STEM Units of Study

The STEM course features four units of instruction and a capstone project. This document clearly articulates a list of the key performance indicators that are included in the units. Key performance indicators are coded as **major** areas of focus for the unit (green) or **supporting** (blue).

Units	Competencies/Performance Indicators
Unit 1: Linear Functions	**CA-A1-A** Understand the concept of a function and use function notation.
	CA-A1-B Interpret the dependent and independent variables in the context of functions.
	CA-A1-C Create and interpret expressions for functions in terms of the situations they model including selecting appropriate domains for these functions.
	CA-A1-D Understand the relationship between a function and its graph.
	CA-A1-E Find the domain, including implied domains, and the range of a function.
	CA-A1-F Analyze functions using different representations (verbal, graphic, numeric, algebraic).
	CA-A2-LF-A Identify dependent and independent variables in linear relationships and use this knowledge to model authentic situations.
	CA-A2-LF-B Understand the relationship between lines and their equations including slope.
	CA-A2-LF-C Graph a line using slope-intercept form of the linear equation.
	CA-A2-LF-D Determine the equation of a line from its graph and from the point-slope formula.
	CA-A2-LF-E Use graphs of lines to identify solutions to linear equations.
	CA-A2-LF-F Solve linear inequalities, expressing the solutions sets using interval notation and graphing solution sets on number lines, and interpret their solutions in context.

	CA-A2-LF-G Use and understand the slope criteria for parallel and perpendicular lines.
	CA-A4-A Solve applications and create models involving 2 x 2 systems of linear equations using both graphical and algebraic methods.
	CA-A4-B Use linear inequalities and systems of linear inequalities in two unknowns to create models.
	CA-A4-C Graphically identify solutions sets to linear inequalities or systems of inequalities.

Units	Competencies/Performance Indicators
Unit 2: Polynomials	**CA-A1-A** Understand the concept of a function and use function notation.
	CA-A1-A Understand the concept of a function and use function notation.
	CA-A1-B Interpret the dependent and independent variables in the context of functions.
	CA-A1-C Create and interpret expressions for functions in terms of the situations they model including selecting appropriate domains for these functions.
	CA-A1-D Understand the relationship between a function and its graph.
	CA-A1-E Find the domain, including implied domains, and the range of a function.
	CA-A1-F Analyze functions using different representations (verbal, graphic, numeric, algebraic).
	CA-A2-PF-H Solve application problems and create models involving polynomial equations.
	CA-A2-PF-I Factor quadratic polynomials over the rational numbers and identify prime/irreducible polynomials over the rational numbers.
	CA-A2-PF-J Apply standard factoring techniques to polynomials.
	CA-A2-PF-K Solve quadratic equations by factoring, completing the square, and the Quadratic Formula.
	CA-A2-PF-L Graph quadratic functions and be able to determine the quadratic function from the graph.
	CA-A2-PF-M Understand the relationship between zeros and factors of a polynomial of degree 2 and higher.
	CA-A2-PF-N Solve polynomial equations and inequalities of degree 2 and higher.

Units	Competencies/Performance Indicators
Unit 3: Rational Functions	**CA-A1-A** Understand the concept of a function and use function notation.
	CA-A1-B Interpret the dependent and independent variables in the context of functions.
	CA-A1-C Create and interpret expressions for functions in terms of the situations they model including selecting appropriate domains for these functions.
	CA-A1-D Understand the relationship between a function and its graph.
	CA-A1-E Find the domain, including implied domains, and the range of a function.
	CA-A1-F Analyze functions using different representations (verbal, graphic, numeric, algebraic).
	CA-A2-RTF-O Solve applications and create models involving rational equations.
	CA-A2-RTF-P Simplify rational expressions.
	CA-A2-RTF-Q Solve rational equations.
	CA-A2-RTF-R Solve rational inequalities algebraically.

Units	Competencies/Performance Indicators
Unit 4: Radical Functions	**CA-A1-A** Understand the concept of a function and use function notation.
	CA-A1-B Interpret the dependent and independent variables in the context of functions.
	CA-A1-C Create and interpret expressions for functions in terms of the situations they model including selecting appropriate domains for these functions.
	CA-A1-D Understand the relationship between a function and its graph.
	CA-A1-E Find the domain, including implied domains, and the range of a function.
	CA-A1-F Analyze functions using different representations (verbal, graphic, numeric, algebraic).
	CA-A2-RDF-S Solve applications and create models involving radical equations.
	CA-A2-RDF-T Convert between radical and rational exponent notation.
	CA-A2-RDF-U Simplify expressions involving radicals and rational exponents using appropriate exponent rules.
	CA-A2-RDF-V Solve equations involving radical expressions.

Units	Competencies/Performance Indicators
Unit 5: Exponential Functions	**CA-A1-A** Understand the concept of a function and use function notation.
	CA-A1-B Interpret the dependent and independent variables in the context of functions.
	CA-A1-C Create and interpret expressions for functions in terms of the situations they model including selecting appropriate domains for these functions.
	CA-A1-D Understand the relationship between a function and its graph.
	CA-A1-E Find the domain, including implied domains, and the range of a function.
	CA-A1-F Analyze functions using different representations (verbal, graphic, numeric, algebraic).
	CA-A3-A Solve simple applications and create simple models involving exponential equations.
	CA-A3.-B Distinguish exponential growth from linear and polynomial growth.
	CA-A3-C Graph and recognize the graph of exponential functions of the form $f(x) = C\,b^x$.
	CA-A3-D Solve simple exponential equations numerically.
	CA-A3-E Solve simple exponential equations algebraically. (Optional Indicator)

Units	Competencies/Performance Indicators
Unit 6: CAPSTONE PROJECT	**CA-A1-A** Understand the concept of a function and use function notation.
	CA-A1-B Interpret the dependent and independent variables in the context of functions.
	CA-A1-C Create and interpret expressions for functions in terms of the situations they model including selecting appropriate domains for these functions.
	CA-A1-D Understand the relationship between a function and its graph.
	CA-A1-E Find the domain, including implied domains, and the range of a function.
	CA-A1-F Analyze functions using different representations (verbal, graphic, numeric, algebraic).