

<b>Select a Course:</b>	Math Grade 4
<b>Teacher:</b>	CORE Math Grade 4
<b>Course:</b>	Math Grade 4
<b>Year:</b>	2016-17
<b>Months:</b>	- All -

August

Enduring Understandings ✕ Essential Questions ✕ Standards ✕ Knowledge & Skills ✕ Academic Language ✕

Grade 4 Math Multiplication & Division Concepts 8-9 weeks

September

Enduring Understandings ✕ Essential Questions ✕ Standards ✕ Knowledge & Skills ✕ Academic Language ✕

Place value is based on groups of ten and the value of a number is determined by the place of its digits.

Whole numbers are read from left to right using the name of the period; commas are used to separate periods

A number can be written using its name, standard, or expanded form

Flexible methods of computation involve grouping numbers in strategic ways.

The distributive property is connected to the area model and/or partial products method of multiplication.

Multiplication and division are inverse operations.

There are three different structures for multiplication and division problems: Area/Arrays, Equal Groups, and Comparison, and the unknown quantity in multiplication and division situations is represented in three ways: Unknown Product, Group Size Unknown, and Number of Groups Unknown

How does the position of a digit in a number affect its value, and how can the values of digits be used to compare two numbers?

In what ways can numbers be composed and decomposed?

How are the factors of a number determined?

What is the difference between a prime number and composite number?

How are multiplication and division related?

What are efficient methods for finding products and quotients?

How are dividends, divisors, quotients, and remainders related?

What real-life situations require the use of multiplication or division?

4.NBT.A.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.

4.NBT.A.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.

4.NBT.B.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.

4.NBT.B.6 - Use place value understanding and properties of operations to perform multi-digit arithmetic ~ 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.A.1 - Use the four operations with whole numbers to solve problems ~

Multiplication equations can show comparisons (4.OA.1)

When to apply single equations or more than one equation using manipulatives, and/or diagrams to represent multiplicative comparison. (4.OA.1)

Verbal statements of multiplicative comparisons can be written as equations with and without variables. (i.e. Sally is five years old. Her mom is eight times older. How old is Sally's Mom?  $5 \times 8 = 40$ ) (4.OA.1)

A digit in one place represents ten times what it represents in the place to its right, by using manipulatives, pictures, language, and/or equations to explain their reasoning. (4.NBT.1)

Strategies for multiplying and dividing based on place value, the properties of

TIER 2  
Multiplicative comparison  
Standard Form  
Written Form  
Expanded Form  
Factor  
Multiple  
Prime  
Composite  
Divisor  
Dividend  
Remainder

TIER 3  
Array  
Area Model  
Equation  
Product  
Quotient

 Some division situations will produce a remainder, but the remainder should always be less than the divisor. If the remainder is greater than the divisor, that means at least one more can be given to each group (fair sharing) or at least one more group of the given size (the dividend) may be created. When using division to solve word problems, how the remainder is interpreted depends on the problem.

 How does a remainder affect the answer in a division word problem?

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.

4.OA.A.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.1

4.OA.A.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.

4.OA.B.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.

operations, and/or the relationship between multiplication and division. (4.NBT.5) (4.NBT.6)

 Translate comparative situations into drawings and equations with a symbol for the unknown and unknowns in all 3 locations. (4.OA.2)

 Solve word problems involving multiplicative comparison using drawings and equations with a symbol for the unknown number and unknowns in all 3 locations. (4.OA.2)

 Explain the difference between additive comparison and multiplicative comparison using visuals and words. (4.OA.2)

 Read and write whole numbers up to a million using standard, word, and expanded form. (4.NBT.2)

 Compare two multi-digit (up to a million) numbers. (4.NBT.2)

 Use manipulatives, pictures, and language to show the relationship between the numerals and their place value representations in multiple ways. (4.NBT.2)

 Identify all factor pairs for any given number 1-100. Recognize that a whole number is a multiple of each of its factors. (4.OA.4)

 Determine whether a given whole number in the range 1-100 is a multiple of

a given  
onedigit number.  
(4.OA.4)

 Determine whether a given whole number in the range 1-100 is prime or composite. (4.OA.4)

 Use visuals, symbols and/or language to explain their reasoning. (4.OA.4)

 Multiply up to 4-digit by 1-digit numbers and 2-digit by 2-digit numbers. (4.NBT.5)

 Use place value manipulatives to represent multiplication calculations. Illustrate and explain the calculation by using written equations, rectangular arrays, and area models. (4.NBT.5)

 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors. Illustrate and explain the calculation by using written equations, rectangular arrays, and area models. (4.NBT.6)

 Use place value manipulatives to represent division calculations. (4.NBT.6)

 Use the relationship between multiplication and division to explain calculations. (4.NBT.6)

 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations and represent those problems using equations with a variable standing for the unknown quantity.

