MARLBORO CENTRAL SCHOOL DISTRICT – K -5 CURRICULUM MAP 2015

Subject: Mathematics Grade: 3

Quarter 1				
N.Y.S. Performance Indicator	**Content/Concepts: What students should know**	**Skills (What Students Should Be Able To Do)**	**Resources**	**Major Assessments**
3.OA.1 Interpret products of whole numbers, e.g., interpret 5 x 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 x 7. **3.OA.2** Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56	Multiplication and the Meaning of the Factors Division as an Unknown Factor Problem Multiplication Using Units of 2 and 3 Division Using Units of 2 and 3 Multiplication and Division Using Units of 4 Distributive Property and Problem Solving Using Units of 2–5 and 10	**Multiplication and the Meaning of the Factors:** • Understand equal groups of as multiplication and division • Relate multiplication and division to the array model • Interpret the meaning of factors—the size of the group or the number of groups	Engage NY:Module1 Math Manipulatives Kit Flashcards Websites	Exit Tickets Mid and End-of-Module Assessments

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.OA.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.		**Division as an Unknown Factor Problem:** • Understand the meaning of the unknown as the size of the group in division • Understand the meaning of the unknown as the number of groups in division • Interpret the unknown in division using the array model **Analyze Arrays to Multiply Using Units of 2 and 3:** • Demonstrate the commutativity of multiplication, and practice related facts by skip-counting objects in array models • Find related multiplication facts by adding and subtracting equal		

3.OA.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 x ? = 48, 5 = _ ÷ 3, 6 x 6 = ? **3.OA.5** Apply properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.) 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 ×		groups in array models • Model and apply the distributive property with arrays to decompose units as a strategy to multiply **Division Using Units of 2 and 3:** • Model division as the unknown factor in multiplication using arrays and tape diagrams • Interpret the quotient as the number of groups or the number of objects in each group using units of 2, 3, 4, 5, 10 • Skip-count objects in models to build fluency with multiplication facts using units of 2, 3, 4, 5, 10		

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). **3.OA.6** Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8. **3.OA.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		• Relate arrays to tape diagrams to model the commutative property of multiplication • Use the distributive property as a strategy to find related multiplication facts • Model the relationship between multiplication and division **Distributive Property and Problem Solving Using Units of 2-5 and 10:** • Apply the distributive property to decompose units • Solve two-step word problems involving multiplication and division, and assess the reasonableness of answers		

properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. **3.OA.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		• Solve two-step word problems involving all four operations, and assess the reasonableness of answers		

order when there are no parentheses to specify a particular order, i.e., Order of Operations.).				
3.MD.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. **3.MD.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	Time Measurement and Problem Solving Measuring Weight and Liquid Volume in Metric Units	**Time Measurement and Problem Solving:** • Relate skip-counting by fives on the clock and telling time to a continuous measurement model, the number line • Count by fives and ones on the number line as a strategy to tell time to the nearest minute on the clock • Solve word problems involving time intervals within 1 hour by counting backward and forward using the number line and clock	Engage NY: Module 2 Brain Pop Jr. Flocabulary Math Manipulatives Kit Balance scale Digital scale Platform scale 1 kg rice bags Various liter containers Flashcards Websites	Exit tickets Mid and End-of-Module Assessments

that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.		• Solve word problems involving time intervals within 1 hour by adding and subtracting on the number line **Measuring Weight and Liquid Volume in Metric Units:** • Build and decompose a kilogram to reason about the size and weight of 1 kilogram, 100 grams, 10 grams, and 1 gram • Solve one-step word problems involving metric weights within 100 and estimate to reason about solutions • Decompose a liter to reason about the size of 1 liter, 100 milliliters, 10 milliliters, and 1 milliliter		

		• Estimate and measure liquid volume in liters and milliliters using the vertical number line • Solve mixed word problems involving all four operations with grams, kilograms, liters, and milliliters given in the same units		

MARLBORO CENTRAL SCHOOL DISTRICT – K -5 CURRICULUM MAP 2015

Subject: Mathematics Grade: 3rd

Quarter 2				
N.Y.S. Performance Indicator	**Content/Concepts: What students should know (Unit organizing idea, understanding, or essential question)**	**Skills (What Students Should Be Able To Do)**	**Resources (District /technology)**	**Major Assessments (Tests, projects, etc.)**
3.NBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100. **3.NBT.2** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the	Rounding to the Nearest Ten and Hundred Two-and Three-Digit Measurement Addition Using the Standard Algorithm Two-and Three-Digit Measurement Subtraction Using the Standard Algorithm	**Rounding to the Nearest Ten and Hundred:** • Round two-digit measurements to the nearest ten on the vertical number line • Round two and three-digit numbers to the nearest ten on the vertical number line • Round to the nearest hundred on the vertical number line **Two-and-Three Digit Measurement Addition**	Engage NY: Module 2 Math Manipulatives Kit Flashcards Websites	Exit tickets Mid and End-of-Module Assessments

