

Quarter 1

**Targeted Standard(s):**

**Domain**

**4.NBT** Numbers and Operations in Base Ten

**4.OA** Operations and Algebraic Thinking

**PA Core Standards**

**CC.2.1.4.B.1** Apply place-value concepts to show an understanding of multi digit whole numbers.

**CC.2.1.4.B.2** Use place-value understanding and properties of operations to perform multi-digit arithmetic.

**CC.2.2.4.A.1** Represent and solve problems involving the four operations.

**CC.2.2.4.A.2** Develop and/or apply number theory concepts to find factors and multiples.

**PA Core Assessment Anchors**

**M04.A-T.1** Generalize place-value understanding for multi-digit whole numbers.

**M04.A-T.2** Use place-value understanding and properties of operations to perform multi-digit arithmetic.

**M04.B-O.1** Use the four operations with whole numbers to solve problems.

**M04.B-O.2** Gain familiarity with factors and multiples.

**PA Core Assessment Anchor Descriptors**

**M04.A-T.1.1** Apply place-value and numeration concepts to compare, find equivalencies, and round.

**M04.A-T.2.1** Use operations to solve problems.

**M04.B-O.1.1** Use numbers and symbols to model the concepts of expressions and equations.

**M04.B-O.2.1** Develop and apply number theory concepts to represent numbers in various ways.

**PA Core Eligible Content**

**M04.A-T.1.1.1** Demonstrate an understanding that in a multi-digit whole number (through 1,000,000), a digit in one place represents ten times what it represents in the place to its right. *Example: Recognize that in the number 770, the 7 in the hundreds place is ten times the 7 in the tens place.*

**M04.A-T.1.1.2** Read and write whole numbers in expanded, standard and word form through 1,000,000.

**M04.A-T.1.1.3** Compare two multi-digit numbers through 1,000,000 based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols.

**M04.A-T.1.1.4** Round multi-digit whole numbers (through 1,000,000) to any place.

**M04.A-T.2.1.1** Add and subtract multi-digit whole numbers (limit sums and subtrahends up to and including 1,000,000).

**M04.A-T.2.1.4** Estimate the answer to addition, subtraction, and multiplication problems using whole numbers through six digits (for multiplication, no more than 2 digits  $\times$  1 digit, excluding powers of 10).

**M04.A-T.2.1.2** Multiply a whole number of up to four digits by a one-digit whole number and multiply 2 two-digit numbers.

**M04.B-O.1.1.1** Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations. *Example 1: Interpret  $35 = 5 \times 7$  as a statement that 35 is 5 times as many as 7 and 7 times as many*

<p><i>as 5. Example 2: Know that the statement 24 is 3 times as many as 8 can be represented by the equation <math>24 = 3 \times 8</math> or <math>24 = 8 \times 3</math></i></p> <p><b>M04.B-O.1.1.2</b> Multiply or divide to solve word problems involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison. <i>Example: Know that <math>3 \times 4</math> can be used to represent that Student A has 4 objects and Student B has 3 times as many objects not just 3 more objects.</i></p> <p><b>M04.B-O.1.1.3</b> Solve multi-step word problems posed with whole numbers using the four operations. Answers will be either whole numbers or have remainders that must be interpreted yielding a final answer that is a whole number. Represent these problems using equations with a symbol or letter standing for the unknown quantity.</p> <p><b>M04.B-O.1.1.4</b> Identify the missing symbol (+, −, ×, ÷, =, &lt;, and &gt;) that makes a number sentence true (single-digit divisor only).</p> <p><b>M04.B-O.2.1.1</b> Find all factor pairs for a whole number in the interval 1 through 100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the interval 1 through 100 is a multiple of a given one digit number. Determine whether a given whole number in the interval 1 through 100 is prime or composite.</p>			
<p><b>Enduring Understandings:</b></p> <ul style="list-style-type: none"> <li>• Generalize place value understanding for multi-digit whole numbers.</li> <li>• Use place value understanding and properties of operations to perform multi-digit arithmetic.</li> <li>• Use the four operations with whole numbers to solve problems.</li> <li>• Gain familiarity with factors and multiples.</li> </ul>			
<p><b>Essential Questions:</b></p> <ol style="list-style-type: none"> <li>1. Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.</li> <li>2. Some questions can be answered by collecting, representing, and analyzing data, and the question to be answered determines the data to be collected, how best to collect it, and how best to represent it.</li> </ol>			
<b>Core Content/Objectives</b>		<b>Instructional Actions</b>	
<b>Concepts</b> What students will know	<b>Competencies</b> What students will be able to do	<b>Activities</b>	<b>Assessment</b> How learning will be assessed

