



## 8th Grade VSC Correlation

	Voluntary State Curriculum	Lesson Number	Lesson Title
<b>ALGEBRA, PATTERNS, AND FUNCTIONS</b>			
1.A.	Patterns and Functions		
1.A.1	Identify, describe, extend, and create patterns, functions and sequences		
	a) Determine the recursive relationship of arithmetic sequences represented in words, in a table or in a graph	HA1-447	Identifying Number Patterns
		HA1-448	Finding the nth Term of a Pattern
	b) Determine the recursive relationship of geometric sequences represented in words, in a table, or in a graph	HA1-447	Identifying Number Patterns
		HA1-448	Finding the nth Term of a Pattern
	c) Determine whether relationships are linear or nonlinear when represented in words, in a table, symbolically, or in a graph	HA1-380	Graphing Linear Equations
		HA1-437	Identifying Relations as Functions
		HA1-892	Data Analysis Using the Graphing Calculator
		HA1-940	Applications of Quadratic Equations
		HA1-965	Determining the Best-Fitting Line
	d) Determine whether relationships are linear or nonlinear when represented symbolically	HA1-437	Identifying Relations as Functions
		HA1-892	Data Analysis Using the Graphing Calculator
1.B.	Expressions, Equations, and Inequalities		
1.B.1	Write, simplify, and evaluate expressions		
	a) Write an algebraic expression to represent unknown quantities	MPA-041	Writing Simple Algebraic Expressions from Phrases
		HA1-095	Translating Word Phrases into Algebraic Expressions
		HA1-104	Translating Word Statements into Equations
	b) Evaluate an algebraic expression	MPA-014	Evaluating Expressions for Given Variables
		HA1-005	Evaluating Algebraic Expressions
		HA1-065	Evaluating Expressions Containing Exponents
		HA1-070	Evaluating Formulas for Given Values of the Variables
		HA1-080	Simplifying and Evaluating Algebraic Expressions Containing Grouping Symbols
	c) Evaluate numeric expressions using the order of operations	MPA-008	Order of Operations
		HA1-003	Order of Operations
		HA1-060	Evaluating Expressions Using the Order of Operations
	d) Simplify algebraic expressions by combining like terms	HA1-075	Simplifying Algebraic Expressions by Combining Like Terms
		HA1-080	Simplifying and Evaluating Algebraic Expressions Containing Grouping Symbols
	e) Describe a real-world situation represented by an algebraic expression	HA1-070	Evaluating Formulas for Given Values of the Variables
		HA1-075	Simplifying Algebraic Expressions by Combining Like Terms
		HA1-080	Simplifying and Evaluating Algebraic Expressions Containing Grouping Symbols

