



## Correlation to 7<sup>th</sup> Grade Curriculum Framework

|                                    | Mathematics Curriculum Framework   | Lesson Number | Lesson Title  |
|------------------------------------|--|---------------|---|
| <b>Number Sense and Operations</b> |  |               |   |
| 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                        |
| <b>Patterns, Relations, and Algebra</b> |  |                                  |   |
| 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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| <b>Geometry</b>    |   |                                  |  |
| 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                                       |
| <b>Measurement</b> |   |                                  |  |
| 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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| <b>Data Analysis, Statistics, and Probability</b>  |  |               |  |
| 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. |  |               |  |