies in this Module:

Ten thousands, hundred thousands (as places on the place value chart)

One million, ten millions, hundred millions (as places on the place value chart)

***Sum*:** answer to an addition problem

***Difference*:** answer to a subtraction problem

***Rounding*:** approximating the value of a given number

***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

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

=, <, > (equal to, less than, greater than)

+ How you can help at home:

- When given a large, multi-digit number, ask your student what each digit represents. (e.g. "What does the 4 signify in the number 34,500?" Answer: 4,000)
- Help practice writing numbers correctly by saying large numbers and having your student write them down. Students can create their own place value charts to help.

Key Common Core Standards:

- ***Use the four operations with whole numbers to solve problems***
  - Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations
- ***Generalize place value understanding for multi-digit whole numbers less than or equal to 1,000,000***
  - Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right
  - Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form
  - Use place value understanding to round multi-digit whole numbers to any place
- ***Use place value understanding and properties of operations to perform multi-digit arithmetic***
  - Fluently add and subtract multi-digit whole numbers using the standard algorithm

Prepared by Erin Schweng, Math Coach

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 and Place Value Cards – In Module 1, students 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 beyond hundreds, tens, and ones. They may also use place value cards as they have in earlier years to support their learning.

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

(Above) Place Value Chart, to the millions place

(Left) Place Value Cards

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 successful methods of instruction that have been used in this nation and abroad. These methods drive student understanding beyond process and into 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 ahead, discovering the story of mathematics!

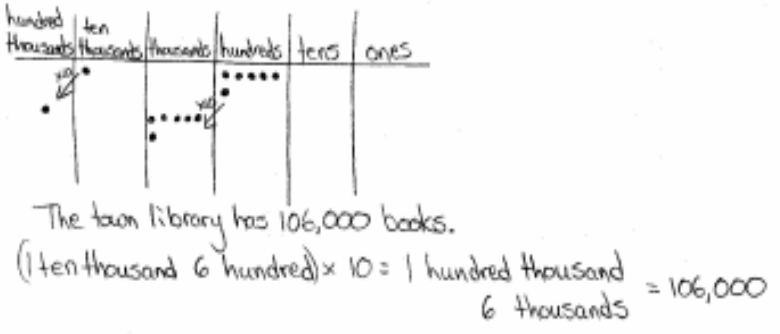
Sample Problem from Module 1:

(Example taken from Module 1, Lesson 3)

The school library has 10,600 books.

The town library has 10 times as many books.

How many books does the town library have?



Eureka Math™ Tips for Parents

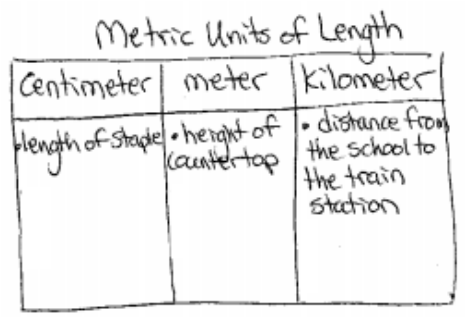
Grade 4 Module 2

Unit Conversions and Problem Solving with Metric Measurement

In Module 2, we use length, mass, and capacity in the metric system to convert between units using place value knowledge. We will explore the patterns in the place value system through metric unit conversions, and will use mixed unit conversions to prepare for fraction and decimal operations to come.

Mass	
kg	g
1	1,000
6	
	8,000
15	
	24,000
550	

A typical fill-in-the-blank conversion table in Module 2



Learning real-life representations of metric units is an important part of internalizing and understanding metric conversions.

What Came Before this Module:

Students deepened their understanding of the patterns in the place value system by working with numbers up to one million.

What Comes After this Module:

In Module 3, students start with applying multiplication and division to contexts such as area and perimeter to set the stage for multiplication and division of multi-digit whole numbers.

