

MCAS/DCCAS Mathematics Correlation Chart Grade 8

<i>MCAS Finish Line Mathematics Grade 8</i>	<i>MCAS Standard</i>	<i>DCCAS Standard</i>	<i>DCCAS Standard Description</i>
Unit 1: Number Sense			
Lesson 1: <i>Integers and Absolute Value</i>	8.N.1	7.NSO-N.1	Compare, order, estimate, and translate among integers, fractions, mixed numbers (i.e., rational numbers), decimals, and percents.
	8.N.6	8.NSO-N.3	Know that the absolute value is the distance of the number from 0; determine the absolute value and additive inverse of real numbers; determine the absolute value of rational numbers.
Lesson 2: <i>Scientific Notation</i>	8.N.4	8.NSO-N.4	Read, write, and compare rational numbers in scientific notation (positive and negative powers of 10), and use them in calculations and problem situations.
Lesson 3: <i>Percents and Equivalent Forms</i>	8.N.1	7.NSO-N.1	Compare, order, estimate, and translate among integers, fractions, mixed numbers (i.e., rational numbers), decimals, and percents.
Lesson 4: <i>Comparing Real Numbers</i>	8.N.1	7.NSO-N.1	Compare, order, estimate, and translate among integers, fractions, mixed numbers (i.e., rational numbers), decimals, and percents.
Lesson 5: <i>Ratios and Proportions</i>	8.N.3	8.NSO-C.9	Solve problems involving ratio units such as miles per hour, dollars per pound, or persons per square mile.
Lesson 6: <i>Factors, Multiples, and Primes</i>	8.N.5	7.NSO-N.7	Apply number theory concepts, including prime factorization and relatively prime numbers, to the solution of problems.
Unit 2: Operations, Part 1			



Lesson 1: <i>Operations with Integers</i>	8.N.9	8.NSO-C.13	Use the inverse relationship between squaring and finding the square root of a perfect square integer to solve problems.
		7.NSO-C.17	Use the inverse relationships of addition/subtraction and multiplication/division to simplify computations and solve problems (e.g., multiplying by $\frac{1}{2}$ or 0.5 is the same as dividing by 2).
	8.N.10	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.
Lesson 2: <i>Operations with Decimals</i>	8.N.10	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.
Lesson 3: <i>Operations with Fractions</i>	8.N.9	8.NSO-C.13	Use the inverse relationship between squaring and finding the square root of a perfect square integer to solve problems.
		7.NSO-C.17	Use the inverse relationships of addition/subtraction and multiplication/division to simplify computations and solve problems (e.g., multiplying by $\frac{1}{2}$ or 0.5 is the same as dividing by 2).
	8.N.10	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.
Lesson 4: <i>Operations with Percents</i>	8.N.10	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.
Unit 3: Operations, Part 2			
Lesson 1: <i>Exponents and Square Roots</i>	8.N.7	8.NSO-C.12	Apply the rules of powers and roots to the solution of problems.



	8.N.9	8.NSO-C.13	Use the inverse relationship between squaring and finding the square root of a perfect square integer to solve problems.
Lesson 2: <i>Order of Operations</i>	8.N.7	7.PRA.3	Use the correct order of operations to evaluate expressions.
Lesson 3: <i>Operation Properties</i>	8.N.8	8.NSO-N.7	Demonstrate an understanding of the properties of arithmetic operations on rational numbers.
Lesson 4: <i>Estimation</i>			
Unit 4: Geometry			
Lesson 1: <i>Pythagorean Theorem</i>	8.G.4	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.
Lesson 2: <i>Intersecting Lines and Angles</i>	8.G.3	8.G.2	Demonstrate an understanding of the relationships of angles formed by intersecting lines, including parallel lines cut by a transversal.
Lesson 3: <i>Angles of Polygons</i>	8.G.1	8.G.1	Analyze, apply, and explain the relationship between the number of sides and the sums of the interior and exterior angle measures of polygons.
Lesson 4: <i>Constructing Figures</i>	8.G.5	8.G.4	Use a straightedge, compass, protractor, or other tool to formulate and test conjectures and to draw geometric figures.
Lesson 5: <i>Solid Figures</i>	8.G.7	7.G.1	Identify three-dimensional figures (e.g., prisms, pyramids) by their physical appearance, distinguishing attributes, and spatial relationships, such as parallel faces.
	8.G.8	8.G.5	Apply spatial reasoning by recognizing and drawing two-dimensional representations of three-dimensional objects (e.g., nets, projections, and perspective drawings of cylinders, prisms, and cones).



