



## 7th Grade Correlation to Frameworks

	Mathematics Curriculum Framework	Lesson Number	Lesson Title
<b>NUMBER, NUMBER SENSE AND OPERATIONS</b>			
1.	Demonstrate an understanding of place value using powers of 10 and write large numbers in scientific notation.	MPA-015	Identifying the Place Value of Decimals Through Thousandths
		MPA-020	Multiplying Decimals by Powers of Ten
		MPA-021	Converting Between Standard and Scientific Notation
2.	Explain the meaning of exponents that are negative or 0.	MPA-013	Using Powers and Exponents in Expressions
		HA1-860	Using the Laws of Exponents
3.	Describe differences between rational and irrational numbers; e.g., use technology to show that some numbers (rational) can be expressed as terminating or repeating decimals and others (irrational) as non-terminating and non-repeating decimals.	MPA-124	Classifying Numbers in the Real Number System
		HA1-485	Writing Rational Numbers as Decimals or Fractions
4.	Use order of operations and properties to simplify numerical expressions involving integers, fractions and decimals.	HA1-003	Order of Operations
		HA1-060	Evaluating Expressions Using the Order of Operations
5.	Explain the meaning and effect of adding, subtracting, multiplying and dividing integers; e.g., how adding two integers can result in a lesser value.	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
6.	Simplify numerical expressions involving integers and use integers to solve real-life problems.	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
7.	Solve problems using the appropriate form of a rational number (fraction, decimal or percent).	MM1-215	Identifying a Rate to Solve Problems
		MM1-320	Performing Mathematical Operations with Decimal Numbers in Application Problems
		MM1-355	Solving Multiple-Step Problems
		MPA-087	Finding Percent Increase and Decrease
		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
8.	Develop and analyze algorithms for computing with percents and	MPA-117	Adding Integers with Like Signs

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	integers, and demonstrate fluency in their use.		
		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-054	Solving One-Step Equations with Integers Using all Four Operations
		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
9.	Represent and solve problem situations that can be modeled by and solved using concepts of absolute value, exponents and square roots (for perfect squares).	MPA-044	Finding Opposite and Absolute Values of Integers
		MPA-013	Using Powers and Exponents in Expressions
		MPA-064	Finding Square Roots of Perfect Squares
<b>MEASUREMENT</b>			
1.	Select appropriate units for measuring derived measurements; e.g., miles per hour, revolutions per minute.	MM1-535	Converting Customary Units of Measurement for Length
		MM1-540	Converting Customary Unit of Measurement for Capacity and Weight
		MM1-545	Converting Metric Units of Measurement for Length
		MM1-550	Converting Metric Units of Measurement for Mass and Capacity
		MM1-555	Determining Elapsed Time from A.M. to P.M. and P.M. to A.M.
2.	Convert units of area and volume within the same measurement system using proportional reasoning and a reference table when appropriate; e.g., square feet to square yards, cubic meters to cubic centimeters.		
3.	Estimate a measurement to a greater degree of precision than the tool provides.	MPA-130	Developing a Sense of Relative Sizes of Measures
		MPA-133	Distinguishing Between Exact and Approximate Answers (Future Release)
		MPA-134	Distinguishing Between Precision and Accuracy and Using Significant Digits in Computational Problems (Future Release)
4.	Solve problems involving proportional relationships and scale factors; e.g., scale models that require unit conversions within the same measurement system.	MPA-110	Solving Problems Using Proportions, Scale Drawings, Models, and Maps
		MPA-120	Applying Dilations in the Coordinate Plane
5.	Analyze problem situations involving measurement concepts, select appropriate strategies, and use an organized approach to solve narrative and increasingly complex problems.	MPA-062	Converting Units in Customary System
		MPA-063	Converting Units Between Metric and Customary System
6.	Use strategies to develop formulas for finding area of trapezoids and volume of cylinders and prisms.	MPA-069	Finding the Area of Triangles and Trapezoids
		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
7.	Develop strategies to find the area of composite shapes using the areas of triangles, parallelograms, circles and sectors.	MPA-068	Finding the Area of Irregular Figures
8.	Understand the difference between surface area and volume and demonstrate that two objects may have the same surface area, but different volumes or may have the same volume, but different surface	MPA-106	Identifying a Solid Figure From a Net