Key Words to Know

Kilometer: km, a unit of measure for length

Mass: the measure of the amount of matter in an object

Milliliter: mL, a unit of measure for liquid volume

Mixed units: e.g., 3 m 43 cm

Capacity: the maximum amount that something can contain

Convert: to express a measurement in a different unit

Kilogram *(kg)*, ***gram*** *(g)*: units of measure for mass

Length: the measurement of something from end to end

Liter: (L) unit of measure for liquid volume

Meter *(m)*, ***centimeter*** *(cm)*: units of measure for length

Weight: the measurement of how heavy something is

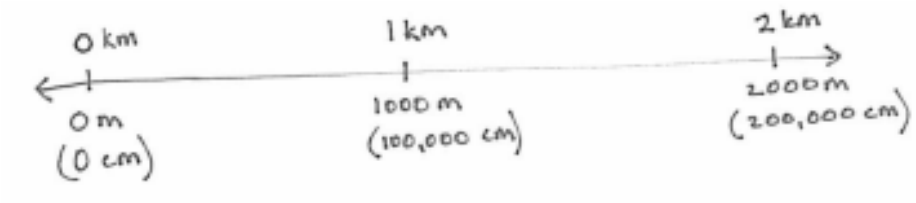
How you can help at home:

- If you have metric measurement tools at home, encourage your student to measure objects around the house
- Continue to talk about place value patterns with your student, e.g. how many 10s in 100? How many 100s in 1000?
- Review the vocabulary words in this unit, especially the new metric measurement words

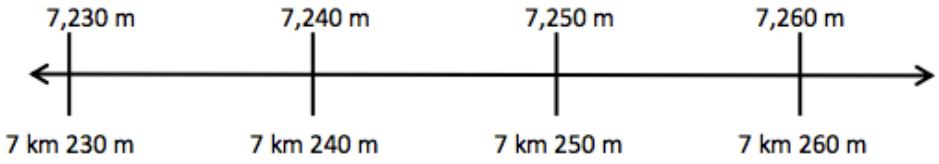
Key Common Core Standards:

- ***Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit***
  - Know relative sizes of measurement units within one system of units including kilometer (km), meter (m), centimeter (cm); kilogram (kg), gram (g); pound (lb), ounce (oz); liter (l), milliliter (ml); hour (hr), minute (min), second (sec). Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit.
  - Use the four operations to solve word problems involving distances, liquid volumes, and masses of objects. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

Prepared by Erin Schweng, Math Coach



(Above) A number line from Module 2 showing multiple metric conversions



(Above) A number line from Module 2 showing both single unit and mixed unit numbers

Spotlight on Math Models:

Number Lines

You will often see this mathematical representation in A Story of Units.

A Story of Units has several key mathematical "models" that are used throughout a student's elementary years.

The number line is a powerful, flexible model that students can use in many ways. In this particular module, students use the number line to mark off regular intervals for the metric units they are working with. Typically number lines show one set of units, such as ones (1, 2, 3, 4…13, 14, 15) but number lines can list two different sets of units showing equivalencies to aid in converting. When students label both sets of units, it helps reinforce the equivalencies and conversion rates between units (see above).

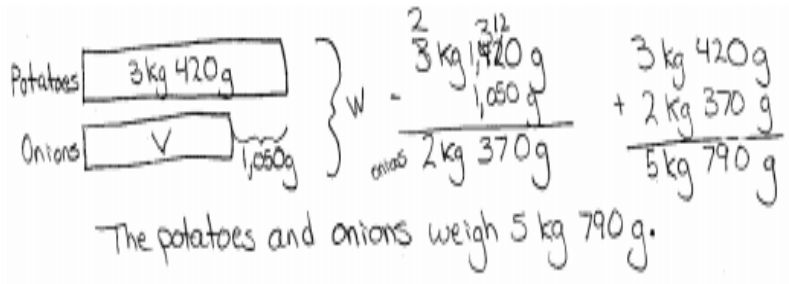
As students move through the grades, number lines can be used to examine the relationships between numbers in ever more detailed ways, including decimals, fractions, and eventually positive and negative numbers. See how many number lines you and your student can spot around your home!

Sample Problem from Module 2:

(Example taken from Module 2, Lesson 5)

The potatoes Beth bought weighed 3 kilograms 420 grams. Her onions weighed 1,050 grams less than the potatoes.

How much did the potatoes and onions weigh together?



