



## 8<sup>th</sup> Grade Correlation to Mathematics Course of Study

	Mathematics Curriculum Framework	Lesson Number	Lesson Title
<b>NUMBER AND OPERATIONS</b>			
8.1	Use various strategies and operations to solve problems involving real numbers.	HA1-003	Order of Operations
		HA1-040	The Addition Rule for Real Numbers
		HA1-045	Subtracting Real Numbers
		HA1-050	Multiplying Real Numbers
		HA1-055	Dividing Real Numbers
		HA1-062	Adding, Subtracting, Multiplying, and Dividing Real Numbers
	• Using alternative representations of rational numbers	HA1-480	Finding the Square Roots of Rational Numbers
		MPA-064	Finding Square Roots of Perfect Squares
		MPA-081	Converting Fractions, Decimals, and Percents I
		MPA-082	Converting Fractions, Decimals, and Percents II
	• Applying GCF, LCM, and prime and composite numbers, including justification for the reasonableness of results, when working with rational numbers	HA1-265	Writing a Number in Prime Factorization and Finding the Greatest Common Factor
		MPA-025	Identifying Prime and Composite Numbers
		MPA-026	Using Prime Factorization
		MPA-027	Finding the Greatest Common Factor
		MPA-030	Finding Least Common Multiple of Two or More Numbers
	• Applying proportional reasoning	MPA-080	Solving Proportions
	• Using vocabulary associated with sets, including union and intersection	HA1-886	Unions and Intersections of Sets Using Venn Diagrams
	• Determining whether a number is rational or irrational	HA1-020	Classifying Numbers into Subsets of Real Numbers
		MPA-124	Classifying Numbers in the Real Number System
	• Demonstrating computational fluency with operations on rational numbers	HA1-003	Order of Operations
		HA1-040	The Addition Rule for Real Numbers
		HA1-045	Subtracting Real Numbers
		HA1-050	Multiplying Real Numbers
		HA1-055	Dividing Real Numbers
		HA1-062	Adding, Subtracting, Multiplying, and Dividing Real Numbers
8.2	Simplify expressions containing natural number exponents by applying one or more of the laws of exponents.	HA1-860	Using the Laws of Exponents
	• Writing numbers using scientific notation	MPA-021	Converting Between Standard and Scientific Notation
8.3	Use order of operations to evaluate and simplify algebraic expressions.	HA1-005	Evaluating Algebraic Expressions
		HA1-060	Evaluating Expressions Using the Order of Operations
		HA1-065	Evaluating Expressions Containing Exponents
		HA1-070	Evaluating Formulas for Given Values of the Variables

