

Shrewsbury Borough School Mathematics Curriculum 2012
Grade 4

<p>Marking Period 1:</p> <p>Topic: Operations and Algebraic Thinking</p> <p>Objectives and Mathematical Practices:</p> <p><i>4.OA.1 Recognize multiplication as repeated addition of equal groups used in arrays and comparisons.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p><i>4.OA.2 Use multiplication properties and patterns to simplify computation and distinguish multiplicative comparison with additive comparison.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP3: Construct viable arguments and critique the reasoning of others.</p> <p>MP4: Model with mathematics.</p>	<p>Marking Period 2:</p> <p>Topic: Number and Operations in Base Ten.</p> <p>Objectives and Mathematical Practices:</p> <p><i>4.NBT.1 Use basic multiplication facts to recognize that in a multi-digit number in one place represents ten times what it represents in the place to its right.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP6: Attend to precision</p> <p>MP7: Look for and make use of structure.</p> <p><i>4.NBT.2 Read and write multi-digit whole numbers in standard, expanded, and word form.</i></p> <p>MP2: Reason abstractly and quantitatively .</p> <p>MP4: Model with mathematics.</p> <p>MP6: Attend to precision.</p>	<p>Marking Period 3:</p> <p>Topic: Numbers and Operations -- Fractions</p> <p>Objectives and Mathematical Practices:</p> <p><i>4.NF.1 Identify and draw fractional parts of a region and a set, and divide sets to show a fractional part.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>4.NF.1 Use objects and models to show equivalent fractions.</i></p> <p>MP2: Reason abstractly and quantitatively</p> <p>MP4: Model with mathematics.</p>	<p>Marking Period 4:</p> <p>Topic: Measurement and Data</p> <p>Objectives and Mathematical Practices:</p> <p><i>4.MD.1 Know relative sizes of measurement and units including km, g, lb, oz, L, mL, hr, min, sec.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p><i>4.MD.1 Record measurement equivalents in a two-column table. (1ft = 12 in, 3ft = 1yd)</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p>
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<p>MP5: Use appropriate tools strategically.</p> <p>MP7: Look for and make use of structure.</p> <p><i>4.OA.3 Solve multi-step word problems using all four operations with a letter standing for the unknown quantity while assessing the reasonableness of answers.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p><i>4.OA.4 Learn to factor whole numbers and identify them as prime and composite numbers.</i></p> <p>MP2: Reason abstractly and quantitatively.</p>	<p>MP7: Look for and make use of structure.</p> <p><i>4.NBT.2 Compare and order multi-digit whole numbers using $>$, $=$, and $<$ symbols to record the results.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP6: Attend to precision.</p> <p><i>4.NBT.3 Round multi-digit whole numbers using place value.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP6: Attend to precision.</p> <p><i>4.NBT.4 Add multi-digit whole numbers with and without carrying numbers across place value using the standard algorithm.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP7: Look for and make use of structure.</p>	<p>MP5: Use appropriate tools strategically.</p> <p>MP7: Look for and make use of structure.</p> <p><i>4.NF.1 Use the formula a/b is equivalent to $(n \times a) / (n \times b)$ to recognize and generate equivalent fractions.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>4.NF.2 Express equivalent fractions in simplest form.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p>	<p><i>4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p><i>4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money. (Include problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit of terms in a smaller setting.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p>
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<p>MP7: Look for and make use of structure.</p> <p><i>4.OA.5 Understand how to work with number or shape patterns that follow a given rule.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP7: Look for and make use of structure.</p>	<p>MP8: Look for and express regularity in repeated reasoning</p> <p><i>4.NBT.4 Subtract multi-digit whole numbers with and without borrowing across place value.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning</p> <p><i>4.NBT.5 Multiply a whole number of up to four digits by a one-digit whole number.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP3: Construct viable arguments and critique the reasoning of others</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p>	<p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>4.NF.2 Compare two fractions with different numerators and denominators by creating a least common denominator.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>Model with mathematics.</p> <p>MP3: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use</p>	<p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p><i>4.MD.2 Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p><i>4.MD.3 Apply the area and perimeter for rectangles, parallelograms, and triangles in real world and mathematical problems. (Example: Draw floor plans of a room or house with area and perimeter measurements.)</i></p> <p>MP2: Reason abstractly and quantitatively.</p>
