

Mathematics Pacing Guide Alignment with Common Core Standards

Time Frame: 6 Weeks – September/October

Fourth Grade

Unit 1: Number and Operations in Base Ten

Common Core	GLCE	Essential Questions	Assessment	Vocabulary	Resources
<p>CRITICAL AREA: Continuing to develop understanding and fluency with whole number multiplication, and developing understanding of multi-digit whole number division</p> <p>Generalize place value understanding for multi-digit whole numbers</p> <p>4. NBT.1 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 $700 \div 70 = 10$ by applying concepts of place value and division.</p> <p>4. NBT.2 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.</p>	<p>FOCAL POINT: Developing fluency with multiplication of whole numbers</p> <p>Understand and use number notation and place value</p> <p>N.ME.04.01 Read and write numbers to 1,000,000; relate them to the quantities they represent; compare and order.</p> <p>N.ME.04.02 Compose and decompose numbers using place value to 1,000,000's, e.g., 25,068 is 2 ten thousands, 5 thousands, hundreds, 6 tens, and 8 ones.</p> <p>N.ME.04.03 Understand the magnitude of numbers up to 1,000,000; recognize the place values of numbers and the relationship of each place value to the place to its right, e.g., 1.</p>	<p>What is a number?</p> <p>How can numbers be represented?</p> <p>What value does a number have?</p>	<p>District Assessment</p> <p>www.edperformance.com (scantron)</p> <p>NWEA</p> <p>Before</p> <p>Pretest of 3rd grade GLCE's</p> <p>T Chart – What you know/what you don't know</p> <p>During</p> <p>Teacher created checklist</p> <p>Observations</p> <p>Class practice</p> <p>Tech Activities such as smart board</p> <p>Manipulatives (base ten blocks)</p> <p>Teacher created</p>	<p>Patterns</p> <p>Calendar</p> <p>Estimate</p> <p>Months</p> <p>Odd</p> <p>Even</p> <p>Skip counting</p> <p>If... then</p> <p>Sum</p> <p>Difference</p> <p>Product</p> <p>Quotient</p> <p>Multiples</p> <p>Dividend</p> <p>Addend</p> <p>Divisor</p> <p>Negative</p> <p>Negative integer</p> <p>Positive integer</p> <p>Rule</p> <p>Differential numbers</p> <p>Generalize</p> <p>Geometric</p> <p>Arithmetic pattern</p> <p>Pattern</p> <p>Relationship</p> <p>Sequence</p> <p>Symmetry</p> <p>Algebraic/Algebra</p>	<p>Lesson Plans and Worksheets: www.edhelper.com www.sitesforteachers.com</p> <p>Math Games and Activities: www.EducationCity.com</p> <p>Additional Math Resources: http://www.svsu.edu/mathsci-center/uploads/math/Elementary.html</p>

			worksheets After Post test Project – use place value mat and numbered cards 0-9. Students create numbers, write the number in word and expanded form then compare 2 numbers using comparison symbols. Project- students create word problems using the four operations, write an equation with an unknown and estimate to find the approximate answer.	Algorithms Analyze At least At most Column Construct Decrease Geometric pattern Increase Insufficient information Investigate Process Row Statement Table Textured Venn diagram <u>Number Sense and Numeration</u> Array Cardinal Common factor Common multiple Decimal Divisor Equivalent Factor Greatest Horizontal Investigation Least Mean Multiple Negative Ordinal	
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				Pictograph Place value (ten thousand, hundred thousand, million) Prime numbers Prime factorization Quotient Round Schedule Statistics Vertical Venn diagram	
Use the four operations with whole numbers to solve problems 4. OA.3 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.	Add and subtract whole numbers N.FL.04.08 Add and subtract whole numbers fluently. Estimate N.FL.04.34 Estimate the answers to calculations involving addition, subtraction, or multiplication. N.FL.04.35 Know when approximation is appropriate and use it to check the reasonableness of answers; be familiar with common place-value errors in calculations. N.FL.04.36 Make appropriate estimations and calculations fluently with whole numbers	What are several ways we can represent numbers? Why do we solve for X? Why do we need math facts? How do numbers help us multiply and divide? Why do we estimate? What is place value?			

