**Teacher : Lori Mulacek**

**Grade Level: 4th**

**Course: Math**

**Course Description**

The fourth grade math curriculum will focus on multiplication and division of whole numbers (with focus on multiplication and division facts while working on multidigit multiplication and division), addition and subtraction of fractions and decimals, and identifying and describing representations of points, lines, line segments, rays, and angles, including endpoints and vertices. Concrete materials and two-dimensional representations will be used to solve problems involving perimeter, patterns, probability, and equivalence of fractions and decimals.

**Textbook:**

Title: Progress in Mathematics

ISBN: 978-0-8215-8444-6

Authors:

Publisher: Sadlier­ Oxford

Publication Date: 2013

**Assessment**

There will be a minimum of 500 points scored each quarter. These points will be obtained from assignments, quizzes, chapter tests, and projects.

UNIT 1 Multiplication & Division Concepts

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| ***Content*** | ***Assessment*** | ***Common Core*** | ***Essential Questions*** |
| 4-1 A Number Patterns  4-1B Use Multiplication to compare   * 1. Thousands   2. Milliion   3. Millions   4. Place Value   5. Estimation   6. Thousands   7. Millions   8. Place Value   9. Compare/Order Whole Numbers   10. Number Sense: Number Line   1-13 Problem Solving - Mixed  8-6 Factors (GCF)  9-6 Multiples  9-6A Factor Pairs  9-6B Prime and Composite Numbers  5-15 Factor Trees (Ladders)  4-1 Multiplication Properties  4-2 Multiplication Models  4-3 Special Factors  4-4 Multiply by One-Digit Numbers  4-5 A Multiply with Models  4-6 Multiply with Regrouping  4-6A Use Mental Math to Multiply  4-7 Multiply Three-Digit Numbers  4-9 Multiplying Four-Digit Numbers  4-10 Patterns in Multiplication  4-11A Multiplying with Area Models  4-12 Multiply by Two-Digit Numbers  4-13 More Multiplication with Two-Digit Numbers  5-13 Multi-step Problems  5-1 Division Rules  5-2 Relate Multiplication and Division  5-3 Missing Numbers  5-4 Number Patterns  5-5 Estimate in Division/ One-Digit Division  5-6 One-Digit Quotients  5-7 Divisibility Rules  5-8/5-9 Two-Digit Quotients  5-10 Three-Digit Quotients  5-12 Zeros In Quotients  5-13 Large Number Division  5-13A Multistep Problems and Bar Graphs  5-14 Division in Money  5-4A Use Bar Diagrams  5-15 Order of Operations  5-16 Mean (Average)  5-17 Problem Solving-Interpret Remainders  5-18 Problem Solving - Review  12-11 Problem Solving: More than one Step  12-12 Problem Solving: Review  14-1 Equations  4-5 Products: Front End Estimation  4-7 Multiply Three-Digit Numbers  4-11 Products: Rounding and Estimation  4-16 Problem Solving – Mixed Review  5-6 One-Digit Quotients  5-7 Divisibility Rules  5-8/5-9 Two-Digit Quotients  5-10 Three-Digit Quotients  5-11 More Quotients  5-12 Zeros In Quotients  5-13 Large Number Division  5-13A Multistep Problems and Bar Graphs  6-13 Problem Solving: Use more than One Step  12-2 Divisors: Multiples of Ten  12-3 Estimate Quotients  12-4 Two-Digit Dividend  12-5 Three Digit Dividends  12-6 Trial Quotients  12-7 Greater Quotients  12-8 Four Digit Dividends  12-9 Zero in the Quotient  12-10 Greater Dividends  12-11 Problem Solving: More than one Step  12-12 Problem Solving: Review | Check Your Progress Chapt 1 1-5  Check Your Progress  Chapt 1 6-9  Check Your Progress  Chapt 1-13  Check Your Progress  Chapter 4 1-6A  Check Your Progress  Chapter 4 7-12  Check Your Progress  Chapter 4 1-16  Check Your Progress  Chapter 5 1-6  Check Your Progress  Chapter 5 7-12  Check Your Progress  Chapter 5 1-18  Check Your Progress  Chapter 12 1-5  Check Your Progress  Chapter 12 6-9  Check Your Progress  Chapter 12 1-12 | **4.OA.1**  Use the four operations with whole numbers to solve problems. Interpret a multiplication equation as a  comparison, e.g., interpret 35 = 5 x 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.  4.NBT.1  Generalize place value understanding for multi-digit whole numbers. 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  700 ÷ 70 = 10 by applying concepts of place value and division. (Grade 4 expectations in this domain are limited to  whole numbers less than or equal to 1,000,000.)  4.NBT.2  Generalize place value understanding for multi-digit whole numbers. 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 >, =, and < symbols to record the results of comparisons. (Grade 4  expectations in this domain are limited to whole numbers less than or equal to 1,000,000.)  4.OA.4  Gain familiarity with factors and multiples. Find all factor pairs for a whole number in the range 1-100.  Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the  range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is  prime or composite.  4.NBT.5  Use place value understanding and properties of operations to perform multi-digit arithmetic. Multiply a  whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies  based on place value and the properties of operations. Illustrate and explain the calculation by using equations,  rectangular arrays, and/or area models. (Grade 4 expectations in this domain are limited to whole numbers less than or  equal to 1,000,000. A range of algorithms may be used.)  4.NBT.6  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.  4.OA.2  Use the four operations with  whole numbers to solve problems. Multiply or divide to solve word problems  involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to  represent the problem, distinguishing multiplicative comparison from additive comparison.  4.0A.3  Use the four operations with whole numbers to solve problems. 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. | How and when can numbers be manipulated for  application purposes?  What are ways numbers are represented in  everyday life?  How can estimation and mental math aid in the  development of number sense?  How can you build numbers through hundred millions?  How can you use models and related facts to find missing factors? |

