

### Quarter 1

#### Targeted Standard(s):

##### Domain

3.NBT Number and Operations in Base Ten

3.OA Operations and Algebraic Thinking

##### PA Core Standards

**CC.2.2.3.A.1** Represent and solve problems involving multiplication and division.

**CC.2.2.3.A.2** Understand properties of multiplication and the relationship between multiplication and division.

**CC.2.2.3.A.3** Demonstrate multiplication and division fluency.

**CC.2.2.3.A.4** Solve problems involving the four operations, and identify and explain patterns in arithmetic.

**CC.2.4.3.A.3** Solve problems and make change involving money using a combination of coins and bills.

**CC.2.1.3.B.1** Apply place-value understanding and properties of operations to perform multi-digit arithmetic.

##### PA Core Assessment Anchors

**M03.A-T.1** Use place-value understanding and properties of operations to perform multi-digit arithmetic.

**M03.B-O.1** Represent and solve problems involving multiplication and division.

**M03.B-O.2** Understand properties of multiplication and the relationship between multiplication and division.

**M03.B-O.3** Solve problems involving the four operations, and identify and explain patterns in arithmetic.

**M03.D-M.1** Solve problems involving measurement and estimation of intervals of time, money, liquid volumes, masses, and lengths of objects.

##### PA Core Assessment Anchors Descriptor

**M03.A-T.1.1** Apply place-value strategies to solve problems.

**M03.B-O.1.2** Solve mathematical and real-world problems using multiplication and division, including determining the missing number in a multiplication and/or division equation.

**M03.B-O.2.1** Use properties to simplify and solve multiplication problems.

**M03.B-O.2.2** Relate division to a missing-number multiplication equation.

**M03.B-O.3.1** Use operations, patterns, and estimation strategies to solve problems (may include word problems.)

**M03.D-M.1.3** Count, compare, and make change using a collection of coins and one-dollar bills.

##### PA Core Eligible Content

**M03.A-T.1.1.1** Round two- and three-digit whole numbers to the nearest ten or hundred, respectively.

**M03.A-T.1.1.4** Order a set of whole numbers from least to greatest or greatest to least (up through 9,999; limit sets to no more than four numbers).

**M03.A-T.1.1.2** Add two- and three-digit whole numbers (limit sums from 100 through 1,000), and/or subtract two- and three-digit numbers from three-digit whole numbers.

**M03.B-O.3.1.3** Assess the reasonableness of answers. Limit problems posed with whole numbers and having whole-number answers.

**M03.B-O.3.1.4** Solve two-step equations using order of operations (equations is explicitly stated with no grouping symbols)

**M03.B-O.3.1.1** Solve two-step word problems using the four operations (expressions are not explicitly stated). Limit to problems with whole

numbers and having whole-number answers.

**M03.B-O.3.1.2** Represent two-step word problems with a symbol standing for the unknown quantity. Limit to problems with whole numbers and having whole number answers

**M03.D-M.1.3.1** Compare total values of combinations of coins (penny, nickel, dime, quarter) and/or dollar bills less than \$5.00.

**M03.D-M.1.3.2** Make change for an amount up to \$5.00 with no more than \$2.00 change given (penny, nickel, dime, quarter, and dollar).

**M03.D-M.1.3.3** Round amounts of money to the nearest dollar.

**M03.B-O.1.2.1** Use multiplication (up to and including  $10 \times 10$ ) and/or division (limit dividends through 50, and limit divisors and quotients through 10) to solve word problems in situations involving equal groups, arrays, and/or measurement quantities.

**M03.B-O.2.1.1** Apply the commutative property of multiplication (not identification or definition of the property).

**M03.B-O.2.1.2** Apply the associative property of multiplication (not identification or definition of the property).

**M03.B-O.1.2.2** Determine the unknown whole number in a multiplication (up to and including  $10 \times 10$ ) or division (limit dividends through 50, and limit divisors and quotients through 10) equation

**M03.B-O.2.2.1** Interpret and/or model division as a multiplication equation with an unknown factor.

*Example: Find  $32 \div 8$  by solving  $8 \times ? = 32$ .*

**M03.B-O.3.1.6** Create or match a story to a given combination of symbols (+, −, ×, ÷, <, >, =) and numbers.

**M03.B-O.3.1.7** Identify the missing symbol (+, −, ×, ÷, <, >, =) that makes a number sentence true.

**M03.A-T.1.1.3** Multiply one-digit whole numbers by two-digit multiples of 10 (from 10 through 90).

**M03.B-O.3.1.5** Identify arithmetic patterns (including patterns in the addition or multiplication table) and/or explain them using properties of operations.

