



# Mathematics 3

Diocese of Greensburg Curriculum

Unit	Standards	Content	Skills
<b>Problem Solving Strategies</b>	<p><b>CCSS: Mathematics</b> <b>CCSS: Grade 3</b></p> <hr/> <p><b>Operations &amp; Algebraic Thinking</b> <b>3.OA.D. Solve problems involving the four operations, and identify and explain patterns in arithmetic.</b></p> <p>3.OA.D.8. 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 computation and estimation strategies including rounding.</p> <p><b>Mathematical Practice</b> <b>MP.The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.</b></p> <p>MP.1. Make sense of problems and persevere in solving them.</p> <p>MP.2. Reason abstractly and quantitatively.</p> <p>MP.3. Construct viable arguments and critique the reasoning of others.</p> <p>MP.4. Model with mathematics.</p> <p>MP.5. Use appropriate tools strategically.</p> <p>MP.6. Attend to precision.</p> <p>MP.7. Look for and make use of structure.</p> <p>MP.8. Look for and express regularity in repeated reasoning.</p>	<ul style="list-style-type: none"><li>• Numerical operations</li><li>• Problem solving strategies<ul style="list-style-type: none"><li>◦ 4 Step Plan</li></ul></li><li>• Mental math strategies</li><li>• Multi-step problems</li></ul>	<p>The students will be able to:</p> <ul style="list-style-type: none"><li>• Demonstrate strategies to solve problems</li><li>• Generate multi-steps to achieve answers</li><li>• Use the 4 step plan</li><li>• Determine reasonable answers</li></ul>

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	<p><b>NCTM: Mathematics</b>  <b>NCTM: Grades 3 - 5</b></p> <hr/> <p><b>Number &amp; Operations</b>  <b>Compute fluently and make reasonable estimates</b></p> <p>develop and use strategies to estimate computations involving fractions and decimals in situations relevant to students' experience;</p> <p><b>Algebra</b>  <b>Understand patterns, relations, and functions</b></p> <p>describe, extend, and make generalizations about geometric and numeric patterns;</p> <p>represent and analyze patterns and functions, using words, tables, and graphs.</p> <p><b>Represent and analyze mathematical situations and structures using algebraic symbols</b></p> <p>identify such properties as commutativity, associativity, and distributivity and use them to compute with whole numbers;</p> <p>express mathematical relationships using equations.</p> <p><b>Use mathematical models to represent and understand quantitative relationships</b></p> <p>model problem situations with objects and use representations such as graphs, tables, and equations to draw conclusions.</p> <p><b>Geometry</b>  <b>Use visualization, spatial reasoning, and geometric modeling to solve problems</b></p>		

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	<p>use geometric models to solve problems in other areas of mathematics, such as number and measurement;</p> <p><b>Process Standards</b>  <b>Problem Solving</b></p> <p>Build new mathematical knowledge through problem solving</p> <p>Solve problems that arise in mathematics and in other contexts</p> <p>Apply and adapt a variety of appropriate strategies to solve problems</p> <p><b>Communication</b></p> <p>Organize and consolidate their mathematical thinking through communication</p> <p>Communicate their mathematical thinking coherently and clearly to peers, teachers, and others</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>		
<p><b>Math Vocabulary List</b></p>	<p><a href="#">Grade 3 Vocabulary.docx</a></p>	<p><a href="#">Grade 3 Vocabulary.docx</a></p>	
<p><b>Place Value</b></p>	<p><b>CCSS: Mathematics</b>  <b>CCSS: Grade 3</b></p> <hr/> <p><b>Number &amp; Operations in Base Ten</b>  <b>3.NBT.A. Use place value understanding and properties of operations to perform multi-digit arithmetic.</b></p>	<p>The students will know and understand the following content:</p> <ul style="list-style-type: none"> <li>• Place value through thousands</li> <li>• Number comparison</li> <li>• Numerical order</li> </ul>	<p>The students will be able to:</p> <ul style="list-style-type: none"> <li>• Model numbers with base ten blocks</li> <li>• Write numbers in expanded, standard, and word form</li> <li>• Translate between the forms of numbers</li> </ul>