UNIT 2:Fractions: Equivalence and Operations

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| ***Content***  8-3 Esitmate Fractions  8-4 Understand Equivalent Fractions  8-5 Write Equivalent Fractions  8-7 Factors: Lowest Terms  8-12 Problem Solving Applications: Review  8-1 Write fractions  8-2 Fractions and number line  8-3 Estimate fractions  8-4 Understand equivalent fractions  8-8 Mixed Numbers  8-8A Compare fractions using benchmarks  8-9 Compare fractions  8-10 Order fractiosn  8-12 Problem Solving applications: Review  9-1A Models to Add fractions  9-1C Use models to subtract fractions  9-3 Improper fractions  9-1B Decompose fractions  9-1 Add fractions: like denominators  9-2A Word Problems with fractions  9-2 Subtract fractions: like denominators  9-12 Problem solving: mixed review  9-8A Multiply with fractions  9-8A Multiply with fractions  9-8A Multiply with fractions  9-9 Compute probablility  9-10 Find pare of a number  9-12 Problem Solving: mixed review  6-1 Measure with Inches  6-2 Rename Units of Length  6-3 Compute customary units  6-4 Customary Units of capacity  6-5 Customary Units of weight  6-6 Measure with metric units  6-7 Work with metric units  6-8 Metric units of capacity  6-9 Metric units of mass  6-10 Temperature  6-11 A renamed measure  6-11 Time  6-12 Elapsed time  2-8 Add and subtract money  4-8 Multiplying money  4-12 Multiply by two-digit numbers  5-14 Divide money  6-1 Measure with Inches  6-2 Rename Units of Length  6-3 Compute customary units  6-4 Customary Units of capacity  6-5 Customary Units of weight  6-6 Measure with metric units  6-7 Work with metric units  6-8 Metric units of capacity  6-9 Metric units of mass  6-10 Temperature  6-11 A renamed measure  6-11 Time  6-12 Elapsed time  6-13 Problem solving: more than one step  6-14 Problem solving application  13-10 Divide with money  11-1 Using Perimeter Formulas  11-2 Using Area Formulas  11-3 Perimeter and Area  11-3A Perimeter and Area Formulas  11-9 Problem Solving Application – Mixed Review  7-4 Surveys and Line Plots  9-5A Organize Measurement Data | ***Assessment***  Chapter 8 1-5  Chapter 8 6-8A  Chapter 8 1-12  Chapter 9 1-5  Chapter 9 6-8A  Chapter 9 1-12 | ***Standards*** | ***Common Core***  4.NF.1  Explain why a fraction a/b is equivalent to a fraction (n ×  a)/(n × b) by using visual fraction models, with attention to  how the number and size of the parts differ even though  the two fractions themselves are the same size. Use this  principle to recognize and generate equivalent fractions.  4.NF.2  Compare two fractions with different numerators and  different denominators, e.g., by creating common  denominators or numerators, or by comparing to a  benchmark fraction such as 1/2. Recognize that  comparisons are valid only when the two fractions refer to  the same whole. Record the results of comparisons with  symbols >, =, or <, and justify the conclusions, e.g., by using  a visual fraction model.  4.NF.3a  Understand addition and subtraction of fractions  as joining and separating parts referring to the  same whole.  4.NF. 3b  Decompose a fraction into a sum of fractions with  the same denominator in more than one way,  recording each decomposition by an equation.  Justify decompositions, e.g., by using a visual  fraction model.  Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2  1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.  4.NF.3c  Add and subtract mixed numbers with like  denominators, e.g., by replacing each mixed  number with an equivalent fraction, and/or by  using properties of operations and the  relationship between addition and subtraction.  4.NF.4a  Understand a fraction a/b as a multiple of 1/b.  For example, use a visual fraction model to represent  5/4 as the product 5 × (1/4), recording the conclusion  by the equation 5/4 = 5 × (1/4).  4.NF.4b  Understand a multiple of a/b as a multiple of 1/b,  and use this understanding to multiply a fraction  by a whole number.  4.NF.4c  Solve word problems involving multiplication of a  fraction by a whole number, e.g., by using visual  fraction models and equations to represent the  problem.  4.MD.1  Express a fraction with denominator 10 as an equivalent  fraction with denominator 100, and use this technique to  add two fractions with respective denominators 10 and  100.4 For example, express 3/10 as 30/100, and add 3/10 +  4/100 = 34/100.  4.MD.2  Use the four operations to solve word problems involving  distances, intervals of time, liquid volumes, masses of  objects, and money, including problems involving simple  fractions or decimals, and problems that require expressing  measurements given in a larger unit in terms of a smaller  unit. Represent measurement quantities using diagrams  such as number line diagrams that feature a measurement  scale.  4.MD.3  Solve problems involving measurement and conversion of measurements from a larger unit to a smaller  unit. Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find  the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a  multiplication equation with an unknown factor  4.MD.4  Make a line plot to display a data set of measurements in  fractions of a unit (1/2, 1/4, 1/8). Solve problems involving  addition and subtraction of fractions by using information  presented in line plots. | ***Essential Questions***  How can strategies be used to compute fractions and decimals?  How can fractions and decimals be modeled and compared?  How are four math operations compared?  Why is it important to hve quick recall of multiplication and division facts?  How can you find the perimeter/area of a shape?  What geometric features are present in our  surroundings? |

