

GRADE 8
MATHEMATICS
GLEs
Color Coded

GLE content to be taught and *tested* in Grade 8 Math in 2012-13 and 13-14

GLE #	Grade-Level Expectation Text	Aligned CCSS #
M.8.1	Compare rational numbers using symbols (i.e., $<$, \leq , $=$, \geq , $>$) and position on a number line	Retained ¹
M.8.2	Use whole number exponents (0-3) in problem-solving contexts	Retained ¹
M.8.4	Read and write numbers in scientific notation with positive exponents	8.EE.3 8.EE.4
M.8.7	Use proportional reasoning to model and solve real-life problems	Retained ¹
M.8.9	Find unit/cost rates and apply them in real-life problems	Retained ¹
M.8.11	Translate real-life situations that can be modeled by linear or exponential relationships to algebraic expressions, equations, and inequalities	8.F.4
M.8.12	Solve and graph solutions of multi-step linear equations and inequalities	8.EE.7
M.8.13	Switch between functions represented as tables, equations, graphs, and verbal representations, with and without technology	Retained ¹
M.8.14	Construct a table of x - and y -values satisfying a linear equation and construct a graph of the line on the coordinate plane	Retained ¹
M.8.15	Describe and compare situations with constant or varying rates of change	8.F.5 8.F.4 8.EE.5
M.8.17	Determine the volume and surface area of prisms and cylinders	8.G.9 6.G.2 7.G.6 G-GMD.3
M.8.24	Demonstrate conceptual and practical understanding of symmetry, similarity, and congruence and identify similar and congruent figures	8.G.2 8.G.4
M.8.25	Predict, draw, and discuss the resulting changes in lengths, orientation, angle measures, and coordinates when figures are translated, reflected across horizontal or vertical lines, and rotated on a grid	8.G.1 8.G.3 8.G.2 8.G.4
M.8.26	Predict, draw, and discuss the resulting changes in lengths, orientation, and angle measures that occur in figures under a similarity transformation (dilation)	8.G.3 8.G.4

¹ This GLE was moved to another grade but will be taught and tested in this grade to decrease the possibility that the transition will create curricular gaps.

GLE content to be taught and *tested* in Grade 8 Math in 2012-13 and 13-14

GLE #	Grade-Level Expectation Text	Aligned CCSS #
M.8.28	Apply concepts, properties, and relationships of adjacent, corresponding, vertical, alternate interior, complementary, and supplementary angles	8.G.5
M.8.31	Use area to justify the Pythagorean theorem and apply the Pythagorean theorem and its converse in real-life problems	8.G.6 8.G.7 8.G.8
M.8.38	Sketch and interpret a trend line (i.e., line of best fit) on a scatterplot	8.SP.2
M.8.46	Distinguish between and explain when real-life numerical patterns are linear/arithmetic (i.e., grows by addition) or exponential/geometric (i.e., grows by multiplication) NOTE: The focus here will be on recognizing real-life numerical patterns which are linear since the CCSS does not require eighth grade students to work with exponential growth.	8.F.5

CCSS and extended CCSS content (highlighted) taught but *not tested* in 2012-13 and 13-14

CCSS #	Common Core State Standard Text	Year to be Implemented
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.	2012-13
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. ²	2012-13
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.	2012-13
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. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.	2012-13

² The highlighted CCSS match GLEs, but the highlighted CCSS content goes beyond the GLEs and will be added to the curriculum in the year shown.

CCSS and extended CCSS content (highlighted) taught but *not tested* in 2012-13 and 13-14

CCSS #	Common Core State Standard Text	Year to be Implemented
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.	2012-13
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. <i>For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.</i>	2012-13
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.	2012-13
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.	2012-13
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.	2012-13
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.	2012-13
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. <i>For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.</i>	2012-13
8.G.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	2012-13
8.G.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	2012-13
8.NS.1	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number. [New wording per October 29, 2010 version of CCSS.]	2012-13
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). <i>For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.</i>	2012-13
8.EE.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions. <i>For example, $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.</i>	2013-14

CCSS and extended CCSS content (highlighted) taught but <i>not tested</i> in 2012-13 and 13-14		
CCSS #	Common Core State Standard Text	Year to be Implemented
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 .	2013-14
8.EE.8	Analyze and solve pairs of simultaneous linear equations.	2013-14
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. <i>For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?</i>	2013-14

Underlined – Will be moved to another grade, but will be taught and tested in this grade to decrease possibility of gaps

Grayed Out - GLEs not incorporated until 2013 – 2014

Ratio, Proportion, and Algebra – 60% of LEAP (GLE #s: 7, 9, 11, 12, 13, 14, 15, 46)

Measurement, Data, and Geometry – 25% of LEAP (GLE #s: 17, 24, 25, 26, 28, 31, 38)

Number System – 15% of LEAP (GLE #s: 1, 2, 4)

Not Tested until 2014 – 2015