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	areas.		
		MPA-107	Constructing Three-Dimensional Figures and Examining Their Dimensions
		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-111	Comparing Perimeters, Areas, and Volumes of Similar Geometric Figures and Solids
		MPA-115	Finding the Volumes of Prisms, Cylinders, Pyramids, and Cones Using Models
9.	Describe what happens to the surface area and volume of a three-dimensional object when the measurements of the object are changed; e.g., length of sides are doubled.	MPA-111	Comparing Perimeters, Areas, and Volumes of Similar Geometric Figures and Solids
<b>GEOMETRY AND SPATIAL SENSE</b>			
1.	Use proportional reasoning to describe and express relationships between parts and attributes of similar and congruent figures.	MPA-121	Identifying Similar and Congruent Polygons Using Proportions
2.	Determine sufficient (not necessarily minimal) properties that define a specific two-dimensional figure or three-dimensional object. For example:		
	a. Determine when one set of figures is a subset of another; e.g., all squares are rectangles.	HGM-125	Classifying Polygons and Examining Their Diagonals (Future Release)
	b. Develop a set of properties that eliminates all but the desired figure; e.g., only squares are quadrilaterals with all sides congruent and all angles congruent.	HGM-125	Classifying Polygons and Examining Their Diagonals (Future Release)
3.	Use and demonstrate understanding of the properties of triangles. For example:		
	a. Use Pythagorean Theorem to solve problems involving right triangles.	MPA-066	Solving Problems Using the Pythagorean Theorem
		HA1-516	Applications of the Pythagorean Theorem
	b. Use triangle angle sum relationships to solve problems.	MPA-059	Classifying Triangles and Quadrilaterals
		HGM-145	Geometry Lesson: Classifying Polygons and Examining Their Diagonals (Future Release)
4.	Determine necessary conditions for congruence of triangles.	MPA-121	Identifying Similar and Congruent Polygons Using Proportions
5.	Apply properties of congruent or similar triangles to solve problems involving missing lengths and angle measures.	MPA-121	Identifying Similar and Congruent Polygons Using Proportions
6.	Determine and use scale factors for similar figures to solve problems using proportional reasoning.	MPA-111	Comparing Perimeters, Areas, and Volumes of Similar Geometric Figures and Solids
		MPA-120	Applying Dilations in the Coordinate Plane
7.	Identify the line and rotation symmetries of two-dimensional figures to solve problems.	<i>Content under Review</i>	
8.	Perform translations, reflections, rotations and dilations of two-dimensional figures using a variety of methods (paper folding, tracing, graph paper).	MPA-108	Graphing Translations and Reflections on the Coordinate Plane
		MPA-120	Applying Dilations in the Coordinate Plane
9.	Draw representations of three-dimensional geometric objects from different views.	HA1-893	Constructing Solids from Different Perspectives
<b>PATTERNS, FUNCTIONS AND ALGEBRA</b>			
1.	Represent and analyze patterns, rules and functions with words, tables, graphs and simple variable expressions.	MPA-104	Recognizing Patterns
		HA1-447	Identifying Number Patterns
		HA1-448	Finding the $n$ th Term of a Pattern
2.	Generalize patterns by describing in words how to find the next term.	MPA-104	Recognizing Patterns
		HA1-447	Identifying Number Patterns
		HA1-448	Finding the $n$ th Term of a Pattern
3.	Recognize and explain when numerical patterns are linear or	HA1-447	Identifying Number Patterns