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		HA1-095	Translating Word Phrases into Algebraic Expressions
1.B.2	Identify, write, solve, and apply equations and inequalities		
	a) Write equations or inequalities to represent relationships	HA1-104	Translating Word Statements into Equations
		HA1-105	Translating Word Statements into Inequalities
		HA1-150	Writing an Equation to Solve Word Problems
		HA1-155	Writing an Equation to Solve Consecutive Integer Problems
		HA1-160	Writing an Equation to Solve Distance, Rate, and Time Problems
		HA1-165	Using Equations to Solve Percent Problems
	b) Solve for the unknown in a linear equation	HA1-115	Using the Addition and Subtraction Properties for Equations
		HA1-120	Using the Multiplication and Division Properties for Equations
		HA1-125	Solving Equations Using More Than One Property
		HA1-135	Evaluating Formulas
		HA1-140	Solving Equations by Combining Like Terms
		HA1-145	Solving Equations with Variables on Both Sides
		HA1-150	Writing an Equation to Solve Word Problems
		HA1-160	Writing an Equation to Solve Distance, Rate, and Time Problems
		HA1-165	Using Equations to Solve Percent Problems
		HA1-170	Solving Percent of Change Problems
		HA1-180	Graphing Equations and Inequalities on the Number Line
		HA1-382	Solving Linear Equations Using the Graphing Calculator
	c) Solve for the unknown in an inequality	HA1-180	Graphing Equations and Inequalities on the Number Line
		HA1-185	Solving Inequalities Using the Addition and Subtraction Properties
		HA1-190	Solving Inequalities Using the Multiplication and Division Properties
		HA1-195	Solving Inequalities Using More Than One Property
	d) Identify or graph solutions of inequalities on a number line	HA1-180	Graphing Equations and Inequalities on the Number Line
		HA1-185	Solving Inequalities Using the Addition and Subtraction Properties
		HA1-190	Solving Inequalities Using the Multiplication and Division Properties
		HA1-195	Solving Inequalities Using More Than One Property
	e) Identify equivalent equations	HA1-175	Solving Literal Equations
		HA1-394	Interchanging Linear Equations Between Standard Form and Slope-Intercept Form
		Throughout	
	f) Apply given formulas to a problem solving situation	HA1-160	Writing an Equation to Solve Distance, Rate, and Time Problems
		HA1-135	Evaluating Formulas
		HA1-175	Solving Literal Equations
		HA1-385	Finding the Slope of a Line from its Graph or from the Coordinates of Two Points
		HA1-520	Finding the Distance Between Two Points on a Coordinate Plane
		HA1-876	Applying Length, Midpoint and Slope of a Segment on a Cartesian Plane
		HA1-890	Using Models to Derive Formulas for Two-Dimensional Geometric Figures
		HA1-891	Using Models to Derive Formulas for Three-Dimensional Solids
	g) Write equations and inequalities that describe real-world problems	HA1-104	Translating Word Statements into Equations
		HA1-105	Translating Word Statements into Inequalities
		HA1-150	Writing an Equation to Solve Word Problems
		HA1-155	Writing an Equation to Solve Consecutive Integer Problems
		HA1-160	Writing an Equation to Solve Distance, Rate, and Time Problems
		HA1-165	Using Equations to Solve Percent Problems
		Throughout	
1.C.	Numeric and Graphic Representations of Relationships		
1.C.1	Locate points on a number line and in a coordinate plane		
	a) Graph linear equations in a coordinate plane	HA1-370	Graphing Ordered Pairs on a Coordinate Plane
		HA1-380	Graphing Linear Equations
		HA1-395	Drawing a Line Using Slope-Intercept and Determining if Two Lines are Parallel

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1.C.2	Analyze linear relationships	HA1-398	Graphing Linear Equations Using Slope and y-Intercept or Slope and a Point
	a) Determine the slope of a graph in a linear relationship	HA1-385	Finding the Slope of a Line from its Graph or from the Coordinates of Two Points
	b) Determine the slope of a linear relationship represented numerically or algebraically	HA1-395	Drawing a Line Using Slope-Intercept and Determining if Two Lines are Parallel
		HA1-398	Graphing Linear Equations Using Slope and y-Intercept or Slope and a Point
		HA1-410	Determining an Equation of a Line Given the Coordinates of Two Points
<b>GEOMETRY</b>			
2.A.	Properties of Plane Geometric Figures		
2.A.1	Analyze the properties of plane geometric figures		
	a) Identify and describe geometric relationships between angles formed when parallel lines are cut by a transversal.	MPA-105	Determining the Measure of Angles Made by Parallel Lines and a Transversal
	b) Identify and describe the relationship among the parts of a right triangle	MPA-059	Classifying Triangles and Quadrilaterals
		MPA-066	Solving Problems Using the Pythagorean Theorem
		HA1-515	Using the Pythagorean Theorem
2.A.2	Analyze geometric relationships		
	a) Determine the measurements of angles formed by parallel lines cut by a transversal	MPA-105	Determining the Measure of Angles Made by Parallel Lines and a Transversal
	b) Apply right angle concepts to solve real-world problems	MPA-066	Solving Problems Using the Pythagorean Theorem
		HA1-515	Using the Pythagorean Theorem
		HA1-516	Applications of the Pythagorean Theorem
	c) Determine whether three given side lengths form a right triangle	HA1-516	Applications of the Pythagorean Theorem
2.C.	Representation of Geometric Figures		
2.C.1	Represent plane geometric figures		
	a) Draw quadrilaterals	MPA-058	Identifying Polygons
		MPA-059	Classifying Triangles and Quadrilaterals
	b) Construct perpendicular line segments	MM1-455	Identifying Basic Terms Used in Geometry
		MM1-460	Measuring and Classifying Angles
	c) Construct triangles	MM1-480	Identifying and Labeling Triangles According to Their Sides and Angles
		MPA-058	Identifying Polygons
		MPA-059	Classifying Triangles and Quadrilaterals
2.D.	Congruence and Similarity		
2.D.1	Apply the properties of similar polygons		
	a) Determine similar parts of polygons	MPA-059	Classifying Triangles and Quadrilaterals
		MPA-111	Comparing Perimeters, Areas, and Volumes of Similar Geometric Figures and Solids
		MPA-121	Identifying Similar and Congruent Polygons Using Proportions
2.E.	Transformations		
2.E.1	Analyze a transformation on a coordinate plane		
	a) Identify, describe, and plot the results of multiple transformations on a coordinate plane	MPA-108	Graphing Translations and Reflections on the Coordinate Plane
		MPA-120	Applying Dilations in the Coordinate Plane
<b>MEASUREMENT</b>			
3.C.	Applications in Measurement		
3.C.1	Estimate and apply measurement formulas		
	a) Estimate and determine the circumference or area of a circle	MPA-070	Finding the Circumference of a Circle
		MPA-071	Finding the Area of a Circle
		MPA-068	Finding the Area of Irregular Figures
	b) Estimate and determine area of a composite figure	MPA-068	Finding the Area of Irregular Figures
		HA1-891	Using Models to Derive Formulas for Three-Dimensional Solids
	c) Estimate and determine the volume of a cylinder	MPA-076	Finding the Volume of Cylinders
		MPA-115	Finding the Volumes of Prisms, Cylinders, Pyramids, and Cones Using Models

