



## 8<sup>th</sup> Grade Mathematics Curriculum Framework

	Mathematics Curriculum Framework	Lesson Number	Lesson Title
<b>NUMBER AND OPERATIONS</b>			
NO.1.8.1	Read, write, compare and solve problems, with and without appropriate <i>technology</i> , including numbers less than 1 in <i>scientific notation</i>	MPA-021	Converting Between Standard and Scientific Notation
		HA1-235	Writing, Multiplying, and Dividing Numbers Written in Scientific Notation
NO.1.8.2	Convert between <i>scientific notation</i> and <i>standard notation</i> , including numbers from zero to one.	MPA-021	Converting Between Standard and Scientific Notation
NO.1.8.3	Compare and order <i>real numbers</i> including <i>irrational numbers</i> and find their approximate location on a number line (Use <i>technology</i> when appropriate)	HA1-025	Comparing and Ordering Real Numbers
NO.1.8.4	Understand and justify classifications of numbers in the <i>real number system</i>	MPA-124	Classifying Numbers in the Real Number System
		HA1-020	Classifying Numbers into Subsets of Real Numbers
NO.2.8.1	Apply the addition, subtraction, multiplication and division properties of equality to two-step <i>equations</i>	MPA-100	Solving Two-Step Equations
		MPA-101	Solving Equations by Combining Like Terms
		HA1-125	Solving Equations Using More Than One Property
		HA1-140	Solving Equations by Combining Like Terms
NO.2.8.2	Understand and apply the <i>inverse</i> and <i>identity</i> properties	MPA-002	Adding, Subtracting, Multiplying, and Dividing Whole Numbers
		MPA-010	Solving One-Step Equations of Whole Numbers Using Addition and Subtraction
		MPA-011	Solving One-Step Equations of Whole Numbers Using Multiplication and Division
NO.2.8.3	Use <i>inverse</i> relationships (addition and subtraction, multiplication and division, <i>squaring</i> and <i>square roots</i> ) in problem solving situations	MPA-010	Solving One-Step Equations of Whole Numbers Using Addition and Subtraction
		MPA-011	Solving One-Step Equations of Whole Numbers Using Multiplication and Division
		MPA-012	Solving One-Step Equations of Whole Numbers Using All Operations
		MPA-042	Solving Problems Using an Equation
		MPA-066	Solving Problems Using the Pythagorean Theorem
		<i>Throughout</i>	
NO.2.8.4	Apply rules (conventions) for <i>order of operations</i> to <i>rational numbers</i>	HA1-003	Order of Operations
NO.2.8.5	Model and develop addition, subtraction, multiplication and division of <i>rational numbers</i>	HA1-035	Adding Real Numbers Using a Number Line
		HA1-040	The Addition Rule for Real Numbers
		HA1-045	Subtracting Real Numbers
		HA1-050	Multiplying Real Numbers
		HA1-055	Dividing Real Numbers
		HA1-060	Evaluating Expressions Using the Order of Operations
		HA1-062	Adding, Subtracting, Multiplying, and Dividing Real Numbers
NO.3.8.1	Compute, with and without appropriate <i>technology</i> , with <i>rational</i>	<i>Throughout</i>	