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	<p>3.NBT.A.1. Use place value understanding to round whole numbers to the nearest 10 or 100.</p> <p>3.NBT.A.2. 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>3.NBT.A.3. 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><b>NCTM: Mathematics</b>  <b>NCTM: Grades 3 - 5</b></p> <hr/> <p><b>Number &amp; Operations</b>  <b>Understand numbers, ways of representing numbers, relationships among numbers, and number systems</b></p> <p>understand the place-value structure of the base-ten number system and be able to represent and compare whole numbers and decimals;</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>	<ul style="list-style-type: none"> <li>• Methods of and reasons for estimation/rounding</li> </ul>	<ul style="list-style-type: none"> <li>• Compare numbers using place value</li> <li>• Order numbers</li> <li>• Round numbers to nearest ten or hundred to estimate</li> </ul>
<p><b>Addition and Subtraction</b></p>	<p><b>CCSS: Mathematics</b>  <b>CCSS: Grade 3</b></p> <hr/> <p><b>Number &amp; Operations in Base Ten</b>  <b>3.NBT.A. Use place value understanding and properties of operations to perform multi-digit arithmetic.</b></p> <p>3.NBT.A.2. 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>The students will know and understand the following content:</p> <ul style="list-style-type: none"> <li>• Addition up to 4 digits</li> <li>• Subtraction up to 4 digit numbers</li> <li>• Properties (Commutative, Associative, Distributive, Identity/Zero)</li> <li>• Estimate/ Estimate to check for a reasonable answer</li> <li>• Rounding</li> </ul>	<p>The students will be able to:</p> <p><u>Addition:</u></p> <ul style="list-style-type: none"> <li>• Identify operational / relational symbols</li> <li>• Use strategies to add mentally</li> <li>• Apply properties of addition</li> <li>• Estimate sums using rounding rules</li> <li>• Model to explore adding 3 digit numbers</li> </ul>

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	<p><b>Mathematical Practice</b>  <b>MP.The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.</b></p> <p>MP.6. Attend to precision.</p> <hr/> <p><b>NCTM: Mathematics</b>  <b>NCTM: Grades 3 - 5</b></p> <p><b>Number &amp; Operations</b>  <b>Compute fluently and make reasonable estimates</b></p> <p>develop fluency in adding, subtracting, multiplying, and dividing whole numbers;</p> <p>develop and use strategies to estimate the results of whole-number computations and to judge the reasonableness of such results;</p> <p>select appropriate methods and tools for computing with whole numbers from among mental computation, estimation, calculators, and paper and pencil according to the context and nature of the computation and use the selected method or tools</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>	<ul style="list-style-type: none"> <li>• Reasons and examples on using mental math</li> <li>• Discovering patterns in numerical computations</li> <li>• Addition and subtraction up to four digits with regrouping.</li> <li>• Solving equations/inequalities</li> <li>• Operational/relational symbols</li> </ul>	<ul style="list-style-type: none"> <li>• Practice addition to problem solve</li> <li>• Use correct vocabulary: sum, addends</li> <li>• Addition up to four digits with regrouping.</li> </ul> <p><u>Subtraction:</u></p> <ul style="list-style-type: none"> <li>• Identify operational / relational symbols</li> <li>• Use strategies to subtract mentally</li> <li>• Estimate differences using rounding rules</li> <li>• Model subtraction with regrouping</li> <li>• Subtract across zeros</li> <li>• Use correct vocabulary: difference</li> <li>• Subtraction up to four digits with regrouping.</li> </ul>
<p><b>Multiplication</b></p>	<p><b>CCSS: Mathematics</b>  <b>CCSS: Grade 3</b></p> <hr/> <p><b>Operations &amp; Algebraic Thinking</b>  <b>3.OA.A. Represent and solve problems involving multiplication and division.</b></p> <p>3.OA.A.1. 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.</p>	<p>The students will know and understand the following content:</p> <ul style="list-style-type: none"> <li>• Multiplication facts through 12</li> <li>• Multiplication properties (Commutative, Distributive, Associative, Zero/Identity)</li> <li>• Multiplication strategies (picture, arrays, repeated</li> </ul>	<p>The students will be able to:</p> <ul style="list-style-type: none"> <li>• Relate multiplication to addition</li> <li>• Use correct vocabulary including factor and product</li> <li>• Use models to explain the meaning of multiplication</li> <li>• Multiply using arrays</li> <li>• Demonstrate fluency</li> </ul>

