Jefferson County Schools

Third Grade Math Curriculum

Third Grade Curriculum Guide

Tennessee State Standards

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2016-2017

		First Nine Weeks: August 5,2016 – October 7, 2016		
Domain	**Cluster**	**Topic 1 Content Standards Estimated _____ Days**	**Vocabulary**	**Focus**
3.OA Operations and Algebraic Thinking	**3.OA.A** Represent and solve problems involving multiplication and division. **3.OA.B** Understand properties of multiplication and the relationship between multiplication and division.	1.Interpret products of whole numbers, e.g., interpret 5 × 7 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 5 × 7. 2. Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 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 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 56 ÷ 8. 3. 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. 5. Apply properties of operations as strategies to multiply and divide.2 Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3× 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)	Equal Groups, Multiplication, Factors, Product, Equation, Unknown	• Multiplication as repeated addition • Multiplication on the Number Line • Arrays and Multiplication • The Commutative Property • Division as Sharing • Division as Repeated Subtraction • Use Appropriate tools

Notes:

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Domain	Cluster	Topic 2 Content Standards Estimated _____ Days	Vocabulary	Focus
3.OA **Operations and Algebraic Thinking**	**3.OA.A** Represent and solve problems involving multiplication and division **3.OA.B** Understand properties of multiplication and the relationship between multiplication and division.	**3.** 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. **1.** Interpret products of whole numbers, e.g., interpret 5 × 7 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 5 × 7. **9.** Identify arithmetic patterns (including 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. **5.** Apply properties of operations as strategies to multiply and divide.2 Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3× 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)	**Multiples,** **Identity Property of Multiplication,** **Zero Property of Multiplication,**	• **2 and 5 as factors** • **9 as a Factor** • **Multiply by 0 and 1** • **Multiply by 10** • **Multiplication facts 0,1,2,5,9,10** • **Model with Math**

Notes:

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Domain	Cluster	Topic 3 Content Standards Estimated _____ Days	Vocabulary	Focus
3.OA **Operations and Algebraic Thinking**	**3.OA.B** Understand properties of multiplication and the relationship between multiplication and division. **3.OA.A** Represent and solve problems involving multiplication and division. **3.OA.D** Solve problems involving the four operations, and identify and explain patterns in arithmetic.	**3**. 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. **5**. Apply properties of operations as strategies to multiply and divide.2 Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3× 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.) (Students need not use formal termsfor these properties.) **9**. Identify arithmetic patterns (including patternsin 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.	**Distributive Property**	• **Distributive Property** • **3 as a Factor** • **4 as a Factor** • **6 and 7 as Factors** • **8 as a Factor** • **Practice Multiplication Facts** • **The Associative Property** • **Repeated Reasoning**
Notes:				

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Domain	Cluster	Topic 4 Content Standards Estimated _____ Days	Vocabulary	Focus
3.OA **Operations and Algebraic Thinking**	**3.OA.B** Understand properties of multiplication and the relationship between multiplication and division. **3.OA.A** Represent and solve problems involving multiplication and division. **3.OA.D** Solve problems involving the four operations, and identify and explain patterns in arithmetic.	**3**. 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. **4**. 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 $8 \times ? = 48$, $5 = \div 3$, $6 \times 6 = ?$. **5**. Apply properties of operations as strategies to multiply and divide.2 Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.) **6**. Understand division as an unknown-factor problem. For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8. **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. (This standard is limited to problems posed with whole numbers and having whole number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations). **9**. Identify arithmetic patterns (including 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.	**Dividend,** **Divisor,** **Fact Family,** **Quotient,** **Even,** **Odd**	• **Relate Multiplication and Division** • **Use Multiplication to Divide with 2,3,4, and 5** • **Use Multiplication to divide with 6 & 7** • **Use Multiplication to divide with 8 & 9** • **Multiplication Patterns: Odd and Even** • **Division Involving 0 & 1** • **Practice Multiplication and Division Facts** • **Solve Multiplication and Division Equations** • **Make Sense and Persevere**
Notes:		**Benchmark Testing First Nine Weeks**		

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Domain	Cluster	Topic 5 Content Standards Estimated _____ Days **Second Nine Weeks October 8, 2016 – December 16, 2016**	Vocabulary	Focus
3.OA **Operations and Algebraic Thinking**	**3.OA.D** Solve problems involving the four operations, and identify and explain patterns in arithmetic. **3.OA.C** Multiply and divide within 100. **3.OA.A** Represent and solve problems involving multiplication and division.	**3**. 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. **7**. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. **9**. Identify arithmetic patterns (including 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 **Notes:**		• **Patterns for Multiplication Facts** • **Use Multiplication Table** • **Find Missing Numbers in a Multiplication Table** • **Use Strategies to Multiply** • **Solve Word Problems: Multiplication and Division Facts** • **Write Math Stories: Multiplication** • **Write Math Stories: Division** • **Look for and Use Structure**