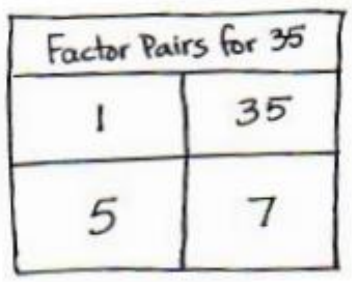
Eureka Math™ Tips for Parents

Grade 4 Module 3

Multi-Digit Multiplication and Division

In this module, we will start with applying multiplication and division to contexts such as area and perimeter to set the stage for multiplication and division of multi-digit whole numbers. We will practice various ways to model these problems, moving from concrete to abstract.

Thinking mathematically is hard but important work!



Students will learn how to determine if a number is prime or composite by looking for factor pairs in the number.

What Came Before this Module: We extended place value work, practicing using metric measurements for length, mass and capacity.

What Comes After this Module: We will begin learning geometric terms, measuring angles, and learning how to find the measure of an unknown angle.

Key Words to Know

Number Properties

Associative Property:
$3 \times (4 \times 8) = (3 \times 4) \times 8$
Distributive Property:
$6 \times (3 + 5) = (6 \times 3) + (6 \times 5)$
Partial Product:
$24 \times 6 = (20 \times 6) + (4 \times 6)$

Mathematical Terms

Prime Number - positive integer only having factors of one and itself
Composite Number - positive integer having three or more factors
Divisor - the number by which another number is divided
Remainder - the number left over when one integer is divided by another
Algorithm - steps for base ten computations with the four operations
Area - the amount of two-dimensional space in a bounded region
Perimeter - length of a continuous line around a geometric figure

+ How you can help at home:

- Become familiar with the area model, a different method of multiplying than you may have learned
- Continue to review the place value system with your student
- Discuss mathematical patterns, such as 5 x 9, 5 x 90, 50 x 90, 50 x 900, etc.

Key Common Core Standards:

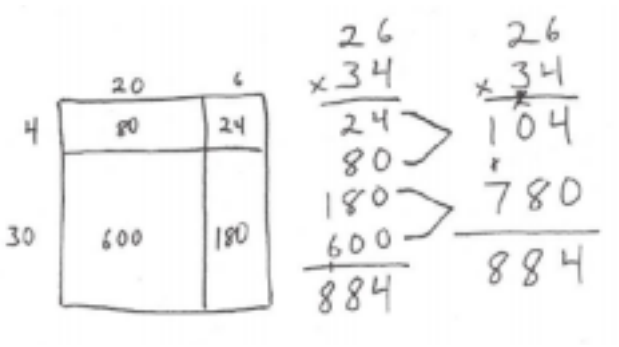
- Use the four operations (+, -, x, ÷) with whole numbers to solve problems
- Gain familiarity with factors and multiples
- Use place value understanding and properties of operations to perform multi-digit arithmetic
- Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit

Prepared by Erin Schweng, Math Coach

The area model encourages students to think about each part of a number as they multiply.

Thus, 34 x 26 becomes a series of partial products:

4 x 6	24
4 x 20	80
30 x 6	180
+ 30 x 20	600
884	884



Spotlight on Math Models:

Area Models

You will often see this mathematical representation in *A Story of Units.*

A Story of Units has several key mathematical "models" that will be used throughout a student's elementary years.

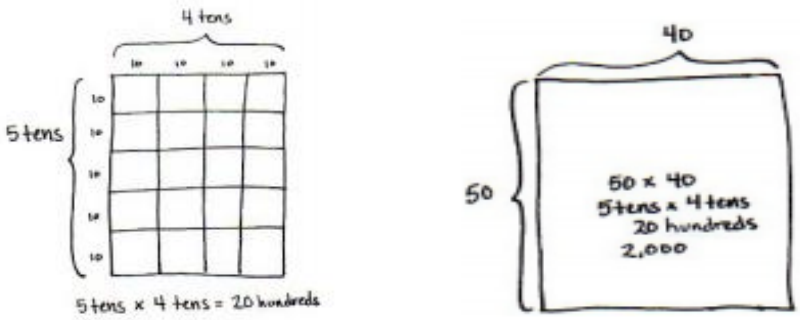
Students began in earlier grades to build arrays, showing multiplication and division as a series of rows and columns. In 4th grade, they learn to show these types of problems as an area model.