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	<p>3.OA.A.3. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities.</p> <p>3.OA.A.4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers.</p> <p><b>3.OA.B. Understand properties of multiplication and the relationship between multiplication and division.</b></p> <p>3.OA.B.5. Apply properties of operations as strategies to multiply and divide.</p> <p><b>3.OA.C. Multiply and divide within 100.</b></p> <p>3.OA.C.7. 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><b>3.OA.D. Solve problems involving the four operations, and identify and explain patterns in arithmetic.</b></p> <p>3.OA.D.9. Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.</p> <p><b>NCTM: Mathematics</b>  <b>NCTM: Grades 3 - 5</b>  <hr/> <b>Number &amp; Operations</b></p>	<p>addition, number lines, number patterns, models, table/chart)</p> <ul style="list-style-type: none"> <li>• Estimation</li> <li>• Solve multiplication equations</li> <li>• Fact Families</li> <li>• Interpret models</li> <li>• Repeated addition</li> </ul>	<ul style="list-style-type: none"> <li>• Apply properties of multiplication to multiply 3 factors</li> <li>• Estimation</li> <li>• Model a multiplication equation</li> <li>• Make fact families</li> <li>• Use repeated addition to solve a problem</li> </ul>

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	<p><b>Understand numbers, ways of representing numbers, relationships among numbers, and number systems</b></p> <p>recognize equivalent representations for the same number and generate them by decomposing and composing numbers;</p> <p><b>Understand meanings of operations and how they relate to one another</b></p> <p>understand various meanings of multiplication and division;</p> <p>understand the effects of multiplying and dividing whole numbers;</p> <p>understand and use properties of operations, such as the distributivity of multiplication over addition.</p> <p><b>Compute fluently and make reasonable estimates</b></p> <p>develop fluency with basic number combinations for multiplication and division and use these combinations to mentally compute related problems, such as 3050</p> <p>develop fluency in adding, subtracting, multiplying, and dividing whole numbers;</p> <p>develop and use strategies to estimate the results of whole-number computations and to judge the reasonableness of such results;</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>		
<p><b>Division</b></p>	<p><b>CCSS: Mathematics</b>  <b>CCSS: Grade 3</b></p> <hr/> <p><b>Operations &amp; Algebraic Thinking</b>  <b>3.OA.A. Represent and solve problems involving multiplication and division.</b></p>	<ul style="list-style-type: none"> <li>• Division by 1, and 0 rules</li> <li>• Division facts through 12</li> <li>• Multiplication and division are inverse operations</li> <li>• Fact Families</li> <li>• Estimation</li> </ul>	<p>The students will be able to:</p> <ul style="list-style-type: none"> <li>• Model division</li> <li>• Model as equal sharing</li> </ul>