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Domain	Cluster	Topic 6 Content Standards Estimated _____ Days	Vocabulary	Focus

3. MD **Measurement and Data**	**3. MD.C** Geometric measurement: understand concepts of area and relate area to multiplication and to addition.	**5**. Recognize area as an attribute of plane figures and understand concepts of area measurement.
		    a. 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.
		    b. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.
		
		 6. Measure areas by counting unit squares (square cm, square m, square in, square ft., and improvised units).
		
		 7. Relate area to the operations of multiplication and addition.
		    a. 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.
		    b. 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.
		    c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b + c is the sum of a × b and a × c. Use area models to represent the distributive property in mathematical reasoning.
		    d. 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.
			Area,
			
			 Unit Square,
			
			 Square Unit,
			
			 Estimate,
				• **Cover Regions**
				 • **Area: Nonstandard Units**
				 • **Area: Standard Units**
				 • **Area of Square and Rectangles**
				 • **Area and the Distributive Property**
				 • **Area of Irregular Shapes**
				 • **Look for and Use Structure**

Notes:				

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Domain	Cluster	Topic 11 Content Standards Estimated _____ Days	Vocabulary	Focus
3.OA Operations and Algebraic Thinking	**3.OA.D** Solve problems involving the four operations, and identify and explain patterns in arithmetic.	**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. (This standard is limited to problems posed with whole numbers and having whole number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations). **Notes:**		• **Solve 2-Step Word Problems: Addition and Subtraction** • **Solve 2-Step Word Problems: Multiplication and Division** • **Solve 2-Step Word Problems: All Operations** • **Critique Reasoning**

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Domain	Cluster	Topic 12 Content Standards Estimated _____ Days	Vocabulary	Focus

3.NF Number and Operations— Fractions 3.G Geometry 3.MD Measurement and Data	Develop understanding of fractions as numbers. Reason with Shapes and their attributes. Represent and interpret data 3.NF.A 3.G.A 3.MD.B	1. Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.
		 2. Understand a fraction as a number on the number line; represent fractions on a number line diagram.
		    a. Represent a fraction 1/b on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size 1/b and that the endpoint of the part based at 0 locates the number 1/b on the number line.
		    b. Represent a fraction a/b on a number line diagram by marking off a lengths 1/b from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.
		 3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
		    c. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
		 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.
		
		 Notes: **Benchmark Testing Second Nine Weeks**
			Fraction, **Unit Fraction,** **Numerator,** **Denominator,** **Nearest Fourth Inch,** **Line Plot,**	• **Divide Regions Into Equal Parts**
				 • **Fractions And Regions**
				 • **Understand the Whole**
				 • **Number Line: Fractions Less Than 1**
				 • **Number Line: Fractions Greater Than 1**
				 • **Line Plots and Length**
				 • **More Line Plots and Length**
				 • **Make Sense and Persevere**

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Domain	Cluster	Topic 13 Content Standards　　　Estimated _____ Days **Third Nine Weeks January 5, 2017- March 15, 2017**	Vocabulary	Focus
3.NF Number and Operations— Fractions	**Develop understanding of fractions as numbers.** **3.NF.A**	**3**. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. 　**a.** Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. 　**b**. Recognize and generate simple equivalent fractions, e.g., 1/2 =2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model. 　**c.** Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram. 　**d.** 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 >, =, or **Notes:**	**Equivalent Fractions,**	• **Equivalent Fractions: Use Models** • **Equivalent Fractions: Use the Number Line** • **Use Models to Compare Fractions: Same Denominator** • **Use Models to Compare Fractions: Same Numerator** • **Compare Fractions: Use Benchmarks** • **Compare Fractions: Use The Number Line** • **Whole Numbers and Fractions** • **Construct Arguments**

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Domain	Cluster	Topic 14 Content Standards Estimated _____ Days	Vocabulary	Focus
3.MD Measurement and Data	3.MD.A Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.	**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. **2.** Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).6 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 drawings (such as a beaker with a measurement scale) to represent the problem. **Notes:**	**Elapsed Time,** **A.M.** **P.M.** **Time Interval,** **Capacity (Liquid Volume),** **Milliliter (ml),** **Liter (L)** **Mass,** **Gram (g),** **Kilogram (kg),**	• **Time to the Minute** • **Units of Time: Measure Elapsed Time** • **Units of Time: Solve Word Problems** • **Estimate Liquid Volume** • **Measure Liquid Volume** • **Estimate Mass** • **Measure Mass** • **Solve Word Problems Involving Mass and Liquid Volume** • **Reasoning**

