

Grade 5: Standard 1- Mathematical Processes

Grade Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>GLE 0506.1.1 Use mathematical language, symbols, and definitions while developing mathematical reasoning.</p> <p>GLE 0506.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution.</p> <p>GLE 0506.1.3 Develop independent reasoning to communicate mathematical ideas and derive algorithms and/or formulas.</p> <p>GLE 0506.1.4 Move flexibly between concrete and abstract representations of mathematical ideas in order to solve problems, model mathematical ideas, and communicate solution strategies.</p> <p>GLE 0506.1.5 Use mathematical ideas and processes in different settings to formulate patterns, analyze graphs, set up and solve problems and interpret</p>	<p>√ 0506.1.1 Make and test conjectures about geometric properties and develop logical arguments to justify conclusions.</p> <p>√ 0506.1.2 Make reasonable estimates of fraction and decimal sums or differences using models.</p> <p>√ 0506.1.3 Explore different methods of estimation including rounding and truncating.</p> <p>√ 0506.1.4 Explore problems in different contexts to interpret the meaning of remainders as discrete values or not.</p> <p>√ 0506.1.5 Solve problems in more than one way and explain why one process may be more effective than another.</p> <p>√ 0506.1.6 Communicate answers in correct verbal and numerical form; including use of mixed numbers or fractions and use of units.</p> <p>√ 0506.1.7 Organize and consolidate verbal statements</p>	<p>SPI 0506.1.1 Given a series of geometric statements, draw a conclusion about the figure described.</p> <p>SPI 0506.1.2 Estimate fraction and decimal sums or differences.</p> <p>SPI 0506.1.3 Recognize the unit associated with the remainder in a division problem or the meaning of the fractional part of a whole given in either decimal or fraction form.</p> <p>SPI 0506.1.4 Identify missing information and/or too much information in contextual problems.</p>	<p>3A</p> <p>2A</p> <p>2A</p> <p>1B</p>

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<p>solutions.</p> <p>GLE 0506.1.6 Read and interpret the language of mathematics and use written/oral communication to express mathematical ideas precisely.</p> <p>GLE 0506.1.7 Recognize the historical development of mathematics, mathematics in context, and the connections between mathematics and the real world.</p> <p>GLE 0506.1.8 Use technologies/manipulatives appropriately to develop understanding of mathematical algorithms, to facilitate problem solving, and to create accurate and reliable models of mathematical concepts.</p>	<p>involving fractions and mixed numbers into diagrams, symbols, and numerical expressions.</p> <p>√ 0506.1.8 Use patterns, models, and relationships as contexts for writing inequalities and simple equations.</p> <p>√ 0506.1.9 Use age-appropriate books, stories, and videos to convey ideas of mathematics.</p>		
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Grade 5: Standard 2- Number and Operations

Grade Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>GLE 0506.2.1 Extend the understanding of place value through millions and millionths in various contexts and representations.</p> <p>GLE 0506.2.2 Write natural numbers (to 50) as a product of prime factors and understand that this is unique (apart from order).</p> <p>GLE 0506.2.3 Develop fluency with division of whole numbers. Understand the relationship of divisor, dividend, and quotient in terms of multiplication and division.</p> <p>GLE 0506.2.4 Develop fluency with addition and subtraction of proper and improper fractions and mixed numbers; explain and model the algorithm.</p> <p>GLE 0506.2.5 Develop fluency in solving multi-step problems using whole numbers, fractions, mixed numbers, and decimals.</p>	<p>√ 0506.2.1 Identify prime numbers up to 50.</p> <p>√ 0506.2.2 Use the prime factorization of two whole numbers to determine the greatest common factor and the least common multiple.</p> <p>√ 0506.2.3 Use visual models, benchmarks, and equivalent forms to add and subtract commonly used fractions and decimals.</p> <p>√ 0506.2.4 Use divisibility rules to factor numbers.</p> <p>√ 0506.2.5 Make reasonable estimates of fraction and decimal sums and differences.</p> <p>√ 0506.2.6 Add and subtract mixed numbers.</p> <p>√ 0506.2.7 Understand the placement of the decimal point in calculations of multiplication and long division, including the placement in the estimation of the answer.</p>	<p>SPI 0506.2.1 Read and write numbers from millions to millionths in various contexts.</p> <p>SPI 0506.2.2 Write the prime factorization of numbers through 50 using both exponential and standard notation.</p> <p>SPI 0506.2.3 Select a reasonable solution to a real-world division problem in which the remainder must be considered.</p> <p>SPI 0506.2.4 Solve problems involving the division of two- and three-digit whole numbers by one- and two-digit whole numbers.</p> <p>SPI 0506.2.5 Solve addition and subtraction problems involving both fractions and decimals.</p> <p>SPI 0506.2.6 Add and subtract proper and improper fractions as well as mixed numbers.</p> <p>SPI 0506.2.7 Recognize equivalent representations for the same number.</p>	<p>1A</p> <p>1B</p> <p>1A</p> <p>1A</p> <p>1B & 2A</p> <p>2A</p> <p>1A</p> <p>2A</p>

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	<p>√ 0506.2.8 Understand that division by zero is undefined.</p> <p>√ 0506.2.9 Explore numbers less than 0 by extending the number line through familiar applications (e.g., temperatures below zero, owing money, measuring elevation below sea level).</p> <p>√ 0506.2.10 Use exponential notation to represent repeated multiplication of whole numbers.</p>	<p>SPI 0506.2.8 Write terminating decimals in the form of fractions or mixed numbers.</p> <p>SPI 0506.2.9 Compare whole numbers, decimals, and fractions using the symbols $<$, $>$, and $=$.</p>	1A
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Grade 5: Standard 3- Algebra

Grade Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>GLE 0506.3.1 Understand and use order of operations.</p>	<p>√ 0506.3.1 Evaluate an expression by substituting non-negative rational number values for letter variables in the expression.</p>	<p>SPI 0506.3.1 Evaluate algebraic expressions involving decimals and fractions using order of operations.</p>	<p>2B</p>
<p>GLE 0506.3.2 Develop and apply the concept of variable.</p>	<p>√ 0506.3.2 Use variables appropriately to represent numbers whose values are not yet known.</p>	<p>SPI 0506.3.2 Evaluate multi-step numerical expressions involving fractions using order of operations.</p>	<p>2B</p>
<p>GLE 0506.3.3 Understand and apply the substitution property.</p>	<p>√ 0506.3.3 Solve single-step linear equations using inverse operations.</p>	<p>SPI 0506.3.3 Find the unknown in single-step equations involving fractions and mixed numbers.</p>	<p>2B</p>
<p>GLE 0506.3.4 Solve single-step linear equations and inequalities.</p>	<p>√ 0506.3.4 Solve single-step linear inequalities and graph solutions on a number line.</p> <p>√ 0506.3.5 Determine if a given value is a solution to a linear equation/inequality.</p> <p>√ 0506.3.6 Recognize there are many numbers between any two whole numbers on the number line.</p>	<p>SPI 0506.3.4 Given a set of values, identify those that make an inequality a true statement.</p>	<p>2B</p>