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		HA1-075	Simplifying Algebraic Expressions by Combining Like Terms
		HA1-076	Basic Distributive Property
		HA1-080	Simplifying and Evaluating Algebraic Expressions Containing Grouping Symbols
		HA1-085	Simplifying Expressions Using the Properties of Real Numbers
		HA1-090	Simplifying Expressions Using the Property of -1
	• Applying the substitution principle	HA1-005	Evaluating Algebraic Expressions
		HA1-060	Evaluating Expressions Using the Order of Operations
		HA1-065	Evaluating Expressions Containing Exponents
		HA1-070	Evaluating Formulas for Given Values of the Variables
	• Applying the properties of operations on rational numbers to evaluate and simplify algebraic expressions	HA1-220	Identifying and Multiplying Monomials
		HA1-225	Dividing Monomials and Simplifying Expressions Having an Exponent of Zero
<b>ALGEBRA</b>			
8.4	Graph linear relations by plotting points or by using the slope and y-intercept.	MPA-102	Graphing Equations by Plotting Points
		MPA-103	Distinguishing Between Relations and Functions
		MPA-135	Determining the Slope of a Line
		MPA-140	Examining Linear Equations in Slope-Intercept Form
		MPA-142	Solving Problems With Linear Functions and Direct Variation
	• Determining slopes and y-intercepts of lines	MPA-150	Identifying and Graphing Linear and Nonlinear Functions
		MPA-135	Determining the Slope of a Line
		MPA-140	Examining Linear Equations in Slope-Intercept Form
		HA1-398	Graphing Linear Equations Using Slope and y-Intercept or Slope and a Point
	• Calculating the slope of a linear relation given as a table or graph	MPA-135	Determining the Slope of a Line
	• Exhibiting conceptual understanding of various uses of variables	MPA-135	Determining the Slope of a Line
8.5	Solve problems involving linear functions.		
	• Identifying functions from information in tables, sets of ordered pairs, equations, graphs, and mappings	HA1-402	Translating Among Multiple Representations of Functions
	• Determining the rule that defines a function	MPA-103	Distinguishing Between Relations and Functions
	• Classifying variables in a function as independent or dependent	HA1-438	Finding the Domain and Range of Functions
		HA1-402	Translating Among Multiple Representations of Functions
	• Classifying relations as linear or nonlinear by examining tables, graphs, or simple equations	MPA-150	Identifying and Graphing Linear and Nonlinear Functions
8.6	Solve multi-step linear equations, including equations requiring the use of the distributive property. For example, solving $-3(x - 5) - 6x = 2 + 4x$ .	MPA-100	Solving Two-Step Equations with Positive Coefficients (Future release)
		MPA-165	Solving Two-Step Equations with Negative Coefficients (Future release)
		MPA-101	Solving Two-Step Equations by Combining Like Terms (Future release)
		MPA-170	Solving Two-Step Equations Using the Distributive Property (Future release)
		MPA-175	Solving Equations with Variables on Both Sides (Future release)
<b>GEOMETRY</b>			
8.7	Solve problems using the Pythagorean Theorem.		
	• Applying the Triangle Inequality Theorem. For example, determining if a triangle can be formed with sides of 1 inch, 2 inches, and 5 inches.	HGM-160	Investigating Inequalities Involving One Triangle (Future release)
	• Verifying the Pythagorean Theorem	MPA-066	Solving Problems Using the Pythagorean Theorem
	• Applying the Pythagorean Theorem to determine if a triangle is a right triangle	MPA-066	Solving Problems Using the Pythagorean Theorem
	• Applying the Pythagorean Theorem to find the missing length of a side of a right triangle	MPA-066	Solving Problems Using the Pythagorean Theorem

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	<ul style="list-style-type: none"> <li>Calculating distances on the coordinate plane using the Pythagorean Theorem</li> </ul>	HA1-520	Finding the Distance Between Two Points on a Coordinate Plane
8.8	Compare quadrilaterals, triangles, and solids, using their properties and characteristics.	MPA-058	Identifying Polygons
		MPA-059	Classifying Triangles and Quadrilaterals
		MPA-060	Determining Which Figures Tessellate
		MPA-072	Identifying 3-D Figures
		MPA-106	Identifying a Solid Figure From a Net
	<ul style="list-style-type: none"> <li>Developing mathematical arguments about the relationships among types of quadrilaterals and triangles</li> </ul>	MPA-059	Classifying Triangles and Quadrilaterals
	<ul style="list-style-type: none"> <li>Identifying angle bisectors, perpendicular bisectors, congruent angles, and congruent figures</li> </ul>	MPA-058	Identifying Polygons
		MPA-059	Classifying Triangles and Quadrilaterals
		MPA-121	Identifying Similar and Congruent Polygons Using Proportions
		HGM-050	Using the Angle Addition Postulate and Properties of Angle Bisectors
	<ul style="list-style-type: none"> <li>Constructing congruent and similar polygons, congruent angles, congruent segments, and parallel and perpendicular lines</li> </ul>	MPA-121	Identifying Similar and Congruent Polygons Using Proportions
<b>MEASUREMENT</b>			
8.9	Determine the measures of special angle pairs, including adjacent, vertical, supplementary, and complementary angles, and angles formed by parallel lines cut by a transversal.	MPA-056	Classifying Angles
		MPA-057	Identifying and Applying Supplementary and Complementary Angles
		MPA-105	Determining the Measure of Angles Made by Parallel Lines and a Transversal
8.10	Find the perimeter and area of regular and irregular plane figures.	MPA-055	Finding the Perimeter of a Figure
		MPA-067	Finding the Area of Rectangles and Parallelograms
		MPA-068	Finding the Area of Irregular Figures
		MPA-069	Finding the Area of Triangles and Trapezoids
		MPA-070	Finding the Circumference of a Circle
		MPA-071	Finding the Area of a Circle
8.11	Determine the surface area and volume of rectangular prisms, cylinders, and pyramids. <ul style="list-style-type: none"> <li>Estimating surface area and volume of solid figures</li> </ul>	MPA-073	Finding the Surface Area of Rectangular Prisms
		MPA-074	Finding the Surface Area of Cylinders
		MPA-075	Finding the Volume of Rectangular Prisms
		MPA-076	Finding the Volume of Cylinders
	<ul style="list-style-type: none"> <li>Determining the appropriate units of measure to describe surface area and volume</li> </ul>	MPA-073	Finding the Surface Area of Rectangular Prisms
		MPA-074	Finding the Surface Area of Cylinders
		MPA-075	Finding the Volume of Rectangular Prisms
		MPA-076	Finding the Volume of Cylinders
	<ul style="list-style-type: none"> <li>Developing formulas for determining surface area and volume of rectangular prisms, cylinders, and pyramids</li> </ul>	MPA-073	Finding the Surface Area of Rectangular Prisms
		MPA-074	Finding the Surface Area of Cylinders
		MPA-075	Finding the Volume of Rectangular Prisms
		MPA-076	Finding the Volume of Cylinders
		MPA-115	Finding the Volumes of Prisms, Cylinders, Pyramids, and Cones Using Models
8.12	Determine the lengths of missing sides and measures of angles in similar and congruent figures. <ul style="list-style-type: none"> <li>Applying proportional reasoning</li> </ul>	MPA-121	Identifying Similar and Congruent Polygons Using Proportions
	<ul style="list-style-type: none"> <li>Using dilations on the coordinate plane to determine measures of similar figures</li> </ul>	MPA-120	Applying Dilations in the Coordinate Plane

