



Introduction to the Revised Mathematics TEKS

VERTICAL ALIGNMENT CHART
GRADES 5 - 8, GEOMETRY

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Grade 5	Grade 6	Grade 7	Grade 8	Geometry
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:				
(A) apply mathematics to problems arising in everyday life, society, and the workplace;				
(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;				
(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;				
(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;				
(E) create and use representations to organize, record, and communicate mathematical ideas;				
(F) analyze mathematical relationships to connect and communicate mathematical ideas; and				
(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.				

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
Comparing and Ordering Numbers				
(2) Number and operations. The student applies mathematical process standards to represent, compare, and order positive rational numbers and understand relationships as related to place value. The student is expected to:	(2) Number and operations. The student applies mathematical process standards to represent and use rational numbers in a variety of forms. The student is expected to:		(2) Number and operations. The student applies mathematical process standards to represent and use real numbers in a variety of forms. The student is expected to:	
(B) compare and order two decimals to thousandths and represent comparisons using the symbols $>$, $<$, or $=$.	(D) order a set of rational numbers arising from mathematical and real-world contexts.		(D) order a set of real numbers arising from mathematical and real-world contexts.	
Representing and Relating Numbers Using Number Lines				
	(2) Number and operations. The student applies mathematical process standards to represent and use rational numbers in a variety of forms. The student is expected to:		(2) Number and operations. The student applies mathematical process standards to represent and use real numbers in a variety of forms. The student is expected to:	
	(B) identify a number, its opposite, and its absolute value.		(B) approximate the value of an irrational number, including π and square roots of numbers less than 225, and locate that rational number approximation on a number line.	
	(C) locate, compare, and order integers and rational numbers using a number line.			
Representing and Classifying Numbers				
	(2) Number and operations. The student applies mathematical process standards to represent and use rational numbers in a variety of forms. The student is expected to:	(2) Number and operations. The student applies mathematical process standards to represent and use rational numbers in a variety of forms. The student is expected to:	(2) Number and operations. The student applies mathematical process standards to represent and use real numbers in a variety of forms. The student is expected to:	
	(A) classify whole numbers, integers, and rational numbers using a visual representation such as a Venn diagram to describe relationships between sets of numbers.	(A) extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of rational numbers.	(A) extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of real numbers.	

Grade 5	Grade 6 Composing and Decomposing Numbers: Place Value	Grade 7	Grade 8	Geometry
<p>(2) Number and operations. The student applies mathematical process standards to represent, compare, and order positive rational numbers and understand relationships as related to place value. The student is expected to:</p>			<p>(2) Number and operations. The student applies mathematical process standards to represent and use real numbers in a variety of forms. The student is expected to:</p>	
<p>(A) represent the value of the digit in decimals through the thousandths using expanded notation and numerals.</p>		<p>(C) convert between standard decimal notation and scientific notation.</p>		
<p>Applying Strategies for Estimation</p>				
<p>(2) Number and operations. The student applies mathematical process standards to represent, compare, and order positive rational numbers and understand relationships as related to place value. The student is expected to:</p>				
<p>(C) round decimals to tenths or hundredths.</p>				

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
	<p>Representing Fraction Concepts</p> <p>(2) Number and operations. The student applies mathematical process standards to represent and use rational numbers in a variety of forms. The student is expected to:</p> <p>(E) extend representations for division to include fraction notation such as a/b represents the same number as $a \div b$ where $b \neq 0$.</p> <p>Determining Equivalence and Comparing Part-to-Whole Relationships</p> <p>(5) Proportionality. The student applies mathematical process standards to solve problems involving proportional relationships. The student is expected to:</p> <p>(C) use equivalent fractions, decimals, and percents to show equal parts of the same whole.</p>			
Adding and Subtracting Fractions and Rational Numbers				
		<p>(3) Number and operations. The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. The student is expected to:</p> <p>(B) apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.</p> <p>(A) add, subtract, multiply, and divide rational numbers fluently.</p>		
	<p>(3) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. The student is expected to:</p> <p>(H) represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operations.</p> <p>(K) add and subtract positive rational numbers fluently.</p>			

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
Adding and Subtracting Whole Numbers, Decimals, and Rational Numbers				
<p>(3) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. The student is expected to:</p>		<p>(3) Number and operations. The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. The student is expected to:</p>		
<p>(A) estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division.</p>		<p>(A) add, subtract, multiply, and divide rational numbers fluently.</p>		
		<p>(B) apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.</p>		

Grade 5 Multiplying Whole Numbers, Decimals, Fractions, and Rational Numbers	Grade 6	Grade 7	Grade 8 Geometry
(3) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. The student is expected to:	(3) Number and operations. The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. The student is expected to:	(3) Number and operations. The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. The student is expected to:	
(B) multiply with fluency a three-digit number by a two-digit number using the standard algorithm.	(E) multiply and divide positive rational numbers fluently.	(A) add, subtract, multiply, and divide rational numbers fluently.	
(D) represent multiplication of decimals with products to the hundredths using objects and pictorial models, including area models.		(B) apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.	
(E) solve for products of decimals to the hundredths, including situations involving money, using strategies based on place-value understandings, properties of operations, and the relationship to the multiplication of whole numbers.			
(I) represent and solve multiplication of a whole number and a fraction that refers to the same whole using objects and pictorial models, including area models.	(B) determine, with and without computation, whether a quantity is increased or decreased when multiplied by a fraction, including values greater than or less than one.		