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	<p>MP7: Look for and make use of structure.</p> <p><i>4.NBT.6 Multiply two two-digit numbers using expanded algorithms, arrays, calculated equations, and/or area models.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP3: Construct viable arguments and critique the reasoning of others</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP7: Look for and make use of structure</p> <p><i>4.NBT.6 Use basic facts and patterns of zeros to solve division problems with two and three digit dividends by 1-digit divisors.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP3: Construct viable arguments and critique the reasoning of others</p> <p>MP4: Model with mathematics.</p>	<p>of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>4.NF.3a Add and subtract fractions with like denominators using models and paper and pencil.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>4.NF.3b Decompose a fraction by using a visual fraction model. Example: $\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$; $\frac{3}{8} = \frac{2}{8} + \frac{1}{8}$; or $2 \frac{1}{8} = 1 + 1 + \frac{1}{8}$; or $\frac{8}{8} + \frac{8}{8} + \frac{1}{8} = 2 \frac{1}{8}$</i></p>	<p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p><i>4.MD.4 Make a line plot to display a data set of measurements in fractions ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$) in a unit. (Example: Form a line plot to find and interpret the difference in length between the longest and shortest specimens.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p><i>4.MD.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint.</i></p>
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	<p>MP5: Use appropriate tools strategically.</p> <p>MP7: Look for and make use of structure</p> <p><i>4.NBT.6 Use place value to understand the algorithm of long division.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP3: Construct viable arguments and critique the reasoning of others</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP7: Look for and make use of structure</p> <p><i>4.NBT.6 Use the standard algorithm to divide a two-digit number by a one-digit number.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP3: Construct viable arguments and critique the reasoning of others.</p>	<p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>4.NF.3c Subtract mixed numbers with like denominators by replacing each mixed number with an equivalent fraction.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p>	<p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p><i>4.MD.5a Recognize angle measured in reference to a circle with its center as the common endpoint of the rays.</i></p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p><i>4.MD.5b Recognize that an angle that turns through $1/360$ of a circle is called a “one degree angle”, and can be used to measure angles.</i></p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p><i>4.MD.6 Measure angles in whole number degrees using a</i></p>
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	<p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP7: Look for and make use of structure.</p> <p><i>4.NBT.6 Use the standard algorithm to divide 3-digit numbers by 1-digit numbers.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP3: Construct viable arguments and critique the reasoning of others.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP7: Look for and make use of structure.</p> <p><i>4.NBT.6 Divide whole numbers up to four digits by 1-digit divisors resulting in quotients with and without remainders by using the standard algorithm.</i></p> <p>MP2: Reason abstractly and quantitatively.</p>	<p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>4.NF.3d Solve word problems involving the addition and subtraction of fractions.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>4.NF.4a Multiply whole numbers by fractions. Example: $5/4 = 5 \times 1/4$.</i></p>	<p><i>protractor.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p><i>4.MD.7 Recognize that two angle measures of overlapping parts can equal the sum of a whole.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP6: Attend to precision.</p> <p><i>4.MD.7 Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems by using an equation with a symbol for the unknown angle measure.</i></p> <p>MP6: Attend to precision.</p>
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	<p>MP3: Construct viable arguments and critique the reasoning of others.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP7: Look for and make use of structure</p>	<p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision.</p> <p>MP7: Look for and make use of structure.</p> <p>MP8: Look for and express regularity in repeated reasoning.</p> <p><i>4.NF4.b Multiply whole numbers by fractions using the model $(n \times \frac{a}{b}) = (n \times a)/b$. Example: Use a visual model to express $3 \times \frac{2}{5}$ as $6 \times \frac{1}{5}$ recognizing this product as $\frac{6}{5}$.</i></p> <p>MP1: Make sense of problems and persevere in solving them.</p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools</p>	<p>Topic: Geometry</p> <p>Objectives:</p> <p><i>4.G.1 Draw points, lines, line segments, and rays.</i></p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision</p> <p><i>4.G.1 Identify angles (right, acute, and obtuse).</i></p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision</p> <p><i>4.G.2 Identify parallel, perpendicular, and intersecting lines.</i></p> <p>MP5: Use appropriate tools strategically.</p> <p>MP6: Attend to precision</p> <p><i>4.G.2 Classify two-dimensional figures based on the presence of parallel and perpendicular lines.</i></p> <p>MP5: Use appropriate tools strategically.</p>
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strategically.