As students move through the grades, the area model will be a powerful tool that can take them all the way into algebra and beyond. One of the goals in *A Story of Units* is to first give students concrete experiences with mathematical concepts, and then build slowly toward more abstract representations of those concepts. The area model is a tool that helps students to make that important leap.

Sample from the curriculum:

Use an area model to represent 50 x 40.

(Example taken from Lesson 6, Module 3)

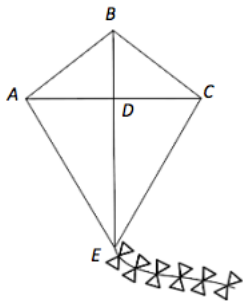


Eureka Math™ Tips for Parents

Grade 4
Module 4

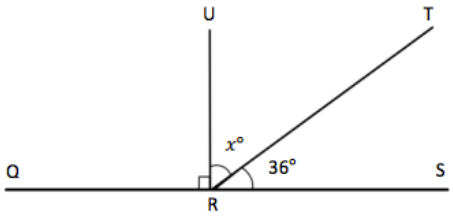
Angle Measure and Plane Figures

This 20-day module introduces points, lines, line segments, rays, and angles, as well as the relationships between them. Students will construct, recognize, and define these geometric objects before using their new knowledge and understanding to classify figures and solve problems. Students will construct and measure angles, as well as create equations to find an unknown angle.



Students will be asked to identify points, line segments, lines, rays, and angles.

Given a geometrical drawing like the one below, students will learn to use what they know to solve for an unknown angle measure.



Solve for ∠TRU.
∠QRS is a straight angle.

What Came Before this Module:

We applied multiplication and division to contexts such as area and perimeter, and worked up to multiplication and division of multi-digit whole numbers.

What Comes After this Module:

Students will explore fraction equivalence, working for the first time with mixed numbers. They will solve to find equivalent fractions, compare and order fractions, and add and subtract fractions using familiar models to support their conceptual understanding.

Key Words to Know

Angle - union of two different rays sharing a common vertex

Acute Angle - angle with a measure of less than 90 degrees

Line of symmetry - line through a figure such that when the figure is folded along the line two halves are created that match up exactly

Obtuse angle - angle with a measure greater than 90 degrees but less than 180 degrees

Parallel - two lines in a plane that do not intersect

Perpendicular - Two lines are perpendicular if they intersect, and any of the angles formed between the lines is a 90° angle

Right angle - angle formed by perpendicular lines, measuring 90 degrees

Straight angle - angle that measures 180 degrees

Triangle - A triangle consists of three non-collinear points and the three line segments between them.

Vertex - a point, often used to refer to the point where two lines meet, such as in an angle or the corner of a triangle

+ How you can help at home:

- Review vocabulary! This module introduces many new terms and ideas. Use your student's homework to find key terms to review.
- Practice adding to make 90, 180, 270 and 360, as well as subtracting from those numbers. This will be useful when students are solving problems like the missing angle one above.

Key Common Core Standards:

- *Geometric measurement: understand concepts of angle and measure angles.*
  - Recognize angles as geometric shapes that are formed whenever two rays share a common endpoint, and understand concepts of angle measurement.
  - Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
  - Recognize angle measure as additive.
- *Draw and identify lines and angles, and classify shapes by properties of their lines and angles.*
  - Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
  - Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size.
  - Recognize a line of symmetry for a two-dimensional figure.

Prepared by Erin Schweng, Math Coach

Some sample Total Physical Response questions from this module:

What teacher says:	*What students do:*
Model a point	Clench one hand in a fist.
Model a ray	Extend arms straight so that they are parallel with the floor. Clench one hand in a fist and point the fingers of the other hand towards the wall.
Model a right angle	Stretch one arm up, directly at the ceiling. Stretch another arm directly towards a wall, parallel to the floor.
Make an angle that measures approximately 60°	Open arms apart to approximately 60°.