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
Dividing Whole Numbers, Decimals, Fractions, and Rational Numbers				
(3) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. The student is expected to:	(3) Number and operations. The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. The student is expected to:	(3) Number and operations. The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. The student is expected to:		
(L) divide whole numbers by unit fractions and unit fractions by whole numbers.	(A) recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values.			
(C) solve with proficiency for quotients of up to a four-digit dividend by a two-digit divisor using strategies and the standard algorithm.		(A) add, subtract, multiply, and divide rational numbers fluently.		
(G) solve for quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using strategies and algorithms, including the standard algorithm.				
(F) represent quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using objects and pictorial models, including area models.	(E) multiply and divide positive rational numbers fluently.	(B) apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.		
(J) represent division of a unit fraction by a whole number and the division of a whole number by a unit fraction such as $1/3 \div 7$ and $7 \div 1/3$ using objects and pictorial models, including area models.				

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
	Applying Operations with Integers and Rational Numbers			
	(3) Number and operations. The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. The student is expected to:	(3) Number and operations. The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. The student is expected to:		
	(C) represent integer operations with concrete models and connect the actions with the models to standardized algorithms.	(A) add, subtract, multiply, and divide rational numbers fluently.		
	(D) add, subtract, multiply, and divide integers fluently.			
(E) multiply and divide positive rational numbers fluently.				

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
Connecting Counting and Divisibility				
(4) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to: (A) identify prime and composite numbers.				
Representing Problem Situations with the Equal Sign				
(4) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to: (B) represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity.				
	Representing Problem Situations with Equations and Inequalities			
	(9) Expressions, equations, and relationships. The student applies mathematical process standards to use equations and inequalities to represent situations. The student is expected to: (A) write one-variable, one-step equations and inequalities to represent constraints or conditions within problems. (B) represent solutions for one-variable, one-step equations and inequalities on number lines.	(10) Expressions, equations, and relationships. The student applies mathematical process standards to use one-variable equations and inequalities to represent situations. The student is expected to: (A) write one-variable, two-step equations and inequalities to represent constraints or conditions within problems. (B) represent solutions for one-variable, two-step equations and inequalities on number lines.	(8) Expressions, equations, and relationships. The student applies mathematical process standards to use one-variable equations or inequalities in problem situations. The student is expected to: (A) write one-variable equations or inequalities with variables on both sides that represent problems using rational number coefficients and constants.	

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
	Representing with Equations and Inequalities			
	<p>(9) Expressions, equations, and relationships. The student applies mathematical process standards to use equations and inequalities to represent situations. The student is expected to:</p>	<p>(10) Expressions, equations, and relationships. The student applies mathematical process standards to use one-variable equations and inequalities to represent situations. The student is expected to:</p>	<p>(8) Expressions, equations, and relationships. The student applies mathematical process standards to use one-variable equations or inequalities in problem situations. The student is expected to:</p>	
	<p>(C) write corresponding real-world problems given one-variable, one-step equations or inequalities.</p>	<p>(C) write corresponding real-world problems given a one-variable, two step equation or inequality.</p>	<p>(B) write a corresponding real-world problem when given a one-variable equation or inequality with variables on both sides of the equal sign using rational number coefficients and constants.</p>	

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
Representing and Solving Problems with Equations and Inequalities				
(4) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:	(10) Expressions, equations, and relationships. The student applies mathematical process standards to use equations and inequalities to solve problems. The student is expected to:	(11) Expressions, equations, and relationships. The student applies mathematical process standards to solve one-variable equations and inequalities. The student is expected to:	(8) Expressions, equations, and relationships. The student applies mathematical process standards to use one-variable equations or inequalities in problem situations. The student is expected to:	
(B) represent and solve multi- step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity.	(A) model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts.	(A) model and solve one-variable, two-step equations and inequalities.	(C) model and solve one-variable equations with variables on both sides of the equal sign that represent mathematical and real-world problems using rational number coefficients and constants.	
	(B) determine if the given value(s) make(s) one-variable, one-step equations or inequalities true.	(B) determine if the given value(s) make(s) one-variable, two-step equations and inequalities true.	(9) Expressions, equations, and relationships. The student applies mathematical process standards to use multiple representations to develop foundational concepts of simultaneous linear equations. The student is expected to: (A) identify and verify the values of x and y that simultaneously satisfy two linear equations in the form $y = mx + b$ from the intersections of the graphed equations.	

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
Describing and Simplifying Numerical Expressions				
(4) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:	(7) Expressions, equations, and relationships. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:			
(E) describe the meaning of parentheses and brackets in a numeric expression.	(A) generate equivalent numerical expressions using order of operations, including whole number exponents and prime factorization.			
(F) simplify numerical expressions that do not involve exponents, including up to two levels of grouping.				
	(C) determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations.			
	(D) generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties.			