<p><b>I. WHOLE NUMBERS</b></p> <p>A. Place value through millions <b>(M04.A-T.1.1.1)</b></p> <p>B. Number Forms <b>(M04.A-T.1.1.2)</b></p> <p>C. Comparing Numbers <b>(M04.A-T.1.1.3)</b></p> <p>D. Rounding Numbers <b>(M04.A-T.1.1.4)</b></p> <p><b>II. Addition of Numbers</b></p> <p>A. Properties of Addition <b>(M04.A-T.2.1.1)</b></p>	<p><b>I. WHOLE NUMBERS</b></p> <p>A. 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. For example, recognize that <math>700 \div 70 = 10</math> by applying concepts of place value and division.</p> <p>B. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols to record the results of comparisons.</p> <p>C. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols to record the results of comparisons.</p> <p>D. Use place value understanding to round multi-digit whole numbers to any place.</p> <p><b>II. Addition of Numbers</b></p> <p>A. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.</p>	<p><b>Whole Numbers</b></p> <p><b>Place Value of Multi-Digit Whole Numbers</b> - read numbers correctly through the millions. Identify the place value name for multi-digit whole numbers. Identify the place value locations for multi-digit whole numbers</p> <p><a href="http://www.doe.virginia.gov/instruction/mathematics/elementary/number_sense_module/nns_grade4.pdf">http://www.doe.virginia.gov/instruction/mathematics/elementary/number_sense_module/nns_grade4.pdf</a></p> <p><a href="http://www.nsa.gov/academia/files/collected_learning/elementary/arithmetric/place_value_whole_numbers.pdf">http://www.nsa.gov/academia/files/collected_learning/elementary/arithmetric/place_value_whole_numbers.pdf</a></p> <p><a href="http://bridges1.mathlearningcenter.org/media/Bridges_Gr4_OnlineSupplement/B4SUP-A3_NumPIVal_0409.pdf">http://bridges1.mathlearningcenter.org/media/Bridges_Gr4_OnlineSupplement/B4SUP-A3_NumPIVal_0409.pdf</a></p> <p><a href="http://www.e-turo.org/files/Reading%20and%20Writing%20Numbers%20through%20Millions%20Billions%20in%20Words.pdf">http://www.e-turo.org/files/Reading%20and%20Writing%20Numbers%20through%20Millions%20Billions%20in%20Words.pdf</a></p> <p><a href="http://illuminations.nctm.org/LessonDetail.aspx?ID=L367">http://illuminations.nctm.org/LessonDetail.aspx?ID=L367</a> <a href="http://illuminations.nctm.org/LessonDetail.aspx?id=L803">http://illuminations.nctm.org/LessonDetail.aspx?id=L803</a></p> <p><b>Read and Write Multi-Digit Whole Numbers</b> - write numbers correctly through millions in standard form. Write numbers correctly through millions in expanded form</p>	<p>Rocket Math Fact Fluency Vocabulary Formative Summative</p>
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<p>B. Addition of Numbers and Multi-digit Numbers <b>(M04.A-T.2.1.1)</b></p> <p>C. Estimating Sums <b>(M04.A-T.2.1.4)</b></p> <p>D. Problem Solving Skills <b>(M04.B-O.1.1.3)</b></p>	<p>B. Fluently add and subtract multi-digit whole numbers and using the standard algorithm.</p> <p>C. Use place value understanding to round multi-digit whole numbers to any place.</p> <p>D. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p>	<p><a href="http://math.wiki.cvsd.k12.pa.us/file/view/Gr+4+Open+Ended+0809++%23+Names%2C+Standard+Form%2C+Calculating.pdf">http://math.wiki.cvsd.k12.pa.us/file/view/Gr+4+Open+Ended+0809++%23+Names%2C+Standard+Form%2C+Calculating.pdf</a></p> <p><b>Compare Multi-Digit Numbers</b> <a href="http://www.ixl.com/math/grade-4/compare-numbers-up-to-billions">http://www.ixl.com/math/grade-4/compare-numbers-up-to-billions</a></p> <p><b>Rounding Multi-Digit Numbers</b> <a href="http://www.ixl.com/math/grade-4/rounding">http://www.ixl.com/math/grade-4/rounding</a></p> <p><b>Multi-Digit Operations</b></p> <p><b>Use Properties of Operations to Add and Subtract Multi-Digit Whole Numbers</b> <a href="http://www.ixl.com/math/grade-4/add-numbers-up-to-millions">http://www.ixl.com/math/grade-4/add-numbers-up-to-millions</a> <a href="http://www.ixl.com/math/grade-4/subtract-numbers-up-to-millions">http://www.ixl.com/math/grade-4/subtract-numbers-up-to-millions</a></p>	
<p><b>III. Subtraction of Numbers</b></p> <p>A. Properties of Subtraction <b>(M04.A-T.2.1.1)</b></p> <p>B. Subtraction of Numbers and Multi-</p>	<p><b>III. Subtraction of Numbers</b></p> <p>A. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.</p> <p>B. Fluently add and subtract multi-digit whole numbers and using the standard algorithm.</p>	<p><b>Use Properties of Operations to Multiply and Divide Multi-Digit Whole Numbers</b> <a href="http://illuminations.nctm.org/LessonDetail.aspx?id=U150">http://illuminations.nctm.org/LessonDetail.aspx?id=U150</a></p> <p><b>Factors and Multiples</b> <a href="http://illuminations.nctm.org/LessonDetail.aspx?id=L719">http://illuminations.nctm.org/LessonDetail.aspx?id=L719</a></p> <p><b>Estimating Answers</b> <a href="http://www.thefutureschannel.com/pdf/math/counting_blood_cells.pdf">http://www.thefutureschannel.com/pdf/math/counting_blood_cells.pdf</a></p>	



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<p>B. Multiples of Numbers <b>(M04.B-O.2.1.1)</b></p> <p>C. Multiplication 0 thru 12</p> <p>D. Multiplication of Multi-digit Numbers</p> <p>E. Factors of Numbers <b>(M04.B.2.1.1)</b></p>	<p>area models.</p> <p>B. Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.</p> <p>C. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.</p> <p>D. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.</p> <p>E. Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or</p>		
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<p>F. Rounding to Estimate Products</p> <p>G. Problem Solving Skills <b>(M04.B-O.1.1.3)</b> <b>(M04.B-O.1.1.2)</b></p>	<p>composite.</p> <p>F. Use place value understanding to round multi-digit whole numbers to any place.</p> <p>G. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p>		
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Materials/Resources/Technology