<p>4. NBT.3 Use place value understanding to round multi-digit whole numbers to any place.</p> <p>4. NBT.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.</p>	<p>using mental math strategies.</p>				
<p>Content Moving Out of 4th Grade into 6th</p> <p>Compute fluently with multi-digit numbers and find common factors and multiples</p> <p>6. NS.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express $36 + 8$ as $4(9 + 2)$.</p>	<p>Use factors and multiples</p> <p>N.MR.04.07 Use factors and multiples to compose and decompose whole number.</p>				

Mathematics Pacing Guide Alignment with Common Core Standards

Time Frame: 6 Weeks – October/November

Fourth Grade

Unit 2: Operations and Algebraic Thinking

Common Core	GLCE	Essential Questions	Assessment	Vocabulary	Resources
<p>CRITICAL AREA: Developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends</p> <p>Gain familiarity with factors and multiples</p> <p>4. OA.4 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.</p>	<p>FOCAL POINT: Developing fluency with multiplication of whole numbers</p> <p>Use factors and multiples</p> <p>N.ME.04.04 Find all factors of any whole number through 50, list factor pairs, and determine if a one-digit number is a factor of a given whole number.</p> <p>N.ME.04.05 List the first ten multiples of a given one-digit whole number; determine if a whole number is a multiple of a given one-digit whole number.</p> <p>N.MR.04.06 Know that some numbers including 2, 3, 5, 7, and 11 have exactly two factors (1 and the number itself) and are called prime numbers.</p> <p>N.MR.04.07 Use factors and multiples to compose and decompose whole numbers.</p>	<p>What is a whole number?</p> <p>Why do we need to know our math facts?</p>	<p>Before</p> <p>Pretest</p> <p>Discussion about what students already know</p> <p>During</p> <p>Quiz</p> <p>Daily Assignments</p> <p>Observations</p> <p>Centers- flashcards, multiplication/division games</p> <p>Journals</p> <p>Teacher created worksheets</p> <p>After</p> <p>Post test</p> <p>Project- Solve real-world problems. Use arrays to show multiplication problem</p>	<p>Algebra</p> <p>Array</p> <p>Algebraic Computations</p> <p>Formulas</p> <p>Rational numbers</p> <p>Ratio</p> <p>Inverses</p> <p>Inequality</p> <p>Algorithm</p> <p>Equations</p> <p>Proofs</p> <p>Order of operations</p> <p>Symbolic number</p> <p>Variables</p> <p>Property</p> <p>Distributive</p> <p>Commutative</p> <p>Associative</p> <p>Parenthesis</p> <p>Denominator</p> <p>Difference</p> <p>Distributive property</p> <p>Dividend</p> <p>Equivalent decimals</p> <p>Equivalent fractions</p> <p>Exponent</p>	<p>Lesson Plans and Worksheets: www.edhelper.com www.sitesforteachers.com</p> <p>Math Games and Activities: www.EducationCity.com</p> <p>Additional Math Resources: http://www.svsu.edu/mathsci-center/uploads/math/Elementary.html</p>

				Factor Formula Higher term fraction Inequality Lowest term fraction Negative integer Numerator Parentheses Percent	
<p>Use the four operations with whole numbers to solve problems</p> <p>4. OA.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p> <p>Use place value understanding and properties of operations to perform multi-digit arithmetic</p> <p>4. NBT.5 Multiply a whole number of up to four digits by a one-digit whole number, and</p>	<p>Multiply and divide whole numbers</p> <p>N.ME.04.09 Multiply two-digit numbers by 2, 3, 4, and 5 using the distributive property, e.g., $21 \times 3 = (1 + 20) \times 3 = (1 \times 3) + (20 \times 3) = 3 + 60 = 63$.</p> <p>N.FL.04.10 Multiply fluently any whole number by a one-digit number and a three-digit number by a two-digit number; for a two-digit by one-digit multiplication use distributive property to develop meaning for the algorithm.</p> <p>N.FL.04.11 Divide numbers up to four-digits by one-digit numbers and by 10.</p> <p>N.FL.04.12 Find the value of the unknowns in equations such as $a \div 10 = 25$; $125 \div b = 25$.</p>	<p>What is a number?</p> <p>How do we put numbers together?</p> <p>How do we break numbers apart?</p>			