Grade 5: Standard 4- Geometry and Measurement

Grade Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>GLE 0506.4.1 Use basic formulas and visualization to find the area of geometric figures.</p>	<p>√ 0506.4.1 Develop the formula for the area of a triangle as it relates to the area of a parallelogram/rectangle.</p>	<p>SPI 0506.4.1 Solve contextual problems that require calculating the area of triangles and parallelograms.</p>	<p>3B</p>
<p>GLE 0506.4.2 Describe polyhedral solids and analyze their properties, including volume and surface area.</p>	<p>√ 0506.4.2 Find the area of a convex polygon by decomposing it into triangles/rectangles.</p>	<p>SPI 0506.4.2 Decompose irregular shapes to find perimeter and area.</p>	<p>3B</p>
<p>GLE 0506.4.3 Describe length/distance relationships using the first quadrant of the coordinate system.</p>	<p>√ 0506.4.3 Build, draw, and work with prisms by means of orthogonal views, projective views, and nets.</p>	<p>SPI 0506.4.3 Identify a three-dimensional object from two-dimensional representations of that object and vice versa.</p>	<p>3A</p>
<p>GLE 0506.4.4 Solve problems that require attention to both approximation and precision of measurement.</p>	<p>√ 0506.4.4 Describe and identify the five regular (Platonic) solids and their properties with respect to faces, shapes of faces, edges, and vertices.</p>	<p>SPI 0506.4.4 Solve problems involving surface area and volume of rectangular prisms and polyhedral solids.</p>	<p>3B</p>
	<p>√ 0506.4.5 Quantify total volume as filling space with same-sized units of volume without gaps or overlap.</p>	<p>SPI 0506.4.5 Find the length of vertical or horizontal line segments in the first quadrant of the coordinate system, including problems that require the use of fractions and decimals.</p>	<p>3A</p>
	<p>√ 0506.4.6 Decompose prisms to calculate surface area and volume.</p>	<p>SPI 0506.4.6 Record measurements in context to a reasonable degree of accuracy using decimals and/or fractions.</p>	

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	<p>√ 0506.4.7 Understand, select, and use units of appropriate size and type to measure angles, lengths/distances, area, surface area and volume.</p> <p>√ 0506.4.8 Identify characteristics of the set of points that define vertical and horizontal line segments.</p> <p>√ 0506.4.9 Correctly interpret significant digits in the accuracy of measurements and associated calculations.</p> <p>√ 0506.4.10 Recognize that measurements are never exact.</p> <p>√ 0506.4.11 Understand the usefulness of approximations.</p> <p>√ 0506.4.12 Develop strategies for choosing correct tools of measurement.</p> <p>√ 0506.4.13 Recognize and use measures of weight and temperature.</p>		
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Grade 5: Standard 5- Data, Probability, and Statistics

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Grade Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>GLE 0506.5.1 Make, record, display and interpret data and graphs that include whole numbers, decimals, and fractions.</p> <p>GLE 0506.5.2 Describe the shape and important features of a set of data using the measures of central tendency.</p>	<p>√ 0506.5.1 Construct and analyze double bar and line graphs.</p> <p>√ 0506.5.2 Represent data using ordered pairs in the first quadrant of the coordinate system.</p> <p>√ 0506.5.3 Design investigations to address a question and consider how data collection methods affect the nature of the data set.</p> <p>√ 0506.5.4 Recognize the differences in representing categorical and numerical data.</p> <p>√ 0506.5.5 Evaluate how different measures of central tendency describe data.</p> <p>√ 0506.5.6 Identify outliers and determine their effect on mean, median, mode, and range.</p>	<p>SPI 0506.5.1 Depict data using various representations, including decimal and/or fractional data.</p> <p>SPI 0506.5.2 Make predictions based on various data representations, including double bar and line graphs.</p> <p>SPI 0506.5.3 Calculate measures of central tendency to analyze data.</p>	<p>1B and 2A</p> <p>1B</p> <p>1B</p>

Grade 6: Standard 1- Mathematical Processes

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Grade Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>GLE 0606.1.1 Use mathematical language, symbols, and definitions while developing mathematical reasoning.</p> <p>GLE 0606.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution.</p> <p>GLE 0606.1.3 Develop independent reasoning to communicate mathematical ideas and derive algorithms and/or formulas.</p> <p>GLE 0606.1.4 Move flexibly between concrete and abstract representations of mathematical ideas in order to solve problems, model mathematical ideas, and communicate solution strategies.</p> <p>GLE 0606.1.5 Use mathematical ideas and processes in different settings to formulate patterns, analyze graphs, set up and solve problems and interpret solutions.</p> <p>GLE 0606.1.6 Read and interpret the language of mathematics and use written/oral</p>	<p>√ 0606.1.1 Recognize different conventions used in calculator and computer spreadsheets (e.g., * for multiplication, ^ for exponent), but use mathematical notation in written work.</p> <p>√ 0606.1.2 Recognize when an estimate is more appropriate than an exact answer in a variety of problem situations.</p> <p>√ 0606.1.3 Recognize errors generated in rounding.</p> <p>√ 0606.1.4 Describe how changes in one quantity or variable result in changes in another.</p> <p>√ 0606.1.5 Illustrate properties of operations by showing that two expressions are equivalent in a given context (e.g., using an area model for distributive property, and grouping/set models for commutative and associative properties).</p> <p>√ 0606.1.6 Model situations by devising and carrying out experiments and simulations.</p> <p>√ 0606.1.7 Formulate questions, design studies, and collect real world data.</p>	<p>SPI 0606.1.1 Make conjectures and predictions based on data.</p> <p>SPI 0606.1.2 Judge the reasonableness of the results of rational number estimates and/or computations.</p> <p>SPI 0606.1.3 Use concrete, pictorial, and symbolic representation for integers.</p> <p>SPI 0606.1.4 Select the representation that models one of the arithmetic properties (commutative, associative, or distributive).</p> <p>SPI 0606.1.5 Model algebraic expressions using algebra tiles.</p>	<p style="text-align: center;">3B</p> <p style="text-align: center;">2A</p> <p style="text-align: center;">3A</p> <p style="text-align: center;">2A & 2B</p> <p style="text-align: center;">1A & 1B</p>

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<p>communication to express mathematical ideas precisely.</p> <p>GLE 0606.1.7 Recognize the historical development of mathematics, mathematics in context, and the connections between mathematics and the real world.</p> <p>GLE 0606.1.8 Use technologies/manipulatives appropriately to develop understanding of mathematical algorithms, to facilitate problem solving, and to create accurate and reliable models of mathematical concepts.</p>	<p>√ 0606.1.8 Determine an appropriate sample to test a hypothesis.</p> <p>√ 0606.1.9 Use age-appropriate books, stories, and videos to convey ideas of mathematics.</p> <p>√ 0606.1.10 Use various methods (such as dynamic geometry software) to explore properties of triangles and quadrilaterals.</p> <p>√ 0606.1.11 Model algebraic expressions with manipulatives, technology, and pencil and paper.</p>		
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Grade 6: Standard 2- Number and Operations

