Algebra I | South Dakota State Standards for Mathematics (2018) Correlation to *Eureka Math²® (2027)*

Eureka Math² is a research-proven math curriculum that empowers teachers to center instructional techniques on student success. Teachers can foster more "aha!" learning moments by providing the support needed for all learners to build a more confident math mindset.

This *Eureka Math²* edition builds on a strong foundation of effective instruction. It provides teachers with guidance on delivering rigorous instruction that honors student choice and encourages confident problem-solving.

Eureka Math² carefully sequences mathematical content to maximize vertical alignment from kindergarten through high school. This kind of sequencing has proven to be essential in students' mastery of math.

Teachability

Eureka Math² employs streamlined materials that allow teachers to plan more efficiently and focus their energy on delivering high-quality instruction that meets the individual needs of their students. Differentiation suggestions, slide decks, digital interactives, and multiple forms of assessment are just a few of the resources built into the teacher materials.

Accessibility

Eureka Math² incorporates Universal Design for Learning (UDL) principles so all learners can access the mathematics and take on challenging math concepts. UDL, Differentiation, and Multilingual Learner supports are built into the instructional design and are clearly identified in the *Teach* book.

The curriculum also carries a focus on readability. By eliminating unnecessary words and using clear sentences, the *Eureka Math²* teacher–writers have created one of the most readable mathematics curricula on the market. The curriculum's readability and accessibility help all students see themselves as mathematical thinkers and doers who are fully capable of owning their mathematics learning.

Math Confidence

Eureka Math² fosters a classroom culture of learning by encouraging student-led discourse and cognitive engagement that results in confident learners. By leveraging consistent models, routines, and progressions, teachers can remove barriers and allow all students an avenue to success. Within the digital platform, each grade includes wordless videos and digital interactives that spark students' curiosity and help them make conceptual connections. Using the *Learn* books, students wonder, explore, and make sense of mathematics, which helps them develop a strong, positive mathematical identity.

Standards for Mathematical Practice	Aligned Components of *Eureka Math²*
MP.1 Make sense of problems and persevere in solving them.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.2 Reason abstractly and quantitatively.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.3 Construct viable arguments and critique the reasoning of others.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.4 Model with mathematics.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.5 Use appropriate tools strategically.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.6 Attend to precision.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.7 Look for and make use of structure.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.8 Look for and express regularity in repeated reasoning.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.

The Real Number System

N.RN.A Extend the properties of exponents to rational exponents.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
N.RN.A.1 Explain how the definition of rational exponents follows from extending the properties of integer exponents, allowing for a notation for radicals in terms of rational exponents.	A1 M5 Lesson 9: Unit Fraction Exponents A1 M5 Lesson 10: Rational Exponents
N.RN.A.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.	A1 M5 Lesson 9: Unit Fraction Exponents A1 M5 Lesson 10: Rational Exponents

The Real Number System

N.RN.B Use properties of rational and irrational numbers.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
N.RN.B.3 Explain why the sum or product of two rational numbers is rational; the sum of a rational and an irrational number is irrational; and the product of a nonzero rational and an irrational number is irrational.	A1 M4 Lesson 13: Using Square Roots to Solve Quadratic Equations A1 M4 Lesson 17: Rewriting Square Roots

Quantities

N.Q.A Reason quantitatively and use units to solve problems.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
N.Q.A.1 Use unit analysis to understand and guide the process of solving multi-step problems; choose and interpret units consistently in formulas; and choose and interpret the scale and origin in graphs and data displays.	A1 M6 Lesson 5: Solar System Models
N.Q.A.2 Define appropriate quantities for the purpose of descriptive modeling.	A1 M4 Lesson 25: Maximizing Area A1 M6 Lesson 5: Solar System Models
N.Q.A.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	A1 M6 Lesson 5: Solar System Models A1 M6 Lesson 6: Polynomial Identities

Seeing Structure in Expressions

A.SSE.A Interpret the structure of expressions.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.SSE.A.1 Interpret expressions that represent a quantity in terms of its context.	*This standard is fully addressed by the lessons aligned to its subsections.*