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
Applying Multiple Representations for Foundations of Functions				
(4) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:	(4) Proportionality. The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. The student is expected to:	(4) Proportionality. The student applies mathematical process standards to represent and solve problems involving proportional relationships. The student is expected to:	(5) Proportionality. The student applies mathematical process standards to use proportional and non-proportional relationships to develop foundational concepts of functions. The student is expected to:	
(C) generate a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph.	(A) compare two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships.	(A) represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d = rt$.	(A) represent linear proportional situations with tables, graphs, and equations in the form of $y = kx$.	
(D) recognize the difference between additive and multiplicative numerical patterns given in a table or graph.		(C) determine the constant of proportionality ($k = y/x$) within mathematical and real-world problems.	(E) solve problems involving direct variation.	
	(6) Expressions, equations, and relationships. The student applies mathematical process standards to use multiple representations to describe algebraic relationships. The student is expected to:	(7) Expressions, equations, and relationships. The student applies mathematical process standards to represent linear relationships using multiple representations. The student is expected to:		(2) Coordinate and transformational geometry. The student uses the process skills to understand the connections between algebra and geometry and uses the one- and two-dimensional coordinate systems to verify geometric conjectures. The student is expected to:
	(A) identify independent and dependent quantities from tables and graphs.	(A) represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form $y = mx + b$.	(B) represent linear non-proportional situations with tables, graphs, and equations in the form of $y = mx + b$, where $b \neq 0$.	(C) determine an equation of a line parallel or perpendicular to a given line that passes through a given point. <i>Note: This SE builds on A(2)(E) and A(2)(F).</i>

Grade 5	Grade 6	Grade 7	Grade 8	Geometry	
	Applying Multiple Representations for Foundations of Functions				
	(6) Expressions, equations, and relationships. The student applies mathematical process standards to use multiple representations to describe algebraic relationships. The student is expected to:	(7) Expressions, equations, and relationships. The student applies mathematical process standards to represent linear relationships using multiple representations. The student is expected to:	(5) Proportionality. The student applies mathematical process standards to use proportional and non-proportional relationships to develop foundational concepts of functions. The student is expected to:		
	(B) write an equation that represents the relationship between independent and dependent quantities from a table.	represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form $y = mx + b$.	(I) write an equation in the form $y = mx + b$ to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations.		
	(C) represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$.		(F) distinguish between proportional and non-proportional situations using tables, graphs, and equations in the form $y = kx$ or $y = mx + b$, where $b \neq 0$.		
			(C) contrast bivariate sets of data that suggest a linear relationship with bivariate sets of data that do not suggest a linear relationship from a graphical representation.		
			(D) use a trend line that approximates the linear relationship between bivariate sets of data to make predictions.		
			(G) identify functions using sets of ordered pairs, tables, mappings, and graphs.		
			(H) identify examples of proportional and non-proportional functions that arise from mathematical and real-world problems.		

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
			Developing Foundations of Slope	
		(4) Proportionality. The student applies mathematical process standards to represent and solve problems involving proportional relationships. The student is expected to:	(4) Proportionality. The student applies mathematical process standards to explain proportional and non-proportional relationships involving slope. The student is expected to:	(2) Coordinate and transformational geometry. The student uses the process skills to understand the connections between algebra and geometry and uses the one- and two-dimensional coordinate systems to verify geometric conjectures. The student is expected to:
		(B) calculate unit rates from rates in mathematical and real-world problems.	(A) use similar right triangles to develop an understanding that slope, m , given as the rate comparing the change in y - values to the change in x -values, $(y_2 - y_1) / (x_2 - x_1)$, is the same for any two points (x_1, y_1) and (x_2, y_2) on the same line.	(B) derive and use the distance, slope, and midpoint formulas to verify geometric relationships, including congruence of segments and parallelism or perpendicularity of pairs of lines.
			(B) graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship.	
(C) use data from a table or graph to determine the rate of change or slope and y -intercept in mathematical and real-world problems.				

Grade 5	Grade 6	Grade 7 Connecting Algebra and Geometry	Grade 8	Geometry
(4) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:	(8) Expressions, equations, and relationships. The student applies mathematical process standards to use geometry to represent relationships and solve problems. The student is expected to:	(8) Expressions, equations, and relationships. The student applies mathematical process standards to develop geometric relationships with volume. The student is expected to:	(6) Expressions, equations, and relationships. The student applies mathematical process standards to develop mathematical relationships and make connections to geometric formulas. The student is expected to:	(11) Two-dimensional and three-dimensional figures. The student uses the process skills in the application of formulas to determine measures of two- and three-dimensional figures. The student is expected to:
(G) use concrete objects and pictorial models to develop the formulas for the volume of a rectangular prism, including the special form for a cube ($V = l \times w \times h$, $V = s \times s \times s$, and $V = Bh$).	(B) model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes.	(A) model the relationship between the volume of a rectangular prism and a rectangular pyramid having both congruent bases and heights and connect that relationship to the formulas.	(A) describe the volume formula $V = Bh$ of a cylinder in terms of its base area and its height.	(D) apply the formulas for the volume of three-dimensional figures, including prisms, pyramids, cones, cylinders, spheres, and composite figures, to solve problems using appropriate units of measure.
(H) represent and solve problems related to perimeter and/or area and related to volume.	(C) write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers.	(B) explain verbally and symbolically the relationship between the volume of a triangular prism and a triangular pyramid having both congruent bases and heights and connect that relationship to the formulas.	(B) model the relationship between the volume of a cylinder and a cone having both congruent bases and heights and connect that relationship to the formulas.	
(6) Geometry and measurement. The student applies mathematical process standards to understand, recognize, and quantify volume. The student is expected to:		(C) use models to determine the approximate formulas for the circumference and area of a circle and connect the models to the actual formulas.		
(A) recognize a cube with side length of one unit as a unit cube having one cubic unit of volume and the volume of a three-dimensional figure as the number of unit cubes (n cubic units) needed to fill it with no gaps or overlaps if possible.				