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Domain	Cluster	Topic 16 Content Standards Estimated _____ Days	Vocabulary	Focus
3.MD Measurement and Data	3.MD.D Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures. 3.MD.C Geometric measurement: understand concepts of area and relate area to multiplication and to addition.	**8.** Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters. **7**. Relate area to the operations of multiplication and addition. 　　**b**. 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. **Notes:** **Benchmark Testing Third Nine Weeks**	**Perimeter,** **Equilateral Triangle,**	• **Understanding Perimeter** • **Perimeter of common Shapes** • **Perimeter and Unknown Side Lengths** • **Same Perimeter, Different Area** • **Same Area, Different Perimeter** • **Reasoning**

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Domain	Cluster	Topic 7 Content Standards Estimated _____ Days Fourth Nine Weeks March 16, 2017 – May 25, 2017	Vocabulary	Focus
3.OA **Operations and Algebraic Thinking** **3. MD** **Measurement and Data**	**3.MD.B** Represent and interpret data. **3.OA.A** Represent and solve problems involving multiplication and division. **3.OA.D** Solve problems involving the four operations, and identify and explain patterns in arithmetic.	**3**. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets. **3**. 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. **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. (This standard is limited to problems posed with whole numbers and having whole number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations). **Notes:**	**Data,** **Scaled picture graph,** **Scale,** **Key,** **Scaled bar graph,** **Frequency table,** **Survey,**	• **Read Picture Graphs and Bar Graphs** • **Make Picture Graphs** • **Make Bar Graphs** • **Solve Word Problems Using Information in graphs** • **Precision**

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Domain	Cluster	Topic 8 Content Standards Estimated _____ Days	Vocabulary	Focus
3.NBT Number and Operations in Base Ten **3.OA Operations and Algebraic Thinking**	**3.NBT.A** Use place value understanding and properties of operations to perform multi-digit arithmetic. (A range of algorithms may be used.) **3.OA.D** Solve problems involving the four operations, and identify and explain patterns in arithmetic.	**1**. Use place value understanding to round whole numbers to the nearest 10 or 100. **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. **9**. Identify arithmetic patterns (including 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. **Notes:**	**Associative Property of Addition,** **Commutative Property of Addition,** **Identity Property of Addition**	• **Addition Properties** • **Addition Patterns** • **Round Whole Numbers** • **Mental Math: Addition** • **Mental Math: Subtraction** • **Estimate Sums** • **Estimate Differences** • **Relate Addition and Subtraction** • **Model with Math**

Domain	Cluster	Topic 15 Content Standards Estimated _____ Days	Vocabulary	Focus
3.G Geometry	**3.G.A Reason with Shapes and their attributes.**	**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. **Notes:**	**Polygon, Side,** **Quadrilateral,** **Angle,** **Vertex,** **Trapezoid,** **Parallel sides,** **Parallelogram,** **Rectangle,** **Right Angle,** **Rhombus,** **Square,** **Convex,** **Concave**	• **Describe Quadrilaterals** • **Classify Shapes** • **Analyze and Compare Quadrilaterals** • **Precision**

Domain	Cluster	Topic 9 Content Standards Estimated _____ Days	Vocabulary	Focus
3.NBT Number and Operations in Base Ten	3.NBT.A A Use place value understanding and properties of operations to perform multi-digit arithmetic. (A range of algorithms may be used.)	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. Notes:	**Regroup** **Conjecture**	• **Use Partial Sums to Add** • **Add 3-Digit Numbers** • **Continue to Add 3-Digit Numbers** • **Add 3 or More Numbers** • **Use Partial Differences to Subtract** • **Subtract 3-Digit Numbers**

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Domain	Cluster	Topic 10 Content Standards Estimated _____ Days	Vocabulary	Focus
3.NBT Number and Operations in Base Ten	**3.NBT.A** Use place value understanding and properties of operations to perform multi-digit arithmetic. (A range of algorithms may be used.)	3. Use place value understanding and properties of operations to perform multi-digit arithmetic. (A range of algorithms may be used.) **Notes: TCAP State Testing**	**Open Number Line**	• **Use an Open Number Line of Multiply** • **Use Properties to Multiply** • **Multiply by Multiples of 10** • **Look For and Use Structure**