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	<p>3.OA.A.2. Interpret whole-number quotients of whole numbers, e.g., interpret <math>56 \div 8</math> 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 into equal shares of 8 objects each.</p> <p>3.OA.A.3. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities.</p> <p>3.OA.A.4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers.</p> <p><b>3.OA.B. Understand properties of multiplication and the relationship between multiplication and division.</b></p> <p>3.OA.B.5. Apply properties of operations as strategies to multiply and divide.</p> <p>3.OA.B.6. Understand division as an unknown-factor problem.</p> <p><b>3.OA.C. Multiply and divide within 100.</b></p> <p>3.OA.C.7. 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><b>NCTM: Mathematics</b></p>	<ul style="list-style-type: none"> <li>• Equations</li> <li>• Interpret models</li> </ul>	<ul style="list-style-type: none"> <li>• Use models to relate division to subtraction</li> <li>• Relate multiplication to division using fact families</li> <li>• Demonstrate fluency</li> <li>• Use correct vocabulary including dividend, divisor, quotient, and remainder</li> <li>• Make Fact families</li> <li>• Estimate quotients</li> <li>• Solve division equations</li> <li>• Divide without remainders</li> </ul>

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	<p><b>NCTM: Grades 3 - 5</b></p> <hr/> <p><b>Number &amp; Operations</b>  <b>Understand meanings of operations and how they relate to one another</b></p> <p>understand various meanings of multiplication and division;</p> <p>understand the effects of multiplying and dividing whole numbers;</p> <p>identify and use relationships between operations, such as division as the inverse of multiplication, to solve problems;</p> <p><b>Compute fluently and make reasonable estimates</b></p> <p>develop fluency with basic number combinations for multiplication and division and use these combinations to mentally compute related problems, such as 3050</p> <p>develop fluency in adding, subtracting, multiplying, and dividing whole numbers;</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>		
<p><b>Measurement</b></p>	<p><b>CCSS: Mathematics</b>  <b>CCSS: Grade 3</b></p> <hr/> <p><b>Measurement &amp; Data</b>  <b>3.MD.A. Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.</b></p> <p>3.MD.A.2. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using</p>	<p>The students will know and understand the following content:</p> <ul style="list-style-type: none"> <li>• Customary units of length, capacity, mass, and volume</li> <li>• Metric units of length , capacity, mass</li> <li>• Estimation</li> </ul>	<p>The students will be able to:</p> <p><u>Use customary units:</u></p> <ul style="list-style-type: none"> <li>• Measure length with a ruler: inches and centimeters</li> <li>• Compare examples of containers: cup, pint, quart, gallon to measure liquids ;weight- ounces, pounds</li> </ul> <p><u>Use metric units</u></p>

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	<p>drawings (such as a beaker with a measurement scale) to represent the problem.</p> <p><b>3.MD.C. Geometric measurement: understand concepts of area and relate area to multiplication and to addition.</b></p> <p>3.MD.C.5. Recognize area as an attribute of plane figures and understand concepts of area measurement.</p> <p>3.MD.C.5a. A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.</p> <p>3.MD.C.5b. A plane figure which can be covered without gaps or overlaps by <math>n</math> unit squares is said to have an area of <math>n</math> square units.</p> <p>3.MD.C.6. Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).</p> <p>3.MD.C.7. Relate area to the operations of multiplication and addition.</p> <p>3.MD.C.7a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.</p> <p>3.MD.C.7b. 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.</p> <p>3.MD.C.7c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths <math>a</math> and <math>b + c</math> is the sum of <math>a \times b</math> and <math>a \times c</math>. Use area models to represent the distributive property in mathematical reasoning.</p>		<ul style="list-style-type: none"> <li>• Measure length with a centimeter ruler</li> <li>• Compare examples of metric units</li> <li>• Identify gram as a unit of mass</li> <li>• Identify liter as a unit of capacity</li> <li>• Estimate measurement</li> </ul>