#### Enduring Understandings:

- Use place value understanding and properties of operations to perform multi-digit arithmetic.
- Solve problems involving the four operations, and identify and explain patterns in arithmetic.
- Represent and solve problems involving multiplication and division.
- Understand properties of multiplication and the relationship between multiplication and division.
- Multiply and Divide within 100.

#### Essential Questions:

1. What strategies and models help us understand how to solve multiplication and division problems and how multiplication and division are related/connected?

Tunkhannock Area School District  
Grade 3 Mathematics  
Curriculum Map 2014

| Core Content/Objectives  |  | Instructional Actions  |   |
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| Concepts<br>What students will know  | Competencies<br>What students will be able to do   | Activities   | Assessment<br>How learning will be assessed   |
| <p><b>I. Numbers, Number Relationships, and Number Systems</b></p> <p>A. Place Value<br/><b>M03.A-T.1.1.1</b></p> <p>B. Rounding<br/><b>M03.A-T.1.1.1</b></p> <p>C. Ordering Numbers<br/><b>M03.A-T.1.1.4</b></p> <p><b>II. Addition</b></p> <p>A. Two-Step Problem Solving<br/><b>M03.A-T.1.1.2</b><br/><b>M03.B-O.3.1.1</b><br/><b>M03.B-O.3.1.3</b><br/><b>M03.B-O.3.1.4</b><br/><b>M03.B-O.3.1.2</b></p> | <p><b>I. Numbers, Number Relationships, and Number Systems</b></p> <p>A. Place value thru hundred thousands</p> <p>B. Use place value understanding to round whole numbers to the nearest 10 or 100.</p> <p>C. Use place value to order a set of numbers from greatest to least (up through 9,999)</p> <p><b>II. Addition</b></p> <p>A. Solve two-step word problems using the four operations in order. 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="#">Addition to Multiplication relationship</a></p> <p><a href="#">Place Value Interactive Game</a></p> <p><a href="#">Rounding to the Nearest 100</a></p> <p><a href="#">Math is Fun-Ordering Interactive</a></p> <p><a href="http://mrnussbaum.com/third-grade-math/">http://mrnussbaum.com/third-grade-math/</a></p> <p><a href="http://www.MathBlaster.com">www.MathBlaster.com</a></p> | <p>Formative</p> <p>Summative</p> <p>Diagnostic</p> <p>Alternative</p> <p>Rubrics</p> <p>Journals</p> <p>Multiple choice exam/Written Response</p> <p>Rocket math</p> <p>Problem Solving Activities</p> <p>Projects</p> <p>Vocabulary</p> |