MP6: Attend to precision.

MP7: Look for and make use of structure.

MP8: Look for and express regularity in repeated reasoning.

4.NF.4c Solve word problems involving the multiplication of fractions.

MP1: Make sense of problems and persevere in solving them.

MP2: Reason abstractly and quantitatively.

MP4: Model with mathematics.

MP5: Use appropriate tools strategically.

MP6: Attend to precision.

MP7: Look for and make use of structure.

MP8: Look for and express regularity in repeated reasoning.

MP6: Attend to precision

4.G.3 Recognize right, obtuse, and acute triangles.

MP4: Model with mathematics.

MP5: Use appropriate tools strategically.

MP6: Attend to precision.

MP7: Look for and make use of structure.

4.G.3 Recognize a line of symmetry for a two-dimensional figure that can be folded along the line onto matching parts.

MP4: Model with mathematics.

MP5: Use appropriate tools strategically.

MP6: Attend to precision.

MP7: Look for and make use of structure.

4.NF.5 Express a fraction with a denominator of 10 with a denominator of 100.

MP2: Reason abstractly and quantitatively.

MP4: Model with mathematics.

MP5: Use appropriate tools strategically.

MP7: Look for and make use of structure.

4.NF.6 Use decimal notations for fractions with denominators 10 or 100.

MP2: Reason abstractly and quantitatively.

MP4: Model with mathematics.

MP5: Use appropriate tools strategically.

MP7: Look for and make use of structure.

4.NF.7 Compare two decimals by hundredths by reasoning about their size. Recognize that comparisons are only valid when the two decimals are compared to the same whole. Record the

		<p><i>comparisons using >, =, or <.</i></p> <p>MP2: Reason abstractly and quantitatively.</p> <p>MP4: Model with mathematics.</p> <p>MP5: Use appropriate tools.</p> <p>MP7: Look for and make use of structure.</p>	
<p>Lessons, Activities, & Student Products: Multiplication</p> <p>Students will use centimeter grid paper and place-value blocks to display arrays for multiplication.</p> <p>Students will use two-color counters to show the Distributive Property of Multiplication.</p> <p>Lessons, Activities, & Student Products: Division</p> <p>Students will use unifix cubes to show arrays to solve division problems.</p> <p>Students will use place-value blocks to assist them in multiplication using an expanded algorithm.</p>	<p>Lessons, Activities, & Student Products: Numeration</p> <p>Students will use place-value blocks to assist with putting numbers in standard form, expanded form, and word form.</p> <p>Students will use place-value charts to assist with expanded and word forms of numbers.</p> <p>Students will use bills and coins with place-value charts to compare decimals using hundredths and money.</p> <p>Students will use bills and coins to count money and make change.</p>	<p>Lessons, Activities, & Student Products: Fractions</p> <p>Students will use fraction strips to:</p> <p>Identify and draw fractional parts of a region and a set.</p> <p>Estimate fraction amounts.</p> <p>Model equivalent fractions.</p> <p>Convert Improper fractions to Mixed Numbers and Mixed Numbers to Improper Fractions.</p> <p>Add and subtract fractions with like and unlike denominators.</p>	<p>Lessons, Activities, & Student Products: Measurement and Data</p> <p>Students will use rulers and yardsticks to estimate and measure customary length.</p> <p>Students will use measuring cups to estimate and measure customary capacity units.</p> <p>Students will use modified place-value charts and meter tape (science kit) to estimate and measure metric length (mm, cm, m).</p> <p>Students will use modified metric prefix place-value charts to convert metric units of capacity, length, and mass.</p>