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	<p>3.MD.C.7d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.</p> <p><b>NCTM: Mathematics</b>  <b>NCTM: Grades 3 - 5</b></p> <hr/> <p><b>Measurement</b>  <b>Understand measurable attributes of objects and the units, systems, and processes of measurement</b></p> <p>understand such attributes as length, area, weight, volume, and size of angle and select the appropriate type of unit for measuring each attribute;</p> <p>understand the need for measuring with standard units and become familiar with standard units in the customary and metric systems</p> <p>carry out simple unit conversions, such as from centimeters to meters, within a system of measurement;</p> <p>understand that measurements are approximations and how differences in units affect precision;</p> <p>explore what happens to measurements of a two-dimensional shape such as its perimeter and area when the shape is changed in some way.</p> <p><b>Apply appropriate techniques, tools, and formulas to determine measurements</b></p> <p>develop strategies for estimating the perimeters, areas, and volumes of irregular shapes;</p> <p>select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature, and the size of angles;</p>		

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	<p>select and use benchmarks to estimate measurements;</p> <p>develop, understand, and use formulas to find the area of rectangles and related triangles and parallelograms;</p> <p>develop strategies to determine the surface areas and volumes of rectangular solids.</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>		
<p><b>Geometry</b></p>	<p><b>CCSS: Mathematics</b> <b>CCSS: Grade 3</b></p> <hr/> <p><b>Geometry</b> <b>3.G.A. Reason with shapes and their attributes.</b></p> <p>3.G.A.1. 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 rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.</p> <p><b>NCTM: Mathematics</b> <b>NCTM: Grades 3 - 5</b></p> <hr/> <p><b>Geometry</b> <b>Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships</b></p> <p>identify, compare, and analyze attributes of two- and three-dimensional shapes and develop vocabulary to describe the attributes;</p>	<ul style="list-style-type: none"> <li>• Geometric figures and angles</li> <li>• Perimeter of an object</li> <li>• Area of a quadrilateral</li> <li>• Area of composite figures</li> <li>• Lines, line segments, rays, vertices, edges, and faces of a solid figure</li> <li>• Transformations</li> </ul>	<p>The students will be able to:</p> <ul style="list-style-type: none"> <li>• Identify lines, line segments, rays, vertices, edges, and faces of a solid figure</li> <li>• Identify and compare geometric figures:(quadrilaterals :square, rectangle, trapezoid, and rhombus) triangles (isosceles, equilateral, scalene), plane figures, types of lines)</li> <li>• Identify line of symmetry</li> <li>• Identify congruent figures</li> <li>• Calculate perimeter and area</li> <li>• Use geometric vocabulary</li> <li>• Identify acute, obtuse, and right angles</li> <li>• Identify transformations. (slides, flips, turns)</li> </ul>

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	<p>classify two- and three-dimensional shapes according to their properties and develop definitions of classes of shapes such as triangles and pyramids;</p> <p>investigate, describe, and reason about the results of subdividing, combining, and transforming shapes;</p> <p>explore congruence and similarity;</p> <p>make and test conjectures about geometric properties and relationships and develop logical arguments to justify conclusions.</p> <p><b>Apply transformations and use symmetry to analyze mathematical situations</b></p> <p>predict and describe the results of sliding, flipping, and turning two-dimensional shapes;</p> <p>describe a motion or a series of motions that will show that two shapes are congruent;</p> <p><b>Use visualization, spatial reasoning, and geometric modeling to solve problems</b></p> <p>build and draw geometric objects;</p> <p>identify and build a three-dimensional object from two-dimensional representations of that object;</p> <p>identify and draw a two-dimensional representation of a three-dimensional object;</p> <p>recognize geometric ideas and relationships and apply them to other disciplines and to problems that arise in the classroom or in everyday life.</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>		

