



Correlation to 8th Grade Curriculum Framework

	Mathematics Curriculum Framework	Lesson Number	Lesson Title
Number Sense and Operations			
7.NSO-N.1.	Compare, order, estimate, and translate among integers, fractions, mixed numbers (i.e., rational numbers), decimals, and percents.	MPA-045	Comparing and Ordering Integers
		MPA-016	Comparing and Ordering Decimals
		MPA-017	Rounding Decimals and Estimating Computations Using Decimals
		MPA-029	Converting Fractions and Decimals
		MPA-031	Comparing and Ordering Fractions and Decimals
		MPA-032	Converting Improper Fractions and Mixed Numbers
		MM1-358	Converting Fractions and Mixed Numbers with Denominators of Powers of Ten to Decimals
		MM1-365	Converting Decimals to Fractions and Fractions to Decimals
		MM1-370	Converting Decimals to Percents and Percents to Decimals
		MM1-375	Converting Fractions to Percents and Percents to Fractions
		MM1-380	Converting Fractions to Decimals and Percents
7.NSO-N.2.	Know that in decimal form, rational numbers either terminate or eventually repeat; locate rational numbers on the number line; convert between common repeating decimals and fractions.	MPA-029	Converting Fractions and Decimals
		MPA-031	Comparing and Ordering Fractions and Decimals
7.NSO-N.3.	Know the concept of absolute value (e.g., $ -3 = 3 = 3$).	MPA-044	Finding Opposite and Absolute Values of Integers
7.NSO-N.4.	Represent numbers in scientific notation (positive powers of 10 only), and use that notation in problem situations.	MM1-350	Identifying and Using Scientific Notation to Express Large Numbers
7.NSO-N.5.	Differentiate between rational and irrational numbers (i.e., know that irrational numbers cannot be expressed as the quotient of two integers and cannot be represented by terminating or repeating decimals).	MPA-124	Classifying Numbers in the Real Number System
7.NSO-N.6.	Interpret positive whole-number powers as repeated multiplication and negative powers as repeated division or multiplication by the multiplicative inverse. Simplify and evaluate expressions that include exponents.	MPA-013	Using Powers and Exponents in Expressions
		MPA-014	Evaluating Expressions for Given Variables
7.NSO-N.7.	Apply number theory concepts, including prime factorization and relatively prime numbers, to the solution of problems (e.g., find the prime factorization of whole numbers, and write the results using exponents: $24 = 2 \times 2 \times 2 \times 3 = 2^3 \times 3$).	MPA-026	Using Prime Factorization
		MPA-027	Finding the Greatest Common Factor
		MPA-030	Finding Least Common Multiple of Two or More Numbers
7.NSO-N.8.	Express ratios in several ways (e.g., 3 cups to 5 people; 3:5; 3/5); recognize and find equivalent ratios.	MM1-205	Writing a Ratio to Compare Two Objects
		MM1-210	Identifying and Writing Equal Ratios
7.NSO-N.9.	Know the meaning of a square root of a number and its connection to the square whose area is the number.	MM1-565	Finding Squares and Square Roots

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7.NSO-C.10.	Compute with fractions (including simplification of fractions), integers, decimals, and percentages (including those greater than 100 and less than 1) using the four operations and combinations of the four operations.	MPA-028	Reducing Fractions to Lowest Terms/Simplest Form
		MPA-123	Modeling Multiplication and Division of Fractions
		MPA-034	Adding and Subtracting Fractions
		MPA-035	Adding and Subtracting Mixed Numbers with Unlike Denominators
		MPA-036	Multiplying Fractions and Mixed Numbers and Simplifying
		MPA-037	Dividing Fractions and Mixed Numbers and Simplifying
		MPA-117	Modeling Integer Arithmetic Using Cups and Counters
		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-018	Adding and Subtracting Decimals
		MPA-019	Multiplying Decimals
		MPA-020	Multiplying Decimals by Powers of Ten
		MPA-119	Dividing Decimals
		MPA-122	Modeling Multiplication and Division of Decimals
		MPA-081	Converting Fractions, Decimals, and Percents I
		MPA-082	Converting Fractions, Decimals, and Percents II
		MPA-083	Finding Number Given Percent and Total
		MPA-084	Finding Percent Given Number and Total
		MPA-085	Finding Total Given Number and Percent
7.NSO-C.11.	Demonstrate an understanding of the properties of arithmetic operations on rational numbers (integers, fractions, and terminating decimals); convert terminating decimals into reduced fractions.	MPA-002	Adding, Subtracting, Multiplying, and Dividing Whole Numbers (Properties)
		MM1-025	Identifying the Properties of Addition
		MM1-045	Identifying and Using Properties of Multiplication to Solve Problems
		MPA-029	Converting Fractions and Decimals
7.NSO-C.12.	Select and use appropriate operations — addition, subtraction, multiplication, division — to solve problems with rational numbers and negative integers.	MPA-002	Adding, Subtracting, Multiplying, and Dividing Whole Numbers (Properties)
		MM1-025	Identifying the Properties of Addition
		MM1-045	Identifying and Using Properties of Multiplication to Solve Problems
		MPA-029	Converting Fractions and Decimals
7.NSO-C.13.	Calculate the percentage increase and decrease of a quantity.	MPA-087	Finding Percent Increase and Decrease
7.NSO-C.14.	Use ratios and proportions in the solution of problems involving unit rates, scale drawings, and reading of maps.	MPA-078	Expressing Ratios as Fractions and Determining Equivalency
		MPA-079	Unit rates
		MPA-080	Solving Proportions
		MPA-110	Solving Problems Using Proportions, Scale Drawings, Models, and Maps
7.NSO-C.15.	Take positive and negative rational numbers to positive whole number powers.	HA1-860	Using the Laws of Exponents
7.NSO-C.16.	Apply the laws of exponents to multiply whole number positive and negative powers of whole numbers; divide whole number powers with like bases; explain the inverse relationship between negative and positive exponents.	HA1-860	Using the Laws of Exponents
7.NSO-C.17.	Use the inverse relationships of addition/subtraction and multiplication/division to simplify computations and solve problems (e.g., multiplying by 1/2 or 0.5 is the same as dividing by 2).	MM1-040	Using the Inverse Operations of Addition and Subtraction to Solve Problems Related to Number Sentences

