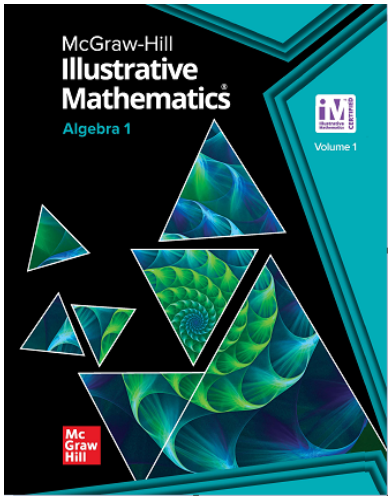

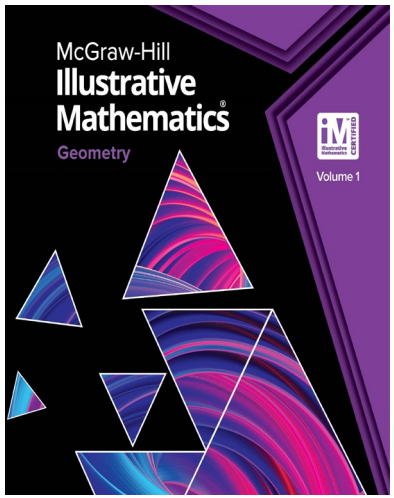

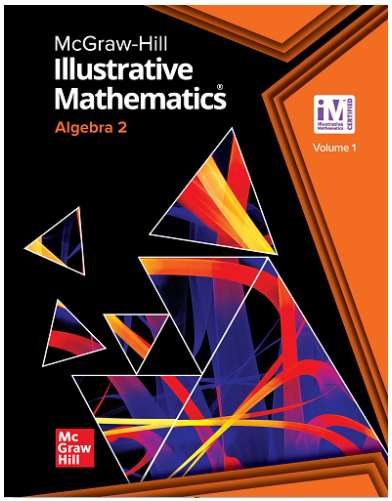

Mathematic Standards
High School

STANDARDS	MODULE-LESSON		
	Algebra 1	**Geometry**	**Algebra 2**
Algebraic Reasoning: Expressions and Equations (HS.AEE)			
HS.AEE.A Use algebraic reasoning to rewrite expressions in equivalent forms.			
HS.AEE.A.1 Interpret an expression which models a quantity by viewing one or more of its parts as a single entity. Reason about how changes in parts of the expression impact the whole, and vice versa.	5-7		2-1, 2-2, 2-7, 2-18, 2-19, 2-26, 4-2, 4-4, 4-6, 4-7
HS.AEE.A.2 Create and recognize an equivalent form of an expression to understand the quantity represented in an authentic context.	6-8, 6-9, 7-4, 7-5, 7-6, 7-7, 7-8, 7-9, 7-10		4-10, 4-11
HS.AEE.A.3 Rearrange formulas and equations to highlight a specific quantity.	2-8, 2-9		
HS.AEE.B Use algebraic reasoning to find solutions to an equation, inequality, and systems of equations or inequalities.			
HS.AEE.B.4 Define variables and create equations with two or more variables to represent relationships between quantities in order to solve problems in authentic contexts.	2-12, 2-13, 2-14, 2-15, 2-16, 2-17	6-9	2-1, 2-2, 2-16, 2-17, 2-20
HS.AEE.B.5 Define variables and create inequalities with one or more variables and use them to solve problems in authentic contexts.	2-18, 2-19, 2-20, 2-21, 2-22, 2-23		2-20, 2-21