Spotlight on Math Strategies:

Total Physical Response

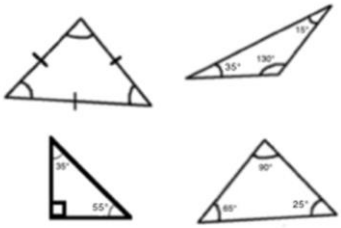
Borrowed from language instruction, this is a powerful tool for learning new math vocabulary.

A Story of Units has several key mathematical strategies that will be used throughout a student's elementary years.

In the world of language learning, "total physical response" refers to the coordination of language and physical movement. In this module, there are many new geometry terms and ideas that students must remember. Using their bodies in connection with new vocabulary helps students to cement these new words and their meanings in lasting ways. Throughout the module, students engage in fluency activities called "Physiometry" (a single-word combination of "physical" and "geometry") in which they use body movements and positioning to indicate terms such as point, line segment, ray, acute, obtuse, and right angles, as well as many others.

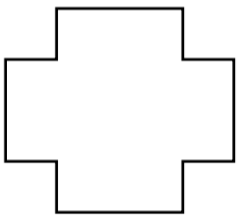
Other Key Skills in Module 4 Include:

Classifying 2-D figures:



Students will be able to classify these triangles by their sides and their angles.

Understanding line relationships:



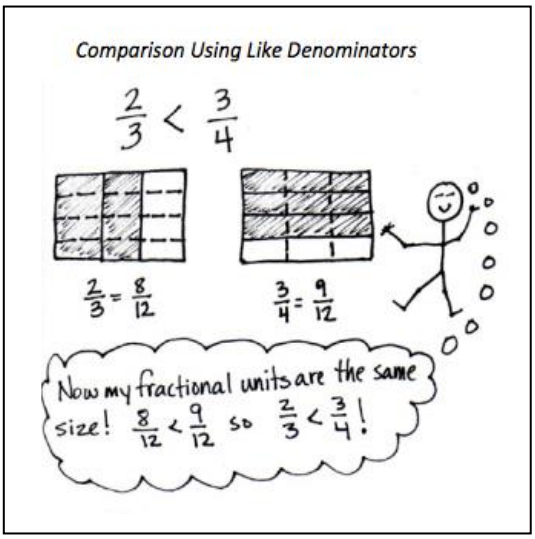
Students will be able to identify the parallel and perpendicular lines in the figure.

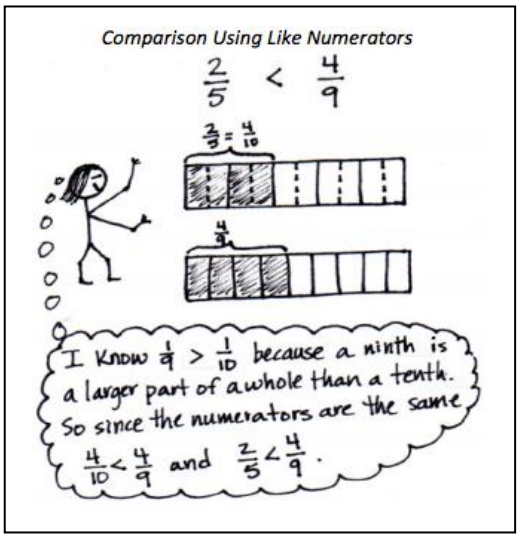
Eureka Math™ Tips for Parents

Grade 4 Module 5

Fraction Equivalence, Ordering, and Operations

In this 41-lesson module, students explore fraction equivalence and extend this understanding to mixed numbers. They compare and represent fractions and mixed numbers using a variety of models. Toward the end of the module, they use what they know to be true about whole number operations to apply to fractions and mixed number operations.





What Came Before this Module:
Students were introduced to many new geometrical terms and the relationships between them. They also learned to compose and classify two-dimensional figures.

What Comes After this Module:
In Module 6, students will use the understanding of fractions developed throughout Module 5, apply the same reasoning to decimal numbers, and build a solid foundation for later work with decimal operations.