				Interpret remainders when solving multi-step word problems (4.OA.3)	
				Assess the reasonableness of answers using mental computation and estimation strategies, including rounding. (4.OA.3)	

October	<b>Enduring Understandings</b>	<b>Essential Questions</b>	<b>Standards</b>	<b>Knowledge &amp; Skills</b>	<b>Academic Language</b>
---------	--------------------------------	----------------------------	------------------	-------------------------------	--------------------------

November	<b>Grade 4 Math Fractions: Equivalence &amp; Operations</b> 7-8 weeks				
	<b>Enduring Understandings</b>	<b>Essential Questions</b>	<b>Standards</b>	<b>Knowledge &amp; Skills</b>	<b>Academic Language</b>

November	Fractions can be represented visually and in written form. Comparisons are valid only when the two fractions refer to the same whole. Fractions and Mixed Numbers are composed of unit fractions and can be decomposed as a sum of unit fractions Improper Fractions and Mixed Numbers represent the same value. Addition and subtraction of fractions involves joining and separating parts referring to the same whole A product of a fraction times a whole number can be written as a multiple of a unit fraction. When converting measurements within one system, the size, length, mass, volume of the object remains the same.	How are fractions used in problem-solving situations? How are fractions composed, decomposed, compared and represented? Why is it important to identify, label, and compare fractions as representations of equal parts of a whole or of a set? How can multiplying a whole number by a fraction be displayed as repeated addition (as a multiple of a unit fraction)? Why does the size, length, mass, volume of an object remain the same when converted to another unit of measurement?	<p>4.NF.A.1 - Extend understanding of fraction equivalence and ordering ~ Explain why a fraction <math>a/b</math> is equivalent to a fraction <math>(n \times a)/(n \times b)</math> 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.A.2 - Extend understanding of fraction equivalence and ordering ~ Compare two fractions with different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as <math>1/2</math>. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions, e.g., by using a visual fraction model.</p> <p>4.NF.B.3 - Build fractions from unit fractions ~ Understand a fraction <math>a/b</math> with <math>a &gt; 1</math> as a sum of fractions <math>1/b</math>.</p> <p>4.NF.B.4 - Build fractions from unit fractions ~ Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.</p> <p>4.NF.B.3a - Build fractions from unit fractions ~ Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.</p> <p>4.NF.B.3b - Build fractions from unit fractions ~ Decompose a fraction into a sum of fractions with the same denominator in more than one way,</p>	A fraction $a/b$ is equivalent to a fraction $(n \times a)/(n \times b)$ . (4.NF.1) Fractions with different denominators can be compared by using visual fraction models, benchmark fractions, finding common denominators, and finding common numerators. (4.NF.2) Addition and subtraction of fractions as joining and separating parts referring to the same whole using manipulatives, pictures, symbols, language, and real-life examples. (4.NF.3) Recognize and generate equivalent fractions (4.NF.1) Compare 2 fractions with different denominators and different numerators by representing the fractions with symbols, visual models and words and by comparing to a benchmark fraction using symbols, visual models and words. (4.NF.2) Identify if	TIER 2 Benchmark fractions Common denominators Improper fraction Mixed numbers Visual fraction model Range TIER 3 Unit fractions Decompose Compose Equivalent Numerator Denominator Symbols Number line Line plot Distances (inches and feet) Intervals (of time) Elapsed time (seconds, minutes, hours, days, etc.) Liquid volume (fluid ounce, cup, pint, quart, gallon) Weight (ounce, pound, ton) Quarters Halves
----------	---	--	---	--	--