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	<ul style="list-style-type: none"> <li>Finding the ratios of the perimeters and areas of similar triangles, trapezoids, and parallelograms</li> </ul>	MPA-111	Comparing Perimeters, Areas, and Volumes of Similar Geometric Figures and Solids
<b>DATA ANALYSIS AND PROBABILITY</b>			
8.13	Interpret data from populations, using given and collected data.	MPA-092	Reading and Interpreting Bar, Line, and Circle Graphs
		MPA-094	Interpreting and Constructing Line Plots
		MPA-096	Constructing Stem-and-Leaf Plots
		MPA-097	Constructing Box-and-Whisker Plots
		MPA-131	Interpreting and Creating Histograms
		MPA-132	Interpreting and Creating Scatter Plots
	<ul style="list-style-type: none"> <li>Representing the data with the most appropriate graph, including box-and-whisker plot, circle graph, and scatter plot</li> </ul>	MPA-098	Making Predictions from Graphs and Choosing the Correct Graph
	<ul style="list-style-type: none"> <li>Making predictions by estimating the line of best fit from a scatter plot</li> </ul>	MPA-132	Interpreting and Creating Scatter Plots
	<ul style="list-style-type: none"> <li>Comparing data sets involving two populations</li> </ul>	MPA-270	Interpreting Data
	<ul style="list-style-type: none"> <li>Determining the measure of center that is the most appropriate for a given situation</li> </ul>	HA1-540	Finding the Mean, Median, and Mode from Data and Frequency Distribution Tables
		HA1-541	Analyzing Data Using the Measures of Central Tendency and the Range
8.14	Determine the theoretical probability of an event.	MPA-090	Finding the Probability of Simple Real-Life Events
	<ul style="list-style-type: none"> <li>Calculating the probability of complementary events and mutually exclusive events</li> </ul>	HA1-560	Determining Probability of an Event and Complementary Event from a Random Experiment
		HA1-565	Solving Problems Involving Independent, Dependent, and Mutually Exclusive and Inclusive Events
		MM1-230	Finding the Probability of Simple Events
	<ul style="list-style-type: none"> <li>Comparing experimental and theoretical probability</li> </ul>	MM1-235	Finding Experimental Probability
	<ul style="list-style-type: none"> <li>Computing the probability of two independent events and two dependent events</li> </ul>	MPA-113	Finding the Probability of Compound Events Through Experimentation
	<ul style="list-style-type: none"> <li>Determining the probability of an event through simulation</li> </ul>	MPA-113	Finding the Probability of Compound Events Through Experimentation
		MPA-114	Finding the Odds of Events and Experimental Probability from a Math Model

MM1-Fundamentals of Mathematics

MPA- Pre-Algebra

HA1-Algebra 1

Note: Standards were taken from the Alabama Course of Study for 6<sup>th</sup>-8<sup>th</sup> Grade document adopted by the Alabama State Board of Education in 2003.