Grade Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>GLE 0606.2.1 Understand and explain the procedures for multiplication and division of fractions, mixed numbers, and decimals.</p>	<p>√ 0606.2.1 Efficiently compare and order fractions, decimals and percents; determine their approximate locations on a number line.</p>	<p>SPI 0606.2.1 Solve problems involving the multiplication and division of fractions.</p>	<p>2A & 2B</p>
<p>GLE 0606.2.2 Solve multi-step mathematical, contextual and verbal problems using fractions, mixed numbers, and decimals.</p>	<p>√ 0606.2.2 Use area models to represent multiplication of fractions.</p>	<p>SPI 0606.2.2 Solve problems involving the addition, subtraction, multiplication, and division of mixed numbers.</p>	<p>2A & 2B</p>
<p>GLE 0606.2.3 Understand and use ratios, rates and percents.</p>	<p>√ 0606.2.3 Create and solve contextual problems that lead naturally to division of fractions.</p>	<p>SPI 0606.2.3 Solve problems involving the addition, subtraction, multiplication, and division of decimals.</p>	<p>2A & 2B</p>
<p>GLE 0606.2.4 Understand and convert between fraction, decimal, and percent forms of rational numbers.</p>	<p>√ 0606.2.4 Understand ratio as a fraction used to compare two quantities by division.</p>	<p>SPI 0606.2.4 Solve multi-step arithmetic problems using fractions, mixed numbers, and decimals.</p>	<p>2A & 2B</p>
<p>GLE 0606.2.5 Develop meaning for integers; represent and compare quantities with integers.</p>	<p>√ 0606.2.5 Recognize a:b, a/b, and “a to b” as notations for ratios.</p>	<p>SPI 0606.2.5 Transform numbers from one form to another (fractions, decimals, percents, and mixed numbers).</p>	<p>2A & 2B</p>
	<p>√ 0606.2.6 Recognize common percentages as ratios based on fractions whose denominators are 2, 3, 4, 5, or 10.</p>	<p>SPI 0606.2.6 Solve problems involving ratios, rates and percents.</p>	<p>1A, 1B, & 2A</p>
	<p>√ 0606.2.7 Connect ratio and rate to multiplication and division.</p>	<p>SPI 0606.2.7 Locate positive rational numbers on the number line.</p>	<p>1A, 1B, & 2A</p>

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√ **0606.2.8** Recognize that a terminating decimal equals a fraction with a denominator that is a power of ten.

√ **0606.2.9** Recognize that the decimal form of a rational number either terminates or repeats.

√ **0606.2.10** Explore contexts that can be described with negative numbers (such as money, elevation, and temperature).

SPI 0606.2.8 Locate integers on the number line.

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	<p>verbal, tabular, numerical, algebraic, and graphical) of equations and expressions.</p> <p>√ 0606.3.8 Represent patterns using words, graphs, and simple symbolic notation.</p> <p>√ 0606.3.9 Write a contextual story modeled by a given graph.</p> <p>√ 0606.3.10 Understand that in an ordered pair (x, y), the x represents horizontal location and y represents vertical location.</p> <p>√ 0606.3.11 Identify the quadrant of the coordinate system in which a point lies.</p>	<p>SPI 0606.3.9 Graph ordered pairs of integers in all four quadrants of the Cartesian coordinate system.</p>	
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Grade 6: Standard 4- Geometry and Measurement

Grade Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>GLE 0606.4.1 Understand and use basic properties of triangles, quadrilaterals, and other polygons.</p>	<p>√ 0606.4.1 Investigate the sum of the angles in a triangle and a quadrilateral using various methods.</p>	<p>SPI 0606.4.1 Identify, define or describe geometric shapes given a visual representation or a written description of its properties.</p>	<p>3A & 3B</p>
<p>GLE 0606.4.2 Use the concepts of translation, rotation, reflection, and symmetry to understand congruence in the plane.</p>	<p>√ 0606.4.2 Relate the sum of the angles in a triangle to the sum of the angles in polygons.</p>	<p>SPI 0606.4.2 Find a missing angle measure in problems involving interior/exterior angles and/or their sums.</p>	<p>3A & 3B</p>
<p>GLE 0606.4.3 Develop and use formulas to determine the circumference and area of circles, and the area of trapezoids, and develop strategies to find the area of composite shapes.</p>	<p>√ 0606.4.3 Verify the basic properties of triangles and quadrilaterals using a protractor and ruler.</p>	<p>SPI 0606.4.3 Solve problems using the Triangle Inequality Theorem.</p>	<p>3A & 3B</p>
<p>GLE 0606.4.4 Develop and use formulas for surface area and volume of 3-dimensional figures.</p>	<p>√ 0606.4.4 Classify triangles by side lengths (scalene, isosceles, and equilateral) and angle measure (acute, right, obtuse, isosceles and equiangular).</p> <p>√ 0606.4.5 Model and use the Triangle Inequality Theorem.</p> <p>√ 0606.4.6 Use the properties of interior and exterior angles of polygons to solve problems.</p> <p>√ 0606.4.7 Work with</p>	<p>SPI 0606.4.4 Calculate with circumferences and areas of circles.</p> <p>SPI 0606.4.5 Determine the surface area and volume of prisms, pyramids, and cylinders.</p> <p>SPI 0606.4.6 Given the volume of a cone/pyramid, find the volume of the related cylinder/prism or vice versa.</p>	<p>3A & 3B</p>

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transformations in a plane and explore their meanings through drawings and manipulatives.

√ **0606.4.8** Understand scaling, dilation, and their relation to similarity.

√ **0606.4.9** Analyze the differences between congruence and similarity.

√ **0606.4.10** Describe the effect of a transformation on a 2-dimensional figure and the resulting symmetry.

√ **0606.4.11** Relate the circumference of a circle with the perimeter of a polygonal figure.

√ **0606.4.12** Derive the meaning of Pi using concrete models and/or appropriate technology.

√ **0606.4.13** Understand the relationships among the radius, diameter, circumference and area of a circle, and that the ratio of the circumference to the diameter is the same as the ratio of the area to the square of the radius, and that this ratio is called Pi.

√ **0606.4.14** Relate the area of a trapezoid to the area of a parallelogram.

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	<p>√ 0606.4.15 Find lengths given areas or volumes, and vice versa.</p> <p>√ 0606.4.16 Solve contextual problems involving area and circumference of circles, surface areas and volumes of prisms, pyramids, cones, and cylinders.</p> <p>√ 0606.4.17 Use manipulatives to discover the volume of a pyramid is one-third the volume of the related prism (the heights and base areas are equal).</p> <p>√ 0606.4.18 Use manipulatives to discover the volume of a cone is one-third the volume of the related cylinder (the heights and base areas are equal).</p>		
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Grade 6: Standard 5- Data Analysis, Statistics, and Probability

Grade Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>GLE 0606.5.1 Understand the meaning of probability and how it is expressed.</p> <p>GLE 0606.5.2 Interpret representations of data from surveys and polls, and describe sample bias and how data representations can be misleading.</p>	<p>√ 0606.5.1 Understand that the probability of an event is a number between zero and one that expresses the likelihood of its occurrence.</p> <p>√ 0606.5.2 Identify the probability of an event as the ratio of the number of its actual occurrences to the total number of its possible occurrences.</p> <p>√ 0606.5.3 Express probabilities in different ways.</p> <p>√ 0606.5.4 Understand the difference between probability and odds.</p> <p>√ 0606.5.5 Analyze a situation that involves probability of an independent event.</p> <p>√ 0606.5.6 Estimate the probability of simple and compound events through experimentation or simulation.</p>	<p>SPI 0606.5.1 Determine the theoretical probability of simple and compound events in familiar contexts.</p> <p>SPI 0606.5.2 Identify features of graphs that may be misleading.</p> <p>SPI 0606.5.3 Determine whether or not a sample is biased.</p>	<p>3B</p> <p>3B</p> <p>3B</p>

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	<p>√ 0606.5.7 Apply procedures to calculate the probability of complimentary events.</p> <p>√ 0606.5.8 Connect data sets and their graphical representations (such as bar graphs, circle graphs, and stem-and-leaf plots).</p> <p>√ 0606.5.9 Determine the sample space for a given situation.</p> <p>√ 0606.5.10 Distinguish between a random and non-random sample.</p> <p>√ 0606.5.11 Select the appropriate measure of center to describe a data set.</p> <p>√ 0606.5.12 Predict the characteristics of a population based on the analysis of sample data.</p>		
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Grade 7: Standard 1- Mathematical Processes