<p>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.</p> <p>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.</p>	<p>N.MR.04.13 Use the relationship between multiplication and division to simplify computation and check results.</p> <p>N.MR.04.14 Solve contextual problems involving whole number multiplication and division.</p>				
<p>Moving Into 4th Grade:</p> <p>Use the four operations with whole numbers to solve problems</p> <p>4.OA.1 Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ 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.</p> <p>4. OA.2 Multiply or divide to</p>					

<p>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.</p> <p>Generate and analyze patterns</p> <p>4. OA.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.</p>					
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Mathematics Pacing Guide Alignment with Common Core Standards

Time Frame: 6 Weeks December/January

Fourth Grade

Unit 3: Numbers and Operations – Fractions

Common Core	GLCE	Essential Questions	Assessment	Vocabulary	Resources
<p>CRITICAL AREA: Developing an understanding of addition and subtraction of fractions with like denominators, multiplication of fractions by whole numbers, and division of whole numbers with fractional answers</p> <p>Understand decimal notation for fractions, and compare decimal fractions</p> <p>4. NF.6 Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as $\frac{62}{100}$; describe a length as 0.62 meters; locate 0.62 on a number line diagram.</p> <p>4. NF.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when 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.</p>	<p>FOCAL POINT: Developing an understanding of fractions and decimals, including the connections between them</p> <p>Read, interpret and compare decimal fractions</p> <p>N.ME.04.15 Read and interpret decimals up to two decimal places; relate to money and place value decomposition.</p> <p>N.ME.04.16 Know that terminating decimals represents fractions whose denominators are 10, 10×10, $10 \times 10 \times 10$, etc., e.g., powers of 10.</p> <p>N.ME.04.17 Locate tenths and hundredths on a number line.</p> <p>N.ME.04.18 Read, write, interpret, and compare decimals up to two decimal places.</p> <p>N.MR.04.19 Write tenths and hundredths in decimal and fraction forms, and know the decimal equivalents for halves and fourths.</p>	<p>What is a fraction?</p> <p>What is a decimal?</p> <p>What are the various ways decimals may be used and intermitted?</p> <p>How are decimals used to solve problems?</p>	<p>Before Pretest</p> <p>District test data analysis</p> <p>During Quiz</p> <p>Daily Assignments</p> <p>Observations</p> <p>Centers- decimal games</p> <p>Journals</p> <p>Fraction strip practice</p> <p>Teacher created worksheets</p> <p>After Post test</p> <p>Create menu using decimals</p> <p>Create poster advertising cost</p>	<p>Decimal Decimals: tenths Greatest Least Multiple Equivalent decimals Decimals</p> <p>Fractions Common factor Common multiple Common denominator Decimals: tenths, hundredths Divisor Equivalent Factor Greatest Least Multiple Percent Factorization Whole number Denominator Fractions Equivalent fractions Equivalent decimals</p>	<p>Lesson Plans and Worksheets: www.edhelper.com www.sitesforteachers.com</p> <p>Math Games and Activities: www.EducationCity.com</p> <p>Additional Math Resources: http://www.svsu.edu/mathsci-center/uploads/math/Elementary.html</p>

			Visual representation of Fraction Strips Diagram of equal fractions	Decimals Higher term fraction Improper fraction Lowest term fraction Simplify Simplest Form Mixed number Numerator Pictograph Round	
<p>Extend understanding of fraction equivalence and ordering</p> <p>4.NF.1 Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{n \times a}{n \times b}$ 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.</p> <p>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 $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$,</p>	<p>Understand fractions</p> <p>N.ME.04.20 Understand fractions as parts of a set of objects.</p> <p>N.MR.04.21 Explain why equivalent fractions are equal, using models such as fraction strips or the number line for fractions with denominators of 12 or less, or equal to 100.</p> <p>N.MR.04.22 Locate fractions with denominators of 12 or less on the number line; include mixed numbers.</p> <p>N.MR.04.23 Understand the relationships among halves, fourths, and eighths and among thirds, sixths, and twelfths.</p> <p>N.ME.04.24 Know that fractions of the form $\frac{m}{n}$ where m is greater than n, are greater than 1</p>	<p>How are fractions used in everyday life?</p> <p>How do fractions relate to decimals?</p>			

