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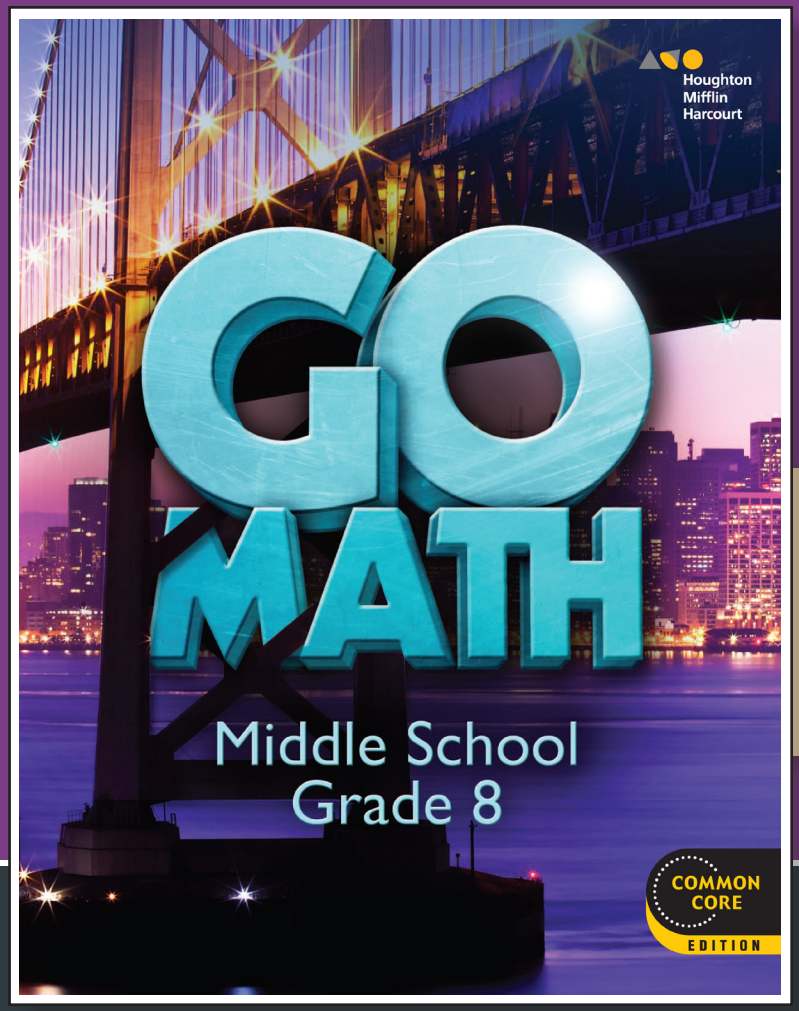
Correlation to the
Common Core State Standards for Mathematics Grade 8



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correlated to the

Common Core State Standards for Mathematics
Grade 8

Standard	Descriptor	Citations
Standards for Mathematical Practice		
CC.MP.1	Make sense of problems and persevere in solving them.	*The mathematical practices standards are integrated throughout the book. See, for example, the citations below.* SE: 14, 120, 178, 202, 211, 219, 242, 254–255, 308, 380, 392, 415, 455–456
CC.MP.2	Reason abstractly and quantitatively.	*The mathematical practices standards are integrated throughout the book. See, for example, the citations below.* SE: 14, 38, 82, 88, 103, 111, 153–154, 198–202, 214, 254–255, 354–355, 375–376
CC.MP.3	Construct viable arguments and critique the reasoning of others.	*The mathematical practices standards are integrated throughout the book. See, for example, the citations below.* SE: 20, 100, 146, 208, 258, 302, 352, 410, 444
CC.MP.4	Model with mathematics.	*The mathematical practices standards are integrated throughout the book. See, for example, the citations below.* SE: 73, 129–130, 204–205, 254–255, 363–364, 413, 457–461

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Standard	Descriptor	Citations
CC.MP.5	Use appropriate tools strategically.	*The mathematical practices standards are integrated throughout the book. See, for example, the citations below.* SE: 22, 53, 197, 227–231, 285, 315, 347–348, 353, 375, 399
CC.MP.6	Attend to precision.	*The mathematical practices standards are integrated throughout the book. See, for example, the citations below.* SE: 56, 106, 143, 173–178, 214, 234, 250, 352, 404, 437
CC.MP.7	Look for and make use of structure.	*The mathematical practices standards are integrated throughout the book. See, for example, the citations below.* SE: 10–11, 33–35, 45, 133–135, 153–154, 208, 297–300, 381, 434, 439–441
CC.MP.8	Look for and express regularity in repeated reasoning.	*The mathematical practices standards are integrated throughout the book. See, for example, the citations below.* SE: 8, 33–35, 45, 107, 197, 235, 243, 251, 297–300, 388, 440

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Standard	Descriptor	Citations
Standards for Mathematical Content		
CC.8.NS	**The Number System**	
Know that there are numbers that are not rational, and approximate them by rational numbers		
CC.8.NS.1	Understand informally that every number has a decimal expansion; the rational numbers are those with decimal expansions that terminate in 0s or eventually repeat. Know that other numbers are called irrational	SE: 7–9, 12, 13–14, 15–17, 18, 19–20
CC.8.NS.2	Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2)	SE: 10–12, 14, 21–23, 24, 25–26
CC.8.EE	**Expressions and Equations**	
Work with radicals and integer exponents		
CC.8.EE.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions	SE: 33–35, 36, 37–38
CC.8.EE.2	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational	SE: 9–11, 12, 13–14
CC.8.EE.3	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other	SE: 39–41, 42, 43–44, 45–47, 48, 49–50