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| <p><b>M03.B-O.3.1.6</b></p> <p><b>M03.B-O.3.1.7</b></p> <p>B. Estimation<br/><b>M03.B-O.3.1.3</b></p> <p>C. Addition up to the 1000's Place<br/><b>M03.A-T.1.1.2</b></p> <p><b>III. Subtraction</b><br/>A. Computation (up to 1000) and Word Problems</p> <p><b>M03.A-T.1.1.2</b><br/><b>M03.B-O.3.1.1</b><br/><b>M03.B-O.3.1.3</b><br/><b>M03.B-O.3.1.4</b><br/><b>M03.B-O.3.1.2</b></p> | <p>Create or match a story to a given combination of symbols (+,-,x,÷,and =)</p> <p>Identify the missing symbol (+,-,x,÷,and =)</p> <p>B. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p> <p>C. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.</p> <p><b>III. Subtraction</b><br/>A. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental</p> | <p>Oil,Oil, Everywhere (online estimation activity)</p> <p>Every Breath You Take<br/><a href="http://illuminations.nctm.org">http://illuminations.nctm.org</a></p> <p>Dice Game: Add Up</p> <p><a href="http://www.woodlands-junior.kent.sch.uk/maths/numberskills.html">http://www.woodlands-junior.kent.sch.uk/maths/numberskills.html</a></p> |  |
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| <p><b>M03.B-O.3.1.6</b></p> <p><b>M03.B-O.3.1.7</b></p> <p>B. Estimation<br/><b>M03.B-O.3.1.1</b></p> <p>C. Subtraction up to the 1000's Place<br/><b>M03.A-T.1.1.2</b></p> <p><b>IV. Money</b><br/>A. Count and Compare<br/><b>M03.D-M.1.3.1</b></p> | <p>computation and estimation strategies including rounding.</p> <p>Create or match a story to a given combination of symbols (+, -, x, ÷, and =)</p> <p>Identify the missing symbol (+, -, x, ÷, and =)</p> <p>B. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p> <p>C. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.</p> <p><b>IV. Money</b><br/>A. Count and compare total values of combinations of coins (penny, nickel, dime, quarter, dollar bills) less than \$5.00</p> | <p><a href="http://www.mathplayground.com/GrandSlamMath1.html">http://www.mathplayground.com/GrandSlamMath1.html</a></p> <p><a href="http://www.funbrain.com">www.funbrain.com</a></p> <p><a href="#">Third Grade Skills-Money</a></p> <p>Class store</p> |  |
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| <p>B. Make change<br/><b>M03.D-M.1.3.2</b></p> <p>C. Rounding<br/><b>M03.D-M.1.3.3</b></p> <p><b>V. Multiplication</b><br/>A. Multiplication Concepts<br/><b>M03.B-O.1.2.1</b></p> <p>B. Properties of Multiplication<br/><b>M03.B-O.2.1.1</b><br/><b>M03.B-O.2.1.2</b></p> <p>C. Computation</p> | <p>B. Make change for an amount up to \$5.00 with no more than \$2.00 change given back</p> <p>C. Round amounts of money to the nearest dollar</p> <p><b>V. Multiplication</b><br/>A. Interpret products of whole numbers, e.g., interpret <math>5 \times 7</math> as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as <math>5 \times 7</math>.</p> <p>B. Apply properties of operations as strategies to multiply and divide.2 Examples: If <math>6 \times 4 = 24</math> is known, then <math>4 \times 6 = 24</math> is also known. (Commutative property of multiplication.) <math>3 \times 5 \times 2</math> can be found by <math>3 \times 5 = 15</math>, then <math>15 \times 2 = 30</math>, or by <math>5 \times 2 = 10</math>, then <math>3 \times 10 = 30</math>. (Associative property of multiplication)</p> <p>C. Fluently multiply and</p> | <p><a href="#">Rounding to the Nearest Dollar</a></p> <p><a href="#">Interpret Products of Whole Numbers</a></p> <p>-All about Multiplication<br/>(<a href="http://illuminations.nctm.org">http://illuminations.nctm.org</a>)</p> <p><a href="#">Commutative Property</a></p> |  |
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**Tunkhannock Area School District  
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| <p><b>M03.B-O.1.2.2</b></p> <p>D. Computation: Variables<br/><b>M03.B-O.2.2.1</b></p> <p><b>M03.B-O.3.1.6</b></p> <p><b>M03.B-O.3.1.7</b></p> <p>E. Computation: Patterns in Multiplication</p> | <p>divide within 100 (up to and including 10x10), using strategies such as the relationship between multiplication and division (e.g., knowing that <math>8 \times 5 = 40</math>, one knows <math>40 \div 5 = 8</math>) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.</p> <p>D. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations <math>8 \times ? = 48</math>, <math>5 = \square \div 3</math>, <math>6 \times 6 = ?</math>.<br/>Create or match a story to a given combination of symbols (+, -, <math>\times</math>, <math>\div</math>, and =)<br/>Identify the missing symbol (+, -, <math>\times</math>, <math>\div</math>, and =)</p> <p>E. Identify arithmetic patterns (including</p> | <p><a href="#">Math Skills-Multiply and Divide</a></p> <p><a href="http://aaamath.com/pro74b-propertiesmult.html">http://aaamath.com/pro74b-propertiesmult.html</a></p> <p><a href="http://betterlesson.com/lesson/7293/equations-multiplication-using-variables">http://betterlesson.com/lesson/7293/equations-multiplication-using-variables</a></p> <p><a href="http://www.aaastudy.com/mul310x2.htm">http://www.aaastudy.com/mul310x2.htm</a></p> <p><a href="#">Multiplying by Multiples of Ten</a></p> <p><a href="http://filefolder.com/ThirdGradeMathTimesTables.html">http://filefolder.com/ThirdGradeMathTimesTables.html</a></p> <p><a href="http://www.insidemathematics.org/index.php/tools-for-teachers/3rd-grade/mars-tasks-scorinf-rubrics-a-analysis">http://www.insidemathematics.org/index.php/tools-for-teachers/3rd-grade/mars-tasks-scorinf-rubrics-a-analysis</a></p> |  |
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| <p><b>M03.A-T.1.1.3</b><br/> <b>M03.B-O.3.1.5</b></p> <p>F. Computation:<br/>       Multiples<br/> <b>M03.A-T.1.1.3</b></p> <p>G. Computation: Word<br/>       Problems<br/> <b>M03.B-O.1.2.1</b></p> | <p>patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.</p> <p>F. Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., <math>9 \times 80</math>, <math>5 \times 60</math>) using strategies based on place value and properties of operations.</p> <p>G. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.<sup>1</sup></p> |  |  |
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**Quarter 2**