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.SSE.A.1.a Interpret parts of an expression, such as terms, factors, and coefficients.	A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion
A.SSE.A.1.b Interpret complicated expressions by viewing one or more of their parts as a single entity in context.	A1 M5 Lesson 8: Exponential Functions A1 M5 Lesson 16: Exponential Growth A1 M5 Lesson 17: Exponential Decay A1 M5 Lesson 18: Modeling Populations A1 M5 Lesson 23: Modeling the Temperature of Objects Cooling Over Time

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.SSE.A.2 Recognize and use the structure of an expression to identify ways to rewrite it.	A1 M1 Lesson 1: The Growing Pattern of Ducks A1 M1 Lesson 2: The Commutative, Associative, and Distributive Properties A1 M1 Lesson 3: Polynomial Expressions A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion A1 M4 Lesson 5: Solving Equations That Contain Factored Expressions A1 M4 Lesson 6: Solving Quadratic Equations by Factoring: Identities and Guess and Check A1 M4 Lesson 7: Solving Quadratic Equations by Factoring: Splitting the Linear Term A1 M4 Lesson 8: A Summary of Solving Quadratic Equations by Factoring A1 M4 Lesson 9: Creating and Solving Quadratic Equations in One Variable A1 M4 Lesson 10: Zeros of Functions A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form A1 M4 Lesson 14: Solving Quadratic Equations by Completing the Square A1 M4 Lesson 15: Deriving the Quadratic Formula A1 M5 Lesson 11: Graphing Exponential Functions A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) A1 M5 Lesson 18: Modeling Populations

Seeing Structure in Expressions

A.SSE.B Write expressions in equivalent forms to solve problems.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.SSE.B.3 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.	*This standard is fully addressed by the lessons aligned to its subsections.*
A.SSE.B.3.a Factor a quadratic expression to reveal the zeros of the function it defines.	A1 M4 Lesson 10: Zeros of Functions A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions
A.SSE.B.3.b Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.	A1 M4 Lesson 1: Falling Objects A1 M4 Lesson 2: Projectile Motion A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form A1 M4 Lesson 21: Completing the Square to Graph Quadratic Functions A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions
A.SSE.B.3.c Use the properties of exponents to write equivalent expressions for exponential functions.	A1 M5 Lesson 11: Graphing Exponential Functions A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) A1 M5 Lesson 18: Modeling Populations

Arithmetic with Polynomials and Rational Expressions

A.APR.A Perform arithmetic operations on polynomials.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.APR.A.1 Understand that polynomials form a system closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	A1 M1 Lesson 3: Polynomial Expressions A1 M1 Lesson 4: Adding and Subtracting Polynomial Expressions A1 M1 Lesson 5: Multiplying Polynomial Expressions A1 M1 Lesson 6: Polynomial Identities

Creating Equations

A.CED.A Create equations that describe numbers or relationships.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.CED.A.1 Create equations and inequalities in one variable arising from situations in which linear, quadratic, and exponential functions are appropriate and use them to solve problems.	A1 M1 Lesson 7: Printing Presses A1 M1 Lesson 11: Writing and Solving Equations in One Variable A1 M1 Lesson 13: Solving Linear Inequalities in One Variable A1 M1 Lesson 14: Solution Sets of Compound Statements A1 M1 Lesson 15: Solving and Graphing Compound Inequalities A1 M1 Lesson 16: Solving Absolute Value Equations A1 M1 Lesson 17: Solving Absolute Value Inequalities A1 M1 Lesson 18: Applying Absolute Values A1 M4 Lesson 9: Creating and Solving Quadratic Equations in One Variable

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.CED.A.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	A1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables A1 M2 Lesson 2: Graphing Linear Equations in Two Variables A1 M2 Lesson 3: Creating Linear Equations in Two Variables A1 M2 Lesson 6: Applications of Linear Equations and Inequalities A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts A1 M4 Lesson 25: Maximizing Area A1 M4 Lesson 26: Modeling Data with Quadratic Functions A1 M4 Lesson 27: Search and Rescue Helicopter
A.CED.A.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.	A1 M1 Lesson 11: Writing and Solving Equations in One Variable A1 M1 Lesson 14: Solution Sets of Compound Statements A1 M1 Lesson 15: Solving and Graphing Compound Inequalities A1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables A1 M2 Lesson 6: Applications of Linear Equations and Inequalities A1 M6 Lesson 5: Solar System Models
A.CED.A.4 Rewrite formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	A1 M1 Lesson 12: Rearranging Formulas A1 M4 Lesson 13: Using Square Roots to Solve Quadratic Equations