<p>recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model.</p> <p>4.NF.B.3c - Build fractions from unit fractions ~ 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>4.NF.B.3d - Build fractions from unit fractions ~ 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>4.NF.B.4a - Build fractions from unit fractions ~ Understand a fraction <math>a/b</math> as a multiple of <math>1/b</math>. For example, use a visual fraction model to represent <math>5/4</math> as the product <math>5 \times (1/4)</math>, recording the conclusion by the equation <math>5/4 = 5 \times (1/4)</math>.</p> <p>4.NF.B.4b - Build fractions from unit fractions ~ Understand a multiple of <math>a/b</math> as a multiple of <math>1/b</math>, and use this understanding to multiply a fraction by a whole number.</p> <p>4.NF.B.4c - Build fractions from unit fractions ~ 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.</p> <p>4.MD.A.1 - Solve problems involving measurement and conversion of measurements ~ 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.</p> <p>4.MD.A.2 - Solve problems involving measurement and conversion of measurements ~ 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.</p> <p>4.MD.B.4 - Represent and interpret data ~ Make a line plot to display a</p>	<p>comparisons are valid or invalid and explain why. (4.NF.2)</p> <p> Represent unit fractions as a fraction with a numerator of 1 with manipulatives, pictures, symbols, language, and real-life examples. (4.NF.3)</p> <p> 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. (4.NF.3)</p> <p> Add and Subtract mixed numbers with like denominators and model the decomposition of the mixed numbers into unit fractions using manipulatives, pictures, symbols, language, and real-life examples. (4.NF.3)</p> <p> Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators using visual models and/or equations. (4.NF.3)</p> <p> Represent multiplication of a fraction by a whole number as repeated addition using area or linear models. (4.NF.4)</p> <p> Represent that a fraction, such as <math>3/4</math>, is made up of 3 unit fractions of <math>1/4</math> using a multiplication equation, such as <math>3 \times 1/4 = 3/4</math>. (4.NF.4)</p> <p> Multiply a fraction by a whole number by decomposing the fraction into a multiple of a unit fraction such as <math>3/4 \times 2 = 3 \times 2 \times 1/4</math> which equals <math>6/4</math>, using manipulatives, pictures, symbols, language, and real-life examples. (4.NF.4)</p>
--	---

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.

 Represent improper fractions with visual models to demonstrate their relationship to the two closest whole numbers. (4.NF.4)

 Solve word problems involving multiplication of any fraction by a whole number by using visual models and/or equations. (4.NF.4)

 Identify relative sizes of measurement units within one system (customary) of units including lb., oz; hr, min, sec (4.MD.1)

 Represent the larger unit of measure in terms of the smaller unit of measure within the same measurement system (customary), including lb., oz; hr, min, sec. using manipulatives, pictures, language and/or equations. (4.MD.1)

 Record customary measurement equivalents in a two column table. (4.MD.1)

 Use pictures and equations to represent and solve addition, subtraction, multiplication and division word problems involving distance, elapsed time, liquid volumes, and masses of objects (customary system). (4.MD.2)

 Measure objects to the nearest  $\frac{1}{2}$ ,  $\frac{1}{4}$  or  $\frac{1}{8}$  of a unit. (4.MD.4)

 Make a line plot to display a set of measurements to the nearest  $\frac{1}{2}$ ,  $\frac{1}{4}$  or  $\frac{1}{8}$  of a unit. (4.MD.4)

 Solve problems involving addition and subtraction of fractions by using information presented in line plots. (i.e. range) (4.MD.4)

Enduring



Essential



Standards



Knowledge



Academic



December	Understandings	Questions		& Skills	Language
January	<p> <b>Grade 4 Math Decimals</b> 4-5 weeks</p>				
	<p><b>Enduring Understandings</b> ✕</p> <ul style="list-style-type: none"> <li> Fractions with denominators of 10 can be expressed as an equivalent fraction with a denominator of 100.</li> <li> Fractions with denominators of 10 and 100 may be expressed using decimal notation.</li> <li> When comparing two decimals to hundredths, the comparisons are valid only if they refer to the same whole</li> </ul>	<p><b>Essential Questions</b> ✕</p> <ul style="list-style-type: none"> <li> How can visual models be used to help with understanding decimals?</li> <li> How can visual models be used to determine and compare equivalent fractions and decimals?</li> <li> How would you compare and order decimals through hundredths?</li> </ul>	<p><b>Standards</b> ✕</p> <p>4.NF.C.5 - Understand decimal notation for fractions, and compare decimal fractions ~ 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.</p> <p>4.NF.C.6 - Understand decimal notation for fractions, and compare decimal fractions ~ Use decimal notation for fractions with denominators 10 or 100.</p> <p>4.NF.C.7 - Understand decimal notation for fractions, and compare decimal fractions ~ 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 <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions, e.g., by using a visual model.</p>	<p><b>Knowledge &amp; Skills</b> ✕</p> <ul style="list-style-type: none"> <li> A fraction with a denominator of 10 can also be expressed as an equivalent fraction with a denominator of 100.</li> <li> A number can be represented as both a fraction and a decimal.</li> <li> Decimal comparisons are only valid when the two decimals refer to the same whole.</li> <li> Represent a fraction with denominator 10 as an equivalent fraction with denominator 100. (4.NF.5)</li> <li> Add two fractions with denominators 10 and 100 using manipulatives, pictures, written symbols, and language to explain the process. (4.NF.5)</li> <li> Write fractions with 10 and 100 in the denominator as decimals. (4.NF.6)</li> <li> Compare two decimals to the hundredths using <math>&lt;</math>, <math>&gt;</math>, <math>=</math>. (4.NF.7)</li> <li> Identify if decimal comparisons are valid or invalid and explain why. (4.NF.7)</li> <li> Justify the conclusions using manipulatives, pictures, and/or language. (4.NF.7)</li> </ul>	<p><b>Academic Language</b> ✕</p> <ul style="list-style-type: none"> <li> TIER 2 Decimals Tenths Hundredths Decimal grids</li> </ul>