Grade 5	Grade 6	Grade 7 Connecting Algebra and Geometry	Grade 8	Geometry
(6) Geometry and measurement. The student applies mathematical process standards to understand, recognize, and quantify volume. The student is expected to:	(8) Expressions, equations, and relationships. The student applies mathematical process standards to use geometry to represent relationships and solve problems. The student is expected to:	(9) Expressions, equations, and relationships. The student applies mathematical process standards to solve geometric problems. The student is expected to:	(7) Expressions, equations, and relationships. The student applies mathematical process standards to use geometry to solve problems. The student is expected to:	(11) Two-dimensional and three-dimensional figures. The student uses the process skills in the application of formulas to determine measures of two- and three-dimensional figures. The student is expected to:
(B) determine the volume of a rectangular prism with whole number side lengths in problems related to the number of layers times the number of unit cubes in the area of the base.	(D) determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers.	(B) determine the circumference and area of circles.	(A) solve problems involving the volume of cylinders, cones, and spheres.	(D) apply the formulas for the volume of three-dimensional figures, including prisms, pyramids, cones, cylinders, spheres, and composite figures, to solve problems using appropriate units of measure.

Grade 5	Grade 6	Grade 7 Connecting Algebra and Geometry	Grade 8	Geometry
(4) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:	(8) Expressions, equations, and relationships. The student applies mathematical process standards to use geometry to represent relationships and solve problems. The student is expected to:	(9) Expressions, equations, and relationships. The student applies mathematical process standards to solve geometric problems. The student is expected to:	(7) Expressions, equations, and relationships. The student applies mathematical process standards to use geometry to solve problems. The student is expected to:	(11) Two-dimensional and three-dimensional figures. The student uses the process skills in the application of formulas to determine measures of two- and three-dimensional figures. The student is expected to:
(H) represent and solve problems related to perimeter and/or area and related to volume.	(B) model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes.	(B) determine the circumference and area of circles.		(A) apply the formula for the area of regular polygons to solve problems using appropriate units of measure.
		(C) determine the area of composite figures containing combinations of rectangles, squares, parallelograms, trapezoids, triangles, semicircles, and quarter circles.		(B) determine the area of composite two-dimensional figures comprised of a combination of triangles, parallelograms, trapezoids, kites, regular polygons, or sectors of circles to solve problems using appropriate units of measure.
		(D) solve problems involving the lateral and total surface area of a rectangular prism, rectangular pyramid, triangular prism, and triangular pyramid by determining the area of the shape's net.	(B) use previous knowledge of surface area to make connections to the formulas for lateral and total surface area and determine solutions for problems involving rectangular prisms, triangular prisms, and cylinders.	(C) apply the formulas for the total and lateral surface area of three-dimensional figures, including prisms, pyramids, cones, cylinders, spheres, and composite figures, to solve problems using appropriate units of measure.
				(D) determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers.
				(C) apply the proportional relationship between the measure of the area of a sector of a circle and the area of the circle to solve problems.

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
Two- and Three-Dimensional Measures				
			(10) Two-dimensional shapes. The student applies mathematical process standards to develop transformational geometry concepts. The student is expected to:	(10) Two-dimensional and three-dimensional figures. The student uses the process skills to recognize characteristics and dimensional changes of two- and three-dimensional figures. The student is expected to:
			(D) model the effect on linear and area measurements of dilated two-dimensional shapes.	(B) determine and describe how changes in the linear dimensions of a shape affect its perimeter, area, surface area, or volume, including proportional and non-proportional dimensional change.
(4) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:		(5) Proportionality. The student applies mathematical process standards to use geometry to describe or solve problems involving proportional relationships. The student is expected to:		(12) Circles. The student uses the process skills to understand geometric relationships and apply theorems and equations about circles. The student is expected to:
(H) represent and solve problems related to perimeter and/or area and related to volume.		(B) describe π as the ratio of the circumference of a circle to its diameter.		(B) apply the proportional relationship between the measure of an arc length of a circle and the circumference of the circle to solve problems.
				(D) describe radian measure of an angle as the ratio of the length of an arc intercepted by a central angle and the radius of the circle.