STANDARDS	MODULE-LESSON		
	Algebra 1	**Geometry**	**Algebra 2**
HS.AEE.B.6 Solve systems of linear equations and systems of linear inequalities in authentic contexts through reasoning, algebraic means, or strategically using technology.	2-12, 2-13, 2-14, 2-15, 2-16, 2-17		
HS.AEE.C Analyze the structure of an equation or inequality to determine an efficient strategy to find and justify a solution.			
HS.AEE.C.7 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities; interpret solutions as viable or nonviable options in authentic contexts.	2-12, 2-13, 2-14, 2-15, 2-16, 2-17, 2-21, 2-22, 2-23, 2-24, 2-25, 2-26		
HS.AEE.C.8 Construct a viable argument to justify a method for solving equations or inequalities.	2-6, 2-7		2-20, 2-21, 2-22, 4-14
HS.AEE.D Make predictions in different applications using expressions, equations, and inequalities to analyze authentic contexts.			
HS.AEE.D.9 Understand that the solution to an equation in two variables is a set of points in the coordinate plane that form a curve, which could be a line.	2-5, 2-10, 2-11	6-9	
HS.AEE.D.10 Recognize and explain why the point(s) of intersection of the graphs of f(x) and g(x) are solutions to the equation f(x)=g(x). Interpret the meaning of the coordinates of these points in authentic contexts.	2-12, 2-13, 2-14, 2-15, 2-16, 2-17	6-13	

STANDARDS	MODULE-LESSON		
HS.AEE.D.11 Graph and explain why the points in a half plane are solutions to a linear inequality and the solutions to a system of inequalities are the points in the intersection of corresponding half planes. Interpret the meaning of the coordinates of these points in authentic contexts.	2-18, 2-19, 2-20, 2-21, 2-22, 2-23, 2-24, 2-25, 2-26		
Algebraic Reasoning: Functions (HS.AFN)			
HS.AFN.A Describe functions by using both symbolic and graphical representations.			
HS.AFN.A.1 Understand a function as a rule that assigns a unique output for every input and that functions model situations where one quantity determines another.	4-1, 4-2, 4-3, 4-10, 4-11		1-5
HS.AFN.A.2 Use function notation and interpret statements that use function notation in terms of the context and the relationship it describes.	4-2, 4-3, 4-4, 4-5		1-5
HS.AFN.A.3 Calculate and interpret the average rate of change of a function over a specified interval.	4-7	6-10, 6-11	1-5, 1-6, 1-9, 1-10, 4-1, 4-2, 5-9
HS.AFN.B Compare and relate functions using common attributes.			
HS.AFN.B.4 Compare properties of two functions using multiple representations. Distinguish functions as members of the same family using common attributes.	4-1, 4-6, 4-7, 4-8, 4-9, 5-12, 5-13, 5-20, 6-11, 6-12, 6-13, 6-14, 6-15, 6-16, 6-17		2-16, 2-17, 2-18, 4-15, 4-16, 4-17

STANDARDS	MODULE-LESSON		
HS.AFN.B.5 Relate the domain of a function to its graph and to its context.	4-10, 4-11		
HS.AFN.C Represent functions graphically and interpret key features in terms of the equivalent symbolic representation			
HS.AFN.C.6 Interpret key features of functions, from multiple representations, and conversely predict features of functions from knowledge of context.	4-6, 4-7, 4-8, 4-9, 5-6, 6-5, 6-6, 6-7	6-9	
HS.AFN.C.7 Graph functions using technology to show key features.	4-6, 4-7, 4-8, 4-9, 6-11, 6-12, 6-13, 6-14, 6-15, 6-16, 6-17	6-9	2-3, 2-17, 4-13, 6-9, 6-12
HS.AFN.D Model a wide variety of authentic situations using functions through the process of making and changing assumptions, assigning variables, and finding solutions to contextual problems.			
HS.AFN.D.8 Model situations involving arithmetic patterns. Use a variety of representations such as pictures, graphs, or an explicit formula to describe the pattern.	6-3		1-3, 1-4, 1-5, 1-6, 1-7
HS.AFN.D.9 Identify and interpret the effect on the graph of a function when the equation has been transformed.	6-17		5-2, 5-3, 5-4, 5-7
HS.AFN.D.10 Explain why a situation can be modeled with a linear function, an exponential function, or neither. In a given model, explain the meaning of coefficients and features of functions used, such as slope for a linear model.	5-19, 5-20		4-5