<p>or $<$, and justify the conclusions, e.g., by using a visual fraction model.</p>	<p>and are called improper fractions; locate improper fractions on the number line.</p> <p>N.MR.04.25 Write improper fractions as mixed numbers, and understand that a mixed number represents the number of "wholes" and the part of a whole remaining, e.g., $5/4 = 1 + 1/4 = 1\frac{1}{4}$.</p> <p>N.MR.04.26 Compare and order up to three fractions with denominators 2, 4, and 8, and 3, 6, and 12, including improper fractions and mixed numbers.</p>				
<p>Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers</p> <p>4. NF.3 Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.</p> <p>a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.</p> <p>b. 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</p>	<p>Add and subtract fractions</p> <p>N.MR.04.27 Add and subtract fractions less than 1 with denominators through 12 and/or 100, in cases where the denominators are equal or when one denominator is a multiple of the other, e.g., $1/12 + 5/12 = 6/12$; $1/6 + 5/12 = 7/12$; $3/10 - 23/100 = 7/100$.</p> <p>N.MR.04.28 Solve contextual problems involving sums and differences for fractions where one denominator is a multiple of the other (denominators 2 through 12, and 100).</p> <p>N.MR.04.29 Find the value of an</p>	<p>How do we change fractions?</p>			

<p>model. Examples: $3/8 = 1/8 + 1/8 + 1/8$; $3/8 = 1/8 + 2/8$; $2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$.</p> <p>c. 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.</p> <p>d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators e.g., by using visual fraction models and equations to represent the problem.</p> <p>Understand decimal notation for fractions, and compare decimal fractions</p> <p>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. For example, express $3/10$ as $30/100$ and add $3/10 + 4/100 = 34/100$. (Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in</p>	<p>unknown in equations such as $1/8 + x = 5/8$ or $3/4 - y = 1/2$. [Note that in the CCSS addition and subtraction with unlike denominators is not a requirement at this grade]</p>				
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<p>general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.)</p>					
<p>Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers 4. NF.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.</p> <p>a. 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 $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$.</p> <p>b. Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. (In general, $n \times (a/b) = (n \times a)/b$.)</p> <p>c. 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. For example, if each person at a</p>	<p>Multiply fractions by whole numbers N.MR.04.30 Multiply fractions by whole numbers, using repeated addition and area or array models.</p>	<p>How do we create fractions? How do we change fractions?</p>			

party will eat $\frac{3}{8}$ of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?					
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Mathematics Pacing Guide Alignment with Common Core Standards

Time Frame: 10 Weeks – February/March/mid-April

Fourth Grade

Unit 4: Measurement and Data

Common Core	GLCE	Essential Questions	Assessment	Vocabulary	Resources
<p>Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit</p> <p>4. MD.1 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)...</p> <p>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</p>	<p>Measure using common tools and appropriate units</p> <p>M.UN.04.01 Measure using common tools and select appropriate units of measure.</p> <p>M.PS.04.02 Give answers to a reasonable degree of precision in the context of a given problem.</p> <p>Convert measurement units</p> <p>M.TE.04.05 Carry out the following conversions from one unit of measure to a larger or smaller unit of measure: meters to centimeters, kilograms to grams, liters to milliliters, hours to minutes, minutes to seconds, years to months, weeks to days, feet to inches, ounces to pounds (using numbers that involve only simple calculations).</p> <p>Represent and solve problems for given data</p> <p>D.RE.04.01 Construct tables and bar graphs from given data.</p>	<p>What is measurement?</p> <p>How do we determine units of measurement?</p>	<p>Before</p> <p>Pretest</p> <p>Discussion/Questioning</p> <p>During</p> <p>Observations</p> <p>Daily Assignments</p> <p>Quizzes</p> <p>Center – measurement practice</p> <p>Teacher created worksheets</p> <p>After</p> <p>Post-test</p> <p>Project- students measure items at home and create a two column table to show measurement equivalents</p> <p>Think-Pair-Share</p>	<p>Measurement</p> <p>Actual</p> <p>Appropriate</p> <p>Areas</p> <p>Celsius</p> <p>Centimeter (cm)</p> <p>Decimeter (dm)</p> <p>Distance</p> <p>Elapsed time</p> <p>Estimate</p> <p>Freeze</p> <p>Gram</p> <p>Greater</p> <p>Kilogram (kg)</p> <p>Kiloliter (kl)</p> <p>Kilometer (km)</p> <p>Length</p> <p>Less than</p> <p>Liter</p> <p>Mass</p> <p>Meter (m)</p> <p>Milligram (mg)</p> <p>Milliliter (ml)</p> <p>Millimeter (mm)</p> <p>Mileage</p> <p>Perimeter</p> <p>Route</p> <p>Temperature</p> <p>Thermometer</p> <p>Weight</p> <p>Width</p>	<p>Lesson Plans and Worksheets: www.edhelper.com www.sitesforteachers.com</p> <p>Math Games and Activities: www.EducationCity.com</p> <p>Additional Math Resources: http://www.svsu.edu/mathsci-center/uploads/math/Elementary.html</p>