relationship between addition and subtraction.		**Using the Standard Algorithm:** • Add measurements using the standard algorithm to compose larger units once • Add measurements using the standard algorithm to compose larger units twice • Estimate sums by rounding and apply to solve measurement word problems **Two-and Three-Digit Measurement Subtraction Using the Standard Algorithm:** • Decompose once to subtract measurements including three digit minuends with zeros in the tens or ones place • Decompose twice to subtract measurements		

		including three digit minuends with zeros in the tens and ones places • Estimate differences by rounding and apply to solve measurement word problems • Estimate sums and differences of measurements by rounding, and then solve mixed word problems		
3.OA.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	The Properties of Multiplication and Division Multiplication and Division Using Units of 6 and 7 Multiplication and Division Using Units up to 8 Multiplication and Division Using Units of 9 Analysis of Patterns and Problem Solving Including Units of 0 and 1	Study commutativity to find known facts of 6, 7, 8, and 9. Apply the distributive and commutative properties to relate multiplication facts 5 × n + n to 6 × n and n × 6 where n is the size of the unit. Multiply and divide with familiar facts using a letter to represent the unknown. Count by units of 6 to multiply and divide using number bonds to decompose.	Engage NY Module 3.3	Exit tickets Mid and end of module assessments

symbol for the unknown number to represent the problem **3.OA.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 x ? = 48, 5 =__÷ 3, 6 x 6 = ? Understand properties of multiplication and the relationship between	Multiplication of Single-Digit Factors and Multiples of 10	Count by units of 7 to multiply and divide using number bonds to decompose. Use the distributive property as a strategy to multiply and divide using units of 6 and 7. Interpret the unknown in multiplication and division to model and solve problems using units of 6 and 7. Understand the function of parentheses and apply to solving problems. Model the associative property as a strategy to multiply. Use the distributive property as a strategy to multiply and divide. Interpret the unknown in multiplication and division to model and solve problems. Apply the distributive property and the fact 9 = 10 – 1 as a strategy to multiply.		

multiplication and division. **3.OA.5** Apply properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.) 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		Identify and use arithmetic patterns to multiply. Interpret the unknown in multiplication and division to model and solve problems. Reason about and explain arithmetic patterns using units of 0 and 1 as they relate to multiplication and division. Solve two-step word problems involving all four operations and assess the reasonableness of solutions. Multiply by multiples of 10 using the place value chart. Use place value strategies and the associative property n × (m × 10) = (n × m) × 10 (where n and m are less than 10) to multiply by multiples of 10. Solve two-step word problems involving multiplying single-digit factors and multiples of 10.		

× 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.) **3.OA.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.				

3.OA.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, i.e., Order of Operations.) **3.OA.**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. Use place value understanding and properties of operations to perform multi-digit arithmetic. (A range of algorithms may be used.) **3.NBT.3** Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations				
3.MD.5 Recognize area as an attribute of plane figures and understand	Foundations for Understanding Area Concepts of Area Measurement	Understand area as an attribute of plane figures. Decompose and recompose shapes to compare areas.	Engage NY Module 3.4	Exit tickets Mid and end of module assessments

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. **3.MD.6** Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	Arithmetic Properties Using Area Applications of Area Using Side Lengths of Figures	Model tiling with centimeter and inch unit squares as a strategy to measure area. Form rectangles by tiling with unit squares to make arrays. Draw rows and columns to determine the area of a rectangle given an incomplete array. Interpret area models to form rectangular arrays. Find the area of a rectangle through multiplication of the side lengths. Analyze different rectangles and reason about their area. Apply the distributive property as a strategy to find the total area of a large rectangle by adding two products. Demonstrate the possible whole number side lengths of		

3.MD.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		rectangles with areas of 24, 36, 48, or 72 square units using the associative Solve word problems involving area. Find areas by decomposing into rectangles or completing composite figures to form rectangles.		

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.				

MARLBORO CENTRAL SCHOOL DISTRICT – K -5 CURRICULUM MAP 2015

Subject: Mathematics Grade: 3

Quarter 3				
N.Y.S. Performance Indicator	**Content/Concept: What students should know**	**Skills (What Students Should Be Able To Do)**	**Resources**	**Major Assessments**
3.NF.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 $1/b$. **3.NF.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.	Partitioning a Whole into Equal Parts Unit Fractions and Their Relation to the Whole Comparing Unit Fractions and Specifying the Whole Fractions on the Number Line Equivalent Fractions Comparison, Order, and Size of Fractions	**Partitioning a Whole into Equal Parts:** • Specify and partition a whole into equal parts, identifying and counting unit fractions using concrete models • Specify and partition a whole into equal parts, identifying and counting unit fractions by folding fraction strips • Specify and partition a whole into equal parts, identifying and counting unit fractions by drawing pictorial area models • Represent and identify fractional parts of different wholes **Unit Fractions and Their Relation to the Whole:**	Engage NY: Module 5 Math Manipulatives Kit Fractions strips Flashcards Websites	Exit tickets Mid and End-of-Module Assessments