February

**Grade 4 Math Computation Applications 5-6 weeks**

**Enduring Understandings**

**Essential Questions**

**Standards**

**Knowledge & Skills**

**Academic Language**

- 🏠 Patterns are generated by following a specific rule.
- 🏠 Rounding numbers can be used when estimating answers to real-world problems.
- 🏠 The four operations are interconnected.
- 🏠 The standard algorithm for addition and subtraction relies on adding or subtracting like base-ten units
- 🏠 Converting from larger to smaller units of measurement in the metric system is done by multiplying by powers of ten
- 🏠 Perimeter is a real life application of addition and subtraction.
- 🏠 Area is a real life application of multiplication and division.

- 🏠 What strategies can be used to find rules for patterns and what predictions can the pattern support?
- 🏠 How are the four basic operations related to one another?
- 🏠 How does understanding place value help you solve multi-digit addition and subtraction problems and how can rounding be used to estimate answers to problems?
- 🏠 How are the units of measure within the metric system related?
- 🏠 How do you find the area and perimeter of geometric figures and how can using the formulas for perimeter and area help you solve realworld problems?

- 4.MD.A.1 - Solve problems involving measurement and conversion of measurements ~ 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.
- 4.MD.A.2 - Solve problems involving measurement and conversion of measurements ~ 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.A.3 - Solve problems involving measurement and conversion of measurements ~ Apply the area and perimeter formulas for rectangles in real world and mathematical problems.
- 4.NBT.A.3 - Generalize place value understanding for multi-digit whole numbers ~ Use place value understanding to round multi-digit whole numbers to any place.
- 4.NBT.B.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.
- 4.OA.A.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.
- 4.OA.C.5 - Generate and analyze patterns ~ Generate a number or shape pattern that follows a given rule. Identify apparent features of the

- 🏠 Patterns are generated by following a specific rule. (4.OA.5)
- 🏠 Rounding can be used to estimate reasonable answers for word problems. (4.NBT.3)
- 🏠 How the four operations can be used to solve real-world and mathematical problems. (4.OA.3)
- 🏠 The relative size of measurement units within the metric system. (4.MD.1)
- 🏠 The formula for perimeter of geometric figures. (4.MD.3)
- 🏠 The formula for area of rectangles. (4.MD.3)
- 🏠 Generate a pattern that follows a rule. (4.OA.5)
- 🏠 Given a pattern, identify the rule and extend the pattern and also identify apparent features of a pattern that follows a given rule, which are not explicit in the rule itself. (4.OA.5)
- 🏠 Round multi-digit whole numbers to a given place. (4.NBT.3)
- 🏠 Explain the rounding process using visuals and/or language. (4.NBT.3)
- 🏠 Add and subtract multi-digit whole numbers up to 1,000,000. (4.NBT.4)
- 🏠 Solve multistep word problems posed with whole numbers and having wholenumber answers using the four

- 🏠 TIER 2
- Shape patterns
- Rules
- Variable
- Formula
- 🏠 TIER 3
- Number patterns
- Rounding
- Estimation
- Metric units of measurement
- Distance
- Liquid volume
- Mass
- Perimeter
- Area

		pattern that were not explicit in the rule itself.	operations. (4.OA.3)	
			<p> Represent multi-step word problems using equations with a variable standing for the unknown quantity. (4.OA.3)</p> <p> Assess the reasonableness of answers using mental computation and estimation strategies, including rounding. (4.OA.3)</p> <p> Represent the larger unit of measure in terms of the smaller unit of measure within the metric system, using manipulatives, pictures, language and/or equations. (4.MD.1)</p> <p> Record measurement equivalents in a two-column table. (4.MD.1)</p> <p> Use pictures and equations to represent and solve addition, subtraction, multiplication and division word problems involving measurement, distance, liquid volumes and masses of objects. (4.MD.2)</p> <p> Solve problems involving area and perimeter of rectangles using visuals and equations that represent the formulas for area and perimeter of rectangles. (4.MD.3)</p>	