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NO.3.8.2	<i>numbers</i> in multi-step problems Solve, with and without appropriate <i>technology</i> , multi-step problems using a variety of methods and tools (i.e. objects, mental computation, paper and pencil)	MPA-003	Using Four-Step Plan for Problem Solving
		MPA-004	Using Rounding to Estimate
		MPA-005	Estimating Products and Quotients Using Patterns
		MPA-007	Solving Problems Using Logical Reasoning Skills
		MPA-116	Solving Real-Life Problems by Using Guess-and-Check and Working Backwards
		<i>Throughout</i>	
NO.3.8.3	Use <i>estimation</i> to solve problems involving <i>rational numbers</i> ; including <i>ratio</i> , <i>proportion</i> , <i>percent</i> (increase or decrease) then judge the reasonableness of solutions	MPA-004	Using Rounding to Estimate
		MPA-005	Estimating Products and Quotients Using Patterns
		MPA-006	Determining Reasonableness of Answers and Appropriate Method of Computation
		MPA-017	Rounding Decimals and Estimating Computations Using Decimals
		MPA-023	Rounding Quotients Involving Decimals
		MPA-033	Estimating Computations with Fractions and Mixed Numbers
		<i>Throughout</i>	
NO.3.8.4	Apply factorization to find <i>LCM</i> and <i>GCF</i> of <i>algebraic expressions</i>	MPA-027	Finding the Greatest Common Factor
		MPA-030	Finding Least Common Multiple of Two or More Numbers
		HA1-265	Writing a Number in Prime Factorization and Finding the Greatest Common Factor
		HA1-270	Factoring the Greatest Common Monomial Factor from a Polynomial
NO.3.8.5	Calculate and find approximations of <i>square roots</i> with appropriate <i>technology</i>	MPA-065	Estimating Square Roots
NO.3.8.6	Solve, with and without <i>technology</i> , real world <i>percent</i> problems including <i>percent</i> of increase or decrease	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
		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
		HA1-170	Solving Percent of Change Problems
<b>ALGEBRA</b>			
A.4.8.1	Find the $n^{\text{th}}$ term in a <i>pattern</i> or a <i>function</i> table	HA1-448	Finding the $n^{\text{th}}$ Term of a Pattern
A.4.8.2	Using real world situations, describe <i>patterns</i> in words, tables, pictures, and symbolic representations	HA1-447	Identifying Number Patterns
A.4.8.3	Interpret and represent a two operation <i>function</i> as an <i>algebraic equation</i>		
A.4.8.4	Use tables, graphs, and <i>equations</i> to identify <i>independent/dependent variables (input/output)</i>	HA1-438	Finding the Domain and Range of Functions
		HA1-439	Using Function Notation
A.5.8.1	Solve and graph two-step <i>equations</i> and <i>inequalities</i> with one <i>variable</i> and verify the reasonableness of the result with real world application with and without <i>technology</i>	HA1-125	Solving Equations Using More Than One Property
		HA1-140	Solving Equations by Combining Like Terms
		HA1-180	Graphing Equations and Inequalities on the Number Line
		HA1-195	Solving Inequalities Using More Than One Property
		HA1-382	Solving Linear Equations Using the Graphing Calculator
A.5.8.2	Solve and graph <i>linear equations</i> (in the form $y=mx+b$ )	HA1-385	Finding the Slope of a Line from its Graph or from the Coordinates of Two Points
		HA1-394	Interchanging Linear Equations Between Standard Form and Slope-Intercept Form
		HA1-395	Drawing a Line Using Slope-Intercept and Determining if Two Lines are Parallel