<p>Students will use Teaching Tool 1 (Problem Solving Recording Sheet) to solve word problems.</p> <p>Students will create Frayer Models to show mastery of each topic.</p> <p>Students will use daily centers for Topics 3 through 6 to ensure mastery.</p> <p>Students will be drilled with Mad Minutes sheets (100 multiplication problems in 5 minutes) twice a week.</p>	<p>Lessons, Activities, & Student Products: 2-Digit Multiplication</p> <p>Students will use calculators to help them understand the patterns used to multiply by 10 and 100.</p> <p>Students will use centimeter grid paper and crayons to display arrays and expanded algorithms.</p> <p>Students will use Teacher Tool 1 (Problem Solving Recording Sheet) to solve word problems.</p> <p>Lessons, Activities, & Student Products: Division by 1-Digit Divisors</p> <p>Students will use unifix cubes to show knowledge of dividing with remainders.</p> <p>Students will use place-value blocks to assist with the expanded algorithm of long division.</p> <p>Students will use colored tiles to assist with identifying prime and composite numbers.</p> <p>Students will use daily centers for Topics 1, 7, and 8.</p>	<p>Lessons, Activities, & Student Products: Decimals</p> <p>Students will use decimal place-value charts to identify tenths and hundredths.</p> <p>Students will use decimal models and place-value blocks to write fractions as decimals and decimals as fractions.</p> <p>Students will use number lines to relate fractions to decimals and mixed numbers to decimals.</p> <p>Students will use Teaching Tool 1 (Problem Solving Recording Sheet) to solve word problems.</p>	<p>Students will use Teaching Tool 1 (Problem Solving Recording Sheet) to solve word problems.</p> <p>Students will create Frayer Models to show mastery of each topic.</p> <p>Lessons, Activities, & Student Products: Data and Graphs</p> <p>Students will use grid paper and centimeter grid paper to plot data on bar graphs and line graphs.</p> <p>Students will use 10 X 10 grids to plot ordered pairs on an x/y axis.</p> <p>Lessons, Activities, & Student Products: Line Plots</p> <p>Students will use poster paper, crayons, and rulers to create line plot graphs of data surveys.</p> <p>Lessons, Activities, & Student Products: Area and Perimeter</p> <p>Students will use rulers and centimeter grid paper to measure area and perimeter.</p> <p>Students will create Frayer Models to show mastery of the topic.</p>
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	<p>Students will complete Frayer Models to show mastery at the end of each topic.</p>		<p>Lessons, Activities, & Student Products: Lines, Angles, and Shapes.</p> <p>Students will use centimeter grid paper to identify points, lines, and planes.</p> <p>Students will use dot paper to describe parts of lines and types of angles.</p> <p>Students will use protractors and rulers to draw and measure angles.</p> <p>Students will create Frayer Models to show mastery of the topic.</p> <p>Lessons, Activities, & Student Products: Equations</p> <p>Students will use balance scales and cubes to understand the properties of equality.</p> <p>Students will use Teaching Tool 1 (Problem Solving Recording Sheet) to solve word problems.</p> <p>Students will create Frayer Models to show mastery of the topic.</p>
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<p><u>21st Century Skills:</u></p> <ul style="list-style-type: none"> ✓ Creativity & Innovation ✓ Critical Thinking & Problem Solving ✓ Communication ✓ Collaboration 	<p><u>21st Century Skills:</u></p> <ul style="list-style-type: none"> ✓ Creativity & Innovation ✓ Critical Thinking & Problem Solving ✓ Communication ✓ Collaboration 	<p><u>21st Century Skills:</u></p> <ul style="list-style-type: none"> ✓ Creativity & Innovation ✓ Critical Thinking & Problem Solving ✓ Communication ✓ Collaboration 	<p><u>21st Century Skills:</u></p> <ul style="list-style-type: none"> ✓ Creativity & Innovation ✓ Critical Thinking & Problem Solving ✓ Communication ✓ Collaboration
<p>Essential Questions:</p> <p>How can we use arrays to understand multiplication?</p> <p>How can a bar diagram help you solve a problem?</p> <p>What patterns can help you remember multiplication facts?</p> <p>What happens when you multiply two numbers and switch the order of the factors?</p> <p>How can you use multiplication to find all the factors of a number?</p> <p>How can you use expressions with variables?</p>	<p>Essential Questions:</p> <p>What place value patterns can be seen when you multiply or divide 1-digit numbers by multiples of 10 and 100?</p> <p>What are some ways to represent numbers in the thousands and millions?</p> <p>How do you compare numbers using place values?</p> <p>How do you round whole numbers using place value?</p> <p>How do you add multi-digit whole numbers across several place values?</p>	<p>Essential Questions:</p> <p>How can you name and show parts of a region?</p> <p>How can you find two fractions that name the same part of the whole?</p> <p>How do you write a fraction in simplest form?</p> <p>How can you add and subtract fractions with like denominators?</p> <p>What operation is needed to solve a word problem with fractions?</p> <p>How can you multiply whole numbers by fractions?</p>	<p>Essential Questions:</p> <p>How do you estimate and measure capacity, distance, and mass using customary units of measure?</p> <p>How do you estimate and measure capacity, distance, and mass using metric units of measure?</p> <p>How can equivalent data of measurement be displayed? (12 in = 1ft)</p> <p>How can conversions of measurement be displayed in a table?</p>