Lesson 6: <i>Transformations</i>	8.G.6	7.G.6	Understand and use coordinate graphs to plot simple figures; determine lengths and area related to them; and determine their image under translations, reflections, and rotations (e.g., predict how tessellations transform under translations, reflections, and rotations).
Lesson 7: <i>Congruence and Similarity</i>	8.G.2	8.G.3	Demonstrate an understanding of conditions that indicate two triangles are similar: the corresponding angles are congruent (AA similarity); the ratios of two pairs of corresponding sides are equal and the included angles are congruent (SAS similarity); ratios of all pairs of corresponding sides are equal (SSS similarity).
	8.M.4	8.M.4	Solve problems about similar figures and scale drawings. Understand that when the lengths of all dimensions of an object are multiplied by a scale factor, the surface area is multiplied by the square of the scale factor and the volume is multiplied by the cube of the scale factor.
Unit 5: Patterns, Relations, and Algebra			
Lesson 1: <i>Algebraic Expressions</i>	8.P.2	7.PRA.2	Evaluate simple algebraic expressions for given variable values (e.g., $3a^2 - b$ for $a = 3$ and $b = 7$).
	8.P.3	8.PRA.7	Interpret the formula $(-x)(-y) = xy$ in calculations involving such things as distance, speed, and time, or in the graphing of linear functions. Use this identity to simplify algebraic expressions [e.g., $(-2)(-x + 2) = 2x - 4$].
	8.P.4	7.PRA.4	Create and use symbolic expressions for linear relationships, and relate them to verbal and graphical representations.
Lesson 2: <i>Patterns</i>	8.P.1	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).
Lesson 3: <i>Equations</i>	8.P.7	8.PRA.2	Set up and solve linear equations and inequalities with one or two variables using algebraic methods and graphs.



	8.P.9	8.PRA.3	Use linear equations to model and analyze problems involving proportional relationships.
Lesson 4: <i>Inequalities</i>	8.P.7	8.PRA.2	Set up and solve linear equations and inequalities with one or two variables using algebraic methods and graphs.
Lesson 5: <i>Graphing Linear Equations</i>	8.P.4	7.PRA.4	Create and use symbolic expressions for linear relationships, and relate them to verbal and graphical representations.
Lesson 6: <i>Slope and Intercepts</i>	8.P.5	8.PRA.4	Identify the slope of a line as a measure of its steepness and as a constant rate of change from its table of values, equation, or graph. Apply the concept of slope to the solution of problems.
	8.P.10	8.PRA.1	Use tables and graphs to represent and compare linear growth patterns. In particular, compare rates of change and x - and y -intercepts of different linear patterns.
Lesson 7: <i>Relationships Between Two Variables</i>	8.P.6	8.PRA.5	Identify the roles of variables within an equation (e.g., $y = mx + b$, expressing y as a function of x with parameters m and b).
	8.P.8	8.PRA.8	Explain and analyze—both quantitatively and qualitatively, using pictures, graphs, charts, and equations—how a change in one variable results in a change in another variable in functional relationships [e.g., $C = \pi d$, $A = \pi r^2$ (A as a function of r), $A_{\text{rectangle}} = lw$ ($A_{\text{rectangle}}$ as a function of l and w)].
Unit 6: Measurement			
Lesson 1: <i>Units of Measurement</i>	8.M.1	7.M.1	Select, convert (between systems of measurement), and use appropriate units of measurement or scale.
Lesson 2: <i>Converting Measurements</i>	8.M.1	7.M.1	Select, convert (between systems of measurement), and use appropriate units of measurement or scale.
	8.M.2	8.M.1	Given the formulas, convert from one system of measurement to another.



Lesson 3: <i>Perimeter and Circumference</i>	8.M.3	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.
Lesson 4: <i>Area</i>	8.M.3	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.
Lesson 5: <i>Surface Area</i>	8.M.3	8.M.2	Understand the concepts of surface area and volume; given the formulas, determine the surface area and volume of rectangular prisms, cylinders, and spheres.
Lesson 6: <i>Volume</i>	8.M.3	8.M.2	Understand the concepts of surface area and volume; given the formulas, determine the surface area and volume of rectangular prisms, cylinders, and spheres.
Unit 7: Data Analysis, Statistics, and Probability			
Lesson 1: <i>Data and Statistics</i>	8.D.1	8.DASP.3	Recognize practices of collecting and displaying data that may bias the presentation or analysis.
	8.D.3	8.DASP.1	Revisit measures of central tendency (mean, median, and mode) and spread (range) that represent a set of data and then observe the change in each when an “outlier” is adjoined to the data set or removed from it. Use these notions to compare different sets of data and explain how each can be useful in a different way to summarize social phenomena such as price levels, clothing sizes, and athletic performances.
Lesson 2: <i>Box-and-Whisker and Stem-and-Leaf Plots</i>	8.D.2	8.DASP.5	Select, create, interpret, and use various tabular and graphical representations of data; differentiate between continuous and discrete data and ways to represent them.



Lesson 3: <i>Histograms and Circle Graphs</i>	8.D.2	8.DASP.5	Select, create, interpret, and use various tabular and graphical representations of data; differentiate between continuous and discrete data and ways to represent them.
Lesson 4: <i>Scatterplots</i>	8.D.2	8.DASP.5	Select, create, interpret, and use various tabular and graphical representations of data; differentiate between continuous and discrete data and ways to represent them.
Lesson 5: <i>Venn Diagrams</i>	8.D.2	8.DASP.5	Select, create, interpret, and use various tabular and graphical representations of data; differentiate between continuous and discrete data and ways to represent them.
Lesson 6: <i>Probability of Compound Events</i>	8.D.4	8.DASP.6	Apply the Fundamental Counting Principle (basic combinatorics) to find total number of outcomes possible for independent and dependent events, and calculate the probabilities using organized lists or tree diagrams.