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
			Pythagorean Theorem	
			(6) Expressions, equations, and relationships. The student applies mathematical process standards to develop mathematical relationships and make connections to geometric formulas. The student is expected to:	(6) Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:
			(C) use models and diagrams to explain the Pythagorean theorem.	(D) verify theorems about the relationships in triangles, including proof of the Pythagorean Theorem, the sum of interior angles, base angles of isosceles triangles, midsegments, and medians, and apply these relationships to solve problems.
			(7) Expressions, equations, and relationships. The student applies mathematical process standards to use geometry to solve problems. The student is expected to:	(9) Similarity, proof, and trigonometry. The student uses the process skills to understand and apply relationships in right triangles. The student is expected to:
			(C) use the Pythagorean Theorem and its converse to solve problems.	(B) apply the relationships in special right triangles 30° - 60° - 90° and 45° - 45° - 90° and the Pythagorean theorem, including Pythagorean triples, to solve problems.

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
			Pythagorean Theorem	
			(7) Expressions, equations, and relationships. The student applies mathematical process standards to use geometry to solve problems. The student is expected to:	(2) Coordinate and transformational geometry. The student uses the process skills to understand the connections between algebra and geometry and uses the one- and two-dimensional coordinate systems to verify geometric conjectures. The student is expected to:
			(D) determine the distance between two points on a coordinate plane using the Pythagorean Theorem.	(A) determine the coordinates of a point that is a given fractional distance less than one from one end of a line segment to the other in one- and two-dimensional coordinate systems, including finding the midpoint. (B) derive and use the distance, slope, and midpoint formulas to verify geometric relationships, including congruence of segments and parallelism or perpendicularity of pairs of lines.

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
	<p>(8) Expressions, equations, and relationships. The student applies mathematical process standards to use geometry to represent relationships and solve problems. The student is expected to:</p>	<p>(11) Expressions, equations, and relationships. The student applies mathematical process standards to solve one-variable equations and inequalities. The student is expected to:</p>	<p>(8) Expressions, equations, and relationships. The student applies mathematical process standards to use one-variable equations or inequalities in problem situations. The student is expected to:</p>	<p>(5) Logical argument and constructions. The student uses constructions to validate conjectures about geometric figures. The student is expected to:</p>
	<p>(A) extend previous knowledge of triangles and their properties to include the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle.</p>	<p>(C) write and solve equations using geometry concepts, including the sum of the angles in a triangle, and angle relationships.</p>	<p>(D) use informal arguments to establish facts about the angle sum and exterior angle of triangles, the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.</p>	<p>(A) investigate patterns to make conjectures about geometric relationships, including angles formed by parallel lines cut by a transversal, criteria required for triangle congruence, special segments of triangles, diagonals of quadrilaterals, interior and exterior angles of polygons, and special segments and angles of circles choosing from a variety of tools.</p> <p>(D) verify the Triangle Inequality theorem using constructions and apply the theorem to solve problems.</p>

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
	<p>(10) Expressions, equations, and relationships. The student applies mathematical process standards to use equations and inequalities to solve problems. The student is expected to:</p>	<p>(11) Expressions, equations, and relationships. The student applies mathematical process standards to solve one-variable equations and inequalities. The student is expected to:</p>	<p>(8) Expressions, equations, and relationships. The student applies mathematical process standards to use one-variable equations or inequalities in problem situations. The student is expected to:</p>	<p>(6) Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:</p>
				<p>(A) verify theorems about angles formed by the intersection of lines and line segments, including vertical angles, and angles formed by parallel lines cut by a transversal and prove equidistance between the endpoints of a segment and points on its perpendicular bisector and apply these relationships to solve problems.</p>
	<p>(A) model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts.</p>	<p>(C) write and solve equations using geometry concepts, including the sum of the angles in a triangle, and angle relationships.</p>	<p>(D) use informal arguments to establish facts about the angle sum and exterior angle of triangles, the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.</p>	<p>(D) verify theorems about the relationships in triangles, including proof of the Pythagorean Theorem, the sum of interior angles, base angles of isosceles triangles, mid-segments, and medians, and apply these relationships to solve problems.</p>
				<p>(7) Similarity, proof, and trigonometry. The student uses the process skills in applying similarity to solve problems. The student is expected to:</p> <p>(B) apply the Angle-Angle criterion to verify similar triangles and apply the proportionality of the corresponding sides to solve problems.</p>

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
		Developing Concepts Related to Proportionality		
	(4) Proportionality. The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. The student is expected to:	(4) Proportionality. The student applies mathematical process standards to represent and solve problems involving proportional relationships. The student is expected to:		(9) Similarity, proof, and trigonometry. The student uses the process skills to understand and apply relationships in right triangles. The student is expected to:
	(B) apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates.			
	(C) give examples of ratios as multiplicative comparisons of two quantities describing the same attribute.			(A) determine the lengths of sides and measures of angles in a right triangle by applying the trigonometric ratios sine, cosine, and tangent to solve problems.
	(D) give examples of rates as the comparison by division of two quantities having different attributes, including rates as quotients.	(A) represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d = rt$.		
		(B) calculate unit rates from rates in mathematical and real-world problems.		
	(E) represent ratios and percents with concrete models, fractions, and decimals.	(D) solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems.		