Reasoning with Equations and Inequalities

A.REI.A Understand solving equations as a process of reasoning and explain the reasoning.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.REI.A.1 Explain each step in solving an equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.	A1 M1 Lesson 9: Solving Linear Equations in One Variable A1 M1 Lesson 10: Some Potential Dangers When Solving Equations A1 M1 Lesson 11: Writing and Solving Equations in One Variable

Reasoning with Equations and Inequalities

A.REI.B Solve equations and inequalities in one variable.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.REI.B.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	A1 M1 Lesson 7: Printing Presses A1 M1 Lesson 8: Solution Sets for Equations and Inequalities in One Variable A1 M1 Lesson 9: Solving Linear Equations in One Variable A1 M1 Lesson 10: Some Potential Dangers When Solving Equations A1 M1 Lesson 11: Writing and Solving Equations in One Variable A1 M1 Lesson 13: Solving Linear Inequalities in One Variable A1 M1 Lesson 14: Solution Sets of Compound Statements A1 M1 Lesson 15: Solving and Graphing Compound Inequalities A1 M1 Lesson 16: Solving Absolute Value Equations A1 M1 Lesson 17: Solving Absolute Value Inequalities A1 M1 Lesson 18: Applying Absolute Value

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.REI.B.4 Solve quadratic equations in one variable.	*This standard is fully addressed by the lessons aligned to its subsections.*
A.REI.B.4.a Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions.	A1 M4 Lesson 14: Solving Quadratic Equations by Completing the Square A1 M4 Lesson 15: Deriving the Quadratic Formula
A.REI.B.4.b Derive the quadratic formula from completing the square.	A1 M4 Lesson 14: Solving Quadratic Equations by Completing the Square A1 M4 Lesson 15: Deriving the Quadratic Formula
A.REI.B.4.c Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula, and factoring, as appropriate to the initial form of the equation.	A1 M4 Lesson 5: Solving Equations That Contain Factored Expressions A1 M4 Lesson 6: Solving Quadratic Equations by Factoring: Identities and Guess and Check A1 M4 Lesson 7: Solving Quadratic Equations by Factoring: Splitting the Linear Term A1 M4 Lesson 8: A Summary of Solving Quadratic Equations by Factoring A1 M4 Lesson 9: Creating and Solving Quadratic Equations in One Variable A1 M4 Lesson 13: Using Square Roots to Solve Quadratic Equations A1 M4 Lesson 14: Solving Quadratic Equations by Completing the Square A1 M4 Lesson 15: Deriving the Quadratic Formula A1 M4 Lesson 16: Solving Quadratic Equations A1 M4 Lesson 18: The Quadratic Formula and Zeros of a Function

Reasoning with Equations and Inequalities

A.REI.C Solve systems of equations.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.REI.C.5 Understand the principles of the elimination method.	A1 M2 Lesson 9: A New Way to Solve Systems
A.REI.C.6 Solve systems of linear equations exactly and approximately by graphing, focusing on pairs of linear equations in two variables.	A1 M2 Lesson 7: Low-Flow Showerhead A1 M2 Lesson 8: Systems of Linear Equations in Two Variables A1 M2 Lesson 9: A New Way to Solve Systems A1 M2 Lesson 10: The Elimination Method A1 M2 Lesson 11: Applications of Systems of Equations
A.REI.C.7 Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically.	A1 M4 Lesson 24: Another Look at Systems of Equations

Reasoning with Equations and Inequalities

A.REI.D Represent and solve equations and inequalities graphically.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.REI.D.10 Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).	A1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables A1 M2 Lesson 2: Graphing Linear Equations in Two Variables
A.REI.D.11 Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, including but not limited to using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, quadratic and exponential.	A1 M3 Lesson 11: Using Graphs to Solve Equations A1 M3 Lesson 16: The Absolute Value Function A1 M4 Lesson 24: Another Look at Systems of Equations A1 M5 Lesson 13: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1) A1 M5 Lesson 20: Comparing Growth of Functions
A.REI.D.12 Graph a linear inequality (strict or inclusive) in two variables; graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	A1 M2 Lesson 4: Solution Sets of Linear Inequalities in Two Variables A1 M2 Lesson 5: Graphing Linear Inequalities in Two Variables A1 M2 Lesson 12: Solution Sets of Systems of Linear Inequalities A1 M2 Lesson 13: Graphing Solution Sets of Systems of Linear Inequalities A1 M2 Lesson 14: Applications of Systems of Linear Inequalities A1 M6 Lesson 5: Solar System Models