**Targeted Standard(s):**

**Domain**

- 3.OA Operations and Algebraic Thinking
- 3.NF Number and Operations—Fractions
- 3.G Geometry

**PA Core Standards**

- CC.2.1.3.C.1** Explore and develop an understanding of fractions as numbers.
- CC.2.2.3.A.1** Represent and solve problems involving multiplication and division.
- CC.2.1.3.B.1** Apply place-value understanding and properties of operations to perform multi-digit arithmetic.
- CC.2.2.3.A.2** Understand properties of multiplication and the relationship between multiplication and division.
- CC.2.2.3.A.3** Demonstrate multiplication and division fluency.
- CC.2.2.3.A.4** Solve problems involving the four operations, and identify and explain patterns in arithmetic.
- CC.2.3.3.A.1** Identify, compare, and classify shapes and their attributes.
- CC.2.3.3.A.2** Use the understanding of fractions to partition shapes into parts with equal areas and express the area of each part as a unit fraction of the whole.

**PA Assessment Anchors**

- M03.A-T.1** Use place-value understanding and properties of operations to perform multi-digit arithmetic.
- M03.A-F.1** Develop an understanding of fractions as numbers.
- M03.B-O.1** Represent and solve problems involving multiplication and division.
- M03.B-O.2** Understand properties of multiplication and the relationship between multiplication and division.
- M03.B-O.3** Solve problems involving the four operations, and identify and explain patterns in arithmetic.
- M03.C-G.1** Reason with shapes and their attributes.
- M03.D-M.1** Solve problems involving measurement and estimation of intervals of time, money, liquid volumes, masses, and lengths of objects.
- M03.D-M.1** Solve problems involving measurement and estimation of intervals of time, money, liquid volumes, masses, and lengths of objects.

**PA Core Assessment Anchors Descriptor**

- M03.A-T.1.1** Apply place-value strategies to solve problems.
- M03.A-F.1.1** Develop and apply number theory concepts to compare quantities and magnitudes of fractions and whole numbers.
- M03.B-O.1.2** Solve mathematical and real-world problems using multiplication and division, including determining the missing number in a multiplication and/or division equation.
- M03.B-O.2.1** Use properties to simplify and solve multiplication problems.
- M03.B-O.2.2** Relate division to a missing-number multiplication equation.

**M03.B-O.3.1** Use operations, patterns, and estimation strategies to solve problems (may include word problems.)

**M03.C-G.1.1** Analyze characteristics of polygons.

**M03.D-M.1.1** Determine or calculate time and elapsed time.

### **PA Core Eligible Content**

**M03.B-O.1.2.1** Use multiplication (up to and including  $10 \times 10$ ) and/or division (limit dividends through 50, and limit divisors and quotients through 10) to solve word problems in situations involving equal groups, arrays, and/or measurement quantities.

**M03.B-O.1.1.2** Interpret and/or describe whole-number quotients of whole numbers (limit dividends through 50, and limit divisors and quotients through 10).

Example 1: Interpret  $48 \div 8$  as the number of objects in each share when 48 objects are partitioned equally into 8 shares, or as a number of shares when 48 objects are partitioned into equal shares of 8 objects each.

Example 2: Describe a context in which a number of shares or a number of groups can be expressed as  $48 \div 8$ .

**M03.B-O.2.2.1** Interpret and/or model division as a multiplication equation with an unknown factor.

Example: Find  $32 \div 8$  by solving  $8 \times ? = 32$ .

**M03.A-T.1.1.3** Multiply one-digit whole numbers by two-digit multiples of 10 (from 10 through 90).

**M03.B-O.1.1.1** Interpret and/or describe products of whole numbers (up to and including  $10 \times 10$ ).

Example 1: Interpret 35 as the total number of objects in 5 groups, each containing 7 objects.

Example 2: Describe a context in which a total number of objects can be expressed as  $5 \times 7$ .

**M03.B-O.3.1.6** Create or match a story to a given combination of symbols (+, −, ×, ÷, <, >, =) and numbers.

**M03.B-O.3.1.7** Identify the missing symbol (+, −, ×, ÷, <, >, =) that makes a number sentence true.

**M03.B-O.1.2.2** Determine the unknown whole number in a multiplication (up to and including  $10 \times 10$ ) or division (limit dividends through 50, and limit divisors and quotients through 10) equation relating three whole numbers.