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.NF.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 of 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.*		• Partition a whole into equal parts and define the equal parts to identify the unit fraction numerically • Build non-unit fractions less than one whole from unit fractions • Identify and represent shaded and non-shaded parts of one whole as fractions • Represent parts of one whole as fractions with number bonds • Build and write fractions greater than one whole using unit fractions **Comparing Unit Fractions and Specifying the Whole:** • Compare unit fractions by reasoning about their size using fraction strips • Compare unit fractions with different-sized models representing the whole • Specify the corresponding whole when presented with one equal part • Identify a shaded fractional part in different ways depending on the designation of the whole		

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 <, and justify the conclusions, e.g., by using a visual fraction model. **3.G.2** 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 1/4 of the area of the shape.*		**Fractions on the Number Line**: • Place unit fractions on a number line with endpoints 0 and 1 • Place any fraction on a number line with endpoints 0 and 1 • Place whole number fractions and fractions between whole numbers on the number line • Practice placing various fractions on the number line • Compare fractions and whole numbers on the number line by reasoning about their distance from 0 • Understand distance and position on the number line as strategies for comparing fractions **Equivalent Fractions:** • Recognize and show that equivalent fractions have the same size, though not necessarily the same shape • Recognize and show that equivalent fractions refer to the same point on the number line • Generate simple equivalent fractions by using visual		

		fraction models and the number line • Express whole numbers as fractions and recognize equivalence with different units • Express whole number fractions on the number line when the unit interval is 1 • Decompose whole number fractions greater than 1 using whole number equivalence with various models • Explain equivalence by manipulating units and reasoning about their size **Comparison, Order, and Size of Fractions**: • Compare fractions with the same numerator pictorially • Compare fractions with the same numerator using <, >, or =, and use a model to reason about their size • Partition various wholes precisely into equal parts using a number line method		

3.MD.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.	Generate and Analyze Categorical Data	**Generate and Analyze Categorical Data**: • Generate and organize data • Rotate tape diagrams vertically • Create scaled bar graphs • Solve one- and two-step problems involving graphs	Engage NY: Module 6 Math Manipulatives Kit Flashcards Websites	Exit tickets Mid and End-of-Module Assessments

MARLBORO CENTRAL SCHOOL DISTRICT – K -5 CURRICULUM MAP 2015

Subject: Mathematics Grade: 3

Quarter 4				
N.Y.S. Performance Indicator	**Content/Concept: What students should know**	**Skills (What Students Should Be Able To Do)**	**Resources**	**Major Assessments**
3.MD.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.	Generate and Analyze Measurement Data	**Generate and Analyze Measurement Data:** • Create ruler with 1-inch, 1/2 inch, and 1/4 inch intervals, and generate measurement data • Interpret measurement data from various line plots • Represent measurement data with line plots • Analyze data to problem solve	Engage NY: Module 6 Math Manipulatives Kit Flashcards Websites	Exit tickets Mid and End-of-Module Assessments
3.OA.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	Solving Word Problems Attributes of Two-Dimensional Figures Problem Solving with Perimeter Recording Perimeter and Area Data on Line Plots	**Solving Word Problems:** • Solve word problems in varied contexts using a letter to represent the unknown • Share and critique peer solution strategies to varied word problems	Engage NY: Module 7 Math Manipulatives Kit Various circular objects Yarn	Exit tickets Mid and End-of-Module Assessments

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]). **3.MD.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. **3.MD.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.	Problem Solving with Perimeter and Area	**Attributes of Two-Dimensional Figures** • Compare and classify quadrilaterals • Compare and classify other polygons • Draw polygons with specified attributes to solve problems • Reason about composing and decomposing polygons using tetrominoes • Create a tangram puzzle and observe relationships among the shapes • Reason about composing and decomposing polygons using tangrams **Problem Solving with Perimeter:** • Decompose quadrilaterals to understand perimeter as the boundary of a shape • Tessellate to understand perimeter as the boundary of a shape • Measure side lengths in whole number units to determine the perimeter of polygons	Rulers Flashcards Websites	

3.G.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.		• Explore perimeter as an attribute of plane figures and solve problems • Determine the perimeter of regular polygons and rectangles when whole number measurements are missing • Solve word problems to determine perimeter with given side lengths • Use string to measure the perimeter of various circles to the nearest quarter inch • Use all four operations to solve problems involving perimeter and missing measurements **Recording Perimeter and Area Data on Line Plots:** • Construct rectangles from a given number of unit squares and determine the perimeters • Use a line plot to record the number of rectangles constructed from a given number of unit squares • Construct rectangles with a given perimeter using unit squares and determine their areas		

		• Use a line plot to record the number of rectangles constructed **Problem Solving with Perimeter and Area** • Solve a variety of word problems with perimeter • Solve a variety of word problems involving area and perimeter		