## Quarter 2

**Targeted Standard(s):****Domain**

**4.NBT** Numbers and Operations in Base Ten

**4.OA** Operations and Algebraic Thinking

**4.MD** Measurement and Data

**4.G** Geometry

**PA Core Standards**

**CC.2.3.4.A.1** Draw lines and angles and identify these in two-dimensional figures.

**C.2.3.4.A.2** Classify two dimensional figures by properties of their lines and angles.

**CC.2.3.4.A.3** Recognize symmetric shapes and draw lines of symmetry.

**CC.2.4.4.A.1** Solve problems involving measurement and conversions from a larger unit to a smaller unit.

**CC.2.4.4.A.2** Translate information from one type of data display to another.

**PA Core Assessment Anchors**

**M04.A-T.2** Use place-value understanding and properties of operations to perform multi-digit arithmetic.

**M04.B-O.1** Use the four operations with whole numbers to solve problems.

**M04.D-M.2** Represent and interpret data.

**M04.C-G.1** Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

**M04.D-M.3** Geometric measurement; understand concepts of angle; measure and create angles.

**M04.B-O.3** Generate and analyze patterns.

**PA Core Assessment Anchor Descriptors**

**M04.A-T.2.1** Use operations to solve problems.

**M04.B-O.1.1** Use numbers and symbols to model the concepts of expressions and equations.

**M04.D-M.2.1** Organize, display, and answer questions based on data.

**M04.C-G.1.1** List properties, classify, draw and identify geometric figures in two dimensions.

**M04.D-M.3.1** Use appropriate tools and units to sketch an angle and determine angle measurements.

**M04.B-O.3.1** Recognize, describe, extend, create, and replicate a variety of patterns.

**PA Core Eligible Content**

**M04.A-T.2.1.3** Divide up to four-digit dividends by one-digit divisors with answers written as whole-number quotients and remainders.

**M04.B-O.1.1.2** Multiply or divide to solve word problems involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison. *Example: Know that  $3 \times 4$  can be used to represent that Student A has 4 objects and Student B has 3 times as many objects not just 3 more objects.*

**M04.B-O.1.1.3** Solve multi-step word problems posed with whole numbers using the four operations. Answers will be either whole numbers or

have remainders that must be interpreted yielding a final answer that is a whole number. Represent these problems using equations with a symbol or letter standing for the unknown quantity.

**M04.B-O.1.1.4** Identify the missing symbol (+, −, ×, ÷, =, <, and >) that makes a number sentence true (single-digit divisor only).

**M04.D-M.2.1.3** Translate information from one type of display to another (table, chart, bar graph, or pictograph).

**M04.D-M.2.1.2** Solve problems involving addition and subtraction of fractions by using information presented in line plots (line plots must be labeled with common denominators, such as  $\frac{1}{4}$ ,  $\frac{2}{4}$ ,  $\frac{3}{4}$ ).

**M04.D-M.2.1.1** Make a line plot to display a data set of measurements in fractions of a unit (e.g., intervals of  $\frac{1}{2}$ ,  $\frac{1}{4}$ , or  $\frac{1}{8}$ ).

**M04.C-G.1.1.1** Draw points, lines, line segments, rays, angles (right, acute, and obtuse), and perpendicular and parallel lines. Identify these in two dimensional figures.

**M04.C-G.1.1.2** 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 right triangles as a category, and identify right triangles.

**M04.C-G.1.1.3** Recognize a line of symmetry for a two dimensional figure as a line across the figure such that the figure can be folded along the line into mirroring parts. Identify line-symmetric figures and draw lines of symmetry (up to two lines of symmetry).

**M04.D-M.3.1.1** Measure angles in whole-number degrees using a protractor. With the aid of a protractor, sketch angles of specified measure.

**M04.D-M.3.1.2** Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems. (Angles must be adjacent and non-overlapping.)

**M04.D-M.1.1.3** Apply the area and perimeter formulas for rectangles in real-world and mathematical problems (may include finding a missing side length). Whole numbers only. **The formulas will be provided.**

**M04.B-O.3.1.1** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *Example 1: Given the rule “add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms alternate between odd and even numbers. Example 2: Given the rule “increase the number of sides by 1” and starting with a triangle, observe that the tops of the shapes alternate between a side and a vertex.*

**M04.B-O.3.1.2** Determine the missing elements in a function table (limit to +, −, or × and to whole numbers or money).

**M04.B-O.3.1.3** Determine the rule for a function given a table (limit to +, −, or × and to whole numbers).

**Enduring Understandings:**

- Use place value understanding and properties of operations to perform multi-digit arithmetic.
- Generalize place value understanding for multi-digit whole numbers.
- Use the four operations with whole numbers to solve problems.
- Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
- Represent and interpret data.
- Draw and identify lines and angles, and classify shapes by properties of their lines and angles.
- Geometric measurement: understand concepts of angle and measure angles.

**Essential Questions:**

1. Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.
2. The same number sentence (e.g.,  $12 - 4 = 8$ ) can be associated with different concrete or real world situations, AND different number

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sentences can be associated with the same concrete or real world situation.