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
	Developing Concepts Related to Proportionality			
	<p>(4) Proportionality. The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. The student is expected to:</p>	<p>(4) Proportionality. The student applies mathematical process standards to represent and solve problems involving proportional relationships. The student is expected to:</p>		
	<p>(F) represent benchmark fractions and percents such as 1%, 10%, 25%, $33\frac{1}{3}\%$, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers.</p>	<p>(D) solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems.</p>		
	<p>(5) Proportionality. The student applies mathematical process standards to solve problems involving proportional relationships. The student is expected to:</p>	<p>(4) Proportionality. The student applies mathematical process standards to represent and solve problems involving proportional relationships. The student is expected to:</p>		
	<p>(A) represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions.</p>	<p>(A) represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d = rt$.</p>		
	<p>(B) solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of <u>concrete and pictorial models</u>.</p>	<p>(D) solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems.</p>		
	<p>(C) use equivalent fractions, decimals, and percents to show equal parts of the same whole.</p>			

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
		Connecting Proportionality and Geometry		
		(5) Proportionality. The student applies mathematical process standards to use geometry to describe or solve problems involving proportional relationships. The student is expected to:		(8) Similarity, proof, and trigonometry. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:
		(A) generalize the critical attributes of similarity, including ratios within and between similar shapes.		(A) prove theorems about similar triangles, including the Triangle Proportionality theorem, and apply these theorems to solve problems.
(C) solve mathematical and real-world problems involving similar shape and scale drawings.				

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
		Connecting Proportionality and their Applications and Probability and Statistics		
		(6) Proportionality. The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. The student is expected to:		(13) Probability. The student uses the process skills to understand probability in real-world situations and how to apply independence and dependence of events. The student is expected to:
		(A) represent sample spaces for simple and compound events using lists and tree diagrams.		(A) develop strategies to use permutations and combinations to solve contextual problems.
		(B) select and use different simulations to represent simple and compound events with and without technology.		
		(C) make predictions and determine solutions using experimental data for simple and compound events.		(C) identify whether two events are independent and compute the probability of the two events occurring together with or without replacement.
		(D) make predictions and determine solutions using theoretical probability for simple and compound events.		(D) apply conditional probability in contextual problems.
		(E) find the probabilities of a simple event and its complement and describe the relationship between the two.		(E) apply independence in contextual problems.
		(F) use data from a random sample to make inferences about a population.		
		(G) solve problems using data represented in bar graphs, dot plots, and circle graphs, including part-to-whole and part-to-part comparisons and equivalents.		
		(H) solve problems using qualitative and quantitative predictions and comparisons from simple experiments.		
		(I) determine experimental and theoretical probabilities related to simple and compound events using data and sample spaces.		(B) determine probabilities based on area to solve contextual problems.

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
			Generalizing Attributes of Similar Figures	
			(3) Proportionality. The student applies mathematical process standards to use proportional relationships to describe dilations. The student is expected to:	(7) Similarity, proof, and trigonometry. The student uses the process skills in applying similarity to solve problems. The student is expected to:
			(A) generalize that the ratio of corresponding sides of similar shapes are proportional, including a shape and its dilation.	(A) apply the definition of similarity in terms of a dilation to identify similar figures and their proportional sides and the congruent corresponding angles.
(B) compare and contrast the attributes of a shape and its dilation(s) on a coordinate plane.				

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
			Generalizing Attributes with Transformational Geometry	
			(10) Two-dimensional shapes. The student applies mathematical process standards to develop transformational geometry concepts. The student is expected to:	(3) Coordinate and transformational geometry. The student uses the process skills to generate and describe rigid transformations (translation, reflection, and rotation) and non-rigid transformations (dilations that preserve similarity and reductions and enlargements that do not preserve similarity). The student is expected to:
			(A) generalize the properties of orientation and congruence of rotations, reflections, translations, and dilations of two-dimensional shapes on a coordinate plane.	(A) describe and perform transformations of figures in a plane using coordinate notation.
			(B) differentiate between transformations that preserve congruence and those that do not.	(B) determine the image or pre-image of a given two-dimensional figure under a composition of rigid transformations, a composition of non-rigid transformations, and a composition of both, including dilations where the center can be any point in the plane.
				(C) identify the sequence of transformations that will carry a given pre-image onto an image on and off the coordinate plane.
	(D) identify and distinguish between reflectional and rotational symmetry in a plane figure.			

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
<p>(5) Geometry and measurement. The student applies mathematical process standards to classify two-dimensional figures by attributes and properties. The student is expected to:</p>	<p>Classifying and Sorting Two- Dimensional Figures</p>			<p>(6) Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:</p>
<p>(A) classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties.</p>				<p>(E) prove a quadrilateral is a parallelogram, rectangle, square, or rhombus using opposite sides, opposite angles, or diagonals and apply these relationships to solve problems.</p>
<p>Solving Problems Using Measurement Systems</p>				
<p>(7) Geometry and measurement. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving measurement. The student is expected to:</p>	<p>(4) Proportionality. The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. The student is expected to:</p>	<p>(4) Proportionality. The student applies mathematical process standards to represent and solve problems involving proportional relationships. The student is expected to:</p>		
<p>(A) solve problems by calculating conversions within a measurement system, customary or metric.</p>	<p>(H) convert units within a measurement system, including the use of proportions and unit rates.</p>	<p>(E) convert between measurement systems, including the use of proportions and the use of unit rates.</p>		