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	d) Determine the volume of cones, pyramids, and spheres	HA1-891	Using Models to Derive Formulas for Three-Dimensional Solids
	e) Determine the surface area of cylinders, prisms, and pyramids	MPA-115	Finding the Volumes of Prisms, Cylinders, Pyramids, and Cones Using Models
		MPA-073	Finding the Surface Area of Rectangular Prisms
		MPA-074	Finding the Surface Area of Cylinders
		HA1-891	Using Models to Derive Formulas for Three-Dimensional Solids
3.C.2	Analyze measurement relationships		
	a) Use proportional reasoning to solve measurement problems	MPA-061	Converting Metric Units of Length, Capacity, and Mass
		MPA-062	Converting Units in Customary System
		MPA-079	Unit rates
		MPA-080	Solving Proportions
		MPA-110	Solving Problems Using Proportions, Scale Drawings, Models, and Maps
		MPA-111	Comparing Perimeters, Areas, and Volumes of Similar Geometric Figures and Solids
		MPA-121	Identifying Similar and Congruent Polygons Using Proportions
<b>STATISTICS</b>			
4.A.	Data Displays		
4.A.1	Organize and display data		
	a) Organize and display data to make circle graphs	MM1-405	Interpreting and Constructing Circle Graphs
		MPA-092	Reading and Interpreting Bar, Line, and Circle Graphs
	b) Organize and display data to make box-and-whisker plots	MPA-097	Constructing Box-and-Whisker Plots
	c) Organize and display data to make a scatter plot	MPA-132	Interpreting and Creating Scatter Plots
4.B.	Data Analysis		
4.B.1	Analyze data		
	a) Interpret tables	MPA-129	Choosing Appropriate Scales and Intervals for Data (an Introduction)
		Throughout	
	b) Interpret box-and-whisker plots	MM1-410	Interpreting Box-and-Whisker Plots
	c) Interpret scatter plots	MPA-132	Interpreting and Creating Scatter Plots
		MPA-098	Making Predictions from Graphs and Choosing the Correct Graph
	d) Interpret circle graphs	MM1-405	Interpreting and Constructing Circle Graphs
		MPA-092	Reading and Interpreting Bar, Line, and Circle Graphs
		MPA-098	Making Predictions from Graphs and Choosing the Correct Graph
	e) Analyze multiple box-and-whisker plots using the same scale		
<b>PROBABILITY</b>			
5.A.	Sample Space		
5.A.1	Identify a sample space		
	a) Describe the difference between independent and dependent events	MPA-090	Finding the Probability of Simple Real-Life Events
		HA1-560	Determining Probability of an Event and Complementary Event from a Random Experiment
	b) Determine the number of outcomes	MPA-089	Using Tree Diagrams
		MPA-091	Finding the Number of Combinations of a Set of Objects
		MPA-112	Constructing Sample Spaces for Compound Events (Dependent and Independent)
		HA1-879	Applying Counting Techniques to Permutations and Combinations
5.B.	Theoretical Probability		
5.B.1	Determine the probability of an event comprised of no more than 2 independent events		
	a) Express the probability of an event as a fraction, a decimal, or a percent	MPA-090	Finding the Probability of Simple Real-Life Events
		MPA-112	Constructing Sample Spaces for Compound Events (Dependent and Independent)
		MPA-113	Finding the Probability of Compound Events Through Experimentation
		HA1-560	Determining Probability of an Event and Complementary Event from a Random Experiment
5.C.	Experimental Probability		
5.C.1	Analyze the results of a survey or simulation		