3. Some questions can be answered by collecting, representing, and analyzing data, and the question to be answered determines the data to be collected, how best to collect it, and how best to represent it.
4. Numerical quantities and calculations can be estimated by using numbers that are close to the actual values, but easier to compute.
5. Two- and three-dimensional objects can be described, classified, and analyzed by their attributes, and their location can be described quantitatively.
6. Patterns exhibit relationships that can be extended, described, and generalized.
7. Spatial reasoning and visualization are ways to orient thinking about the physical world.

Core Content/Objectives		Instructional Actions	
Concepts What students will know	Competencies What students will be able to do	Activities	Assessment How learning will be assessed
<p><b>I. Division (M04.A-T.2.1.3)</b></p> <p>A. Division Rule</p> <p>B. Division Algorithm– Multi-digit Numbers.</p> <p>C. Estimating Quotients</p> <p>D. Problem Solving Skills</p>	<p><b>I. Division</b></p> <p>A. Use place value understanding and properties of operations to perform multi-digit arithmetic.</p> <p>B. Use place value understanding and properties of operations to perform multi-digit arithmetic.</p> <p>C. Generalize place value understanding for multi-digit whole numbers.</p> <p>D. Use the four operations with whole numbers to solve problems.</p>	<p>Fractions</p> <p><b>Equivalent Fractions</b>  <a href="http://www.ixl.com/math/grade-4/equivalent-fractions">http://www.ixl.com/math/grade-4/equivalent-fractions</a>  <a href="http://www.ixl.com/math/grade-4/patterns-of-equivalent-fractions">http://www.ixl.com/math/grade-4/patterns-of-equivalent-fractions</a></p> <p><b>Comparing Fractions</b>  <a href="http://www.mathactivities.net/lessons/parallel-and-perpendicular-lines.htm">http://www.mathactivities.net/lessons/parallel-and-perpendicular-lines.htm</a></p> <p><b>Adding and Subtracting Fractions with Like Denominators</b>  <a href="http://www.ixl.com/math/grade-4/add-and-subtract-fractions-with-like-denominators">http://www.ixl.com/math/grade-4/add-and-subtract-fractions-with-like-denominators</a>  <a href="http://www.ixl.com/math/grade-4/add-3-or-more-fractions-with-like-denominators">http://www.ixl.com/math/grade-4/add-3-or-more-fractions-with-like-denominators</a></p>	<p>Rocket Math Fact Fluency  Vocabulary  Formative  Summative</p>
<p><b>II. Reasoning and Problem Solving</b></p> <p>A. Solving Problems with Whole Numbers (M04.B-O.1.1.3)</p>	<p><b>II. Reasoning and Problem Solving</b></p> <p>A. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving</p>	<p><b>Adding and Subtracting Mixed Numbers with Like Denominators</b>  <a href="http://www.ixl.com/math/grade-4/add-and-subtract-mixed-numbers-with-like-denominators">http://www.ixl.com/math/grade-4/add-and-subtract-mixed-numbers-with-like-denominators</a></p>	

<p>B. Estimating Sums, Differences, Products and Quotients</p> <p><b>III. Graphing</b></p> <p>A. Line Plots (M04.D-M.2.1.2) (M04.D-M.2.1.1)</p> <p><b>IV. Geometry</b></p> <p>A. A. Lines, Line Segments, Points and Rays (M04.C-G.1.1.1)</p> <p>B. Parallel and Perpendicular Lines</p>	<p>simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.</p> <p>B. Use place value understanding to round multi-digit whole numbers to any place.</p> <p><b>III. Graphing</b></p> <p>A. Make a line plot to display a data set of measurements in fractions of a unit (<math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{8}</math>). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.</p> <p><b>IV. Geometry</b></p> <p>A. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</p> <p>B. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</p>	<p><b>Multiplying Fractions by Whole Numbers</b>  <a href="http://www.ixl.com/math/grade-4/multiply-fractions-by-whole-numbers">http://www.ixl.com/math/grade-4/multiply-fractions-by-whole-numbers</a>  <a href="http://www.ixl.com/math/grade-4/multiply-fractions-by-whole-numbers-ii">http://www.ixl.com/math/grade-4/multiply-fractions-by-whole-numbers-ii</a></p> <p><b>Solving Fraction Word Problems</b>  <a href="http://math.wiki.cvsd.k12.pa.us/file/view/Gr+4+Open+Ended+0910+-+Fractions%2C+Measurement%2C+Equa+Groups.pdf">http://math.wiki.cvsd.k12.pa.us/file/view/Gr+4+Open+Ended+0910+-+Fractions%2C+Measurement%2C+Equa+Groups.pdf</a>  <a href="http://www.ixl.com/math/grade-4/add-and-subtract-fractions-with-like-denominators-word-problems">http://www.ixl.com/math/grade-4/add-and-subtract-fractions-with-like-denominators-word-problems</a></p> <p><b>Decimals</b></p> <p><b>Writing Decimals through Hundredths</b>  <a href="http://illuminations.nctm.org/LessonDetail.aspx?id=L861">http://illuminations.nctm.org/LessonDetail.aspx?id=L861</a></p> <p><b>Decimals on a Number Line</b>  <a href="http://www.ixl.com/math/grade-4/decimal-number-lines">http://www.ixl.com/math/grade-4/decimal-number-lines</a></p> <p><b>Comparing Decimals to the Hundredths</b>  <a href="http://www.ixl.com/math/grade-4/compare-decimal-numbers">http://www.ixl.com/math/grade-4/compare-decimal-numbers</a></p>	
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<p>C. Right, Acute and Obtuse Angles</p> <p>D. Measuring Angles</p>	<p>C. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</p> <p>D. 5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through <math>\frac{1}{360}</math> of a circle is called a "one-degree angle," and can be used to measure angles. b. An angle that turns through <math>n</math> one-degree angles is said to have an angle measure of degrees.</p>		
<p>E. Measuring and Sketching Angles Using Protractors</p>	<p>E. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure</p>		
<p>F. Angles as Additives</p>	<p>F. Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.</p>		

