Rhode Island
Curriculum Matrix for Mathematics

Please note that there is no 9th grade NECAP testing and therefore there are no NECAP test priority designations assigned to the 8th grade GLEs.

Rhode Island Mathematics Content Strands/Standards/ Grade Level Expectations Grade 8	Common Core Mathematics Domains/Standards Grade 8	National Essential Skills Study (NESS) Rankings Rank		NESS	No NECAP Test	Priority
M(N&O)–8–1 **Demonstrates conceptual understanding of rational numbers with respect to** absolute values, perfect square and cube roots, and percents as a way of describing change (percent increase and decrease) **using explanations, models, or other representations**. (Local)	**Expressions & Equations** **Work with radicals and integer exponents.** 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 √2 is irrational.	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	L	M
		M20	Understand and apply the basic properties and laws of exponents and scientific notation to solve problems, including those with fractional, negative, and zero exponents.			
		M35	Use the properties of real (rational and irrational) numbers and demonstrate understanding of ordering and absolute value.			
M(F&A)–8–2 **Demonstrates conceptual understanding of linear relationships** ($y = kx$; $y = mx + b$) **as a constant rate of change** by solving problems involving the relationship between slope and rate of change; informally and formally determining slopes and intercepts represented in graphs, tables, or problem situations; or describing the meaning of slope and intercept in context; **and distinguishes between linear relationships (constant rates of change) and nonlinear relationships (varying rates of change)** represented in tables, graphs, equations, or problem situations; or **describes how change in the value of one variable relates to change in the value of a second variable** in problem situations with constant and varying rates of change. (Local)	**Expressions & Equations** **Understand the connections between proportional relationships, lines, and linear equations.** 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.* 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.	M44	Know the equation of a line and interpret graphically using the slope-intercept form (y = mx+b) and the point-slope form (y-b = m(x-a)).	L	L	L
		M46	Know the equation for the slope of a line and compute slope given the coordinates of two points.			
		M53	Express, graph, and interpret polynomial functions (linear, quadratic, cubic, etc.).			

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M(F&A)–8–2 *(Continued from previous page)*	*(Continued from previous page)* **Functions** **Define, evaluate and compare functions.** 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. *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.* **Use functions to model relationships between quantities.** 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. 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.					

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M(DSP)–8–1 **Interprets a given representation** (line graphs, scatter plots, histograms, or box-and-whisker plots) to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems. (Local) (IMPORTANT: *Analyzes data consistent with concepts and skills in M(DSP)–8–2.*)	**Statistics & Probability** **Investigate patterns of association in bivariate data.** 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. 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. *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?*	M21	Evaluate and employ accurate and appropriate procedures for statistical data collection, organization, analysis, and display including making estimates and predictions, critiquing data, and drawing inferences (e.g., using the normal curve and z-scores, line of best fit).	M	L	M