Grade Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>GLE 0706.1.1 Use mathematical language, symbols, and definitions while developing mathematical reasoning.</p> <p>GLE 0706.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution.</p> <p>GLE 0706.1.3 Develop independent reasoning to communicate mathematical ideas and derive algorithms and/or formulas.</p> <p>GLE 0706.1.4 Move flexible between concrete and abstract representations of mathematical ideas in order to solve problems, model mathematical ideas, and communicate solution strategies.</p> <p>GLE 0706.1.5 Use mathematical ideas and processes in different settings to formulate patterns, analyze graphs, set up and</p>	<p>√ 0706.1.1 Recognize common abbreviations (such as gcd/gcf and lcm).</p> <p>√ 0706.1.2 Recognize round-off error and the inaccuracies it introduces.</p> <p>√ 0706.1.3 Check answers both by estimation and by appropriate independent calculations, using calculators or computers judiciously.</p> <p>√ 0706.1.4 Recognize quantities that are inversely proportional (such as the relationship between the lengths of the base and the side of a rectangle with fixed area).</p> <p>√ 0706.1.5 Understand that a linear function in which $f(0)=0$ is called a directly proportional relationship.</p> <p>√ 0706.1.6 Develop meaning of intercept and rate of change in contextual problems.</p>	<p>SPI 0706.1.1 Use proportional reasoning to solve mixture/concentration problems.</p> <p>SPI 0706.1.2 Generalize a variety of patterns to a symbolic rule from tables, graphs, or words.</p> <p>SPI 0706.1.3 Recognize whether information given in a table, graph, or formula suggests a directly proportional, linear, inversely proportional, or other nonlinear relationship.</p> <p>SPI 0706.1.4 Use scales to read maps.</p>	<p>2A & 2B</p> <p>3A</p> <p>2A & 2B</p> <p>2A & 2B</p>

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<p>solve problems and interpret solutions.</p> <p>GLE 0706.1.6 Read and interpret the language of mathematics and use written/oral communication to express mathematical ideas precisely.</p> <p>GLE 0706.1.7 Recognize the historical development of mathematics, mathematics in context, and the connections between mathematics and the real world.</p> <p>GLE 0706.1.8 Use technologies/manipulatives appropriately to develop understanding of mathematical algorithms, to facilitate problem solving, and to create accurate and reliable models of mathematical concepts.</p>	<p>√ 0706.1.7 Explain and demonstrate how scale in maps and drawings shows relative size and distance.</p> <p>√ 0706.1.8 Recognize the applications of scale factor by exploring blueprints, shadow measuring, and scale models.</p> <p>√ 0706.1.9 Use age-appropriate books, stories, and videos to convey ideas of mathematics.</p> <p>√ 0706.1.10 Model algebraic equations with manipulatives, technology, and pencil and paper.</p> <p>√ 0706.1.11 Translate from calculator notation to scientific/standard notation.</p> <p>√ 0706.1.12 Use dynamic geometry software to explore scale factor and similarity.</p>		
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Grade 7: Standard 2- Number and Operations

Grade Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>GLE 0706.2.1 Extend understandings of addition, subtraction, multiplication and division to integers.</p> <p>GLE 0706.2.2 Understand and work with properties of and operations on the system of rational numbers.</p> <p>GLE 0706.2.3 Develop an understanding of and apply proportionality.</p> <p>GLE 0706.2.4 Use ratios, rates and percents to solve single- and multi-step problems in various contexts.</p> <p>GLE 0706.2.5 Understand and work with squares, cubes, square roots, and cube roots.</p> <p>GLE 0706.2.6 Introduce the concept of negative exponents.</p> <p>GLE 0706.2.7 Understand and use scientific notation.</p>	<p>√ 0706.2.1 Understand that the set of rational numbers includes any number that can be written as a ratio of two integers in which the denominator is not zero.</p> <p>√ 0706.2.2 Develop and analyze algorithms and compute efficiently with integers and rational numbers.</p> <p>√ 0706.2.3 Recognize that rational numbers satisfy the commutative and associative laws of addition and multiplication and the distributive law.</p> <p>√ 0706.2.4 Understand that a and $-a$ are additive inverses and are located the same distance from zero on the number line; relate distance from zero to absolute value.</p> <p>√ 0706.2.5 Understand that $-(-a) = a$ for any number a.</p> <p>√ 0706.2.6 Use the number line to demonstrate addition and</p>	<p>SPI 0706.2.1 Simplify numerical expressions involving rational numbers.</p> <p>SPI 0706.2.2 Compare rational numbers using appropriate inequality symbols.</p> <p>SPI 0706.2.3 Use rational numbers and roots of perfect squares/cubes to solve contextual problems.</p> <p>SPI 0706.2.4 Determine the approximate location of square/cube roots on a number line.</p> <p>SPI 0706.2.5 Solve contextual problems that involve operations with integers.</p> <p>SPI 0706.2.6 Express the ratio between two quantities as a percent, and a percent as a ratio or fraction.</p> <p>SPI 0706.2.7 Use ratios and proportions to solve problems.</p>	<p>1A & 1B</p> <p>1A & 1B</p> <p>1A & 1B</p> <p>1A & 1B</p> <p>1A & 1B</p> <p>2A & 2B</p> <p>2B & 3A</p>

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	<p>subtraction with integers.</p> <p>√ 0706.2.7 Write number sentences to solve contextual problems involving ratio and percent.</p> <p>√ 0706.2.8 Apply ratios, rates, proportions and percents (such as discounts, interest, taxes, tips, distance/rate/time, and percent increase or decrease).</p> <p>√ 0706.2.9 Efficiently compare and order rational numbers and roots of perfect squares/cubes; determine their approximate locations on a number line.</p> <p>√ 0706.2.10 Recognize that when a whole number is not a perfect square, then its square root is not rational and cannot be written as the ratio of two integers.</p> <p>√ 0706.2.11 Estimate square/cube roots and use calculators to find approximations.</p> <p>√ 0706.2.12 Recognize $\sqrt{mn} = \sqrt{m} \cdot \sqrt{n}$ and $(\sqrt{m})^2 = m$.</p> <p>√ 0706.2.13 Use the meaning of negative exponents to represent small numbers; translate between scientific and standard notation.</p> <p>√ 0706.2.14 Express numbers in scientific notation and recognize</p>		
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	<p>its importance in representing the magnitude of a number.</p> <p>√ 0706.2.15 Report results of calculations appropriately in a given context (i.e., using rules of rounding, degree of accuracy, and/or significant digits).</p>		
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Grade 7: Standard 3- Algebra

Grade Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>GLE 0706.3.1 Recognize and generate equivalent forms for simple algebraic expressions.</p> <p>GLE 0706.3.2 Understand and compare various representations of relations and functions.</p> <p>GLE 0706.3.3 Understand the concept of function as a rule that assigns to a given input one and only one number (the output).</p> <p>GLE 0706.3.4 Use function notation where $f(x)$ represents the output that the function f assigns to the input x.</p> <p>GLE 0706.3.5 Understand and graph proportional relationships.</p> <p>GLE 0706.3.6 Conceptualize the meanings of slope using various interpretations, representations, and contexts.</p> <p>GLE 0706.3.7 Use mathematical</p>	<p>√ 0706.3.1 Perform basic operations on linear expressions (including grouping, order of operations, exponents, simplifying and expanding).</p> <p>√ 0706.3.2 Represent and analyze mathematical situations using algebraic symbols.</p> <p>√ 0706.3.3 Identify a function from a written description, table, graph, rule, set of ordered pairs, and/or mapping.</p> <p>√ 0706.3.4 Make tables of inputs x and outputs $f(x)$ for a variety of rules that include rational numbers (including negative numbers) as inputs.</p> <p>√ 0706.3.5 Plot points to represent tables of linear function values.</p> <p>√ 0706.3.6 Understand that the graph of a linear function f is the set of points on a line representing the ordered pairs $(x, f(x))$.</p>	<p>SPI 0706.3.1 Evaluate algebraic expressions involving rational values for coefficients and/or variables.</p> <p>SPI 0706.3.2 Determine whether a relation (represented in various ways) is a function.</p> <p>SPI 0706.3.3 Given a table of inputs x and outputs $f(x)$, identify the function rule and continue the pattern.</p> <p>SPI 0706.3.4 Interpret the slope of a line as a unit rate given the graph of a proportional relationship.</p> <p>SPI 0706.3.5 Represent proportional relationships with equations, tables, and graphs.</p> <p>SPI 0706.3.6 Solve linear equations with rational coefficients symbolically or graphically.</p> <p>SPI 0706.3.7 Translate between verbal and symbolic representations of real-world phenomena involving</p>	<p>1A & 1B</p> <p>3A</p> <p>3B</p> <p>3B</p> <p>2A & 2B</p> <p>3B</p> <p>3B</p> <p>3B</p>