Interpreting Functions

F.IF.A Understand the concept of a function and use function notation.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
F.IF.A.1 Understand that a function maps each element of the domain to exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.	A1 M3 Lesson 1: The Definition of a Function A1 M3 Lesson 2: Representing, Naming, and Evaluating Functions A1 M3 Lesson 3: The Graph of a Function A1 M3 Lesson 4: The Graph of the Equation $y = f(x)$ A1 M3 Lesson 5: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations A1 M3 Lesson 6: Representations of Functions A1 M3 Lesson 7: Inverses of Linear Functions
F.IF.A.2 Use function notation, evaluate functions, and interpret statements that use function notation in terms of a context.	A1 M3 Lesson 1: The Definition of a Function A1 M3 Lesson 2: Representing, Naming, and Evaluating Functions A1 M3 Lesson 6: Representations of Functions A1 M3 Lesson 17: Step Functions A1 M5 Lesson 1: Exploring Patterns A1 M5 Lesson 2: The Recursive Challenge A1 M5 Lesson 3: Recursive Formulas for Sequences A1 M5 Lesson 4: Explicit Formulas for Sequences A1 M5 Lesson 7: Sierpinski Triangle
F.IF.A.3 Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers.	A1 M5 Lesson 1: Exploring Patterns A1 M5 Lesson 2: The Recursive Challenge A1 M5 Lesson 3: Recursive Formulas for Sequences A1 M5 Lesson 4: Explicit Formulas for Sequences A1 M5 Lesson 5: Arithmetic and Geometric Sequences A1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences

Interpreting Functions

F.IF.B Interpret functions that arise in applications in terms of the context.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
F.IF.B.4 For functions, including linear, quadratic, and exponential, that model a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing or decreasing, including using interval notation; maximums and minimums; symmetries.	A1 M3 Lesson 8: Exploring Key Features of a Function and Its Graph A1 M3 Lesson 9: Identifying Key Features of a Function and Its Graph A1 M3 Lesson 10: Representing Functions from Verbal Descriptions A1 M3 Lesson 12: Comparing Functions A1 M3 Lesson 13: Mars Curiosity Rover A1 M3 Lesson 14: Modeling Elevation as a Function of Time A1 M4 Lesson 1: Falling Objects A1 M4 Lesson 2: Projectile Motion A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form A1 M4 Lesson 21: Completing the Square to Graph Quadratic Functions A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts A1 M4 Lesson 25: Maximizing Area
F.IF.B.5 Relate the domain of a function to its graph and find an appropriate domain in the context of the problem.	A1 M3 Lesson 3: The Graph of a Function A1 M3 Lesson 14: Modeling Elevation as a Function of Time A1 M3 Lesson 17: Step Functions A1 M4 Lesson 2: Projectile Motion A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts

Interpreting Functions

F.IF.C Analyze functions using different representations.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
F.IF.C.7 Graph parent functions and their transformations expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.	*This standard is fully addressed by the lessons aligned to its subsections.*
F.IF.C.7.a Graph linear, exponential, and quadratic functions and show intercepts, maxima, and minima.	A1 M3 Lesson 4: The Graph of the Equation $y = f(x)$ A1 M3 Lesson 5: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations A1 M3 Lesson 6: Representations of Functions A1 M4 Lesson 4: Graphs of Quadratic Functions A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form A1 M4 Lesson 19: Transforming the Graphs of Quadratic Functions A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts
F.IF.C.8 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.	*This standard is fully addressed by the lessons aligned to its subsections.*

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
F.IF.C.8.a Use the process of graphing, factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.	A1 M4 Lesson 1: Falling Objects A1 M4 Lesson 2: Projectile Motion A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion A1 M4 Lesson 10: Zeros of Functions A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions
F.IF.C.8.b Interpret expressions for exponential growth and decay.	A1 M5 Lesson 11: Graphing Exponential Functions A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) A1 M5 Lesson 18: Modeling Populations
F.IF.C.9 Compare properties of two functions (linear, quadratic and exponential) each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	A1 M3 Lesson 12: Comparing Functions A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form A1 M4 Lesson 21: Completing the Square to Graph Quadratic Functions