Unit 3 Unit: Decimals

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| ***Content*** | ***Assessment*** | ***Standards*** | ***Common Core*** | ***Essential Questions*** |
| 9-6C Add fractions with denominators of 10 and 100  13-1 Tenths/Hundredths  13-2 Decimals Greater than One  13-3 Decimal Place Value  13-3A Comparing Decimals with models and symbols  13-4 Comparing decimals  13-5 Ordering decimals |  |  | 4.NF.5  Express a fraction with denominator 10 as an equivalent fraction with  denominator 100, and use this technique to add two fractions with  respective denominators 10 and 100.4 For example, express 3/10 as  30/100, and add 3/10 + 4/100 = 34/100.  4.NF.6  Use decimal notation for fractions with denominators 10 or 100. For  example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate  0.62 on a number line diagram.  4.NF.7  Compare two decimals to hundredths by reasoning about their size.  Recognize that comparisons are valid only when the two decimals  refer to the same whole. Record the results of comparisons with the  symbols >, =, or <, and justify the conclusions, e.g., by using a visual  model. | What are ways numbers are represented in  everyday life?  How are fractions/decimals related.  **When and where do I use fractions and decimals in my daily life?**  **How do I use customary and metric measurement in my daily life to measure length?**  **How can measurements be used to solve problems?** |