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<p>G. Classifying Two-Dimensional Figures <b>(M04.C-G.1.1.2)</b></p> <p>H. Lines of Symmetry <b>(M04.C-G.1.1.3)</b></p>	<p>G. 2. 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 right triangles as a category, and identify right triangles.</p> <p>H. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.</p>		
<b>Materials/Resources/Technology</b>			

**Quarter 3**

**Targeted Standard(s):**

**Domain**

**4.NF** Numbers and Operations –Fractions

**4.OA** Operations and Algebraic Thinking

**4.MD** Measurement and Data

**PA Core Standards**

**CC.2.1.4.C.1** Extend the understanding of fractions to show equivalence and ordering.

**CC.2.1.4.C.2** Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.

**CC.2.1.4.C.3** Connect decimal notation to fractions, and compare decimal fractions (base 10 denominator, e.g., 19/100).

**CC.2.2.4.A.4** Generate and analyze patterns using one rule.

**PA Core Assessment Anchors**

**M04.A-F.1** Extend understanding of fraction equivalence and ordering.

**M04.A-F.2** Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.

**M04.A-F.3** Understand decimal notation for fractions and compare decimal fractions.

**M04.B-O.3** Generate and analyze patterns.

**M04.D-M.1** Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

**PA Core Assessment Anchor Descriptors**

**M04.A-F.1.1** Find equivalencies and compare fractions.

**M04.A-F.2.1** Solve problems involving fractions and whole numbers (straight computation or word problems.)

**M04.A-F.3.1** Use operations to solve problems involving decimals, including converting between fractions and decimals (may include word problems).

**M04.B-O.3.1** Recognize, describe, extend, create, and replicate a variety of patterns.

**M04.D-M.1.1** Solve problems involving length, weight (mass), liquid volume, time, area, and perimeter.

**PA Core Eligible Content**

**M04.A-F.1.1.1** Recognize and generate equivalent fractions.

**M04.A-F.1.1.2** Compare two fractions with different numerators and different denominators (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100) using the symbols  $>$ ,  $=$ , or  $<$  and justify the conclusions.

**M04.A-F.2.1.1** Add and subtract fractions with a common denominator (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100; answers do not need to be simplified; and no improper fractions as the final answer).

**M04.A-F.2.1.2** Decompose a fraction or a mixed number into a sum of fractions with the same denominator (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100), recording the decomposition by an equation. Justify decompositions (e.g., by using a visual fraction model).

*Example 1:  $3/8 = 1/8 + 1/8 + 1/8$  OR  $3/8 = 1/8 + 2/8$*

*Example 2:  $2 \frac{1}{12} = 1 + 1 + \frac{1}{12} = \frac{12}{12} + \frac{12}{12} + \frac{1}{12}$*

**M04.A-F.2.1.3** Add and subtract mixed numbers with a common denominator (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100; no regrouping with subtraction; fractions do not need to be simplified; and no improper fractions as the final answers).

**M04.A-F.2.1.4** Solve word problems involving addition and subtraction of fractions referring to the same whole or set and having like denominators (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100).

**M04.A-F.2.1.5** Multiply a whole number by a unit fraction (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100 and final answers do not need to be simplified or written as a mixed number).

*Example:  $5 \times (\frac{1}{4}) = \frac{5}{4}$*

**M04.A-F.2.1.6** Multiply a whole number by a non-unit fraction (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100 and final answers do not need to be simplified or written as a mixed number).

*Example:  $3 \times (\frac{5}{6}) = \frac{15}{6}$*

**M04.A-F.2.1.7** Solve word problems involving multiplication of a whole number by a fraction (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100).

**M04.A-F.3.1.1** Add two fractions with respective denominators 10 and 100.

*Example: Express  $\frac{3}{10}$  as  $\frac{30}{100}$ , and add  $\frac{3}{10} + \frac{4}{100} = \frac{30}{100} + \frac{4}{100} = \frac{34}{100}$ .*

**M04.A-F.3.1.2** Use decimal notation for fractions with denominators 10 or 100.

*Example: Rewrite 0.62 as  $\frac{62}{100}$  and vice versa.*

**M04.A-F.3.1.3** Compare two decimals to hundredths using the symbols  $>$ ,  $=$ , or  $<$ , and justify the conclusions.

**M04.B-O.3.1.1** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.

*Example 1: Given the rule “add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms alternate between odd and even numbers.*

*Example 2: Given the rule “increase the number of sides by 1” and starting with a triangle, observe that the tops of the shapes alternate between a side and a vertex.*

**M04.B-O.3.1.2** Determine the missing elements in a function table (limit to +, −, or × and to whole numbers or money).