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A.5.8.3	Translate sentences into <i>algebraic equations</i> and <i>inequalities</i> and combine like terms within <i>polynomials</i>	HA1-398	Graphing Linear Equations Using Slope and y-Intercept or Slope and a Point
		HA1-104	Translating Word Statements into Equations
A.5.8.4	Write and evaluate <i>algebraic expressions</i> using <i>rational numbers</i>	HA1-105	Translating Word Statements into Inequalities
		HA1-240	Identifying the Degree of Polynomials and Simplifying by Combining Like Terms
		HA1-005	Evaluating Algebraic Expressions
		HA1-060	Evaluating Expressions Using the Order of Operations
		HA1-065	Evaluating Expressions Containing Exponents
A.6.8.1	Describe, with and without appropriate <i>technology</i> , the relationship between the graph of a line and its equation, including being able to explain the meaning of slope as a constant rate of change ( <i>rise/run</i> ) and <i>y-intercept</i> in real world problems	HA1-080	Simplifying and Evaluating Algebraic Expressions Containing Grouping Symbols
		HA1-095	Translating Word Phrases into Algebraic Expressions
		HA1-385	Finding the Slope of a Line from its Graph or from the Coordinates of Two Points
		HA1-401	How Variations of "m" and "b" Affect the Graph of $y = mx + b$
		HA1-375	Identifying Solutions of Equations in Two Variables
A.6.8.2	Represent, with and without appropriate <i>technology</i> , linear relationships concretely, using tables, graphs and equations	HA1-380	Graphing Linear Equations
		HA1-382	Solving Linear Equations Using the Graphing Calculator
		HA1-385	Finding the Slope of a Line from its Graph or from the Coordinates of Two Points
		HA1-394	Interchanging Linear Equations Between Standard Form and Slope-Intercept Form
		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
		HA1-401	How Variations of "m" and "b" Affect the Graph of $y = mx + b$
		HA1-405	Determining an Equation of a Line Given the Slope and Coordinates of One Point
		HA1-410	Determining an Equation of a Line Given the Coordinates of Two Points
		HA1-437	Identifying Relations as Functions
		HA1-438	Finding the Domain and Range of Functions
A.6.8.3	Differentiate between <i>independent/dependent variables</i> given a <i>linear relationship in context</i>	HA1-439	Using Function Notation
A.6.8.4	Represent, with and without appropriate <i>technology</i> , simple exponential and/or quadratic <i>functions</i> using verbal descriptions, tables, graphs and formulas and translate among these representations	HA1-437	Identifying Relations as Functions
A.7.8.1	Use, with and without <i>technology</i> , graphs of real life situations to describe the relationships and analyze change including graphs of change ( <i>cost per minute</i> ) and graphs of accumulation ( <i>total cost</i> )	HA1-960	Real-World Applications of Linear Functions
<b>GEOMETRY</b>			
G.8.8.1	Form generalizations and validate conclusions about properties of geometric shapes	HA1-890	Using Models to Derive Formulas for Two-Dimensional Geometric Figures
G.8.8.2	Make, with and without appropriate <i>technology</i> , and test <i>conjectures</i> about characteristics and properties between <i>two-dimensional</i> figures and <i>three-dimensional</i> objects	HA1-891	Using Models to Derive Formulas for Three-Dimensional Solids
		HA1-890	Using Models to Derive Formulas for Two-Dimensional Geometric Figures
G.8.8.3	Determine appropriate application of geometric ideas and relationships, such as <i>congruence</i> , <i>similarity</i> , and the <i>Pythagorean theorem</i> , with and without appropriate <i>technology</i>	HA1-891	Using Models to Derive Formulas for Three-Dimensional Solids
		MPA-066	Solving Problems Using the Pythagorean Theorem
		MPA-111	Comparing Perimeters, Areas, and Volumes of Similar Geometric Figures and Solids
		MPA-121	Identifying Similar and Congruent Polygons Using Proportions
		HA1-515	Using the Pythagorean Theorem
G.9.8.1	Determine a <i>transformation's line of symmetry</i> and compare the	HA1-516	Applications of the Pythagorean Theorem