<p>How can you find a rule and write an addition, subtraction, multiplication, or division expression?</p>	<p>How do you subtract multi-digit whole numbers across several place values?</p> <p>How can you find the product of two two-digit numbers by multiples of ten?</p> <p>How do you multiply two-digit by two-digit numbers using the standard algorithm?</p> <p>How can you use place value and patterns to help you divide mentally?</p> <p>What does it mean when you divide and have some left over?</p> <p>How can place value help you divide?</p> <p>How can you divide numbers in the hundreds?</p> <p>What do you do when there are not enough hundreds to divide?</p>	<p>How can drawing a picture or writing a diagram help you solve a word problem involving multiplying fractions?</p> <p>How can fractions with denominators of 10 be added with denominators of 100 to generate an equivalent fraction?</p> <p>How can you write a fraction as a decimal?</p> <p>How can you write a decimal as a fraction?</p> <p>How can you use place value to the hundredths to compare and order decimals?</p>	<p>How can you identify the correct operation to use in word problems involving distance, intervals of time, liquid volumes, masses of objects, and money?</p> <p>How do you estimate the area of objects and figures?</p> <p>How do you measure the amount of space a figure covers?</p> <p>How can you organize data with fractions in a line plot?</p> <p>What geometric terms describe types of angles?</p> <p>How is a protractor used to measure angles in a circle?</p> <p>How can two different angles be added together to form the sum of a whole?</p> <p>How can you find the missing angle measure in an addition or subtraction equation?</p> <p>What are the important geometric names for lines?</p> <p>How do you draw and identify points, lines, line segments, and rays?</p>
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			<p>What is the difference between perpendicular lines and intersecting lines?</p> <p>How can triangles be classified by the type of angles they have?</p> <p>What is a line of symmetry?</p>
<p>Materials and Resources:</p> <p>www.pearsonsuccess.net</p> <p>www.mathplayground.com</p> <p>www.internet4classrooms</p> <p><u>Envision Math:</u></p> <p>Topic 3: Multiplication Meanings and Facts</p> <p>Topic 4: Division Meanings and Facts</p> <p>Topic 5: Multiplying by 1-Digit Numbers</p> <p>Topic 6: Patterns and Expressions</p>	<p>Materials and Resources:</p> <p>www.pearsonsuccess.net</p> <p>www.mathplayground.com</p> <p>www.internet4classrooms</p> <p><u>Envision Math:</u></p> <p>Topic 1: Numeration</p> <p>Topic 7: Multiplying by 2-Digit Numbers</p> <p>Topic 8: Dividing by 1-Digit Numbers</p>	<p>Materials and Resources:</p> <p>www.pearsonsuccess.net</p> <p>www.mathplayground.com</p> <p>www.internet4classrooms</p> <p><u>Envision Math:</u></p> <p>Topic 10: Understanding Fractions</p> <p>Topic 11: Adding and Subtracting Fractions</p> <p>Topic 12: Understanding Decimals</p> <p>Topic 13: Operations with Decimals</p>	<p>Materials and Resources:</p> <p>www.pearsonsuccess.net</p> <p>www.mathplayground.com</p> <p>www.internet4classrooms</p> <p><u>Envision Math:</u></p> <p>Topic 16: Measurement, Time, and Temperature</p> <p>Topic 17: Data and Graphs</p> <p>Topic 14: Area and Perimeter</p> <p>Topic 9: Lines, Angles, and Shapes</p> <p>Topic 18: Equations</p> <p>Topic 19: Transformation, Congruence, and Symmetry</p>
<p>Assessment:</p> <p>Topic Test</p> <p>Teacher Observation</p> <p>Projects</p>	<p>Assessment:</p> <p>Topic Test</p> <p>Teacher Observation</p> <p>Projects</p>	<p>Assessment:</p> <p>Topic Test</p> <p>Teacher Observation</p> <p>Projects</p>	<p>Assessment:</p> <p>Topic Test</p> <p>Teacher Observation</p> <p>Projects</p>