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<p><b>Fractions</b></p>	<p><b>CCSS: Mathematics</b>  <b>CCSS: Grade 3</b></p> <hr/> <p><b>Number &amp; Operations—Fractions</b>  <b>3.NF.A. Develop understanding of fractions as numbers.</b></p> <p>3.NF.A.1. 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; understand a fraction <math>a/b</math> as the quantity formed by <math>a</math> parts of size <math>1/b</math>.</p> <p>3.NF.A.2. Understand a fraction as a number on the number line; represent fractions on a number line diagram.</p> <p>3.NF.A.2a. Represent a fraction <math>1/b</math> on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into <math>b</math> equal parts. Recognize that each part has size <math>1/b</math> and that the endpoint of the part based at 0 locates the number <math>1/b</math> on the number line.</p> <p>3.NF.A.2b. Represent a fraction <math>a/b</math> on a number line diagram by marking off a lengths <math>1/b</math> from 0. Recognize that the resulting interval has size <math>a/b</math> and that its endpoint locates the number <math>a/b</math> on the number line.</p> <p>3.NF.A.3a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.</p> <p>3.NF.A.3b. Recognize and generate simple equivalent fractions, e.g., <math>1/2 = 2/4</math>, <math>4/6 = 2/3</math>. Explain why the fractions are equivalent, e.g., by using a visual fraction model.</p> <p>3.NF.A.3c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.</p>	<ul style="list-style-type: none"> <li>• Fraction identification with equal parts</li> <li>• Fraction vocabulary</li> <li>• Addition and subtraction of fractions with common denominators</li> <li>• Equivalent fractions</li> <li>• Fractions as parts of a whole</li> <li>• Parts of a Set</li> <li>• Compare fractions</li> <li>• Number line</li> </ul>	<p>The students will be able to:</p> <p><u>Understand fractions:</u></p> <ul style="list-style-type: none"> <li>• Distinguish parts of a whole, parts of a group</li> <li>• Compare and order fractions</li> <li>• Identify mixed numbers</li> <li>• Label fractions on a number line</li> <li>• Model and write equivalent fractions</li> <li>• Use proper vocabulary (numerator, denominator, mixed number, improper fraction, proper fraction, unit fraction, whole)</li> <li>• Recognize fractions as division</li> <li>• Identify a unit fraction</li> </ul>

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	<p>3.NF.A.3d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols <math>&gt;</math>, <math>=</math>, or</p> <p><b>NCTM: Mathematics</b>  <b>NCTM: Grades 3 - 5</b></p> <hr/> <p><b>Number &amp; Operations</b>  <b>Understand numbers, ways of representing numbers, relationships among numbers, and number systems</b></p> <p>develop understanding of fractions as parts of unit wholes, as parts of a collection, as locations on number lines, and as divisions of whole numbers;</p> <p>use models, benchmarks, and equivalent forms to judge the size of fractions;</p> <p>recognize and generate equivalent forms of commonly used fractions, decimals, and percents;</p> <p><b>Compute fluently and make reasonable estimates</b></p> <p>use visual models, benchmarks, and equivalent forms to add and subtract commonly used fractions and decimals;</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>		
<p><b>Data, Probability, and Graphing</b></p>	<p><b>CCSS: Mathematics</b>  <b>CCSS: Grade 3</b></p> <hr/> <p><b>Measurement &amp; Data</b>  <b>3.MD.B. Represent and interpret data.</b></p> <p>3.MD.B.3. Draw a scaled picture graph and a scaled bar graph to represent a data set with</p>	<p>The students will know and understand the following content:</p> <ul style="list-style-type: none"> <li>• Collection of data</li> <li>• Survey as related to data</li> <li>• Table of numbers or data</li> </ul>	<p>The students will be able to:</p> <ul style="list-style-type: none"> <li>• Take a survey</li> <li>• Record the data</li> <li>• Use tally marks</li> <li>• Design a pictograph, bar graph, line graph, and line plot</li> </ul>