<p>unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.</p>				<p><u>Data Analysis and Statistics</u> Analysis Average Axis Bar graph Bias Collection Data Descriptive statistics Equally likely Estimate Experimentation Frequency Horizontal Hypothesis Inference Intervals Investigation Graph Line graph Line segment Line plot Maximum Median Mode Mean Minimum Range Pictograph Sample Schedule Simulation Statistics</p>	
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				Survey Vertical Versus Table Coordinates Ordered pairs X-axis horizontal Y-axis vertical	
<p>Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit</p> <p>4. MD.3 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.</p>	<p>Use perimeter and area formulas</p> <p>M.TE.04.06 Know and understand the formulas for perimeter and area of a square and a rectangle; calculate the perimeters and areas of these shapes and combinations of these shapes using the formulas.</p> <p>M.TE.04.07 Find one dimension of a rectangle given the other dimension and its perimeter or area.</p> <p>M.TE.04.08 Find the side of a square given its perimeter or area.</p> <p>M.PS.04.09 Solve contextual problems about perimeter and area of squares and rectangles in compound shapes.</p>	How do we convert measurement?			
Content moving into 4th grade	No corresponding GLCE				
Represent and interpret data					
4. MD.4 Make a line plot to					

<p>display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.</p>					
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Mathematics Pacing Guide Alignment with Common Core Standards

Time Frame: 8 Weeks – mid-April/May/June

Fourth Grade

Unit 5: Geometry

Common Core	GLCE	Essential Questions	Assessment	Vocabulary	Resources
<p>CRITICAL AREA: Understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry</p> <p>Geometric measurement: understand concepts of angle and measure angles 4. MD.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: a. 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. b. An angle that turns through n</p>	<p>FOCAL POINT: None Available</p> <p>Understand right angles M.TE.04.10 Identify right angles and compare angles to right angles.</p> <p>Understand perpendicular, parallel, and intersecting lines G.GS.04.01 Identify and draw perpendicular, parallel, and intersecting lines using a ruler and a tool or object with a square (90°) corner. G.GS.04.02 Identify basic geometric shapes including isosceles, equilateral, and right triangles, and use their properties to solve problems.</p> <p>Recognize symmetry and transformations G.TR.04.04 Recognize plane figures that have line symmetry.</p>	<p>What are angles?</p> <p>How do we measure circles?</p>	<p>Before Pretest Discussion T chart with picture cues</p> <p>During Class observations Daily assignments Games Quizzes Centers Manipulative (ex. attribute blocks, protractors, rulers, slates, 3-d and blocks) Teacher created worksheets</p> <p>After Tessellation Project where students slide, flip or rotate shapes to create art</p> <p>Post test</p> <p>Diagram Project- students find real world objects that match each type of line and angle</p>	<p>Geometry Lines Segments Angles Rays Points Grid Circle Axis Isosceles Equilateral Right triangles Faces Edges Vertices Cubes Rectangular Prisms Pyramids Linear Plane Solid Parallel Perpendicular Intersecting Lines Ruler Acute Obtuse Endpoint Degree Triangle Symmetry</p>	<p>Lesson Plans and Worksheets: www.edhelper.com www.sitesforteachers.com</p> <p>Math Games and Activities: www.EducationCity.com</p> <p>Additional Math Resources: http://www.svsu.edu/mathsci-center/uploads/math/Elementary.html</p>

<p>one-degree angles is said to have an angle measure of n degrees.</p> <p>Draw and identify lines and angles, and classify shapes by properties of their lines and angles</p> <p>4. G.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</p> <p>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.</p> <p>Draw and identify lines and angles, and classify shapes by properties of their lines and angles</p> <p>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.</p>					
<p>Content moving into 4th grade from 5th grade</p>	<p>Content moving into 4th grade from 5th grade</p>				