Example: Determine the unknown number that makes an equation true.

**M03.A-F.1.1.1** Demonstrate that when a whole or set is partitioned into  $y$  equal parts, the fraction  $1/y$  represents 1 part of the whole and/or the fraction  $x/y$  represents  $x$  equal parts of the whole (limit the denominators to 2, 3, 4, 6, and 8; limit numerators to whole numbers less than the denominator; no simplification necessary).

**M03.A-F.1.1.2** Represent fractions on a number line (limit the denominators to 2, 3, 4, 6, and 8; limit numerators to whole numbers less than the denominator; no simplification necessary).

**M03.A-F.1.1.3** Recognize and generate simple equivalent fractions (limit the denominators to 1, 2, 3, 4, 6, and 8; limit numerators to whole numbers less than the denominator).

Example 1:  $1/2 = 2/4$

Example 2:  $4/6 = 2/3$

Example 2:  $4/6 = 2/3$

**M03.A-F.1.1.4** Express whole numbers as fractions, and/or generate fractions that are equivalent to whole numbers (limit the denominators to 1, 2, 3, 4, 6, and 8).

Example 1: Express 3 in the form  $3 = 3/1$ .

Example 2: Recognize that  $6/1 = 6$ .

**M03.A-F.1.1.5** Compare two fractions with the same denominator (limit the denominators to 1, 2, 3, 4, 6, and 8), using the symbols >, =, or <, and/or justify the conclusions.

**M03.C-G.1.1.1** Explain that shapes in different categories may share attributes, and that the shared attributes can define a larger category.

Example 1: A rhombus and a rectangle are both quadrilaterals since they both have exactly four sides.

Example 2: A triangle and a pentagon are both polygons since they are both multi-sided plane figures.  
**M03.C-G.1.1.2** Recognize rhombi, rectangles, and squares as examples of quadrilaterals, and/or draw examples of quadrilaterals that do not belong to any of these subcategories.  
**M03.C-G.1.1.3** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.  
 Example 1: Partition a shape into 4 parts with equal areas.  
 Example 2: Describe the area of each of 8 equal parts as  $\frac{1}{8}$  of the area of the shape.  
**M03.D-M.1.1.1** Tell, show, and/or write time (analog) to the nearest minute.  
**M03.D-M.1.1.2** Calculate elapsed time to the minute in a given situation (total elapsed time limited to 60 minutes or less).

**Enduring Understandings:**

- Represent and solve problems involving multiplication and division.
- Understand properties of multiplication and the relationship between multiplication and division.
- Multiply and Divide within 100.
- Develop understanding of fractions as numbers.
- Reason with shapes and their attributes.

**Essential Questions:**

1. What strategies and models help us understand how to solve multiplication and division problems and how multiplication and division are related/connected?
2. What are all the meanings of fractions, and why do we use them?
3. How can we describe two-dimensional and three-dimensional shapes? How can putting shapes together and breaking large shapes into smaller shapes help us understand them?

| Core Content/Objectives  |  | Instructional Actions  |  |
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| Concepts   | Competencies   | Activities   | Assessment   |
| What students will know  | What students will be able to do   |  | How learning will be assessed  |
| <b>I. Division</b><br>A. Division Concepts<br><b>M03.B-O.1.2.1</b> | <b>I. Division</b><br>A. Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned | <a href="http://www.ixl.com/math/grade-3/division-facts-to-5">http://www.ixl.com/math/grade-3/division-facts-to-5</a><br><br><a href="http://www.ixl.com/math/grade-3/division-facts-to-10">http://www.ixl.com/math/grade-3/division-facts-to-10</a> | Formative<br>Summative<br>Diagnostic<br>Alternative<br>Rubrics<br>Journals<br>Multiple choice exam/Written Response<br>Rocket math<br>Problem Solving Activities<br>Projects |

