**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 bx .

**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).