Building Functions

F.BF.A Build a function that models a relationship between two quantities.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
F.BF.A.1 Write a function (linear, quadratic, and exponential) that describes a relationship between two quantities.	A1 M4 Lesson 1: Falling Objects A1 M4 Lesson 2: Projectile Motion A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form A1 M6 Lesson 5: Solar System Models
F.BF.A.1.a Determine an explicit expression, a recursive process, or steps for calculation from a context.	A1 M3 Lesson 18: Piecewise Linear Functions in Context A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts A1 M4 Lesson 25: Maximizing Area A1 M4 Lesson 26: Modeling Data with Quadratic Functions A1 M4 Lesson 27: Search and Rescue Helicopter A1 M5 Lesson 1: Exploring Patterns A1 M5 Lesson 2: The Recursive Challenge A1 M5 Lesson 3: Recursive Formulas for Sequences A1 M5 Lesson 4: Explicit Formulas for Sequences A1 M5 Lesson 5: Arithmetic and Geometric Sequences A1 M5 Lesson 6: Representation of Arithmetic and Geometric Sequences A1 M5 Lesson 7: Sierpinski Triangle A1 M5 Lesson 8: Exponential Functions A1 M5 Lesson 15: Calculating Interest A1 M6 Lesson 4: The Deal A1 M6 Lesson 5: Solar System Models

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
F.BF.A.1.a *continued*	A1 M6 Lesson 6: Designing a Fundraiser A1 M6 Lesson 7: World Record Doughnut
F.BF.A.1.b Determine an explicit expression from a graph.	*Supplemental material is necessary to address this standard.*
F.BF.A.1.c Combine standard function types using arithmetic operations.	A1 M6 Lesson 4: The Deal A1 M6 Lesson 6: Designing a Fundraiser A1 M6 Lesson 7: World Record Doughnut
F.BF.A.2 Write arithmetic and geometric sequences both recursively and with an explicit formula and use them to model situations.	A1 M5 Lesson 5: Arithmetic and Geometric Sequences A1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences A1 M5 Lesson 7: Sierpinski Triangle

Building Functions

F.BF.B Build new functions from existing functions.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
F.BF.B.3 Identify the effect on the graph of $f(x)$ (linear, exponential, quadratic) replaced with $f(x) + k$, $kf(x)$, $f(kx)$, and $f(k + x)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with contrasting cases and illustrate an explanation of the effects on the graph using technology.	A1 M3 Lesson 19: Exploring Transformations of the Graphs of Functions A1 M3 Lesson 20: Building New Functions—Translations A1 M3 Lesson 21: Building New Functions—Reflections A1 M3 Lesson 22: Building New Functions—Vertical Scaling A1 M3 Lesson 23: Building New Functions—Horizontal Scaling A1 M3 Lesson 24: A Summary of Transforming the Graph of a Function A1 M4 Lesson 20: Art with Transformations A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) A1 M5 Lesson 13: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1) A1 M5 Lesson 14: Writing Equations for Exponential Functions from Tables or Graphs A1 M5 Lesson 23: Modeling the Temperature of Objects Cooling Over Time
F.BF.B.4 Find inverse functions.	A1 M3 Lesson 7: Inverses of Linear Functions
F.BF.B.4.a Solve an equation for the independent variable of a function f that has an inverse function and write an expression for the inverse..	A1 M3 Lesson 7: Inverses of Linear Functions

Linear, Quadratic and Exponential Models

F.LE.A Construct and compare linear and exponential models and solve problems.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
F.LE.A.1 Distinguish between situations that can be modeled with linear functions and with exponential functions.	A1 M6 Lesson 1: Analyzing Paint Splatters A1 M6 Lesson 2: Using Residual Plots to Select Models for Data A1 M6 Lesson 3: Populations of US Cities
F.LE.A.1.a Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.	A1 M5 Lesson 19: Analyzing Exponential Growth
F.LE.A.1.b Recognize situations in which one quantity changes at constant rate per unit interval relative to another.	A1 M5 Lesson 15: Calculating Interest A1 M5 Lesson 18: Modeling Populations A1 M5 Lesson 21: World Population Prediction A1 M5 Lesson 22: A Closer Look at Populations A1 M5 Lesson 24: Modeling an Invasive Species Population
F.LE.A.1.c Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.	A1 M5 Lesson 15: Calculating Interest A1 M5 Lesson 18: Modeling Populations A1 M5 Lesson 21: World Population Prediction A1 M5 Lesson 22: A Closer Look at Populations A1 M5 Lesson 24: Modeling an Invasive Species Population

