Fifth Grade Mathematics Goals

Operations & Algebraic Thinking				
Standard	**Mastery Expectations**	**First Trimester Goal**	**Second Trimester Goal**	**Third Trimester Goal**
5.OA.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	Use one set of grouping symbols in an expression to model a real-world situation. Evaluate an expression that contains a single set of grouping symbols. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	Ongoing practice and application.	
5.OA.2	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.	Write simple expressions to model situations in which no more than two operations are involved. Reason about the relative value of simple expressions without evaluating them. Write expressions using whole numbers and all four operations to model mathematical and real-world situations. Interpret numerical expressions involving whole numbers without evaluating them.	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.	Ongoing practice and application.
5.OA.3	Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting		Form ordered pairs from data represented in a table with reminders about the conventions of using parentheses to enclose the	Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting

	of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.		ordered pairs and commons to separate the numbers in an ordered pair. Graph ordered pairs on a coordinate grid.	of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.
Number & Operations in Base 10				
Standard	**Mastery Expectations**	**First Trimester Goal**	**Second Trimester Goal**	**Third Trimester Goal**
5.NBT.1	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.	Use place-value understanding to write whole numbers in expanded form. Identify the values of digits in a given whole number. Write whole numbers in which digits represent given values. Recognize that in a multi-digit number, a digit in one place represents 10 times what it represents in the place to its right.	Recognize that in multi-digit whole numbers, a digit in one place represents 10 times what it represents in the place to its right and 1/10 of what it represents in the place to its left. Recognize that place-value patterns in whole numbers extend to decimals.	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.
5.NBT.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole number exponents to denote powers of 10.	Translate between powers of 10 in exponential notation and standard notation. Correctly multiply a whole number by a power of ten. Notice patterns in the number of zeros in a product when multiplying a whole number by a power of ten.	Use whole-number exponents to denote powers of 10. Correctly multiply whole numbers by powers of 10. Describe patterns in the number of zeros in a product when multiplying a whole number by a power of 10. Use whole number exponents to denote powers of 10. Multiply whole numbers by powers of 10 and explain the number of zeros in the product.	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole number exponents to denote powers of 10.

			Multiply or divide a decimal by a power of 10 when no more than one place holder zero is necessary to write the product or quotient.	
5.NBT.3	Read, write, and compare decimals to thousandths.		Read, write, and compare decimals to thousandths.	Ongoing practice and application.
5.NBT.3a	Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.		Represent decimals through thousandths by shading grids. Read and write decimals through thousandths with no placeholder zeros. Read and write decimals in expanded form as sums of decimals. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.	Ongoing practice and application.
5.NBT.3b	Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, < symbols to record the results of comparisons.		Use grids or place-value charts to compare and order decimals through thousandths when the decimals have the same number of digits after the decimal point. Record comparisons using >, =, and < symbols. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, < symbols to record the results of comparisons.	Ongoing practice and application.
5.NBT.4	Use place value understanding to round decimals to any place.		Use grids, number lines, or a rounding shortcut to round decimals to the nearest tenth	Use place value understanding to round decimals to any place.

			or hundredth in cases when rounding only affects one digit.	
5.NBT.5	Fluently multiply multi-digit whole numbers using the standard algorithm.	Use a strategy to multiply whole numbers. Understand the basic steps of the U.S. traditional multiplication algorithm and successfully apply it to 1-digit by multi-digit problems and 2-digit by 2-digit problems in which one factor is less than 20.	Use the U.S. traditional multiplication algorithm to solve 2-digit by 2-digit multiplication problems. Use the U.S. traditional multiplication algorithm to solve multi-digit by 2-digit multiplication problems in which only one digit in the second factor requires writing digits above the line.	Fluently multiply multi-digit whole numbers using the standard algorithm.
5.NBT.6	Find the whole-number quotients of whole numbers with up to four-digit dividends and two 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.	Use the partial-quotients algorithm with up to 3-digit dividends and 1-digit or simple 2-digit divisors. Make connections between written partial-quotients work and a given area model representing the same solution.	Use the partial quotients algorithm with up to 3-digit dividends and 1- or 2-digit divisors. Interpret the remainder of division problems in context, and explain the reasoning. Complete area models to represent solutions to division problems.	Find the whole-number quotients of whole numbers with up to four-digit dividends and two 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.
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 strategy to a written method and explain the reasoning used.		Use grids to add and subtract decimals. Use algorithms to add and subtract decimals through tenths with regrouping and through hundredths without regrouping. Add and subtract decimals to hundredths using models or strategies.	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 strategy to a written method and explain the reasoning used.