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| <p>B. Inverse of Multiplication<br/><b>M03.B-O.2.2.1</b></p> <p>C. Computation<br/><b>M03.A-T.1.1.3</b><br/><b>M03.B-O.1.1.1</b></p> <p>D. Computation: Variables<br/><b>M03.B-O.1.2.2</b></p> | <p>into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as <math>56 \div 8</math>.</p> <p>B. Understand division as an unknown-factor problem. For example, find <math>32 \div 8</math> by finding the number that makes 32 when multiplied by 8.</p> <p>C. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that <math>8 \times 5 = 40</math>, one knows <math>40 \div 5 = 8</math>) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.</p> <p>D. Determine the unknown whole number in a multiplication or division equation relating three</p> | <p><a href="http://aaamath.com/div34cx2.htm">http://aaamath.com/div34cx2.htm</a></p> <p><a href="http://eduplace.com/math/mathsteps/">http://eduplace.com/math/mathsteps/</a></p> <p>Around the World</p> <p>Fact Race</p> <p>Scholastic: Connect the Dots Math</p> <p>Wrap Around Game</p> | <p>Vocabulary</p> |
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Grade 3 Mathematics  
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| <p><b>M03.B-O.3.1.6</b></p> <p><b>M03.B-O.3.1.7</b></p> <p>E. Computation: Word Problems<br/><b>M03.A-T.1.1.3</b><br/><b>M03.B-O.1.2.1</b><br/><b>M03.B-O.1.2.2</b></p> <p><b>II. Measurement</b><br/>A. Time<br/><b>M03.D-M.1.1.1</b><br/><b>M03.D-M.1.1.2</b></p> | <p>whole numbers. For example, determine the unknown number that makes the equation true in each of the equations <math>8 \times ? = 48</math>, <math>5 = \square \div 3</math>, <math>6 \times 6 = ?</math>.</p> <p>Create or match a story to a given combination of symbols (+, -, <math>\times</math>, <math>\div</math>, and =)</p> <p>Identify the missing symbol (+, -, <math>\times</math>, <math>\div</math>, and =)</p> <p>E. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.</p> <p><b>II. Measurement</b><br/>A. Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction</p> | <p><a href="http://ixl.com/math/grade-3/division-word-problems-facts-to-10">http://ixl.com/math/grade-3/division-word-problems-facts-to-10</a></p> <p><a href="http://www.apples4theteacher.com/">http://www.apples4theteacher.com/</a></p> <p>M&amp;M Sort<br/>Hershey Bar</p> |  |
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| <p><b>III. Fractions</b></p> <p>A. Parts of a Whole:<br/>Fraction Representation<br/><b>M03.A-F.1.1.1</b><br/><b>M03.A-F.1.1.4</b></p> <p>B. Fractions on a Number Line<br/><b>M03.A-F.1.1.2</b></p> <p>C. Equivalent Fractions:<br/>Understanding of Equal Fractions<br/><b>M03.A-F.1.1.3</b></p> | <p>of time intervals in minutes,<br/>(Calculate elapsed time total elapsed time limited to 60 minutes)</p> <p><b>III. Fractions</b></p> <p>A. Understand a fraction <math>1/b</math> as the quantity formed by 1 part when a whole is partitioned into <math>b</math> equal parts; limit numerators to 2,3,4,6,and 8.</p> <p>B. Understand a fraction as a number on the number line; represent fractions on a number line diagram.</p> <p>C. Explain equivalence of fractions and compare fractions by reasoning about their size. Develop understanding of fractions by recognizing and generating simple equivalent fractions (limit denominators to</p> | <p>Lucky Charm Project</p> <p>Paper Plate Pizza</p> <p>Pizza Game</p> <p><a href="http://illuminations.nctm.org/">http://illuminations.nctm.org/</a></p> <p>Lesson =U112<br/>Lesson=U152</p> <p><a href="http://www.math-salamanders.com/fraction-number-line.html">http://www.math-salamanders.com/fraction-number-line.html</a></p> <p><a href="http://alex.state.al.us/lesson_view.php?id=26348">http://alex.state.al.us/lesson_view.php?id=26348</a></p> <p><a href="http://www.k-5mathteachingresources.com/3rd-grade-number-activities.html">http://www.k-5mathteachingresources.com/3rd-grade-number-activities.html</a></p> <p><a href="http://www.education.com/worksheets/third-grade/fractions/">http://www.education.com/worksheets/third-grade/fractions/</a></p> |  |
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| <p>D. Expressing Whole Numbers as Fractions<br/> <b>M03.A-F.1.1.4</b></p> <p>E. Comparing Fractions<br/> <b>M03.A-F.1.1.5</b></p> <p><b>IV. Geometry</b><br/>                 A. Shape Attributes<br/> <b>M03.C-G.1.1.1</b><br/> <b>M03.C-G.1.1.2</b></p> | <p>1,2,3,4,6, and 8 and limit numerators to whole numbers less than the denominator) e.g., <math>1/2 = 2/4</math>, <math>4/6 = 2/3</math>).</p> <p>D. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form <math>3 = 3/1</math>; recognize that <math>6/1 = 6</math>; <math>4/4 = 1</math></p> <p>E. Compare fractions with the same denominator by reasoning about their size. 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 fraction model.</p> <p><b>IV. Geometry</b><br/>                 A. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize</p> | <p>Pie Activity<br/> <a href="http://www.ehow.com/how_8235723_teach-equivalent-fractions-third-graders.html">http://www.ehow.com/how_8235723_teach-equivalent-fractions-third-graders.html</a></p> <p><a href="http://www.webmath.com/k8cf.html">http://www.webmath.com/k8cf.html</a></p> <p><a href="http://illuminations.nctm.org/LessonDetail.aspx?id-L570">http://illuminations.nctm.org/LessonDetail.aspx?id-L570</a></p> |  |
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| <p>B. Partitioning Shapes<br/><b>M03.C-G.1.1.3</b></p> | <p>rhombuses, rectangles, and squares are examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.</p> <p>B. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as <math>\frac{1}{4}</math> of the area of the shape.</p> | <p><a href="http://illuminations.nctm.org/LessonDetail.aspx?id-L350">http://illuminations.nctm.org/LessonDetail.aspx?id-L350</a></p> <p><a href="http://illuminations.nctm.org/LessonDetail.aspx?id-L122">http://illuminations.nctm.org/LessonDetail.aspx?id-L122</a></p> |  |
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| Materials/Resources/Technology |
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**Quarter 3****Targeted Standard(s):****Domain**