STANDARDS	MODULE-LESSON		
Numeric Reasoning: Number and Quantity (HS.NQ)			
HS.NQ.A Understand and apply the real number system			
HS.NQ.A.1 Use reasoning to establish properties of positive integer exponents. Extend the definition of exponentiation to include negative and rational exponents so as to be consistent with these properties. Utilize exponentiation to model authentic contexts.	5-7		3-3, 3-4, 3-5
HS.NQ.A.2 Compare real numbers presented through different representations, including both rational and irrational numbers. Apply comparisons in authentic contexts.	5-19, 5-20		3-2
HS.NQ.B Attend to units of measurement needed to solve problems through quantitative reasoning and mathematical modeling			
HS.NQ.B.3 Use reasoning to choose and interpret measurement units consistently in formulas, graphs, and data displays, as a way to understand problems and to guide the solution of multi-step problems.	1-2, 1-3, 1-9		
HS.NQ.B.4 Define, manipulate, and interpret appropriate quantities using rational and irrational numbers to authentically model situations and use reasoning to justify these choices.	3-4, 3-5, 4-18		3-2

STANDARDS	MODULE-LESSON		
HS.NQ.B.5 Use reasoning to choose a level of accuracy appropriate to limitations on measurement when reporting quantities in modeling situations.	3-10		
Geometric Reasoning and Measurement (HS.GM)			
HS.GM.A Apply geometric transformations to figures through analysis of graphs and understanding of functions.			
HS.GM.A.1 Apply definitions of rotations, reflections, and translations to transform a figure and map between two congurent figures in authentic contexts.		1-10, 1-11, 1-12, 1-13, 1-14	
HS.GM.A.2 Verify experimentally the properties of a dilation given a center and a scale factor. Solve problems in authentic contexts involving similar triangles or dilations.		3-3, 3-4, 3-6, 3-6, 3-7, 3-11	
HS.GM.A.3 Use the slopes of segments and the coordinates of the vertices of triangles, parallelograms, and trapezoids to solve problems in authentic contexts.		6-10, 6-11, 6-17	
HS.GM.A.4 Use definitions of transformations and symmetry relationships to justify the solutions of problems in authentic contexts.		1-10, 1-11, 1-12, 1-13, 1-14, 1-15, 1-16, 1-17	
HS.GM.B Construct and communicate geometric arguments through use of proofs, logical reasoning, and geometric technology.			
HS.GM.B.5 Apply and justify triangle congruence and similarity theorems in authentic contexts.		2-1, 2-2, 2-3, 2-4, 2-6, 2-7, 2-9, 3-5, 3-9, 3-10, 3-11, 3-13	

STANDARDS		MODULE-LESSON	
HS.GM.B.6 Justify theorems of line relationships, angles, triangles, and parallelograms; and use them to solve problems in authentic contexts.		1-19, 2-1, 2-2, 2-3, 2-4, 2-6, 2-7, 2-9, 3-156-10, 6-11	
HS.GM.B.7 Perform geometric constructions with a variety of tools and methods.		1-3, 1-5, 1-6, 1-8	
HS.GM.C Solve problems and interpret solutions of area and volume of shapes by applying concepts of congruence, similarity, symmetry in authentic contexts.			
HS.GM.C.8 Solve authentic modeling problems using area formulas for triangles, parallelograms, trapezoids, regular polygons, and circles.			
HS.GM.C.9 Use volume and surface area formulas for prisms, cylinders, pyramids, cones, and spheres to solve problems and apply to authentic contexts.		5-9, 5-10, 5-11, 5-12, 5-13, 5-14, 5-16, 5-17, 5-18	
HS.GM.C.10 Use geometric shapes, their measures, and their properties to describe real world objects, and solve related authentic modeling and design problems.		5-16, 5-17, 5-18	
HS.GM.C.11 Apply concepts of density based on area and volume in authentic modeling situations.		5-17	