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<p>models involving linear equations to analyze real-world phenomena.</p> <p>GLE 0706.3.8 Use a variety of strategies to efficiently solve linear equations and inequalities.</p>	<p>√ 0706.3.7 Distinguish proportional relationships ($y/x = k$, or $y = kx$) from other relationships, including inverse proportionality ($xy = k$, $y = k/x$).</p> <p>√ 0706.3.8 Understand slope as the ratio of vertical change to horizontal change.</p> <p>√ 0706.3.9 Identify a function exhibiting a constant rate of change as a linear function and identify the slope as a unit rate.</p> <p>√ 0706.3.10 Solve problems involving unit rates (e.g., miles per hour, words per minute).</p> <p>√ 0706.3.11 Relate the features of a linear equation to a table and/or graph of the equation.</p> <p>√ 0706.3.12 Use linear equations to solve problems and interpret the meaning of slope, m, and the y-intercept, b, in $f(x) = mx + b$ in terms of the context.</p> <p>√ 0706.3.13 Given a graph that exhibits the intersection of a line and the y-axis, write a linear function in slope-intercept form: $y = mx + b$.</p> <p>√ 0706.3.14 Understand that when solving linear inequalities,</p>	<p>linear equations.</p> <p>SPI 0706.3.8 Solve contextual problems involving two-step linear equations.</p> <p>SPI 0706.3.9 Solve linear inequalities in one variable with rational coefficients symbolically or graphically.</p>	<p style="text-align: center;">3B</p>
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multiplication or division by a negative reverses the inequality symbol.

Grade 7: Standard 4- Geometry & Measurement

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Grade Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>GLE 0706.4.1 Understand the application of proportionality with similar triangles.</p> <p>GLE 0706.4.2 Apply proportionality to converting among different units of measurements to solve problems involving rates such as motion at a constant speed.</p> <p>GLE 0706.4.3 Understand and use scale factor to describe the relationships between length, area, and volume.</p> <p>GLE 0706.4.4 Understand the use ratios, derived quantities, and indirect measurements.</p>	<p>√ 0706.4.1 Solve problems involving indirect measurement such as finding the height of a building by comparing its shadow with the height and shadow of a known object.</p> <p>√ 0706.4.2 Use similar triangles and proportionality to find the lengths of unknown line segments in a triangle.</p> <p>√ 0706.4.3 Understand that if a scale factor describes how corresponding lengths in two similar objects are related, then the square of the scale factor describes how corresponding areas are related, and the cube of the scale factor describes how corresponding volumes are related.</p> <p>√ 0706.4.4 Compare angles, side lengths, perimeters and areas of similar shapes.</p> <p>√ 0706.4.5 Solve problems using ratio quantities: velocity (measured in units such as miles per hour), density (measured in units such as kilograms per liter), pressure (measured in units such as pounds per square foot), and population density (measured in units such as persons per square</p>	<p>SPI 0706.4.1 Solve contextual problems involving similar triangles.</p> <p>SPI 0706.4.2 Use SSS, SAS, and AA to determine if two triangles are similar.</p> <p>SPI 0706.4.3 Apply scale factor to solve problems involving area and volume.</p>	<p>4A</p> <p>4A</p> <p>4A</p>

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Grade 7: Standard 5- Data Analysis, Statistics, & Probability

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Grade Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
GLE 0706.5.1 Collect, organize, and analyze both single- and	√ 0706.5.1 Create and interpret box-and-whisker plots and stem-	SPI 0706.5.1 Interpret and employ various graphs and charts to	3A

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<p>GLE 0806.1.1 Use mathematical language, symbols, and definitions while developing mathematical reasoning.</p> <p>GLE 0806.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution.</p> <p>GLE 0806.1.3 Develop independent reasoning to communicate mathematical ideas and derive algorithms and/or formulas.</p> <p>GLE 0806.1.4 Move flexibly between concrete and abstract representations of mathematical ideas in order to solve problems, model mathematical ideas, and communicate solution strategies.</p> <p>GLE 0806.1.5 Use mathematical ideas and processes in different settings to formulate patterns, analyze graphs, set up and solve problems and interpret solutions.</p> <p>GLE 0806.1.6 Read and interpret the language of mathematics and use written/oral communication to express mathematical ideas precisely.</p>	<p>√ 0806.1.1 Relate nonlinear functions to geometric contexts of length, area, and volume.</p> <p>√ 0806.1.2 Draw qualitative graphs (trend graphs) of functions and describe their general shape/trend.</p> <p>√ 0806.1.3 Research the contributions of Pythagoras to mathematics.</p> <p>√ 0806.1.4 Relate data concepts to relevant concepts in the earth and space, life, and physical sciences.</p> <p>√ 0806.1.5 Use age-appropriate books, stories, and videos to convey ideas of mathematics.</p> <p>√ 0806.1.6 Use models (such as dynamic geometry software, patty paper and geo boards) to explore relationships among angles (complementary, supplementary, interior, exterior, vertical, and corresponding).</p> <p>√ 0806.1.7 Use a graphing calculator or spreadsheet to create scatterplots of data and approximate lines of best fit.</p> <p>√ 0806.1.8 Use a variety of methods to solve real-world problems involving multi-step linear</p>	<p>SPI 0806.1.1 Solve problems involving rate/time/distance (i.e., $d = rt$).</p> <p>SPI 0806.1.2 Interpret a qualitative graph representing a contextual situation.</p> <p>SPI 0806.1.3 Calculate rates involving cost per unit to determine the best buy.</p>	<p>2A</p> <p>2A</p> <p>2A</p>
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<p>GLE 0806.1.7 Recognize the historical development of mathematics, mathematics in context, and the connections between mathematics and the real world.</p> <p>GLE 0806.1.8 Use technologies/manipulatives appropriately to develop understanding of mathematical algorithms, to facilitate problem solving, and to create accurate and reliable models of mathematical concepts.</p>	<p>equations (e.g., manipulatives, technology, pencil and paper).</p>		
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Grade 8: Standard 2- Number & Operations