New Terms in this Module:

Benchmark Fraction - a known reference fraction by which other fractions can be measured, e.g. 0, ½, ¼, ¾, 1

Common denominator - when two or more fractions have the same denominator

Denominator - bottom number in a fraction

Line plot - display of data on a number line, using an x or another mark to show frequency

Mixed number - number made up of a whole number and a fraction

Numerator - top number in a fraction

Familiar Terms:

- *Compose*
- *Decompose*
- *Equivalent fractions*
- *Fractional unit*
- *Unit fraction*
- *Non-unit fraction*
- =, <, >

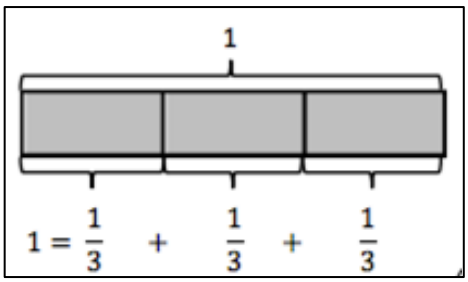
+ How you can help at home:

- Continue to practice and review multiplication and division math facts – this greatly supports work with fractions!
- Look for opportunities in daily life to discuss fractional parts and divide objects into equal parts.

Key Common Core Standards:

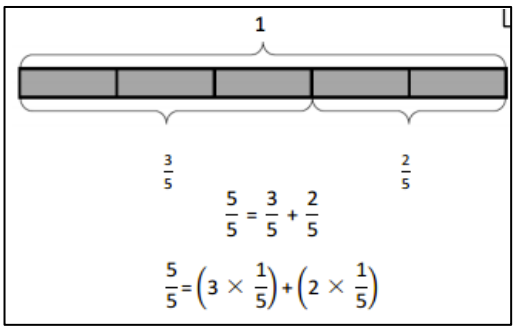
- *Generate and analyze patterns*
  - Generate a number or shape pattern that follows a given rule
- *Extend understanding of fraction equivalence and ordering*
  - Explain why a fraction a/b is equivalent to a fraction (n × a)/(n × b) by using visual fraction models
  - Compare two fractions with different numerators and different denominators
- *Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers*
  - Understand a fraction a/b with a > 1 as a sum of fractions 1/b, e.g. 3/5 = 1/5 + 1/5 + 1/5
  - Apply and extend previous understandings of multiplication to multiply a fraction by a whole number
- *Represent and interpret data*
  - Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8)

Prepared by Erin Schweng, Math Coach



The tape diagram above shows a simple fraction addition problem in which each part of the tape is equal to one-third of the whole.

The tape diagram below shows how to break one whole into fifths, and then how those fifths can be grouped and added together to create the whole.



Spotlight on Math Models:

Tape Diagrams

You will often see this mathematical representation in *A Story of Units*.

A Story of Units has several key mathematical "models" that will be used throughout a student's elementary years.

The tape diagram is a powerful model that students can use to solve various kinds of problems. Beginning in first grade, tape diagrams are used as simple models of addition and subtraction. Now in this fourth grade module, we will use them to model operations on fractions as well.

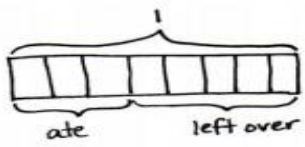
Tape diagrams are also called "bar models" and consist of a simple bar drawing that students make and adjust to fit a word or computation problem. They then use the drawing to discuss and solve the problem.

As students move through the grades, tape diagrams provide an essential bridge to algebra and solving for an unknown quantity. They are flexible mathematical tools that grow to fit students' needs as elementary mathematics increases in complexity.

Sample Problem from Module 5:

(Example taken from Lesson 19; note the use of a tape diagram to solve the problem)

Mr. Salazar cut his son's birthday cake into equal pieces. Mr. Salazar, Mrs. Salazar, and the birthday boy each ate 1 piece of cake. What fraction of the cake was left?



Solution 1

$1 - \frac{3}{8} = \frac{8}{8} - \frac{3}{8} = \frac{5}{8}$

$\frac{5}{8}$ of the cake is left.