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	a) Make predictions and express the probability of the results as a fraction, a decimal with no more than 2 decimal places, or a percent	MM1-235	Finding Experimental Probability
		MPA-114	Finding the Odds of Events and Experimental Probability from a Math Model
5.C.3	Compare outcomes of theoretical probability with the results of experimental probability	MM1-235	Finding Experimental Probability
		MPA-114	Finding the Odds of Events and Experimental Probability from a Math Model
5.C.4	Describe the difference between theoretical and experimental probability	MM1-235	Finding Experimental Probability
		MPA-114	Finding the Odds of Events and Experimental Probability from a Math Model
<b>NUMBER RELATIONSHIPS AND COMPUTATION/ARITHMETIC</b>			
6.A.	Knowledge of Number and Place Value		
6.A.1	Apply knowledge of rational numbers and place value		
	a) Read, write, and represent rational numbers	MPA-015	Identifying the Place Value of Decimals Through Thousandths
		MPA-028	Reducing Fractions to Lowest Terms/Simplest Form
		MPA-032	Converting Improper Fractions and Mixed Numbers
		MPA-043	Reading and Writing Integers
	b) Compare, order, and describe rational numbers with and without relational symbols (<, >, =)	MPA-001	Identifying, Comparing, and Ordering Whole Numbers Through Billions
		MPA-016	Comparing and Ordering Decimals
		MPA-031	Comparing and Ordering Fractions and Decimals
		MPA-045	Comparing and Ordering Integers
		MPA-124	Classifying Numbers in the Real Number System
		MPA-043	Reading and Writing Integers
6.C.	Number Computation		
6.C.1	Analyze number relations and compute		
	a) Add, subtract, multiply and divide integers	MPA-047	Adding Integers with Like Signs
		MPA-048	Adding Integers with Unlike Signs
		MPA-050	Subtracting Integers with Unlike Signs
		MPA-051	Multiplying Integers with Like and Unlike Signs
		MPA-052	Dividing Integers with Like and Unlike Signs
		MPA-053	Adding, Subtracting, Multiplying, and Dividing Integers
		MPA-117	Modeling Integer Arithmetic Using Cups and Counters
	b) Calculate powers of integers and square roots of perfect square whole numbers	MPA-013	Using Powers and Exponents in Expressions
		MPA-064	Finding Square Roots of Perfect Squares
	c) Identify and use the laws of exponents to simplify expressions	HA1-860	Using the Laws of Exponents
	d) Use properties of addition and multiplication to simplify expressions	MPA-002	Adding, Subtracting, Multiplying, and Dividing Whole Numbers
		HA1-085	Simplifying Expressions Using the Properties of Real Numbers
		Throughout	
6.C.2	Estimation		
	a) Estimate the square roots of whole numbers	MPA-065	Estimating Square Roots
6.C.3	Analyze ratios, proportions, and percents		
	a) Determine unit rates	MPA-079	Unit rates
	b) Determine or use percents, rates of increase and decrease, discount, commission, sales tax, and simple interest in the context of a problem	MPA-083	Finding Number Given Percent and Total
		MPA-084	Finding Percent Given Number and Total
		MPA-085	Finding Total Given Number and Percent
		MPA-086	Solving Problems Using Percent
		MPA-087	Finding Percent Increase and Decrease
		MPA-088	Solving Real-World Problems Involving Percent
		MPA-126	Solving Real-World Problems Involving Sales Tax