3.MD Measurement and Data

**PA Core Standards**

**CC.2.4.3.A.1** Solve problems involving measurement and estimation of temperature, liquid volume, mass, and length.

**CC.2.4.3.A.2** Tell and write time to the nearest minute and solve problems by calculating time intervals.

**CC.2.4.3.A.4** Represent and interpret data using tally charts, tables, pictographs, line plots, and bar graphs.

**CC.2.4.3.A.5** Determine the area of a rectangle and apply the concept to multiplication and to addition.

**CC.2.4.3.A.6** Solve problems involving perimeters of polygons and distinguish between linear and area measures.

**PA Core Assessment Anchors**

**M03.D-M.1** Solve problems involving measurement and estimation of intervals of time, money, liquid volumes, masses, and lengths of objects.

**M03.D-M.2** Represent and interpret data.

**M03.D-M.3** Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

**M03.D-M.4** Geometric measurement: recognize perimeter as an attribute of plan figures and distinguish between linear and area measures.

**PA Core Assessment Anchor Descriptors**

**M03.D-M.1.2** Use the attributes of liquid volume, mass, and length of objects.

**M03.D-M.2.1** Organize, display, and answer questions based on data.

**M03.D-M.3.1** Find the areas of plane figures.

**M03.D-M.4.1** Find and use the perimeters of plane figures.

**PA Core Eligible Content**

**M03.D-M.1.2.1** Measure and estimate liquid volumes and masses of objects using standard units (cups [c], pints [pt], quarts [qt], gallons [gal], ounces [oz.], and pounds [lb]) and metric units (liters [l], grams [g], and kilograms [kg]).

**M03.D-M.1.2.2** Add, subtract, multiply, and divide to solve onestep word problems involving masses or liquid volumes that are given in the same units.

**M03.D-M.1.2.3** Use a ruler to measure lengths to the nearest quarter inch or centimeter.

**M03.D-M.3.1.2** Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real-world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

**M03.D-M.3.1.1** Measure areas by counting unit squares (square cm, square m, square in., square ft, and non-standard square units).

**M03.D-M.4.1.1** Solve real-world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, exhibiting rectangles with the same perimeter and different areas, and exhibiting rectangles with the same area and different perimeters. Use the same units throughout the problem.

**M03.D-M.2.1.1** Complete a scaled pictograph and a scaled bar graph to represent a data set with several categories (scales limited to 1, 2, 5, and 10).

**M03.D-M.2.1.3** Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Display the data by

making a line plot, where the horizontal scale is marked in appropriate units—whole numbers, halves, or quarters.  
**M03.D-M.2.1.4** Translate information from one type of display to another. Limit to pictographs, tally charts, bar graphs, and tables.  
*Example: Convert a tally chart to a bar graph.*

- Enduring Understandings:**
- Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
  - Represent and interpret data.
  - Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
  - Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
  - Represent and interpret data.