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Standard	Descriptor	Citations
CC.8.EE.4	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology	SE: 51–53, 54, 55–56
Understand the connections between proportional relationships, lines, and linear equations		
CC.8.EE.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways	SE: 83–85, 86, 87–88, 168, 170, 171–172
CC.8.EE.6	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.	SE: 71–73, 74, 75–76, 101, 103, 104, 106, 364–365, 368

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Standard	Descriptor	Citations
Analyze and solve linear equations and pairs of simultaneous linear equations		
CC.8.EE.7	Solve linear equations in one variable	SE: 197–199, 200, 201–202, 203–205, 206, 207–208, 209–211, 212, 213–214, 215–217, 218, 219–220, 355, 357, 358, 359–360, 363–364, 366, 367–368
CC.8.EE.7a	Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).	SE: 215–217, 218, 219–220
CC.8.EE.7b	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms	SE: 197–199, 200, 201–202, 203–205, 206, 207–208, 209–211, 212, 213–214, 357, 358, 359–360
CC.8.EE.8	Analyze and solve pairs of simultaneous linear equations	SE: 227, 228–231, 232, 233–234, 235–239, 240, 241–242, 243–246-247, 248, 249–250, 251–255, 256, 257–258, 259–261, 262, 263–264
CC.8.EE.8a	Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously	SE: 227, 232, 233–234
CC.8.EE.8b	Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection	SE: 235–238, 240, 241–242, 243–246, 248, 249–250, 251–254, 256, 257–258, 259–261, 262, 263–264

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Standard	Descriptor	Citations
CC.8.EE.8c	Solve real-world and mathematical problems leading to two linear equations in two variables	SE: 230–231, 232, 233–234, 238–239, 240, 241–242, 246–247, 248, 249–250, 254–255, 256, 257–258, 264
CC.8.F	**Functions**	
Define, evaluate, and compare functions		
CC.8.F.1	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.	SE: 153–157, 158, 159–160, 161, 165–166
CC.8.F.2	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	SE: 85, 86, 87–88, 116–118, 120, 167–169, 170, 171–172
CC.8.F.3	Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear	SE: 95–97, 98, 99–100, 107–108, 110, 111–112, 113, 117, 119, 162–163, 164, 165–166

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Standard	Descriptor	Citations
Use functions to model relationships between quantities		
CC.8.F.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	SE: 76, 77–79, 80, 81–82, 83, 86, 87, 102, 104, 105–106, 108–109, 110, 111–112, 114–115, 117–118, 119–120, 127–129, 130, 131–132, 133–135, 136, 137–138, 167–168, 169, 170, 171–172
CC.8.F.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally	SE: 173–175, 176, 177–178
CC.8.G	**Geometry**	
Understand congruence and similarity using physical models, transparencies, or geometry software		
CC.8.G.1	Verify experimentally the properties of rotations, reflections, and translations:	SE: 279–281, 282, 283–284, 285–287, 288, 289–290, 291–293, 294, 295–296
CC.8.G.1a	Lines are taken to lines, and line segments to line segments of the same length	SE: 279–281, 282, 283–284, 285–287, 288, 289–290, 291–293, 294, 295–296
CC.8.G.1b	Angles are taken to angles of the same measure	SE: 279–281, 282, 283–284, 285–287, 288, 289–290, 291–293, 294, 295–296
CC.8.G.1c	Parallel lines are taken to parallel lines	SE: 279–281, 282, 283–284, 285–287, 288, 289–290, 291–293, 294, 295–296

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Standard	Descriptor	Citations
CC.8.G.2	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them	SE: 305–307, 308, 309–310
CC.8.G.3	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates	SE: 281–282, 283–284, 287–288, 289–290, 293–294, 295–296, 297–300, 301–302, 316–317, 318, 319–320, 321–323, 324, 325–326
CC.8.G.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them	SE: 315–316, 317–318, 319–320, 327–329, 330, 331–332
CC.8.G.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles	SE: 347–350, 351–352, 353–355, 356, 358, 359–360, 361–362, 367–368

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Standard	Descriptor	Citations
Understand and apply the Pythagorean Theorem		
CC.8.G.6	Explain a proof of the Pythagorean Theorem and its converse	SE: 375–376, 380, 381–383, 384, 385–386
CC.8.G.7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions	SE: 376–378, 379–380
CC.8.G.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system	SE: 387–390, 391–392
Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres		
CC.8.G.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems	SE: 399–401, 402, 403–404, 405–407, 408, 409–410, 411–413, 414, 415–416

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Standard	Descriptor	Citations
CC.8.SP	**Statistics and Probability**	
Investigate patterns of association in bivariate data		
CC.8.SP.1	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association	SE: 142–143, 144, 145–146, 433–435, 436, 437–438, 439–440, 442, 443–444
CC.8.SP.2	Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line	SE: 139–140, 144, 145–146, 439–440, 442, 443–444
CC.8.SP.3	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept	SE: 140–141, 144, 145–146, 440–442, 443–444
CC.8.SP.4	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables	SE: 451–453, 454, 455–456, 457–461, 462, 463–464

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