Unit 4 Computation Applications

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| ***Content*** | ***Assessment*** | ***Standards*** | ***Common Core*** | ***Essential Questions*** |
| 4-5 Products: Front End Estimation  4-7 Multiply Three-Digit Numbers  4-11 Products: Rounding and Estimation  4-16 Problem Solving – Mixed Review  5-6 One-Digit Quotients  5-7 Divisibility Rules  5-8/5-9 Two-Digit Quotients  5-10 Three-Digit Quotients  5-11 More Quotients  5-12 Zeros In Quotients  5-13 Large Number Division  5-13A Multistep Problems and Bar Graphs  6-13 Problem Solving: Use more than One Step  12-2 Divisors: Multiples of Ten  12-3 Estimate Quotients  12-4 Two-Digit Dividend  12-5 Three Digit Dividends  12-6 Trial Quotients  12-7 Greater Quotients  12-8 Four Digit Dividends  12-9 Zero in the Quotient  12-10 Greater Dividends  12-11 Problem Solving: More than one Step  12-12 Problem Solving: Review  4-1 Multiplication Properties  4-1A Number Patterns  10-12 Problem Solving –Find Pattern | Chapter 11 –3A  Chapter 4 1-4  Chapter 4 5-9  Chapter 4 1-12  Chapter12 1-5  Chapter 4 6-9  Chapter 4 1-12 |  | 4.OA.3  Represent and solve problems involving multiplication and division. 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.OA.5  Understand properties of multiplication and the relationship between multiplication and division. Apply  properties of operations as strategies to multiply and divide. 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 terms for these  properties.)  4.NBT.3  Generalize place value understanding for multi-digit whole numbers. Use place value understanding to  round multi-digit whole numbers to any place. (Grade 4 expectations in this domain are limited to whole numbers less  than or equal to 1,000,000.)  4.NBT.4  Use place value understanding and properties of operations to perform multi-digit arithmetic. Fluently add  and subtract multi-digit whole numbers using the standard algorithm. (Grade 4 expectations in this domain are limited to  whole numbers less than or equal to 1,000,000. A range of algorithms may be used.)  4.MD.1  Solve problems involving measurement and conversion of measurements from a larger unit to a smaller  unit. Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr,  min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit.  Record measurement equivalents in a two-column table. For example: Know that 1 ft is 12 times as long as 1 in.  Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1,  12), (2, 24), (3, 36), ….  4.MD.2  Solve problems involving measurement and conversion of measurements from a larger unit to a smaller  unit. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of  objects, and money, including problems involving simple fractions or decimals, and problems that require expressing  measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such  as number line diagrams that feature a measurement scale |  |

UNIT 5 Dimensional Geometry

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| ***Content*** | ***Assessment*** | ***Standards*** | ***Common Core*** | ***Essential Questions*** |
| 10-1 Points, Lines and Line Segments  10-2 Rays and Angles  10-3 Parallel and Perpendicular Lines  10-4 Circles  10-11 Coordinate Geometry  10-13 Problem Solving Application: Mixed Review  10-1 Points, Lines, and Line Segments  10-2 Rays and Angels  10=3 Parallel and perpendicular lines  10-5 Polygons  10-6 Quadrilaterals  10-7 Triangles  10-7A Symmetry  10-12 Problem Solving – Find Pattern  10-1A Angle Measure  10-2 Rays and Angles  10-1A Angle Measure  10-2 Rays and Angles  10-2A Measure Angles  10-2B Unknown Angle Measures | Chapter 10 1-4  Chapter 10 5-8  Chapter 10 1-13 |  | 4.G.1  Draw points, lines, line segments, rays, angles (right, acute, obtuse),  and perpendicular and parallel lines. Identify these in two-dimensional  figures.  4.G.2  Classify two-dimensional figures based on the presence or absence of  parallel or perpendicular lines, or the presence or absence of angles of  a specified size. Recognize right triangles as a category, and identify  right triangles  4.G.3  Recognize a line of symmetry for a two-dimensional figure as a line  across the figure such that the figure can be folded along the line  into matching parts. Identify line-symmetric figures and draw lines of  symmetry.  4.MD.5a  Recognize angles as geometric shapes that are formed wherever two  rays share a common endpoint, and understand concepts of angle  measurement:  An angle is measured with reference to a circle with its center at  the common endpoint of the rays, by considering the fraction of  the circular arc between the points where the two rays intersect  the circle. An angle that turns through 1/360 of a circle is called a  “one-degree angle,” and can be used to measure angles  4.MD.5b  Recognize angles as geometric shapes that are formed wherever two  rays share a common endpoint, and understand concepts of angle  measurement:  An angle that turns through n one-degree angles is said to have  an angle measure of n degrees.  4.MD.6  Measure angles in whole-number degrees using a protractor. Sketch  angles of specified measure  4.MD.7  Recognize angle measure as additive. When an angle is decomposed  into non-overlapping parts, the angle measure of the whole is the sum  of the angle measures of the parts. Solve addition and subtraction  problems to find unknown angles on a diagram in real world and  mathematical problems, e.g., by using an equation with a symbol for  the unknown angle measure. | What are ways numbers are represented in  everyday life?  ‐How do coordinate grids help you organize information?  What geometric features are present in our  surroundings? |

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