- Essential Questions:**
1. How can using graphs help us to solve problems and describe data we collect?
  2. What strategies and models help us understand how to solve multiplication and division problems and how multiplication and division are related/connected?
  3. How can we describe two-dimensional and three-dimensional shapes? How can putting shapes together and breaking large shapes into smaller shapes help us understand them?
  4. What is perimeter and area, and what strategies can we use to find the perimeter and area of a shape?
  5. What are the attributes of measureable shapes? e.g. length, mass, and capacity?

| Core Content/Objectives   |   | Instructional Actions   |  |
|---|---|---|--|
| Concepts  | Skills  | Activities  | Assessment   |
| What students will know   | What students will be able to do  |   | How learning will be assessed  |
| <b>I. Measurement</b><br>A. Volume and Mass<br><b>M03.D-M.1.2.1</b><br><br><b>M03.D-M.1.2.2</b> | <b>I. Measurement</b><br>A. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), liters (l), cup(c), pints(p), quarts(q), gallons(g), ounces(oz), and pound(lb).<br>Add, subtract, multiply, or | <a href="http://www.k-5mathteachingresources.com/data-and-measurement-activities.html">http://www.k-5mathteachingresources.com/data-and-measurement-activities.html</a><br><br><a href="http://www.ixl.com">www.ixl.com</a> | Formative<br>Summative<br>Diagnostic<br>Alternative<br>Rubrics<br>Journals<br>Multiple choice exam/Written Response<br>Rocket math<br>Problem Solving Activities |





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| <p>B. Translating Information<br/><b>M03.D-M.2.1.4</b></p> | <p>graph might represent 5 pets.</p> <p>B. Interpret data<br/>Translate information from one type of display to another. Limit to pictographs, tally charts, bar graphs, and tables (convert tally chart data to bar graph).</p> | <p><a href="http://www.internet4classrooms.com/grade_level_help/interpret_graph_third_3rd_grade.htm">http://www.internet4classrooms.com/grade_level_help/interpret_graph_third_3rd_grade.htm</a></p> |  |
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| <p>Materials/Resources/Technology</p> |
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Quarter 4

**Targeted Standard(s): Common Core**

**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.

**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.

**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.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 ( $+$ ,  $-$ ,  $\times$ ,  $\div$ ,  $=$ ,  $<$ , and  $>$ ) that makes a number sentence true (single-digit divisor only).

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| <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> </ul> |
| <p><b>Essential Questions:</b></p> <p>1. Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.</p>  |

| Core Content/Objectives  |   | Instructional Actions  |   |
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| Concepts   | Skills  | Activities   | Assessment  |
| What students will know  | What students will be able to do  |  | How learning will be assessed   |
| <p><b>I. WHOLE NUMBERS</b></p> <p>A. Place value through millions<br/><b>(M04.A-T.1.1.1)</b></p> <p>B. Number Forms<br/><b>(M04.A-T.1.1.2)</b></p> <p>C. Comparing Numbers</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</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/arithmetic/place_value_whole_numbers.pdf">http://www.nsa.gov/academia/files/collected_learning/elementary/arithmetic/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>Formative</p> <p>Summative</p> <p>Diagnostic</p> <p>Alternative</p> <p>Rubrics</p> <p>Journals</p> <p>Multiple choice exam/Written Response</p> <p>Rocket math</p> <p>Problem Solving Activities</p> <p>Projects</p> <p>Vocabulary</p> |

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| <p><b>(M04.A-T.1.1.3)</b></p> <p>D. Rounding Numbers<br/><b>(M04.A-T.1.1.4)</b></p> <p><b>II. Addition of Numbers</b></p> <p>A. Properties of Addition<br/><b>(M04.A-T.2.1.1)</b></p> <p>B. Addition of Numbers and Multi-digit Numbers<br/><b>(M04.A-T.2.1.1)</b></p> <p>C. Estimating Sums<br/><b>(M04.A-T.2.1.4)</b></p> | <p>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. 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><a href="http://www.etur.org/files/Reading%20and%20Writing%20Numbers%20through%20Millions%20Billions%20in%20Words.pdf">http://www.etur.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></p> <p><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><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><br/><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><br/><a href="http://www.ixl.com/math/grade-4/rounding">http://www.ixl.com/math/grade-4/rounding</a></p> |  |
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| <p><b>(M04.A-T.2.1.1)</b></p> <p>D. Estimating Differences<br/><b>(M04.A-T.2.1.4)</b></p> <p>E. Problem Solving Skills<br/><b>(M04.B-O.1.1.3)</b></p> | <p>using the standard algorithm.</p> <p>D. Use place value understanding to round multi-digit whole numbers to any place.</p> <p>E. 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><b>Estimating Answers</b><br/><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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| <b>Materials/Resources/Technology</b> |
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