Grade 5 Graphing on the Coordinate Plane	Grade 6	Grade 7	Grade 8 Representing Dilations on the Coordinate Plane	Geometry
<p>(8) Geometry and measurement. The student applies mathematical process standards to identify locations on a coordinate plane. The student is expected to:</p>	<p>(11) Measurement and data. The student applies mathematical process standards to use coordinate geometry to identify locations on a plane. The student is expected to</p>		<p>(3) Proportionality. The student applies mathematical process standards to use proportional relationships to describe dilations. The student is expected to:</p>	<p>(3) Coordinate and transformational geometry. The student uses the process skills to generate and describe rigid transformations (translation, reflection, and rotation) and non-rigid transformations (dilations that preserve similarity and reductions and enlargements that do not preserve similarity). The student is expected to:</p>
<p>(A) describe the key attributes of the coordinate plane, including perpendicular number lines (axes) where the intersection (origin) of the two lines coincides with zero on each number line and the given point (0, 0). the x-coordinate, the first number in an ordered pair, indicates movement parallel to the x-axis starting at the origin. the y-coordinate, the second number, indicates movement parallel to the y-axis starting at the origin.</p>	<p>(A) graph points in all four quadrants using ordered pairs of rational numbers.</p>		<p>(C) use an algebraic representation to explain the effect of a given positive rational scale factor applied to two-dimensional figures on a coordinate plane with the origin as the center of dilation.</p>	<p>(A) describe and perform transformations of figures in a plane using coordinate notation.</p> <p>(B) determine the image or pre-image of a given two-dimensional figure under a composition of rigid transformations, a composition of non-rigid transformations, and a composition of both, including dilations where the center can be any point in the plane.</p> <p>(C) identify the sequence of transformations that will carry a given pre-image onto an image on and off the coordinate plane.</p>

Grade 5 Graphing on the Coordinate Plane	Grade 6	Grade 7	Grade 8 Applying Transformational Geometry and the Coordinate Plane	Geometry
(8) Geometry and measurement. The student applies mathematical process standards to identify locations on a coordinate plane. The student is expected to:		(10) Two-dimensional shapes. The student applies mathematical process standards to develop transformational geometry concepts. The student is expected to:	(3) Coordinate and transformational geometry. The student uses the process skills to generate and describe rigid transformations (translation, reflection, and rotation) and non-rigid transformations (dilations that preserve similarity and reductions and enlargements that do not preserve similarity). The student is expected to:	
(B) describe the process for graphing ordered pairs of numbers in the first quadrant of the coordinate plane.			(A) describe and perform transformations of figures in a plane using coordinate notation.	
(C) graph in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table.		(C) explain the effect of translations, reflections over the x- or y-axis, and rotations limited to 90°, 180°, 270°, and 360° as applied to two-dimensional shapes on a coordinate plane using an algebraic representation.	(B) determine the image or pre-image of a given two-dimensional figure under a composition of rigid transformations, a composition of non-rigid transformations, and a composition of both, including dilations where the center can be any point in the plane.	
			(C) identify the sequence of transformations that will carry a given pre-image onto an image on and off the coordinate plane.	

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
Representing Data				
(9) Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to:	(12) Measurement and data. The student applies mathematical process standards to use numerical or graphical representations to analyze problems. The student is expected to:		(11) Measurement and data. The student applies mathematical process standards to use statistical procedures to describe data. The student is expected to:	
(A) represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem-and-leaf plots.	(A) represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots.			
(B) represent discrete paired data on a scatterplot.			(A) construct a scatterplot and describe the observed data to address questions of association such as linear, non-linear, and no association between bivariate data.	
Drawing Conclusions and Solving Problems Using Representations of Data				
(9) Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to:	(13) Measurement and data. The student applies mathematical process standards to use numerical or graphical representations to solve problems. The student is expected to:			
(C) solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot.	(A) interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots.			
	(B) distinguish between situations that yield data with and without variability.			

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
	Describing Data Distribution and Drawing Inferences			
	(12) Measurement and data. The student applies mathematical process standards to use numerical or graphical representations to analyze problems. The student is expected to:	(12) Measurement and data. The student applies mathematical process standards to use statistical representations to analyze data. The student is expected to:	(11) Measurement and data. The student applies mathematical process standards to use statistical procedures to describe data. The student is expected to:	
	(B) use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution.	(A) compare two groups of numeric data using comparative dot plots or box plots by comparing their shapes, centers, and spreads.	(B) determine the mean absolute deviation and use this quantity as a measure of the average distance data are from the mean using a data set of no more than 10 data points.	
	(C) summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution.			
	(D) summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution.			
		(B) use data from a random sample to make inferences about a population.	(C) simulate generating random samples of the same size from a population with known characteristics to develop the notion of a random sample being representative of the population from which it was selected.	
		(C) compare two populations based on data in random samples from these populations, including informal comparative inferences about differences between the two populations.		