Grade Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>GLE 0806.2.1 Extend understanding of the real number system to include irrational numbers.</p> <p>GLE 0806.2.2 Solve problems involving exponents and scientific notation using technology appropriately.</p> <p>GLE 0806.2.3 Solve real-world problems using rational and irrational numbers.</p> <p>GLE 0806.2.4 Understand and use the laws of exponents.</p>	<p>√ 0806.2.1 Recognize and use exponential, scientific, and calculator notation.</p> <p>√ 0806.2.2 Square numbers and simplify square roots.</p> <p>√ 0806.2.3 Solve contextual problems involving powers and roots.</p> <p>√ 0806.2.4 Use a Venn diagram to represent the subsets of the real number system.</p> <p>√ 0806.2.5 Identify the subset(s) of the real number system to which a number belongs.</p> <p>√ 0806.2.6 Simplify expressions using the laws of exponents.</p> <p>√ 0806.2.7 Add, subtract, multiply, and divide numbers expressed in scientific notation.</p>	<p>SPI 0806.2.1 Order and compare rational and irrational numbers and locate them on the number line.</p> <p>SPI 0806.2.2 Identify numbers and square roots as rational or irrational.</p> <p>SPI 0806.2.3 Use scientific notation to compute products and quotients.</p> <p>SPI 0806.2.4 Solve real-world problems requiring scientific notation.</p>	<p>1A</p> <p>1A</p> <p>1A</p> <p>1B</p>

Grade 8: Standard 3- Algebra

Grade Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>GLE 0806.3.1 Recognize and generate equivalent forms for algebraic expressions.</p> <p>GLE 0806.3.2 Represent, analyze, and solve problems involving linear equations and inequalities in one and two variables.</p> <p>GLE 0806.3.3 Solve systems of linear equations in two variables.</p> <p>GLE 0806.3.4 Translate among verbal, tabular, graphical and algebraic representations of linear functions.</p> <p>GLE 0806.3.5 Use slope to analyze situations and solve problems.</p> <p>GLE 0806.3.6 Compare and contrast linear and nonlinear functions.</p>	<p>√ 0806.3.1 Perform basic operations on algebraic expressions (including grouping, order of operations, exponents, square/cube roots, simplifying and expanding).</p> <p>√ 0806.3.2 Represent algebraic relationships with equations and inequalities.</p> <p>√ 0806.3.3 Solve systems of linear equations in two variables and relate the systems to pairs of lines that intersect, are parallel, or are the same line.</p> <p>√ 0806.3.4 Understand the relationship between the graph of a linear inequality and its solutions.</p> <p>√ 0806.3.5 Solve linear inequalities in two variables (including those whose solutions require multiplication or division by a negative number).</p> <p>√ 0806.3.6 Identify x- and y-intercepts and slope of linear equations from an equation, graph or table.</p>	<p>SPI 0806.3.1 Find solutions to systems of two linear equations in two variables.</p> <p>SPI 0806.3.2 Solve the linear equation $f(x) = g(x)$.</p> <p>SPI 0806.3.3 Solve and graph linear inequalities in two variables.</p> <p>SPI 0806.3.4 Translate between various representations of a linear function.</p> <p>SPI 0806.3.5 Determine the slope of a line from an equation, two given points, a table or a graph.</p> <p>SPI 0806.3.6 Analyze the graph of a linear function to find solutions and intercepts.</p> <p>SPI 0806.3.7 Identify, compare and contrast functions as linear or nonlinear.</p>	<p>3B</p> <p>3A</p> <p>3B</p> <p>3A</p> <p>3A</p> <p>3A</p> <p>3A</p>

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√ **0806.3.7** Analyze situations and solve problems involving constant rate of change.

√ **0806.3.8** Recognize a proportion as a special case of a linear equation and understand that the constant of proportionality is the slope, and the resulting graph is a line through the origin.

√ **0806.3.9** Given a function rule, create tables of values for x and y , and plot graphs of nonlinear functions.

√ **0806.3.10** Distinguish quadratic and exponential functions as nonlinear using a graph and/or a table of values.

√ **0806.3.11** Distinguish between the equations of linear, quadratic, and exponential functions (e.g., function families such as $y = x^2$, $y = 2^x$, and $y = 2x$).

√ **0806.3.12** Understand how rates of change of nonlinear functions contrast with constant rates of change of linear functions.

√ **0806.3.13** Represent situations and solve real-world problems using symbolic algebra.

Grade 8: Standard 4- Geometry & Measurement

Grade Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>GLE 0806.4.1 Derive the Pythagorean Theorem and understand its applications.</p> <p>GLE 0806.4.2 Understand the relationships among the angles formed by parallel lines cut by transversals.</p> <p>GLE 0806.4.3 Understand the necessary levels of accuracy and precision in measurement.</p> <p>GLE 0806.4.4 Understand both metric and customary units of measurement.</p> <p>GLE 0806.4.5 Use visualization to describe or identify intersections, cross-sections, and various views of geometric figures.</p>	<p>√ 0806.4.1 Model the Pythagorean Theorem.</p> <p>√ 0806.4.2 Use the converse of the Pythagorean Theorem to determine if a triangle is a right triangle.</p> <p>√ 0806.4.3 Select or use the appropriate measurement instrument to determine or create a given length, area, volume, angle, weight, or mass.</p> <p>√ 0806.4.4 Understand how the precision of measurement influences accuracy of quantities derived from these measurements.</p> <p>√ 0806.4.5 Analyze the congruent and supplementary relationships of angles formed by parallel lines and transversals (such as alternate interior, alternate exterior, corresponding, and adjacent).</p> <p>√ 0806.4.6 Make within-system and between-system conversions of derived quantities including distance, temperature, and money.</p>	<p>SPI 0806.4.1 Use the Pythagorean Theorem to solve contextual problems.</p> <p>SPI 0806.4.2 Apply the Pythagorean Theorem to find distances between points in the coordinate plane to measure lengths and analyze polygons and polyhedra.</p> <p>SPI 0806.4.3 Find measures of the angles formed by parallel lines cut by a transversal.</p> <p>SPI 0806.4.4 Convert between and within the U.S. Customary System and the metric system.</p> <p>SPI 0806.4.5 Identify the intersection of two or more geometric figures in the plane.</p>	<p>2A</p> <p>2A</p> <p>2B</p> <p>3A</p> <p>2B</p>

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	<p>√ 0806.4.7 Visualize or describe the cross-section resulting from the intersection of a plane with a 3-dimensional figure.</p> <p>√ 0806.4.8 Build, draw, and work with 2- and 3-dimensional figures by means of orthogonal views, projective views, and/or nets.</p>		
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Grade 8: Standard 5- Data Analysis, Statistics, & Probability

Grade Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>GLE 0806.5.1 Explore probabilities for compound, independent and/or dependent events.</p> <p>GLE 0806.5.2 Select, create, and use appropriate graphical representations of data (including scatterplots with lines of best fit) to make and test conjectures.</p> <p>GLE 0806.5.3 Evaluate the use of statistics in media reports.</p>	<p>√ 0806.5.1 Solve simple problems involving probability and relative frequency.</p> <p>√ 0806.5.2 Compare probabilities of two or more events and recognize when certain events are equally likely.</p> <p>√ 0806.5.3 Recognize common misconceptions associated with dependent and independent events.</p> <p>√ 0806.5.4 Explain the benefits and the limitations of various representations (i.e., bar graphs, line graphs, circle graphs, histograms, stem-and-leaf plots, box plots, scatterplots) of data.</p> <p>√ 0806.5.5 Create and interpret box-and-whisker plots and scatterplots.</p> <p>√ 0806.5.6 Use observations about differences between two or more samples to make conjectures</p>	<p>SPI 0806.5.1 Calculate probabilities of events for simple experiments with equally probable outcomes.</p> <p>SPI 0806.5.2 Use a variety of methods to compute probabilities for compound events (e.g., multiplication, organized lists, tree diagrams, area models).</p> <p>SPI 0806.5.3 Generalize the relationship between two sets of data using scatterplots and lines of best fit.</p> <p>SPI 0806.5.4 Recognize misrepresentations of published data in the media.</p>	<p>2B</p> <p>2B</p> <p>3A</p> <p>3A</p>