**M04.B-O.3.1.3** Determine the rule for a function given a table (limit to +, −, or × and to whole numbers).

**M04.D-M.1.1.1** Know relative sizes of measurement units within one system of units including standard units (in., ft, yd, mi; oz., lb; and c, pt, qt, gal), metric units (cm, m, km; g, kg; and mL, L), and time (sec, min, hr, day, wk, mo, and yr). Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. **A table of equivalencies will be provided.**

*Example 1: Know that 1 kg is 1,000 times as heavy as 1 g.*

*Example 2: Express the length of a 4-foot snake as 48 in.*

**M04.D-M.1.1.2** Use the four operations to solve word problems involving distances, intervals of time (such as elapsed time), liquid volumes, masses of objects; money, including problems involving simple fractions or decimals; and problems that require expressing measurements given in a larger unit in terms of a smaller unit.

**M04.D-M.1.1.4** Identify time (analog or digital) as the amount of minutes before or after the hour.

*Example 1: 2:50 is the same as 10 minutes before 3:00.*

*Example 2: Quarter past six is the same as 6:15.*

**M04.D-M.1.1.3** Apply the area and perimeter formulas for rectangles in real-world and mathematical problems (may include finding a missing side length). Whole numbers only. **The formulas will be provided.**

**Enduring Understandings:**

- Extend understanding of fraction equivalence and ordering.
- Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
- Generate and analyze patterns.
- Use the four operations with whole numbers to solve problems.
- Understand decimal notation for fractions, and compare decimal fractions.
- Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

**Essential Questions:**

1. Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.
2. Some questions can be answered by collecting, representing, and analyzing data, and the question to be answered determines the data to be collected, how best to collect it, and how best to represent it.
3. The same number sentence (e.g.,  $12 - 4 = 8$ ) can be associated with different concrete or real world situations, AND different number sentences can be associated with the same concrete or real world situation.
4. Patterns exhibit relationships that can be extended, described, and generalized.
5. There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities.
6. Spatial reasoning and visualization are ways to orient thinking about the physical world.

Core Content/Objectives		Instructional Actions	
Concepts What students will know	Skills What students will be able to do	Activities	Assessment How learning will be assessed
<b>I. Algebraic Thinking and Patterns</b>	<b>I. Algebraic Thinking and Patterns</b>  A. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area	<ul style="list-style-type: none"> <li>• Place Value Houses</li> <li>• Decimal Place Value Task Cards- Review</li> <li>• Multiplication War</li> <li>• I Have, Who Has Multiplication</li> <li>• Place Value Scavenger Hunt</li> <li>• Spooky Multiplication Game</li> <li>• Daily Division Problems- one &amp; two digit divisors</li> </ul>	<b>Fluency</b> Rocket Math  <b>Formative Assessments</b> <ul style="list-style-type: none"> <li>• Vocabulary</li> <li>• Daily Homework</li> <li>• Problem Solving Activity</li> <li>• Peer Teaching</li> </ul>