Solution 2

$\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + x = \frac{8}{8}$

$\frac{3}{8} + x = \frac{8}{8}$

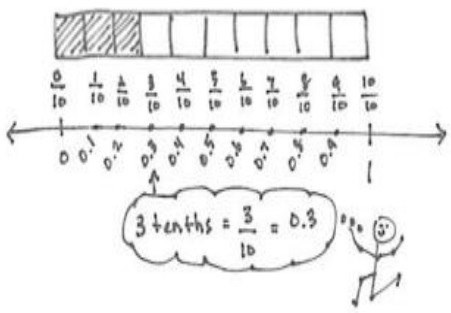
$\frac{3}{8} + \frac{5}{8} = \frac{8}{8}$ $\quad x = \frac{5}{8}$

Eureka Math™ Tips for Parents

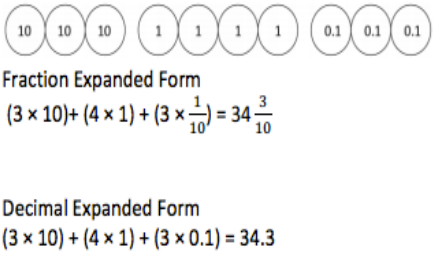
Grade 4
Module 6

Decimal Fractions

Students explore decimal numbers and their relationship to decimal fractions (1/10, 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.



Number line and tape diagram models of decimal and fraction relationships



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

What Came Before this Module: Students explored fraction equivalence, compared and represented fractions and mixed numbers, and added and subtracted fractions and mixed numbers.

What Comes After this Module: Students build their skills with measurement as they relate multiplication to the conversion of measurement units. They solve unit conversion problems using multiple strategies.

New Terms in this Module:

Decimal number: number written using place value units that are powers of 10

Decimal expanded form: e.g., (2 x 10) + (4 x 1) + (5 x 0.1) + (9 x 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 x 10) + (4 x 1) + (5 x 1/10) + (9 x 1/100) = 24 59/100

Hundredth: place value unit such that 100 hundredths equals 1 one

Tenth: place value unit such that 10 tenths equals 1 one

Familiar Terms:

Expanded Form Fraction

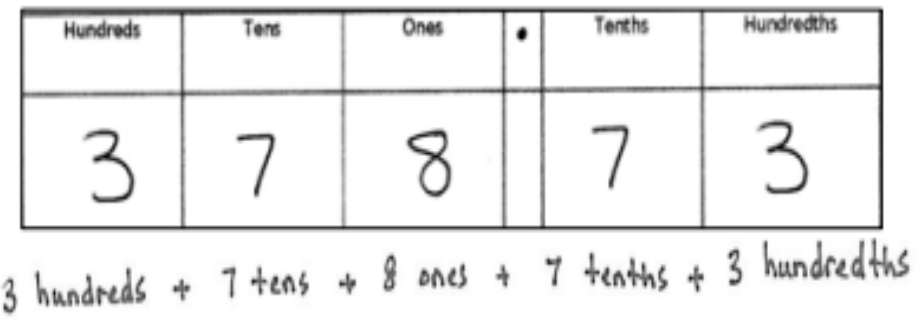
+ How You Can Help at Home:

- 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.

Key Common Core Standards:

- ***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.
- ***Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.***
  - 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.

Prepared by Erin Schweng, Math Coach



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

Spotlight on Math Models:

Place Value Chart

You will often see this mathematical representation in *A Story of Units*.

A Story of Units has several key mathematical "models" that will be used throughout a student's elementary years.

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.

Sample Problem from Module 6:

(Example taken from Module 6, Lesson 7)

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

a. The digit _____ is in the hundreds place. It has a value of _____.

b. The digit _____ is in the tens place. It has a value of _____.

c. The digit _____ is in the tenths place. It has a value of _____.

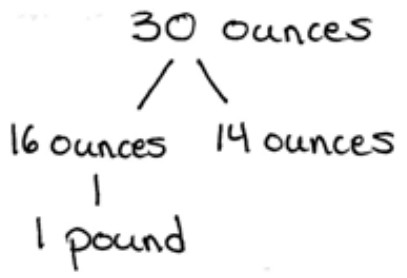
d. The digit _____ is in the hundredths place. It has a value of _____.