			Estimate and find products of decimals when both factors are greater than 1. Estimate and find quotients of decimals when the dividend is greater than 1 and the divisor is a whole number.	
Number & Operations – Fraction				
Standard	**Mastery Expectations**	**First Trimester Goal**	**Second Trimester Goal**	**Third Trimester Goal**
5.NF.1	Add and subtract fractions with unlike denominators by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.		Use tools or visual models to add fractions or mixed numbers with unlike denominators when only one fraction needs to be replaced with an equivalent fraction. Use tools, visual models, or a strategy to add fractions and mixed numbers with unlike denominators when a common denominator is not difficult to find. Use tools, visual models, or a strategy to subtract fractions and mixed numbers when one of the following is required, but not both: finding a common denominator, or renaming the starting number to have a larger fractional part.	Add and subtract fractions with unlike denominators by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.
5.NF.2	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators. Use benchmark fractions to estimate mentally and assess the reasonableness of answers.		Use tools or visual models to solve number stories involving addition and subtraction of fractions and mixed numbers with like denominators. Use tools, visual models, or equations to solve number stories involving addition and subtraction of fractions and	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators. Use benchmark fractions to estimate mentally and assess the reasonableness of answers.

			mixed numbers with like denominators. Use tools, visual models, or a strategy to solve number stories involving addition of fractions and mixed numbers with unlike denominators when a common denominator is not difficult to find. Use tools, visual models or a strategy to solve number stories involving subtraction of fractions and mixed numbers when one of the following is required but not both: finding a common denominator; or renaming the starting number to have a larger fractional part.	
5.NF.3	Interpret a fraction as division of the numerator by the denominator. Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.		Recognize that a fraction a/b is the result of dividing a by b. Use tools and visual models to solve whole-number division number stories that have fraction or mixed-number answers. Rename mixed numbers and fractions greater than one.	Interpret a fraction as division of the numerator by the denominator. Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.
5.NF.4	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.		Use tools and visual models to solve fraction-of problems involving a unit fraction and a whole number. Understand the relationship between fraction-of problems and fraction multiplication.	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

			Use tools and visual models to multiply a fraction by a whole number. Use tools and visual models to multiply a fraction by a fraction.	
5.NF.4a	Interpret the product (a/b) x q as a parts of a partition of q into b equal parts; equivalently as the result of a sequence of operations a x q divided by b.		Find a unit fraction of a whole number by partitioning the whole number into the appropriate number of parts and taking one of the parts. Recognize the relationship between the denominator of the unit fraction and the number of parts when partitioning the whole number. Interpret (1/b) x q as 1 part of a partition of q into b equal parts. Find a fraction of a whole number, when the answer is a whole number, by partitioning the whole number into equal parts and taking the appropriate number of parts or by multiplying the whole number by the numerator of the fraction and dividing by the denominator of the fraction. Use paper-folding and other visual representations to partition a fraction into equal parts and find the value of one or more parts. Connect fraction of problems to fraction multiplication.	Interpret the product (a/b) x q as a parts of a partition of q into b equal parts; equivalently as the result of a sequence of operations a x q divided by b.

5.NF.4b	Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	Find the area of a rectangle with one fractional side length by tiling it with unit squares of side length 1 and counting full and partial squares. Understand that unit squares with fractional side lengths can be used to measure area, but that the count of unit squares with fractional side lengths is different from the measure of area in square units.		Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
5.NF.5	Interpret multiplication as scaling (resizing)			Interpret multiplication as scaling (resizing)
5.NF.5a	Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.			Predict that a product of a whole number and a fraction less than 1 will be less than the whole number, without performing the indicated multiplication. Predict that the product of a whole number or a fraction multiplied by a fraction equal to 1 will be equal to the original whole number or fraction.
5.NF.5b	Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number; explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence a/b = (nxa)/(nxb) to the effect of multiplying a/b by 1.			Explain why multiplying a given number by a fraction less than 1 results in a product smaller than the given number. Understand that multiplying by a fraction by another fraction equal to 1 creates an equivalent fraction. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number; explaining why

				multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence a/b = (nxa)/(nxb) to the effect of multiplying a/b by 1.
5.NF.6	Solve real world problems involving multiplication of fractions and mixed numbers.		Use tools and visual models to solve real world fraction-of problems with unit fractions and whole numbers. Use tools and models to solve real-world problems involving multiplication of fractions by whole numbers or fractions by fractions. Represent fraction multiplication problems with number sentences.	Solve real world problems involving multiplication of fractions and mixed numbers.
5.NF.7	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.			Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
5.NF.7a	Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.			Use models to solve problems involving division of a unit fraction by a whole number when the problems are in context. Use fraction multiplication to check the quotient of a division problem involving division of a unit fraction by a whole number. Interpret division of a unit fraction by a non-zero whole

				number, and compute such quotients.
5.NF.7b	Interpret division of a whole number by a unit fraction, and compute such quotients.			Use models to solve problems involving division of a whole number by a unit fraction when the problems are in context. Use fraction multiplication to check the quotient of a division problem involving division of a whole number by a unit fraction. Interpret division of a whole number by a unit fraction, and compute such quotients.
5.NF.7c	Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions.			Use models to solve number stories involving division of a unit fraction by a whole number or division of a whole number by a unit fraction. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions.
Measurement & Data				
Standard	**Mastery Expectations**	**First Trimester Goal**	**Second Trimester Goal**	**Third Trimester Goal**
5.MD.1	Convert among different sized standard measurement units within a given measurement system and use these conversions in solving multi-step, real world problems.	Perform one-step unit conversions within the same measurement system. Use conversions to solve real-world problems when necessary conversions are identified.	Perform one-step and multi-step unit conversions within the same measurement system, using a resource as necessary to identify difficult measurement equivalents. Use conversions to solve multi-step, real world problems when necessary conversions are identified.	Convert among different sized standard measurement units within a given measurement system and use these conversions in solving multi-step, real world problems.

			Perform one-step and multi-step conversions within the same measurement system. Use conversions to solve multi-step, real-world problems, using a resource as necessary to identify difficult measurement equivalents.	
5.MD.2	Make a line plot to display a data set of measurements in fractions of a unit. Use operations on fractions for this grade to solve problems involving information presented in line plots.			Place fractional data on a line plot when the number line and scale are provided. Use information in line plots to solve single-step problems. Make a line plot to display a data set of measurements in fractions of a unit. Use operations on fractions for this grade to solve problems involving information presented in line plots.
5.MD.3	Recognize volume as an attribute of solid figures and understand concepts of volume measurement.	Recognize volume as an attribute of open, three-dimensional figures.	Ongoing practice and application.	
5.MD.3a	A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.	Understand that cubes are a good unit with which to measure volume because all the edge lengths of a cube are the same. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.	Ongoing practice and application.	
5.MD.3b	A solid figure which can be packed without gaps or overlaps using n unit cubes is	Use unit cubes to pack a solid figure without gaps or overlaps.	Ongoing practice and application	

	said to have a volume of n cubic units.	A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.	
5.MD.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	Find the volume of fully-packed and partially-packed right rectangular prisms by counting unit cubes. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	Ongoing practice and application
5.MD.5	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.	Ongoing practice and application
5.MD.5a	Find the volume of a right rectangular prism with whole number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height of the area of the base. Represent threefold whole-number products as volumes.	Understand that packing with unit cubes and multiplying dimensions are two strategies for finding the volume of a right rectangular prism. Use number sentences to represent the volume of a right rectangular prism, when given a formula and whole number dimensions. Find the volume of a right rectangular prism with whole number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height of the area of the base. Represent threefold whole-number products as volumes.	Ongoing practice and application.

5.MD.5c	Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.	Find volumes of figures composed of right rectangular prisms, when given volume formulas and a clearly labeled representation. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.	Ongoing practice and application	
Geometry				
Standard	**Mastery Expectations**	**First Trimester Goal**	**Second Trimester Goal**	**Third Trimester Goal**
5.G.1	Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond.		Understand that an ordered pair of numbers identifies an exact location on a coordinate grid. Use coordinates to graph points and to name, graphed points in the first quadrant of the coordinate plan. Make reasonable attempts to explain why an ordered pair of numbers identifies an exact location on a coordinate grid, using terms like origin, x-axis, y-axis, and coordinates. Use coordinates to graph points and to name graphed points in the first quadrant of the coordinate plane.	Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond.
5.G.2	Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate		Understand that information from some real-world and mathematical problems can be represented as ordered pairs	Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate

	values of points in the context of the situation.		and graphed on a coordinate grid. Plot points to represent given information. Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane. Make reasonable attempts to interpret coordinate values of points in context.	values of points in the context of the situation.
5.G.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.			Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.
5.G.4	Classify two dimensional figures in a hierarchy based on properties.			Classify two dimensional figures in a hierarchy based on properties.