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<p>A. Geometric Patterns</p> <p>B. Number Patterns</p> <p>C. Multiplication Equations</p> <p>D. Solving Word Problems Involving Variables, Expressions and Rounding</p> <p><b>X. Fractions</b></p> <p>A. Equivalent Fractions <b>(M04.A-F.1.1.1)</b></p> <p>B. Comparing Fraction <b>(M04.A-F.1.1.2)</b></p> <p>C. Adding and Subtracting Fractions with Like Denominators <b>(M04.A-F.2.1.1)</b></p>	<p>models.</p> <p>B. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.</p> <p>C. Interpret a multiplication equation as a comparison, e.g., interpret <math>35 = 5 \times 7</math> as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.</p> <p>D. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.</p> <p><b>X. Fractions</b></p> <p>A. Explain why a fraction <math>a/b</math> is equivalent to a fraction <math>(n \times a)/(n \times b)</math> by using visual fraction models, with attention to how the number</p>	<ul style="list-style-type: none"> <li>• Decimal Operations Scavenger Hunt</li> <li>• Decimal Place Value Game</li> <li>• Decimals Aren't So Scary</li> <li>• Multiplying &amp; Dividing by the Powers of 10</li> <li>• Place Value Records Project</li> </ul>	<p><b>Summative Assessments</b></p> <ul style="list-style-type: none"> <li>• Chapter Tests</li> <li>• Section Quizzes</li> <li>• Quarter Projects</li> <li>• Classroom Diagnostic Tool</li> </ul>
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<p>D. Adding and Subtracting Mixed Numbers with Like Denominators <b>(M04.A-F.2.1.3)</b></p> <p>E. Multiplying Fractions by Whole Numbers <b>(M04.A-F.2.1.5)</b> <b>(M04.A-F.2.1.6)</b></p> <p>F. Solving Fraction Word Problems <b>(M04.A-F.2.1.4)</b></p> <p><b>XI. Decimals</b></p> <p>A. Writing Decimals through Hundredths <b>(M04.A-F.3.1.2)</b></p> <p>B. Decimal Problem Solving Skills <b>(M04.D-M.1.1.2)</b></p>	<p>and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.</p> <p>B. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as <math>\frac{1}{2}</math>. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions, e.g., by using a visual fraction model.</p> <p>C. Understand a fraction <math>\frac{a}{b}</math> with <math>a &gt; 1</math> as a sum of fractions <math>\frac{1}{b}</math>. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: <math>\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}</math>; <math>\frac{3}{8}</math></p>		
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<p>C. Decimals on a Number Line</p> <p>D. Comparing Decimals to the Hundredths <b>(M04.A-F.3.1.3)</b></p> <p><b>XII. Measurement</b></p> <p>A. Word Problems Involving Measurement <b>(M04.D-M.1.1.)</b></p> <p>B. Conversion of Measurements <b>(M04.D-M.1.1.2)</b></p> <p>C. Time and Elapsed Time <b>(M04.D-M.1.1.2)</b> <b>(M04.D-M.1.1.4)</b></p> <p>D. Area and Perimeter For Rectangles</p>	<p><math>= 1/8 + 2/8</math> ; <math>2 \frac{1}{8} = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8</math>.</p> <p>Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.</p> <p>d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.</p> <p>D. Understand a fraction <math>a/b</math> with <math>a &gt; 1</math> as a sum of fractions <math>1/b</math>. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: <math>3/8 = 1/8 + 1/8 + 1/8</math>; <math>3/8 = 1/8 + 2/8</math> ; <math>2 \frac{1}{8} = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8</math>.</p> <p>Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and</p>		
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	<p>the relationship between addition and subtraction.</p> <p>d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.</p> <p>E. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. Understand a fraction <math>a/b</math> as a multiple of <math>1/b</math>. For example, use a visual fraction model to represent <math>5/4</math> as the product <math>5 \times (1/4)</math>, recording the conclusion by the equation <math>5/4 = 5 \times (1/4)</math>. Understand a multiple of <math>a/b</math> as a multiple of <math>1/b</math>, and use this Understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express <math>3 \times (2/5)</math> as <math>6 \times (1/5)</math>, recognizing this product as <math>6/5</math>. (In general, <math>n \times (a/b) = (n \times a)/b</math>.)</p> <p>c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat <math>3/8</math> of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole</p>		
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	<p>numbers does your answer lie?</p> <p>F. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. Understand a fraction <math>a/b</math> as a multiple of <math>1/b</math>. For example, use a visual fraction model to represent <math>5/4</math> as the product <math>5 \times (1/4)</math>, recording the conclusion by the equation <math>5/4 = 5 \times (1/4)</math>. Understand a multiple of <math>a/b</math> as a multiple of <math>1/b</math>, and use this Understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express <math>3 \times (2/5)</math> as <math>6 \times (1/5)</math>, recognizing this product as <math>6/5</math>. (In general, <math>n \times (a/b) = (n \times a)/b</math>.)</p> <p>c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat <math>3/8</math> of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?</p> <p><b>XI. Decimals</b></p> <p>A. Express a fraction with denominator 10 as an equivalent fraction with</p>		
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	<p>denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.4 For example, express <math>3/10</math> as <math>30/100</math>, and add <math>3/10 + 4/100 = 34/100</math>.</p> <p>B. Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as <math>62/100</math>; describe a length as 0.62 meters; locate 0.62 on a number line diagram.</p> <p>C. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions, e.g., by using a visual model.</p>		
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	<p><b>XII. Measurement</b></p> <p>A. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.</p> <p>B. Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two column table. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1,</p>		
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	12), (2, 24), (3, 36), ...  C. Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.		
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Materials/Resources/Technology

Quarter 4

**Targeted Standard(s):**

**Domain**

5.NBT Number and Operations in Base Ten  
5.OA Operations and Algebraic Thinking

**PA Core Standards**

**CC.2.1.5.B.1** Apply place-value concepts to show an understanding of operations and rounding as they pertain to whole numbers and decimals.  
**CC.2.1.5.B.2** Extend an understanding of operations with whole numbers to perform operations including decimals.  
**CC.2.2.5.A.1** Interpret and evaluate numerical expressions using order of operations.  
**CC.2.2.5.A.4** Analyze patterns and relationships using two rules.

**PA Core Assessment Anchors**

**M05.A-T.1** Understand the place-value system.  
**M05.A-T.2** Perform operations with multi-digit whole numbers and with decimals to hundredths.  
**M05.B-O.1** Write and interpret numerical expressions.

**PA Core Assessment Anchor Descriptors**

**M05.A-T.1.1** Demonstrate understanding of place-value of whole numbers and decimals, and compare quantities or magnitudes of numbers.  
**M05.A-T.2.1** Use whole numbers and decimals to compute accurately (straight computation or word problems.)  
**M05.B-O.1.1** Analyze and complete calculations by applying the order of operations.

**PA Core Eligible Content**

**M05.A-T.1.1.1** Demonstrate an understanding that in a multi-digit number, a digit in one place represents  $\frac{1}{10}$  of what it represents in the place to its left. *Example: Recognize that in the number 770, the 7 in the tens place is  $\frac{1}{10}$  the 7 in the hundreds place.*  
**M05.A-T.1.1.2** Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.  
*Example 1:  $4 \times 102 = 400$  Example 2:  $0.05 \div 103 = 0.00005$*   
**M05.A-T.1.1.3** Read and write decimals to thousandths using base-ten numerals, word form, and expanded form. *Example:  $347.392 = 300 + 40 + 7 + 0.3 + 0.09 + 0.002 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (0.1) + 9 \times (0.01) + 2 \times (0.001)$*   
**M05.A-T.1.1.4** Compare two decimals to thousandths based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols.  
**M05.A-T.1.1.5** Round decimals to any place (limit rounding to ones, tenths, hundredths, or thousandths place).  
**M05.A-T.2.1.1** Multiply multi-digit whole numbers (not to exceed 3-digit by 3-digit).  
**M05.A-T.2.1.2** Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors.  
**M05.A-T.2.1.3** Add, subtract, multiply, and divide decimals to hundredths (no divisors with decimals).  
**M05.B-O.1.1.1** Use multiple grouping symbols (parentheses, brackets, or braces) in numerical expressions, and evaluate expressions containing these symbols.