STANDARDS		MODULE-LESSON	
HS.GM.D	**Apply concepts of right triangle trigonometry in authentic contexts to solve problems and interpret solutions.**		
HS.GM.D.12 Apply sine, cosine, and tangent ratios, and the Pythagorean Theorem, to solve problems in authentic contexts.		4-8, 4-9, 4-10	6-3, 6-4, 6-5, 6-6
HS.GM.D.13 Apply the Pythagorean Theorem in authentic contexts, and develop the standard form for the equation of a circle.		6-4	6-5, 6-6
HS.GM.D.14 Use the coordinate plane to determine parallel and perpendicular relationships, and the distance between points.		6-10, 6-11	
Data Reasoning and Probability (HS.DR)			
HS.DR.A	**Formulate Statistical Investigative Questions.**		
HS.DR.A.1 Formulate multivariable statistical investigative questions and determine how data from samples can be collected and analyzed to provide an answer.	1-1, 1-2, 1-3, 1-16		7-1, 7-2, 7-3
HS.DR.A.2 Formulate summative, comparative, and associative statistical investigative questions for surveys, observational studies, and experiments using primary or secondary data.	1-1, 1-2, 1-3, 1-16		7-2, 7-3, 7-9, 7-10, 7-15

STANDARDS	MODULE-LESSON		
HS.DR.A.3 Formulate inferential statistical investigative questions regarding causality and prediction from correlation.	3-7, 3-8, 3-9		7-15
HS.DR.A.4 Use mathematical and statistical reasoning to formulate questions about data to evaluate conclusions and assess risks.	1-1, 1-2, 1-3, 1-16		7-15
HS.DR.B Collect and Consider Data.			
HS.DR.B.5 Articulate what constitutes good practice in designing a sample survey, an experiment, and an observational study. Understand issues of bias and confounding variables in a study and their implications for interpretation.			7-1, 7-2, 7-3, 7-9
HS.DR.B.6 Distinguish and choose between surveys, observational studies, and experiments to design an appropriate data collection that answers an investigative question of interest.	1-1, 1-2, 1-3, 1-16		7-2
HS.DR.B.7 Apply an appropriate data collection plan when collecting primary data or selecting secondary data for the statistical investigative question of interest.	1-1, 1-2, 1-3, 1-16		7-13, 7-15

STANDARDS	MODULE-LESSON		
HS.DR.C **Analyze, summarize, and describe data.**			
HS.DR.C.8 Identify appropriate ways to summarize and then represent the distribution of univariate and bivariate data multiple ways with graphs and/or tables. Use technology to present data that supports interpretation of tabular and graphical representations.	1-2, 1-4, 1-5, 1-9, 1-11, 1-12, 1-13, 1-16		7-4, 7-5, 7-14
HS.DR.C.9 Use statistics appropriate to the shape of the data distribution to compare the center and spread of two or more different data sets.	1-11, 1-12, 1-13, 1-15, 1-16		7-4, 7-5, 7-14
HS.DR.C.10 Use data to compare two groups, describe sample variability, and decide if differences between parameters are significant based on the statistics.	3-1, 3-2, 3-3, 3-10		7-9
HS.DR.D **Interpret data and answer investigative questions.**			
HS.DR.D.11 Use statistical evidence from analyses to answer statistical investigative questions, and communicate the findings in a variety of formats (verbal, written, visual) to support informed data-based decisions.	1-1, 1-2, 1-3, 1-16		7-13, 7-15
HS.DR.D.12 Articulate what it means for an outcome or an estimate of a population characteristic to be plausible or not plausible compared to chance variation.			7-10, 7-11, 7-12

STANDARDS	MODULE-LESSON		
HS.DR.D.13 Use multivariate thinking to articulate how variables impact one another, and measure the strength of association using correlation coefficients for regression curves.	3-5, 3-6, 3-7, 3-8, 3-9		
HS.DR.E Understand independence and conditional probability and use them to interpret data.			
HS.DR.E.14 Describe the possible outcomes for a situation as subsets of a sample space.		8-3	
HS.DR.E.15 Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.		8-7, 8-8, 8-9, 8-10	