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		MM1-050	Identifying Special Patterns in Multiplication
7.NSO-C.18.	Use the associative, commutative, and distributive properties; properties of the identity and inverse elements (e.g., $-7 + 7 = 0$; $3/4 \times 4/3 = 1$).	MPA-002	Adding, Subtracting, Multiplying, and Dividing Whole Numbers (Properties)
		MM1-025	Identifying the Properties of Addition
		MM1-045	Identifying and Using Properties of Multiplication to Solve Problems
		MPA-029	Converting Fractions and Decimals
7.NSO-C.19.	Know and apply the Order of Operations rules to expressions involving powers and roots.	MPA-008	Order of Operations
7.NSO-E.20.	Estimate results of computations with rational numbers; determine estimates to a certain stated accuracy.	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-133	Distinguishing Between Exact and Approximate Answers
Patterns, Relations, and Algebra			
7.PRA.1.	Extend, represent, analyze, and generalize a variety of patterns with tables, graphs, words, and, when possible, symbolic expressions. Include arithmetic and geometric progressions (e.g., compounding).	MPA-104	Recognizing Patterns
7.PRA.2.	Evaluate simple algebraic expressions for given variable values (e.g., $3a^2 - b$ for $a = 3$ and $b = 7$).	MM1-620	Using the Order of Operations in Algebraic Expressions
7.PRA.3.	Use the correct order of operations to evaluate expressions (e.g., $3(2x) = 5$).	MM1-620	Using the Order of Operations in Algebraic Expressions
7.PRA.4.	Create and use symbolic expressions for linear relationships, and relate them to verbal and graphical representations.	MPA-125	Formulating a Possible Problem Situation Given an Equation
7.PRA.5.	Use variables and appropriate operations to write an expression, equation, or inequality that represents a verbal description (e.g., 3 less than a number, $1/2$ as large as area A).	MM1-615	Translating Words into Algebra
		HA1-104	Translating Word Statements into Equations
		HA1-105	Translating Word Statements into Inequalities
7.PRA.6.	Write and solve two-step linear equations and check the answers.	MPA-054	Solving One-Step Equations with Integers Using all Four Operations
		MPA-100	Solving Two-Step Equations
		MPA-101	Solving Equations by Combining Like Terms
7.PRA.7.	Identify, describe, and analyze linear relationships between two variables. Compare positive rate of change (e.g., $y = 3x + 1$) to negative rate of change (e.g., $y = -3x + 1$).	MPA-102	Graphing Equations by Plotting Points
7.PRA.8.	Use linear equations to model and analyze problems involving proportional relationships.	HA1-450	Solving Problems Involving Direct Variation
7.PRA.9.	Simplify numerical expressions by applying properties of rational numbers (e.g., identity, inverse) and operations of rational numbers (distributive, associative, commutative); justify the process used.	MPA-002	Adding, Subtracting, Multiplying, and Dividing Whole Numbers (Properties)
		MM1-025	Identifying the Properties of Addition
		MM1-045	Identifying and Using Properties of Multiplication to Solve Problems
		MPA-029	Converting Fractions and Decimals
7.PRA.10.	Use algebraic terminology including, but not limited to, variable, equation, term, coefficient, inequality, expression, and constant.	MM1-600	Introducing Variables in Algebra
7.PRA.11.	Plot the values of quantities whose ratios are always the same (e.g., cost to the number of an item, feet to inches, circumference to diameter of a circle). Fit a line to the plot and understand that the slope of the line equals the quantities.	<i>New Lesson in Development</i>	<i>MPA-135 Slope of a Line (Future Release)</i>