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
	Considering Income and Careers			
(10) Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. The student is expected to:	(14) Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to:	(13) Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to:	(12) Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to:	
(A) define income tax, payroll tax, sales tax, and property tax.		(A) calculate the sales tax for a given purchase and calculate income tax for earned wages.		
(B) explain the difference between gross income and net income.	(H) compare the annual salary of several occupations requiring various levels of post-secondary education or vocational training and calculate the effects of the different annual salaries on lifetime income.			
		Considering Saving and Investing		
		(13) Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to:	(12) Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to:	
		(E) calculate and compare simple interest and compound interest earnings.	(D) calculate and compare simple interest and compound interest earnings.	
			(C) explain how small amounts of money invested regularly, including money saved for college and retirement, grow over time.	
			(G) estimate the cost of a two-year and four-year college education, including family contribution, and devise a periodic savings plan for accumulating the money needed to contribute to the total cost of attendance for at least the first year of college.	

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
	Considering Credit and Debt			
(10) Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. The student is expected to:	(14) Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to:	(13) Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to:	(12) Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to:	
(C) identify the advantages and disadvantages of different methods of payment, including check, credit card, debit card, and electronic payments.	(B) distinguish between debit cards and credit cards.		(A) solve real-world problems comparing how interest rate and loan length affect the cost of credit.	
	(D) explain why it is important to establish a positive credit history.		(B) calculate the total cost of repaying a loan, including credit cards and easy access loans, under various rates of interest and over different periods using an online calculator.	
	(E) describe the information in a credit report and how long it is retained.			
	(F) describe the value of credit reports to borrowers and to lenders.			
	(G) explain various methods to pay for college, including through savings, grants, scholarships, student loans, and work-study.	(F) analyze and compare monetary incentives, including sales, rebates, and coupons.	(E) identify and explain the advantages and disadvantages of different payment methods.	

Grade 5	Grade 6 Considering Planning and Money Management		Grade 7	Grade 8	Geometry
(10) Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. The student is expected to:	(14) Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to:	(13) Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to:	(12) Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to:		
	(A) compare the features and costs of a checking account and a debit card offered by different local financial institutions.		(F) analyze situations to determine if they represent financially responsible decisions and identify the benefits of financial responsibility and the costs of financial irresponsibility.		
(D) develop a system for keeping and using financial records.	(C) balance a check register that includes deposits, withdrawals, and transfers.	(C) create and organize a financial assets and liabilities record and construct a net worth statement.			
(E) describe actions that might be taken to balance a budget when expenses exceed income.					
(F) balance a simple budget.		(B) identify the components of a personal budget, including income, planned savings for college, retirement, and emergencies, taxes, fixed and variable expenses, and calculate what percentage each category comprises of the total budget. (D) use a family budget estimator to determine the minimum household budget and average hourly wage needed for a family to meet its basic needs in the student's city or another large city nearby.			

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
				(4) Logical argument and constructions. The student uses the process skills with deductive reasoning to understand geometric relationships. The student is expected to:
				(A) distinguish between undefined terms, definitions, postulates, conjectures, and theorems.
				(B) identify and determine the validity of the converse, inverse, and contrapositive of a conditional statement and recognize the connection between a biconditional statement and a true conditional statement with a true converse.
				(C) verify that a conjecture is false using a counterexample.
				(D) compare geometric relationships between Euclidean and spherical geometries, including parallel lines and the sum of the angles in a triangle.
				(5) Logical argument and constructions. The student uses constructions to validate conjectures about geometric figures. The student is expected to:
				(B) construct congruent segments, congruent angles, a segment bisector, an angle bisector, perpendicular lines, the perpendicular bisector of a line segment, and a line parallel to a given line through a point not on a line using a compass and a straightedge.

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
				<p>(C) use the constructions of congruent segments, congruent angles, angle bisectors, and perpendicular bisectors to make conjectures about geometric relationships.</p>
				<p>(6) Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:</p>
				<p>(B) prove two triangles are congruent by applying the Side-Angle-Side, Angle-Side-Angle, Side-Side-Side, Angle-Angle-Side, and Hypotenuse-Leg congruence conditions.</p>
				<p>(C) apply the definition of congruence, in terms of rigid transformations, to identify congruent figures and their corresponding sides and angles.</p>
				<p>(8) Similarity, proof, and trigonometry. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:</p>
				<p>(A) prove theorems about similar triangles, including the Triangle Proportionality theorem, and apply these theorems to solve problems.</p>
				<p>(B) identify and apply the relationships that exist when an altitude is drawn to the hypotenuse of a right triangle, including the geometric mean, to solve problems.</p>

Grade 5	Grade 6	Grade 7	Grade 8	Geometry
				<p>(10) Two-dimensional and three-dimensional figures. The student uses the process skills to recognize characteristics and dimensional changes of two- and three-dimensional figures. The student is expected to:</p>
				<p>(A) identify the shapes of two-dimensional cross-sections of prisms, pyramids, cylinders, cones, and spheres and identify three-dimensional objects generated by rotations of two-dimensional shapes.</p>
				<p>(12) Circles. The student uses the process skills to understand geometric relationships and apply theorems and equations about circles. The student is expected to:</p>
				<p>(A) apply theorems about circles, including relationships among angles, radii, chords, tangents, and secants, to solve non-contextual problems.</p>
				<p>(E) show that the equation of a circle with center at the origin and radius r is $x^2 + y^2 = r^2$ and determine the equation for the graph of a circle with radius r and center (h, k), $(x - h)^2 + (y - k)^2 = r^2$.</p>