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		MPA-127	Solving Real-World Problems Involving Discounts
		MPA-128	Solving Real-World Problems Involving Simple Interest
		HA1-165	Using Equations to Solve Percent Problems
	c) Solve problems using proportional reasoning	HA1-170	Solving Percent of Change Problems
		MPA-078	Expressing Ratios as Fractions and Determining Equivalency
		MPA-080	Solving Proportions
		MPA-110	Solving Problems Using Proportions, Scale Drawings, Models, and Maps
		MPA-121	Identifying Similar and Congruent Polygons Using Proportions
		HA1-360	Expressing Ratios in Simplest Form and Solving Equations Involving Proportions
<b>PROCESSES OF MATHEMATICS</b>			
7.A.	Problem Solving		
7.A.1	Apply a variety of concepts, processes, and skills to solve problems		
	a. Identify the question in the problem	MM1-425	Classifying Information from a Mathematical Story
		MPA-125	Formulating a Possible Problem Situation Given an Equation
	b. Decide if enough information is present to solve the problem	MM1-425	Classifying Information from a Mathematical Story
	c. Make a plan to solve a problem	MPA-003	Using Four-Step Plan for Problem Solving
	d. Apply a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation	MPA-116	Solving Real-Life Problems by Using Guess-and-Check and Working Backwards
		MPA-007	Solving Problems Using Logical Reasoning Skills
		Throughout	
	e. Select a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation	MPA-116	Solving Real-Life Problems by Using Guess-and-Check and Working Backwards
		MPA-007	Solving Problems Using Logical Reasoning Skills
		Throughout	
	f. Identify alternative ways to solve a problem	Throughout	
	g. Show that a problem might have multiple solutions or no solution	Throughout	
	h. Extend the solution of a problem to a new problem situation		
7.B.	Reasoning		
7.B.1	Justify ideas or solutions with mathematical concepts or proofs		
	a. Use inductive or deductive reasoning	MPA-007	Solving Problems Using Logical Reasoning Skills
	b. Make or test generalizations	MPA-007	Solving Problems Using Logical Reasoning Skills
	c. Support or refute mathematical statements or solutions	Throughout	
	d. Use methods of proof, i.e., direct, indirect, paragraph, or contradiction	HA1-881	Completing and Validating Algebraic Proofs
7.C.	Communication		
7.C.1	Present mathematical ideas using words, symbols, visual displays, or technology		
	a. Use multiple representations to express concepts or solutions	Throughout	
	b. Express mathematical ideas orally	Throughout	
	c. Explain mathematically ideas in written form	Throughout	
	d. Express solutions using concrete materials	Throughout	
	e. Express solutions using pictorial, tabular, graphical, or algebraic methods	MM1-435	Using Pictographs, Bar Graphs and Line Graphs to Solve Problems
		Throughout	
	f. Explain solutions in written form	Throughout	
		Throughout	
	g. Ask questions about mathematical ideas or problems	Throughout	
	h. Give or use feedback to revise mathematical thinking	Throughout	
7.D.	Connections		
7.D.1	Relate or apply mathematics within the discipline, to other disciplines, and to life	Throughout	
	a. Identify mathematical concepts in relationship to other mathematical concepts	Throughout	

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	b. Identify mathematical concepts in relationship to other disciplines	Throughout	
	c. Identify mathematical concepts in relationship to life	Throughout	
	d. Use the relationship among mathematical concepts to learn other mathematical concepts	Throughout	

*MM1-Fundamentals of Mathematics (Fall 2005)*

*MPA- Pre-Algebra*

*HA1-Algebra 1*

*Note: Standards were taken from the Maryland Voluntary State Curriculum document for Mathematics Grades 3-8 adopted by the Maryland State Department of Education in 2004.*