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Geometry			
7.G.1.	Identify three-dimensional figures (e.g., prisms, pyramids) by their physical appearance, distinguishing attributes, and spatial relationships such as parallel faces.	MPA-072	Identifying 3-D Figures
7.G.2.	Demonstrate an understanding of conditions that indicate two geometrical figures are congruent and what congruence means about the relationships between the sides and angles of the two figures.	MPA-121	Identifying Similar and Congruent Polygons Using Proportions
7.G.3.	Classify figures in terms of congruence and similarity, and apply these relationships to the solution of problems.	MPA-121	Identifying Similar and Congruent Polygons Using Proportions
7.G.4.	Know and understand the Pythagorean theorem and its converse. Apply the theorem to the solution of problems, including using it to find the length of the missing side of a right triangle, and perimeter, area, and volume problems.	MPA-066	Solving Problems Using the Pythagorean Theorem
		MPA-069	Finding the Area of Triangles and Trapezoids
		MPA-115	Finding the Volumes of Prisms, Cylinders, Pyramids, and Cones Using Models
7.G.5.	Use compass, straightedge, and protractor to perform basic geometric constructions to draw polygons and circles.	<i>Content under Review</i>	
7.G.6.	Understand and use coordinate graphs to plot simple figures; determine lengths and areas related to them; and determine their image under translations, reflections, and rotations (e.g., predict how tessellations transform under translations, reflections, and rotations).	MPA-046	Graphing Points on a Coordinate Plane
		MPA-108	Graphing Translations and Reflections on the Coordinate Plane
		MPA-120	Applying Dilations in the Coordinate Plane
Measurement			
7.M.1.	Select, convert (between systems of measurement), and use appropriate units of measurement or scale.	MPA-062	Converting Units in Customary System
		MPA-061	Converting Metric Units of Length, Capacity, and Mass
		MPA-063	Converting Units Between Metric and Customary System
7.M.2.	Demonstrate an understanding of the concepts and apply formulas and procedures for determining measures, including those of area and perimeter/circumference of parallelograms, trapezoids, and circles. Given the formulas, determine the surface area and volume of rectangular prisms and cylinders.	MPA-055	Finding the Perimeter of a Figure
		MPA-067	Finding the Area of Rectangles and Parallelograms
		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
		MPA-068	Finding the Area of Irregular Figures
		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
7.M.3.	Demonstrate an understanding that rate is a measure of one quantity per unit value of another quantity; use models, graphs, and formulas to solve simple problems involving rates (e.g., velocity and density); check the units of the solutions; use dimensional analysis to check the reasonableness of the answer.	<i>New Lesson in Development</i>	<i>MM1-642 Rates (Future Release)</i>
7.M.4.	Construct and read drawings and models made to scale.	MPA-110	Solving Problems Using Proportions, Scale Drawings, Models, and Maps
7.M.5.	Use ratio and proportion, including scale factors, in the solution of problems.	MPA-111	Comparing Perimeters, Areas, and Volumes of Similar Geometric Figures and Solids

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Data Analysis, Statistics, and Probability			
7.DASP.1.	Find, describe, and interpret appropriate measures of central tendency (mean, median, and mode) and spread (range) that represent a set of data.	MPA-095	Find the Mean, Median, and Mode
		MPA-129	Choosing Appropriate Scales and Intervals for Data
7.DASP.2.	Select, create, interpret, and use various tabular and graphical representations of data (e.g., circle graphs, Venn diagrams, stem-and-leaf plots, histograms, tables, and charts).	MPA-092	Reading and Interpreting Bar, Line, and Circle Graphs
		MPA-096	Constructing Stem-and-Leaf Plots
		MPA-131	Interpreting and Creating Histograms
7.DASP.3.	Describe the characteristics and limitations of a data sample. Identify different ways of selecting a sample (e.g., convenience sampling, responses to a survey, random sampling).	MM1-385	Collecting Data
7.DASP.4.	Use tree diagrams, tables, organized lists, and area models to compute probabilities for simple compound events (e.g., multiple coin tosses or rolls of dice).	MPA-089	Using Tree Diagrams
		MPA-091	Finding the Number of Combinations of a Set of Objects
		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
		MPA-114	Finding the Odds of Events and Experimental Probability from a Math Model
7.DASP.5.	Understand that the probability of either of two disjoint events occurring is the sum of the two individual probabilities and that the probability of one event following another, in independent trials, is the product of the two probabilities.	MPA-113	Finding the Probability of Compound Events Through Experimentation
<i>MM1-Fundamentals of Mathematics</i>			
<i>MPA-Pre-Algebra</i>			
<i>HA1-Algebra 1</i>			
<i>HGM-Geometry (Future Release)</i>			
Note: Standards were taken from the Grade 7 Mathematics Academic Standards for District of Columbia Public Schools - Kindergarten Through Grade Twelve document adopted by the DCPS Board of Education in August 2006.			