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	nonlinear progressions; e.g., 1, 3, 5, 7... is linear and 1, 3, 4, 8, 16... is nonlinear.		
4.	Create visual representations of equation-solving processes that model the use of inverse operations.	HA1-448 MM1-625	Finding the nth Term of a Pattern Solving Algebraic Equations Using the Inverse Operations of Addition and Subtraction
		MM1-630	Solving Algebraic Equations Using the Inverse Operations of Multiplication and Division
		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
5.	Represent linear equations by plotting points in the coordinate plane.	MPA-046	Graphing Points on a Coordinate Plane
		MPA-102	Graphing Equations by Plotting Points
6.	Represent inequalities on a number line or a coordinate plane.	MPA-109	Solving and Graphing Linear Inequalities on a Number Line
		HA1-415	Graphing Linear Inequalities with Two Variables
		HA1-416	Graphing Linear Inequalities with Two Variables Using the Graphing Calculator
7.	Justify that two forms of an algebraic expression are equivalent, and recognize when an expression is simplified; e.g., $4m = m + m + m + m$ or $a \cdot 5 + 4 = 5a + 4$ .	HA1-085	Simplifying Expressions Using the Properties of Real Numbers
		HA1-075	Simplifying Algebraic Expressions by Combining Like Terms
8.	Use formulas in problem-solving situations.	HA1-070	Evaluating Formulas for Given Values of the Variables
9.	Recognize a variety of uses for variables; e.g., placeholder for an unknown quantity in an equation, generalization for a pattern, formula.	MM1-600	Introducing Variables in Algebra
		MM1-605	Converting Fahrenheit and Celsius
		MM1-610	Finding Simple Interest
		MM1-620	Using the Order of Operations in Algebraic Expressions
		MM1-625	Solving Algebraic Equations Using the Inverse Operations of Addition and Subtraction
		MM1-630	Solving Algebraic Equations Using the Inverse Operations of Multiplication and Division
		MM1-635	Calculating Distance, Rate, or Time by Solving Equations
		MM1-640	Solving Algebraic Word Problems
10.	Analyze linear and simple nonlinear relationships to explain how a change in one variable results in the change of another.		
11.	Use graphing calculators or computers to analyze change; e.g., distance-time relationships.	HA1-382	Solving Linear Equations Using the Graphing Calculator
		HA1-441	Applications of Functions and Relations Involving Distance, Rate, and Time
<b>DATA ANALYSIS AND PROBABILITY</b>			
1.	Read, create and interpret box-and-whisker plots, stem-and-leaf plots, and other types of graphs, when appropriate.	MPA-097	Constructing Box-and-Whisker Plots
		MPA-096	Constructing Stem-and-Leaf Plots
		MPA-094	Interpreting and Constructing Line Plots
		MPA-131	Interpreting and Creating Histograms
		MPA-132	Interpreting and Creating Scatter Plots
		MPA-098	Making Predictions from Graphs and Choosing the Correct Graph
2.	Analyze how decisions about graphing affect the graphical representation; e.g., scale, size of classes in a histogram, number of categories in a circle graph.	MPA-129	Choosing Appropriate Scales and Intervals for Data
		MPA-092	Reading and Interpreting Bar, Line, and Circle Graphs
		MPA-131	Interpreting and Creating Histograms
		MPA-132	Interpreting and Creating Scatter Plots
3.	Analyze a set of data by using and comparing combinations of measures of center (mean, mode, median) and measures of spread (range, quartile, interquartile range), and describe how the inclusion or exclusion of outliers affects those measures.	MPA-095	Find the Mean, Median, and Mode

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4.	Construct opposing arguments based on analysis of the same data, using different graphical representations.	MPA-097 MPA-095	Constructing Box-and-Whisker Plots Find the Mean, Median, and Mode
		MPA-097	Constructing Box-and-Whisker Plots
5.	Compare data from two or more samples to determine how sample selection can influence results.	MM1-385	Collecting Data
6.	Identify misuses of statistical data in articles, advertisements, and other media.	MM1-425	Classifying Information from a Mathematical Story
		MM1-430	Using Graphs to Solve Story Problems
		MPA-099	Recognizing Misleading Statistics and Graphs
7.	Compute probabilities of compound events; e.g., multiple coin tosses or multiple rolls of number cubes, using such methods as organized lists, tree diagrams and area models.	MPA-113	Finding the Probability of Compound Events Through Experimentation
		MPA-089	Using Tree Diagrams
8.	Make predictions based on theoretical probabilities, design and conduct an experiment to test the predictions, compare actual results to predicted results, and explain differences.	MPA-114	Finding the Odds of Events and Experimental Probability from a Math Model
		MM1-235	Finding Experimental Probability

MM1-Fundamentals of Mathematics

MPA- Pre-Algebra

HA1-Algebra 1

Note: Standards were taken from the Ohio K-12 Benchmark and Indicators by Grade Level document adopted by the Ohio State Board of Education in December, 2001.