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	<p>about the populations from which the samples were taken.</p> <p>√ 0806.5.7 Estimate lines of best fit to make and test conjectures.</p> <p>√ 0806.5.8 Consider the source, design, analysis, and display of data to evaluate statistics reported in the media.</p>		
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Algebra I: Standard 1- Mathematical Processes

Course Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>CLE 3102.1.1 Use mathematical language, symbols, definitions, proofs and counterexamples correctly and precisely in mathematical reasoning.</p> <p>CLE 3102.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including testing cases, estimation, and then checking induced errors and the reasonableness of the solution.</p> <p>CLE 3102.1.3 Develop inductive and deductive reasoning to independently make and evaluate mathematical arguments and construct appropriate proofs; include various types of reasoning, logic, and intuition.</p> <p>CLE 3102.1.4 Move flexible between multiple representations (contextual, physical, written, verbal, iconic/pictorial, graphical, tabular, and symbolic), to solve</p>	<p>√ 3102.1.1 Develop meaning for mathematical vocabulary.</p> <p>√ 3102.1.2 Use the terminology of mathematics correctly.</p> <p>√ 3102.1.3 Understand and use mathematical symbols, notation, and common mathematical abbreviations correctly.</p> <p>√ 3102.1.4 Write a rule with variables that expresses a pattern.</p> <p>√ 3102.1.5 Use formulas, equations, and inequalities to solve real-world problems including time/rate/distance, percent increase/decrease, ratio/proportion, and mixture problems.</p> <p>√ 3102.1.6 Use a variety of strategies to estimate and compute solutions, including real-world problems.</p> <p>√ 3102.1.7 Identify missing or</p>	<p>SPI 3102.1.1 Interpret patterns found in sequences, tables, and other forms of quantitative information using variables or function notation.</p> <p>SPI 3102.1.2 Write an equation symbolically to express a contextual problem.</p> <p>SPI 3102.1.3 Apply properties to evaluate expressions, simplify expressions, and justify solutions to problems.</p> <p>SPI 3102.1.4 Translate between representations of functions that depict real-world situations.</p> <p>SPI 3102.1.5 Recognize and express the effect of changing constants and/or coefficients in problem solving.</p> <p>SPI 3102.1.6 Determine and interpret slope in multiple contexts including rate of change in real-world problems.</p>	<p>1A</p> <p>2A</p> <p>1A</p> <p>2B</p> <p>1B</p> <p>2B</p>

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<p>problems, to model mathematical ideas, and to communicate solution strategies.</p> <p>CLE 3102.1.5 Recognize and use mathematical ideas and processes that arise in different settings, with an emphasis on formulating a problem in mathematical terms, interpreting the solutions, mathematical ideas, and communication of solution strategies.</p> <p>CLE 3102.1.6 Employ reading and writing to recognize the major themes of mathematical processes, the historical development of mathematics, and the connections between mathematics and the real world.</p> <p>CLE 3102.1.7 Use technologies appropriately to develop understanding of abstract mathematical ideas, to facilitate problem solving, and to produce accurate and reliable models.</p>	<p>irrelevant information in problems.</p> <p>√ 3102.1.8 Recognize and perform multiple steps in problem solving when necessary.</p> <p>√ 3102.1.9 Identify and use properties of the real numbers (including commutative, associative, distributive, inverse, identity element, closure, reflexive, symmetric, transitive, operation properties of equality).</p> <p>√ 3102.1.10 Use algebraic properties to develop a valid mathematical argument.</p> <p>√ 3102.1.11 Use manipulatives to model algebraic concepts.</p> <p>√ 3102.1.12 Create and work flexibly among representations of relations (including verbal, equations, tables, mappings, graphs).</p> <p>√ 3102.1.13 Change from one representation of a relation to another representation, for example, change from a verbal description to a graph.</p> <p>√ 3102.1.14 Apply graphical transformations that occur when changes are made to coefficients and constants in functions.</p> <p>√ 3102.1.15 Apply arithmetic</p>		
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	<p>concepts in algebraic contexts.</p> <p>√ 3102.1.16 Understand and express the meaning of the slope and y-intercept of linear functions in real-world contexts.</p> <p>√ 3102.1.17 Connect the study of algebra to the historical development of algebra.</p> <p>√ 3102.1.18 Translate syntax of technology to appropriate mathematical notation.</p> <p>√ 3102.1.19 Recognize and practice appropriate use of technology in representations and in problem solving.</p> <p>√ 3102.1.20 Estimate solutions to evaluate the reasonableness of results and to check technological computation.</p>		
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Algebra I: Standard 2- Number & Operations

Course Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>CLE 3102.2.1 Understand computational results and operations involving real numbers in multiple representations.</p> <p>CLE 3102.2.2 Understand properties of and relationships between subsets and elements of the real number system.</p>	<p>√ 3102.2.1 Recognize and use like terms to simplify expressions.</p> <p>√ 3102.2.2 Apply the order of operations to simplify and evaluate algebraic expressions.</p> <p>√ 3102.2.3 Operate with and simplify radicals (index 2, 3, n) and radical expressions including rational numbers and variables in the radicand.</p> <p>√ 3102.2.4 Operate efficiently with both rational and irrational numbers.</p> <p>√ 3102.2.5 Perform operations with numbers in scientific notation (multiply, divide, powers).</p> <p>√ 3102.2.6 Use appropriate technologies to apply scientific notation to real-world problems.</p> <p>√ 3102.2.7 Identify the subsets in the real number system and understand their relationships.</p>	<p>SPI 3102.2.1 Operate (add, subtract, multiply, divide, simplify, powers) with radicals and radical expressions including radicands involving rational numbers and algebraic expressions.</p> <p>SPI 3102.2.2 Multiply, divide, and square numbers expressed in scientific notation.</p> <p>SPI 3102.2.3 Describe and/or order a given set of real numbers including both rational and irrational numbers.</p>	<p>3B</p> <p>1A</p> <p>1A</p>

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√ **3102.2.8** Use multiple strategies to approximate the value of an irrational number including irrational square roots and including location on the real number line.

Algebra I: Standard 3- Algebra

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Course Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>CLE 3102.3.1 Use algebraic thinking to analyze and generalize patterns.</p> <p>CLE 3102.3.2 Understand and apply properties in order to perform operations with, evaluate, simplify, and factor expressions and polynomials.</p> <p>CLE 3102.3.3 Understand and apply operations with rational expressions and equations.</p> <p>CLE 3102.3.4 Solve problems involving linear equations and linear inequalities.</p> <p>CLE 3102.3.5 Manipulate formulas and solve literal equations.</p> <p>CLE 3102.3.6 Understand and use relations and functions in various representations to solve contextual problems.</p> <p>CLE 3102.3.7 Construct and solve systems of linear equations and inequalities in two variables by various methods.</p> <p>CLE 3102.3.8 Solve and understand solutions of</p>	<p>√ 3102.3.1 Recognize and extend arithmetic and geometric sequences.</p>	<p>SPI 3102.3.1 Express a generalization of a pattern in various representations including algebraic and function notation.</p>	1B
	<p>√ 3102.3.2 Explore patterns including Pascal's Triangle and the Fibonacci sequence.</p>	<p>SPI 3102.3.2 Operate with polynomials and simplify results.</p>	3B
	<p>√ 3102.3.3 Justify correct results of algebraic procedures using extension of properties of real numbers to algebraic expressions.</p>	<p>SPI 3102.3.3 Factor polynomials.</p>	3B
	<p>√ 3102.3.4 Simplify expressions using exponent rules including negative exponents and zero exponents.</p>	<p>SPI 3102.3.4 Operate with, evaluate, and simplify rational expressions including determining restrictions on the domain of the variables.</p>	4A
	<p>√ 3102.3.5 Add, subtract, and multiply polynomials including squaring a binomial.</p>	<p>SPI 3102.3.5 Write and/or solve linear equations, inequalities, and compound inequalities including those containing absolute value.</p>	2A
	<p>√ 3102.3.6 Find the quotient of a polynomial and a monomial.</p>	<p>SPI 3102.3.6 Interpret various relations in multiple representations.</p>	1B
	<p>√ 3102.3.7 Use various models (including area models) to represent products of polynomials.</p>	<p>SPI 3102.3.7 Determine domain and range of a relation, determine whether a relation is a function and/or evaluate a function at a specified rational value.</p>	2A & 2B
	<p>√ 3102.3.8 Find the GCF of the terms in a polynomial.</p>	<p>SPI 3102.3.8 Determine the equation of a line and/or graph a linear equation.</p>	2B
	<p>√ 3102.3.9 Find two binomial factors of a quadratic expression.</p>		3A

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linear relations and linear functions including constant function, direct variation, identity function, vertical lines, absolute value of linear functions. Use technology where appropriate.