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	<p>several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.</p> <p>3.MD.B.4. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.</p> <p><b>NCTM: Mathematics</b> <b>NCTM: Grades 3 - 5</b></p> <hr/> <p><b>Data Analysis &amp; Probability</b> <b>Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them</b></p> <p>design investigations to address a question and consider how data-collection methods affect the nature of the data set;</p> <p>collect data using observations, surveys, and experiments;</p> <p>represent data using tables and graphs such as line plots, bar graphs, and line graphs;</p> <p><b>Understand and apply basic concepts of probability</b></p> <p>describe events as likely or unlikely and discuss the degree of likelihood using such words as certain, equally likely, and impossible;</p> <p>predict the probability of outcomes of simple experiments and test the predictions;</p> <p>understand that the measure of the likelihood of an event can be represented by a number from 0 to 1.</p> <p><b>Process Standards</b> <b>Representation</b></p>	<ul style="list-style-type: none"> <li>• Types of graphs: Bar graph, Pictograph, Line graph, and Line Plot</li> <li>• Points on a grid</li> <li>• Line plots</li> <li>• Events and outcomes</li> <li>• Predictions</li> </ul>	<ul style="list-style-type: none"> <li>• Interpret a key to various graphs</li> <li>• Predict the probability of an event</li> <li>• Interpret data and make predictions</li> </ul>

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	<p>Create and use representations to organize, record, and communicate mathematical ideas</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>		
<p><b>Time and Money</b></p>	<p><b>CCSS: Mathematics</b> <b>CCSS: Grade 3</b></p> <hr/> <p><b>Measurement &amp; Data</b> <b>3.MD.A. Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.</b></p> <p>3.MD.A.1. Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.</p> <p><b>NCTM: Mathematics</b> <b>NCTM: Grades 3 - 5</b></p> <hr/> <p><b>Measurement</b> <b>Apply appropriate techniques, tools, and formulas to determine measurements</b></p> <p>select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature, and the size of angles;</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>	<p>The students will know and understand the following content:</p> <ul style="list-style-type: none"> <li>• Methods of telling time</li> <li>• Elapsed time</li> <li>• Money- counting bills and coins</li> <li>• Change identification</li> <li>• Addition and subtraction of money</li> </ul>	<p>The students will be able to:</p> <p><u>Tell time using analog and digital clocks:</u></p> <ul style="list-style-type: none"> <li>• Indicate time using A.M. and P.M.</li> <li>• Determine elapsed time</li> </ul> <p><u>Count money:</u></p> <ul style="list-style-type: none"> <li>• Identify coins and their values</li> <li>• Determine change</li> <li>• Use of dollar sign and decimal point when adding and subtraction</li> </ul>
<p><b>2 digit by 1 Multiplication</b></p>	<p><b>CCSS: Mathematics</b> <b>CCSS: Grade 3</b></p> <hr/> <p><b>Measurement &amp; Data</b></p>	<ul style="list-style-type: none"> <li>• Multiples of 10 and 100</li> <li>• Multiplication of 2 digit numbers by a 1 digit number</li> </ul>	<p>The students will be able to:</p> <ul style="list-style-type: none"> <li>• Look for patterns when multiplying 10s and 100s</li> </ul>

Unit	Standards	Content	Skills
	<p><b>3.MD.C. Geometric measurement: understand concepts of area and relate area to multiplication and to addition.</b></p> <p>3.MD.C.7. Relate area to the operations of multiplication and addition.</p> <p><b>NCTM: Mathematics</b> <b>NCTM: Grades 3 - 5</b></p> <hr/> <p><b>Number &amp; Operations</b> <b>Understand meanings of operations and how they relate to one another</b></p> <p>understand various meanings of multiplication and division;</p> <p>understand the effects of multiplying and dividing whole numbers;</p> <p>identify and use relationships between operations, such as division as the inverse of multiplication, to solve problems;</p> <p><b>Compute fluently and make reasonable estimates</b></p> <p>develop fluency with basic number combinations for multiplication and division and use these combinations to mentally compute related problems, such as 3050</p> <p>develop fluency in adding, subtracting, multiplying, and dividing whole numbers;</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>		<ul style="list-style-type: none"> <li>• Multiply with 2 digit numbers (with and without regrouping)</li> </ul>