Eureka Math™ Tips for Parents

Grade 4
Module 7

Exploring Measurement with Multiplication

In this final module of Grade 4, students build their competencies in measurement as they relate multiplication to the conversion of measurement units. Throughout the module, students explore multiple strategies for solving measurement problems involving unit conversion.



A number bond decomposes 30 ounces to make a mixed unit of 1 pound 14 ounces

Pounds	Ounces
1	16
2	32
3	48
4	64
5	80
6	96
7	112
8	128
9	144
10	160

A pound-ounce conversion table like those students create and use in Module 7

What Came Before this Module:

Students explored decimal numbers and their relationship to decimal fractions. They learned to express a given quantity in both fraction and decimal forms and compared decimal numbers using the place value chart.

New Terms in this Module:

Customary system of measurement: measurement system used in the United States that includes such units as yards, pounds, and gallons

Customary unit: e.g., foot, ounce, quart

Cup (c): customary unit of measure for liquid volume

Gallon (gal): customary unit of measure for liquid volume

Metric system of measurement: base ten system of measurement used internationally that includes such units as meters, kilograms, and liters

Metric unit: e.g., kilometer, gram, milliliter

Ounce (oz): customary unit of measure for weight

Pint (pt): customary unit of measure for liquid volume

Pound (lb): customary unit of measure for weight

Quart (qt): customary unit of measure for liquid volume

How You Can Help at Home:

- As often as possible, notice and discuss customary units like ounces and pounds with your student (in the grocery store, at home, etc.).
- Review time by asking questions such as "How many more minutes until the next hour?" or "How many hours until the next day?"

Key Common Core Standards:

- ***Use the four operations with whole numbers to solve problems.***
  - Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5.
  - Multiply or divide to solve word problems involving multiplicative comparison.
  - Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations.
- ***Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.***
  - Know relative sizes of measurement units within one system of units.
  - Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money.

Prepared by Erin Schweng, Math Coach

Two different Two-Column Tables featuring customary measurements and time from Module 7

Quarts	Pints
1	
2	
6	
10	
16	

Minutes	Seconds
1	60
2	120
3	180
4	240
5	300
6	360
7	420
8	480
9	540
10	600

Spotlight on Math Tools:

Two-Column Table

Students use this mathematical tool in Module 7 of *A Story of Units*.

A Story of Units has several key mathematical tools that are used to solidify mathematical concepts.

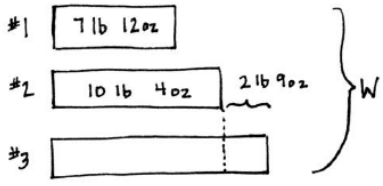
Module 7 further tells the *Story of Units* by focusing on customary measurement units (gallons, pints, yards, etc.). Students decompose them, convert them, and strengthen their sense of what each customary unit represents. Two-column tables are an important organizational tool that helps students see how the larger and smaller units relate to each other, as well as what a "unit" means in each situation, e.g., 16 ounces = 1 pound.

Two-column tables also reappear as organizational tools in later years, such as when students learn simple linear functions and use the tables to calculate coordinate pairs. In this module, the structure of the table is provided for students in order to scaffold their learning, to record the conversion from larger to smaller units, and to see the multiplicative relationship between two units of measurement.

Sample Problem from Module 7:

(Example taken from Module 7, Lesson 10)

One pumpkin weighs 7 pounds 12 ounces. A second pumpkin weighs 10 pounds 4 ounces. A third pumpkin weighs 2 pounds 9 ounces more than the second pumpkin. What is the total weight of all three pumpkins?



The total weight of all 3 pumpkins is 30 pounds 9 ounces.

Solution A

10 lb 4 oz $\xrightarrow{+2\text{ lb }9\text{ oz}}$ 12 lb 13 oz

7 lb 12 oz $\xrightarrow{+10\text{ lb }4\text{ oz}}$ 18 lb $\xrightarrow{+12\text{ lb }13\text{ oz}}$ 30 lb 13 oz

W = 30 lb 13 oz

Solution B

10 lb 4 oz + 2 lb 9 oz = 12 lb 13 oz

W = 7 lb 12 oz + 10 lb 4 oz + 12 lb 13 oz

= 29 lb 29 oz

16 | 13

W = 30 lb 13 oz