March	<b>Enduring Understandings</b> ✕	<b>Essential Questions</b> ✕	<b>Standards</b> ✕	<b>Knowledge &amp; Skills</b> ✕	<b>Academic Language</b> ✕
-------	----------------------------------	------------------------------	--------------------	---------------------------------	----------------------------

April	<b>Grade 4 Math 2-Dimensional Geometry</b> 2-4 weeks				
	<b>Enduring Understandings</b> ✕	<b>Essential Questions</b> ✕	<b>Standards</b> ✕	<b>Knowledge &amp; Skills</b> ✕	<b>Academic Language</b> ✕
	<p> Shapes can be classified by properties of their lines and angles.</p> <p> Angles are measured in</p>	<p> What are the types of angles and the relationships?</p> <p> How are angles</p>	<p>4.G.A.1 - Draw and identify lines and angles, and classify shapes by properties of their lines and angles ~ Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-</p>	<p> Points, lines, line segments, rays, right angles, acute angles, obtuse angles, perpendicular lines, parallel lines can be</p>	<p> TIER 2</p> <p>Points End points Lines Line segments</p>

the context of a central angle of a circle.

 Angles are composed of smaller angles

applied in the context of a circle?

 How are parallel lines and perpendicular lines used in classifying two-dimensional shapes?

 How are protractors used to measure and aid in drawing angles and triangles?

 How can an addition or subtraction equation be used to solve a missing angle measure when the whole angle has been divided into two angles and only one measurement is given?

dimensional figures.

4.G.A.2 - Draw and identify lines and angles, and classify shapes by properties of their lines and angles ~ 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.A.3 - Draw and identify lines and angles, and classify shapes by properties of their lines and angles ~ 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.C.5 - Geometric measurement: understand concepts of angle and measure angles ~ Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement

4.MD.C.6 - Geometric measurement: understand concepts of angle and measure angles ~ Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

4.MD.C.7 - Geometric measurement: understand concepts of angle and measure angles ~ 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.

4.MD.C.5a - Geometric measurement: understand concepts of angle and measure angles ~ 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.C.5b - Geometric measurement: understand concepts of angle and measure angles ~ An angle that turns through  $n$  one-degree angles is said to have an angle measure of  $n$  degrees.

identified within 2-dimensional figures. (4.G.1)

 Angles are formed wherever two rays share a common endpoint. (4.MD.5)

 An angle measure is a fraction of circular arc between the points where the two rays intersect the circle. (4.MD.5)

 Benchmark angles and transfer their understanding that a 360 degree rotation about a point makes a complete circle to recognize and sketch angles that measure approximately 90 degree and 180 degree. (4.MD.5)

 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.5)

 Angle measure is additive (4.MD.7)

 A line of symmetry for a two-dimensional figure is a line across the figure such that the figure can be folded along the line into matching parts. (4.G.3)

 Draw points, lines, line segments, rays, right angles, acute angles, obtuse angles, perpendicular lines, and parallel lines. (4.G.1)

 Classify 2-dimensional figures based on the presence or absence of parallel or perpendicular lines and right, acute or obtuse angles. (4.G.2)

 Identify and classify triangles.

Rays  
Angles (right, acute, obtuse)  
Central  
Adjacent angles  
Perpendicular lines  
Parallel lines  
Protractor  
Degrees  
Symmetry  
Right triangle  
Scalene triangle  
Isosceles triangle

 TIER 3

Plane (two-dimensional) figures  
Quadrilaterals  
Square  
Rhombus  
Rectangle  
Circle  
Triangle  
Additive

					<p>Label the categories of triangles (right triangles, scalene, isosceles) (4.G.2)</p> <p> Recognize a line of symmetry for a two-dimensional figure as a fold-line, where the figure can be folded into matching parts. (4.G.3)</p> <p> Determine whether a figure has one or more lines of symmetry and draw lines of symmetry. (4.G.3)</p> <p> Identify the components of an angle and the number of degrees in a circle. (4.MD.5)</p> <p> Use visuals and language to show the relationship between the components of an angle to a circle. (i.e. the center of the circle is the endpoint of the rays of the angle) (4.MD.5)</p> <p> Measure angles in whole-number degrees using a protractor. (4.MD.6)</p> <p> Sketch angles of a specified measure. (4.MD.6)</p> <p> Use diagrams, manipulatives and equations to show that angle measure is additive. (4.MD.7)</p> <p> Solve addition and subtraction problems to find unknown angles on a diagram of adjacent angles. (non-overlapping angles) (4.MD.7)</p>	
May	Enduring Understandings 	Essential Questions 	Standards		Knowledge & Skills 	Academic Language 
June	Enduring Understandings 	Essential Questions 	Standards		Knowledge & Skills 	Academic Language 