<p>Geometric measurement: understand concepts of angle and measure angles</p> <p>4. MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.</p> <p>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.</p>	<p>Know the meaning of angles, and solve problems</p> <p>G.TR.05.01 Associate an angle with a certain amount of turning; know that angles are measured in degrees; understand that 90°, 180°, 270°, and 360° are associated respectively, with $1/4$, $1/2$, and $3/4$, and full turns.</p> <p>G.GS.05.02 Measure angles with a protractor and classify them as acute, right, obtuse, or straight.</p> <p>G.GS.05.03 Identify and name angles on a straight line and vertical angles.</p> <p>G.GS.05.04 Find unknown angles in problems involving angles on straight line, angles surrounding point, and vertical angles.</p> <p>G.GS.05.05 Know that angles on a straight line add up to 180° and angles surrounding a point add up to 360°; justify informally by "surrounding" a point with angle</p>				
<p>Moving out of 4th grade into 2nd grade</p> <p>2nd Grade</p> <p>Reason with shapes and their attributes</p> <p>2. G.1 Recognize and draw shapes having specified</p>	<p>Moving out of 4th grade into 2nd grade</p> <p>Identify basic geometric shapes and their components, and solve problems</p> <p>G.SR.04.03 Identify and count the faces, edges, and vertices of</p>				

<p>attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes (Sizes are compared directly or visually, not compared by measuring.)</p>	<p>basic three-dimensional geometric solids including cubes, rectangular prisms, and pyramids describe the shape of their faces.</p>				
<p>Moving out of 4th grade into High School</p> <p>Understand congruence in terms of rigid motions 9-12.G.CO.6 Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.</p>	<p>Moving out of 4th grade into High School</p> <p>Recognize symmetry and transformations G.TR.04.05 Recognize rigid motion transformations (flips, slides, turns) of a two-dimensional object.</p>				
<p>Moving out of 4th grade into 5th grade</p> <p>Perform operations with multi-digit whole numbers and with decimals to hundredths 5.NBT.7 Add, subtract, multiply and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the</p>	<p>Moving out of 4th grade into 6th grade</p> <p>Add and subtract decimal fractions N.MR.04.31 For problems that use addition and subtraction of decimals through hundredths, represent with mathematical statements and solve. N.FL.04.32 Add and subtract decimals through hundredths. Multiply and divide decimal</p>				

<p>strategy to a written method and explain the reasoning used.</p>	<p>fractions N.FL.04.33 Multiply and divide decimals up to two decimal places by a one-digit whole number where the result is a terminating decimal, e.g., $0.42 \div 3 = 0.14$, but not $5 \div 3 = 1.6$.</p>				
<p>[No match in Common Core Standards)</p>	<p>Measure using common tools and appropriate units M.UN.04.03 Measure and compare integer temperatures in degrees.</p>				
<p>Moving out of 4th grade into 6th grade Solve real-world and mathematical problems involving area, surface area, and volume 6. G.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.</p>	<p>Moving out of 4th grade into 6th grade Measure using common tools and appropriate units M.TE.04.04 Measure surface area of cubes and rectangular prisms by covering and counting area of the faces. Problem-solving M.PS.04.11 Solve contextual problems about surface area.</p>				
<p>Moving out of 4th grade into 3rd grade Represent and interpret data 3. MD.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several</p>	<p>Moving out of 4th grade into 3rd grade Represent and solve problems for given data D.RE.04.02 Order a given set of data, find the median, and specif</p>				

<p>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 pet.</p>	<p>the range of values.</p> <p>D.RE.04.03 Solve problems using data presented in tables and bar graphs, e.g., compare data represented in two bar graphs and read bar graphs showing two data sets.</p>				
<p>Moving out of 4th grade into 6th grade</p>					
<p>Summarize and describe distributions</p>					
<p>6. SP.5 Summarize numerical data sets in relation to their context, such as by:</p>					
<p>a. Reporting the number of observations.</p>					
<p>b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.</p>					
<p>c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data was gathered.</p>					
<p>d. Relating the choice of measures of center and variability to the shape of the</p>					

data distribution and the context in which the data was gathered.					
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