<p>CCSS: 4.OA Operations and Algebraic Thinking</p> <p>Use the four operations with whole numbers to support 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 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>4.OA.3 Solve multi-step 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</p>	<p>CCSS: 4.NBT Numbers and Operations in Base Ten</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. <i>For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division.</i></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>4.NBT.3. Use place value understanding to round multi-digit whole numbers to any place.</p> <p>Use place value understanding and properties of operations to perform multi-digit arithmetic.4.NBT.4. Fluently add and subtract multi-digit</p>	<p>CCSS: 4.NF Number and Operations-Fractions</p> <p>Extend understanding of fraction equivalence and ordering.</p> <p>4.NF.1. Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ 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 $1/2$. 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.</p> <p>Build fractions from unit fractions by applying and extending previous</p>	<p>CCSS: 4.MD Measurement and Data</p> <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. <i>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), ...</i></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 unit in terms of a smaller unit. Represent measurement quantities using</p>
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<p>quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</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 of 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>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. <i>For example, given the rule “Add 3” and the starting number 1, generate terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate this way.</i></p>	<p>whole numbers using the standard algorithm.</p> <p>4.NBT.5. 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.</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>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 model. <i>Examples: $3/8 = 1/8 + 1/8 + 1/8$; $3/8 = 1/8 + 2/8$; $2 \frac{1}{8} = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$.</i></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</p>	<p>diagrams such as number line diagrams that feature a measurement scale.</p> <p>4.MD.3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems. <i>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.</i></p> <p>Represent and interpret data.</p> <p>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. <i>For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.</i></p> <p>Geometric measurement: understand concepts of angle and measure angles.</p> <p>4.MD.5. Recognize angles as geometric shapes that are formed</p>
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visual fraction models and equations to represent the problem.

4.NF.4. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.

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 $5/4 = 5 \times (1/4)$.*

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, $n \times (a/b) = (n \times a)/b$.)*

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 party will eat $3/8$ of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be*

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.

B. 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.

needed? Between what two whole numbers does your answer lie?

Understand decimal notation for fractions, and compare decimal fractions.

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 100.² *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.

Geometry

Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

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.