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	properties of the figure and its <i>transformation</i>		
G.9.8.2	Draw the results of <i>translations</i> and <i>reflections</i> about the x- and y-axis and <i>rotations</i> of objects about the origin	MPA-108	Graphing Translations and Reflections on the Coordinate Plane
G.10.8.1	Use coordinate geometry to explore the links between geometric and algebraic representations of problems (lengths of segments/distance between points, <i>slope/perpendicular-parallel lines</i> )	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
G.11.8.1	Using isometric dot paper interpret and draw different views of buildings	MPA-107	Constructing Three-Dimensional Figures and Examining Their Dimensions
		HA1-893	Constructing Solids from Different Perspectives
<b>MEASUREMENT</b>			
M.12.8.1	Understand, select and use, with and without appropriate <i>technology</i> , the appropriate units and tools to measure angles, <i>perimeter</i> , <i>area</i> , <i>surface area</i> and <i>volume</i> to solve real world problems	MPA-130	Developing a Sense of Relative Sizes of Measures
		<i>Throughout</i>	
M.12.8.2	Describe and apply equivalent measures using a variety of units within the same system of measurement	MPA-061	Converting Metric Units of Length, Capacity, and Mass
		MPA-062	Converting Units in Customary System
M.13.8.1	Draw and apply measurement skills with <i>fluency</i> to appropriate levels of precision	MPA-133	Distinguishing Between Exact and Approximate Answers ( <b>future release</b> )
		MPA-134	Distinguishing Between Precision and Accuracy and Use Significant Digits in Computational Problems ( <b>future release</b> )
M.13.8.2	Solve problems involving <i>volume</i> and <i>surface area</i> of <i>pyramids</i> , <i>cones</i> and composite figures, with and without appropriate <i>technology</i>	MPA-115	Finding the Volumes of Prisms, Cylinders, Pyramids, and Cones Using Models
		HA1-891	Using Models to Derive Formulas for Three-Dimensional Solids
M.13.8.3	Apply proportional reasoning to solve problems involving indirect measurements, scale drawings or rates	MPA-079	Unit rates
		MPA-080	Solving Proportions
		MPA-110	Solving Problems Using Proportions, Scale Drawings, Models, and Maps
M.13.8.4	Find the distance between two points on a <i>coordinate plane</i> using with the <i>Pythagorean theorem</i>	HA1-516	Applications of the Pythagorean Theorem
		HA1-520	Finding the Distance Between Two Points on a Coordinate Plane
M.13.8.5	Estimate and compute the <i>area</i> of irregular <i>two-dimensional</i> shapes	MPA-068	Finding the Area of Irregular Figures
<b>DATA ANALYSIS AND PROBABILITY</b>			
DAP.14.8.1	Design and conduct investigations which include adequate number of trials, unbiased sampling, accurate measurement, record-keeping		
DAP.14.8.2	Explain which types of display are appropriate for various data sets ( <i>scatter plot</i> for relationship between two variants and <i>line of best fit</i> )	MPA-092	Reading and Interpreting Bar, Line, and Circle Graphs
DAP.14.8.3	Interpret or solve real world problems using data from charts, <i>line plots</i> , <i>stem-and leaf plots</i> , <i>double-bar graphs</i> , <i>line graphs</i> , <i>box-and whisker plots</i> , <i>scatter plots</i> , <i>frequency tables</i> or <i>double line graphs</i>	MPA-098 HA1-877 MPA-092	Making Predictions from Graphs and Choosing the Correct Graph Drawing Inferences and Making Predictions from Tables and Graphs Reading and Interpreting Bar, Line, and Circle Graphs
		MPA-094	Interpreting and Constructing Line Plots
		MPA-098	Making Predictions from Graphs and Choosing the Correct Graph
		MPA-099	Recognizing Misleading Statistics and Graphs
		MPA-132	Interpreting and Creating Scatterplots
DAP.15.8.1	Compare and contrast the reliability of data sets with different size populations		
DAP.15.8.2	Analyze, with and without appropriate <i>technology</i> , graphs by comparing measures of central tendencies and measures of spread	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

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DAP.15.8.3	Given at least one of the measures of <i>central tendency</i> create a data set		
DAP.15.8.4	Describe how the inclusion of <i>outliers</i> affects those measures	HA1-540	Finding the Mean, Median, and Mode from Data and Frequency Distribution Tables
DAP.16.8.1	Use observations about differences between sets of data to make <i>conjectures</i> about the populations from which the data was taken		
DAP.17.8.1	Compute, with and without appropriate <i>technology</i> , probabilities of compound events, using organized lists, <i>tree diagrams</i> and <i>logic grid</i>	MPA-089	Using Tree Diagrams
		MPA-112	Constructing Sample Spaces for Compound Events (Dependent and Independent)
DAP.17.8.2	Make predictions based on <i>theoretical probabilities</i> , design and conduct an experiment to test the predictions, compare actual results to predict results, and explain differences		

MM1-Fundamentals of Mathematics (Fall 2005)

MPA- Pre-Algebra

HA1-Algebra 1

Note: Standards were taken from the Arkansas K-8 Mathematics Curriculum Framework document adopted by the Arkansas State Board of Education and revised in 2004.