√ **3102.3.19** Explore the characteristics of graphs of various nonlinear relations and functions including inverse variation, quadratic, and square root function. Use technology where appropriate.

√ **3102.3.20** Understand that a linear equation has a constant rate of change called slope and represent slope in various forms.

√ **3102.3.21** Determine the equation of a line using given information including a point and slope, two points, a point and a line parallel or perpendicular, graph, intercepts.

√ **3102.3.22** Express the equation of a line in standard form, slope-intercept, and point-slope form.

√ **3102.3.23** Determine the graph of a linear equation including those that depict contextual situations.

√ **3102.3.24** Interpret the changes in the slope-intercept form and

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	<p>graph of a linear equation by looking at different values of the parameters, m and b.</p> <p>√ 3102.3.25 Find function values using $f(x)$ notation or graphs.</p> <p>√ 3102.3.26 Graph linear inequalities on the coordinate plane and identify regions of the graph containing ordered pairs in the solution.</p> <p>√ 3102.3.27 Determine the number of solutions for a system of linear equations (0, 1, or infinitely many solutions).</p> <p>√ 3102.3.28 Solve systems of linear equations graphically, algebraically, and with technology.</p> <p>√ 3102.3.29 Solve contextual problems involving systems of linear equations or inequalities and interpret solutions in context.</p> <p>√ 3102.3.30 Solve quadratic equations using multiple methods: factoring, graphing, quadratic formula, or square root principle.</p> <p>√ 3102.3.31 Determine the number of real solutions for a quadratic equation including using the discriminant and its graph.</p> <p>√ 3102.3.32 Recognize the</p>		
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	<p>connection among factors, solutions (roots), zeros of related functions, and x-intercepts in equations that arise from quadratic functions.</p> <p>√ 3102.3.33 Recognize data that can be modeled by an exponential function.</p> <p>√ 3102.3.34 Graph exponential functions in the form $y = a(bx)$ where $b \neq 0$.</p> <p>√ 3102.3.35 Apply growth/decay and simple/compound interest formulas to solve contextual problems.</p>		
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Algebra I: Standard 4- Geometry & Measurement

Course Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>CLE 3102.4.1 Use algebraic reasoning in applications involving geometric formulas and contextual problems.</p> <p>CLE 3102.4.2 Apply appropriate units of measure and convert measures in problem solving situations.</p>	<p>√ 3102.4.1 Using algebraic expressions solve for measures in geometric figures as well as for perimeter, area, and volume.</p> <p>√ 3102.4.2 Use the Pythagorean Theorem to find the missing measure in a right triangle including those from contextual situations.</p> <p>√ 3102.4.3 Understand horizontal/vertical distance in a coordinate system as absolute value of the difference between coordinates; develop the distance formula for a coordinate plane using the Pythagorean Theorem.</p> <p>√ 3102.4.4 Develop the midpoint formula for segments on a number line or in the coordinate plane.</p> <p>√ 3102.4.5 Use dimensional analysis to convert rates and measurements both within a system and between systems and check the appropriateness of the</p>	<p>SPI 3102.4.1 Develop and apply strategies to estimate the area of any shape on a plane grid.</p> <p>SPI 3102.4.2 Solve contextual problems using the Pythagorean Theorem.</p> <p>SPI 3102.4.3 Solve problems involving the distance between points or midpoint of a segment.</p> <p>SPI 3102.4.4 Convert rates and measurements.</p>	<p>1B</p> <p>1B</p> <p>4A</p> <p>1B</p>

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Algebra I: Standard 5- Data Analysis, Statistics, & Probability

Course Level Expectations	Checks for Understanding	State Performance Indicators	Pacing
<p>CLE 3102.5.1 Describe and interpret quantitative information.</p> <p>CLE 3102.5.2 Use statistical thinking to draw conclusions and make predictions.</p> <p>CLE 3102.5.3 Understand basic counting procedures and concepts of probability.</p>	<p>√ 3102.5.1 Identify patterns or trends in data.</p> <p>√ 3102.5.2 Develop a meaning for and identify outliers in a data set and verify.</p> <p>√ 3102.5.3 When a set of data is changed, identify effects on measures of central tendency, range, and inter-quartile range.</p> <p>√ 3102.5.4 Explore quartiles, deciles, and percentiles of a distribution.</p> <p>√ 3102.5.5 Construct and interpret various forms of data representations, (including line graphs, bar graphs, circle graphs, histograms, scatterplots, box-and-whiskers, stem-and-leaf, and frequency tables).</p> <p>√ 3102.5.6 Draw qualitative graphs of functions and describe a general trend or shape.</p>	<p>SPI 3102.5.1 Interpret displays of data to answer questions about the data set(s) (e.g., identify pattern, trends, and/or outliers in a data set).</p> <p>SPI 3102.5.2 Identify the effect on mean, median, mode, and range when values in the data set are changed.</p> <p>SPI 3102.5.3 Using a scatterplot, determine if a linear relationship exists and describe the association between variables.</p> <p>SPI 3102.5.4 Generate the equation of a line that fits linear data and use it to make a prediction.</p> <p>SPI 3102.5.5 Determine theoretical and/or experimental probability of an event and/or its complement including using relative frequency.</p>	<p>3A</p> <p>3A</p> <p>3A</p> <p>3A</p> <p>3A</p>

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| | <p>√ 3102.5.7 Compare two data sets using graphs and descriptive statistics.</p> <p>√ 3102.5.8 Examine real-world graphical relationships (including scatterplots) to determine type of relationship (linear or nonlinear) and any association (positive, negative or none) between the variables of the data set.</p> <p>√ 3102.5.9 Determine an equation for a line that fits real-world linear data; interpret the meaning of the slope and y-intercept in context of the data.</p> <p>√ 3102.5.10 Using technology with a set of contextual linear data to examine the line of best fit; determine and interpret the correlation coefficient.</p> <p>√ 3102.5.11 Use an equation that fits data to make a prediction.</p> <p>√ 3102.5.12 Use techniques (Venn diagrams, tree diagrams, or counting procedures) to identify the possible outcomes of an experiment or sample space and compute the probability of an event.</p> <p>√ 3102.5.13 Determine the complement of an event and the probability of that complement.</p> | | |
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	<p>√ 3102.5.14 Determine if two events are independent or dependent.</p> <p>√ 3102.5.15 Explore joint and conditional probability.</p> <p>√ 3102.5.16 Identify situations for which the Law of Large Numbers applies.</p> <p>√ 3102.5.17 Perform simulations to estimate probabilities.</p> <p>√ 3102.5.18 Make informed decisions about practical situations using probability concepts.</p>		
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