**M05.B-O.1.1.2** Write simple expressions that model calculations with numbers, and interpret numerical expressions without evaluating them.

Example 1: Express the calculation “add 8 and 7, then multiply by 2” as  $2 \times (8 + 7)$ .

**Enduring Understandings:**

**Enduring Understandings:**

- Students will understand that like whole numbers, the location of a digit in decimal numbers determines the value of the digit.
- Students will understand that rounding decimals should be “sensible” for the context of the problem.
- Students will understand that decimal numbers can be represented with models.
- Students will understand that addition and subtraction with decimals are based on the fundamental concept of adding and subtracting the numbers in like position values.
- Multiplication may be used to find the total number of objects when objects are arranged in equal groups.
- One of the factors in multiplication indicates the number of objects in a group and the other factor indicates the number of groups.
- Products may be calculated using invented strategies.
- Unfamiliar multiplication problems may be solved by using known multiplication facts and properties of multiplication and division. For example,  $8 \times 7 = (8 \times 2) + (8 \times 5)$  and  $18 \times 7 = (10 \times 7) + (8 \times 7)$ .
- Multiplication may be represented by rectangular arrays/area models.
- There are two common situations where division may be used: fair sharing (given the total amount and the number of equal groups, determine how many/much in each group) and measurement (given the total amount and the amount in a group, determine how many groups of the same size can be created).
- Some division situations will produce a remainder, but the remainder will always be less than the divisor. If the remainder is greater than the divisor, that means at least one more can be given to each group (fair sharing) or at least one more group of the given size (the dividend) may be created.
- The dividend, divisor, quotient, and remainder are related in the following manner:  $\text{dividend} = \text{divisor} \times \text{quotient} + \text{remainder}$ .
- The quotient remains unchanged when both the dividend and the divisor are multiplied or divided by the same number.
- The properties of multiplication and division help us solve computation problems easily and provide reasoning for choices we make in problem solving.

**Essential Questions:**

1. What is the relationship between decimals and fractions?
2. How can we read, write, and represent decimal values?
3. How are decimal numbers placed on a number line?
4. How can rounding decimal numbers be helpful?
5. How can you decide if your answer is reasonable?
6. How do we compare decimals?
7. Why is it important to follow an order of operations?

8. How can I write an expression that demonstrates a situation or context?
9. How can an expression be written given a set value?
10. What is the difference between an equation and an expression?
11. In what kinds of real world situations might we use equations and expressions?
12. How can we evaluate expressions?
13. How does multiplying a whole number by a power of ten affect the product?
14. How can estimating help us when solving multiplication problems?
15. What strategies can we use to efficiently solve multiplication problems?
16. How can I use what I know about multiplying multiples of ten to multiply two whole numbers?
17. How can estimating help us when solving division problems?
18. What strategies can we use to efficiently solve division problems?
19. How can I effectively explain my mathematical thinking and reasoning to others?
20. How can I effectively critique the reasoning of others?

Core Content/Objectives		Instructional Actions	
Concepts	Skills	PA Common Core Standards	Assessment
What students will know	What students will be able to do		How learning will be assessed
<b>I. Place Value: Whole Numbers and Decimals.</b> A. Whole Number Place Value to Billions. <b>(M05.A-T.1.1.1)</b>			Rocket Math Fact Fluency Vocabulary Formative Summative
<b>II. Multiplication of Whole Numbers.</b> A. Multiplying Multi-Digit Numbers. <b>(M05.A-T.2.1.1)</b>  B. Estimating Products  C. Mental Math: Distributive			

<p>Property (M05.B-O.1.1.1) (M05.B-O.1.1.2)</p> <p><b>III. Division of Whole Numbers and Decimals</b></p> <p>A. Power of Ten Patterns. (M05.A-T.1.1.2)</p> <p>B. Dividing One and Two-Digit Numbers (M05.A-T.2.1.2)</p> <p><b>IV. Place Value: Whole Numbers and Decimals.</b></p> <p>A. Decimal Place Value to <b>Thousandths.</b></p> <p>a. Expanded Notation (M05.A-T.1.1.3)</p>			
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<p>b. Comparing and Ordering Whole Numbers and Decimals. <b>(M05.A-T.1.1.4)</b></p> <p>c. Rounding Whole Numbers and Decimals. <b>(M05.A-T.1.1.5)</b></p> <p><b>V. Whole Numbers and Decimals using Addition and Subtraction. (M05.A-T.2.1.3)</b></p> <p>A. Addition of Whole Numbers and Decimals.</p> <p>a. Properties of Operations. <b>(M05.B-O.1.1.1)</b></p> <p>B. Subtraction of Whole Numbers and Decimals.</p> <p><b>VI. Multiplication of Decimals</b></p> <p>A. Multiplying Decimals <b>(M05.A-T.2.1.3)</b></p> <p>B. Power of Ten Patterns.</p>			
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Tunkhannock Area School District  
Grade 4 Mathematics  
Curriculum Map 2014

<b>(M05.A-T.1.1.2)</b>			
<b>Materials/Resources/Technology</b>			