Florida 8th Grade Assessment Item Specification Report		
Benchmark number	Benchmark	Content Limits
MA.8.A.1.1#:	Create and interpret tables, graphs, and models to represent, analyze, and solve problems related to linear equations, including analysis of domain, range, and the difference between discrete and continuous data.	Equations used in items should include no more than two variable and no more than two operations. ------- Values in expressions should be rational numbers. ------ In items that contain equations, the equation must be linear.
MA.8.A.1.2#:	Interpret the slope and the x- and y-intercepts when graphing a linear equation for a real-world problem.	Functions may be from all four quadrants. ------- Items should rely primarily on tables, graphs, and t-tables to present real-world relationships. ------- Equations used in items should include no more than three operations. ------- Items may include positive, negative, or zero slopes, but not undefined slopes. ------- The x- and y-intercepts are limited to integers and halves.
MA.8.A.1.3#:	Use tables, graphs, and models to represent, analyze, and solve real-world problems related to systems of linear equations.	Graphs used in items may include all four quadrants. ------ Items should rely primarily on tables, graphs, or models to present problems. ------- Items may assess knowledge of the slopes of lines (including vertical and horizontal lines) and the x- and y-intercepts of lines. ------- Items may assess properties of parallel or perpendicular lines.
MA.8.A.1.4#:	Identify the solution to a system of linear equations using graphs.	Assessed with MA.8.A.1.3
MA.8.A.1.5#:	Translate among verbal, tabular, graphical, and algebraic representations of linear functions.	Functions may include points from all four quadrants. ------ Values in equations should be rational numbers. ------ Items should present a table or graph and ask the student to identify another representation of the given function.
MA.8.A.1.6#:	Compare the graphs of linear and non-linear functions for real-world situations.	Items may include stimuli of a scenario with four different graphs for options or a graph with four different scenarios. -------- Items will ask students to interpret graphical representations but not to solve them.

MA.8.A.4.1#:	Solve literal equations for a specified variable.	Items should contain no more than three variables and no more than three operations. ------- The stem must have a rational coefficient. ------- In items that contain equations, the equation should be linear. ------- Inequalities will not be assessed in this benchmark.
MA.8.A.4.2#:	Solve and graph one- and two-step inequalities in one variable.	Items should contain no more than two variables and no more than two operations. Items will solve for only one variable. ------ For compound inequalities expressed as one statement (e.g., 45 < x < 55) or two statements, *and* or *or* may be used. ------ Inequalities must be linear.
MA.8.A.6.1#:	Use exponents and scientific notation to write large and small numbers and vice versa and to solve problems.	Items may provide expressions of rational numbers in exponential notation, including negative exponents, and/or numerical or algebraic expressions that contain exponential notation. ------- Rational numbers presented as decimals must be terminating decimals. ------- Negative exponents may be used in standard scientific notation only. ------- Fractions represented in standard scientific notation should be greater than one-billionth. ------- Standard scientific notation of whole numbers and decimals is limited to hundred billions through hundred-billionths.
MA.8.A.6.2#:	Make reasonable approximations of square roots and mathematical expressions that include square roots, and use them to estimate solutions to problems and to compare mathematical expressions involving real numbers and radical expressions.	Items may include the relationships among fractions, decimals, or numbers expressed as percents, with at least one square root included, given a real-world context. ------- The place values of the fractional part of decimal numbers should range from tenths through ten-thousandths. ------ Items should require students to determine the effects of operations on real numbers, including addition, subtraction, multiplication, division, exponents, and finding square roots. -------- Items that require determining inverses may include adding, subtracting, multiplying, dividing, squaring, and extracting roots. -------- Items may include simplified expressions using integers, exponents, radicals, and ratios; large and small numbers in standard scientific notation; or absolute values. ------- Numbers may exceed the limits specified in the General Content Limits by Grade Level section when the numbers are represented in word form (e.g., fifth billion) or as denominate numbers (e.g., 4.3 trillion). -------- Negative exponents should be used in standard scientific notation only. -------- Items may contain multiple forms of a given value.

MA.8.A.6.3#:	Simplify real number expressions using the laws of exponents.	Assessed with MA.8.A.6.4
MA.8.A.6.4#:	Perform operations on real numbers (including integer exponents, radicals, percents, scientific notation, absolute value, rational numbers, and irrational numbers) using multi-step and real world problems.	Items will include the effects of the four basic operations on real numbers (including integer exponents, radicals, percents, scientific notation, absolute value, rational numbers, and irrational numbers), and the use of properties of real numbers to solve problems (commutative, associative, distributive, identity, equality, and the inverse relationship of rational numbers). -------- Items may involve simplifying expressions using integers and exponents. -------- Items may include performing operations involving fractions, decimals, irrational numbers, numbers expressed as radicals, percents, absolute values, or scientific notation. ------ Radicals used in items must be square roots with a radicand less than or equal to 100, or cube roots of perfect cubes.
MA.8.G.2.1#:	Use similar triangles to solve problems that include height and distances.	Items will not require applying the Pythagorean theorem.
MA.8.G.2.2#:	Classify and determine the measure of angles, including angles created when parallel lines are cut by transversals.	Items may include the concepts of alternate interior angles, alternate exterior angles, same-side interior angles, same-side exterior angles, vertical angles, corresponding angles, complementary angles, and supplementary angles. ------- Items will have no more than two transversals intersecting through two parallel lines.
MA.8.G.2.3#:	Demonstrate that the sum of the angles in a triangle is 180-degrees and apply this fact to find unknown measure of angles and the sum of angles in polygons.	Polygons will not exceed a maximum of eight sides.
MA.8.G.2.4#:	Validate and apply Pythagorean Theorem to find distances in real world situations or between points in the coordinate plane.	Graphics of three-dimensional figures may be included in items, but only two-dimensional figures will be assessed. ------- Items may assess vertical distance, horizontal distance, and grade-level appropriate applications of the Pythagorean theorem.

MA.8.G.5.1#:	Compare, contrast, and convert units of measure between different measurement systems (US customary or metric (SI)) and dimensions including temperature, area, volume, and derived units to solve problems.	The majority of the items addressing dimensions should focus on area, volume, and capacity. ------ Items may involve mixed units within each system, such as converting hours and minutes to seconds. ------- Only items assessing derived units will convert time measurements. ------- Items may include conversion from customary to metric of vice versa, using only the conversions found on the conversion sheet. ------- Items may include up to three conversions within the same system of measurement (e.g., converting cups to gallons). ------- Gridded-response items may only involve conversions within the same system of measurement.
MA.8.S.3.1#:	Select, organize and construct appropriate data displays, including box and whisker plots, scatter plots, and lines of best fit to convey information and make conjectures about possible relationships.	Data sets used in items should be limited to a maximum of 12 data points and three categories for all graphic displays except for scatter plots and lines of best fit. ------- Graphic displays may include line graphs, line plots, pictographs, single/multiple-bar graphs, circle graphs, stem-and-leaf plots/tables, histograms, box-and-whisker plots, scatter plots, and lines of best fit. -------- Items should have no more than two box-and-whisker plots from which to interpret data.
MA.8.S.3.2#:	Determine and describe how changes in data values impact measures of central tendency.	Data sets used in items shall be limited to a maximum of 12 data points, and no more than three categories of information should be used. ------ Items will assess finding the mean, median, or mode of a set of data presented in a chart, table, graph, or plot (e.g., scatter plot, stem-and-leaf plot, line plot, or box-and-whisker plot) when there is a change in the data set given.