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
F.LE.A.2 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).	A1 M5 Lesson 8: Exponential Functions A1 M5 Lesson 14: Writing Equations for Exponential Functions from Tables or Graphs A1 M5 Lesson 16: Exponential Growth A1 M5 Lesson 17: Exponential Decay A1 M5 Lesson 21: World Population Prediction A1 M5 Lesson 22: A Closer Look at Populations A1 M5 Lesson 23: Modeling the Temperature of Objects Cooling Over Time A1 M5 Lesson 24: Modeling an Invasive Species Population A1 M6 Lesson 4: The Deal A1 M6 Lesson 5: Solar System Models A1 M6 Lesson 6: Designing a Fundraiser A1 M6 Lesson 7: World Record Doughnut
F.LE.A.3 Recognize, using graphs and tables, that a quantity increasing exponentially eventually exceeds a quantity increasing linearly or quadratically.	A1 M5 Lesson 20: Comparing Growth of Functions

Linear, Quadratic and Exponential Models

F.LE.B Interpret expressions for functions in terms of the situation they model.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
F.LE.B.5 Interpret the parameters in a linear or exponential function in terms of a context.	A1 M5 Lesson 18: Modeling Populations A1 M5 Lesson 19: Analyzing Exponential Growth A1 M5 Lesson 23: Modeling the Temperature of Objects Cooling Over Time A1 M5 Lesson 24: Modeling an Invasive Species Population

Interpreting Categorical and Quantitative Data

S.ID.A Summarize, represent, and interpret data on a single count or measurement variable.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
S.ID.A.1 Represent data with plots on the real number line (dot plots, histograms, and box plots).	A1 M1 Lesson 19: Distributions and Their Shapes A1 M1 Lesson 20: Describing the Center of a Distribution A1 M1 Lesson 21: Using Center to Compare Data Distributions
S.ID.A.2 Use statistics appropriate to the shape and context of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.	A1 M1 Lesson 19: Distributions and Their Shapes A1 M1 Lesson 20: Describing the Center of a Distribution A1 M1 Lesson 21: Using Center to Compare Data Distributions A1 M1 Lesson 22: Describing Variability in a Univariate Distribution with Standard Deviation A1 M1 Lesson 23: Estimating Variability in Data Distributions A1 M1 Lesson 24: Comparing Distributions of Univariate Data

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
S.ID.A.3 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	A1 M1 Lesson 19: Distributions and Their Shapes A1 M1 Lesson 20: Describing the Center of a Distribution A1 M1 Lesson 21: Using Center to Compare Data Distributions A1 M1 Lesson 22: Describing Variability in a Univariate Distribution with Standard Deviation A1 M1 Lesson 23: Estimating Variability in Data Distributions A1 M1 Lesson 24: Comparing Distributions of Univariate Data

Interpreting Categorical and Quantitative Data

S.ID.B Summarize, represent, and interpret data on two categorical and quantitative variables.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
S.ID.B.5 Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.	A1 M2 Lesson 22: Summarizing Bivariate Categorical Data with Two-Way Tables A1 M2 Lesson 23: Bivariate Categorical Data and Conditional Relative Frequency Tables A1 M2 Lesson 24: Conditional Relative Frequencies and Association
S.ID.B.6 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.	A1 M2 Lesson 15: Relationships Between Quantitative Variables A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
S.ID.B.6.a Determine the function (linear, quadratic, or exponential model) that best fits a set of data and use that function fitted to data to solve problems within context.	A1 M2 Lesson 16: Using Lines to Model Bivariate Quantitative Data A1 M2 Lesson 17: Modeling Relationships with a Line A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts A1 M4 Lesson 26: Modeling Data with Quadratic Functions A1 M4 Lesson 27: Search and Rescue Helicopter A1 M6 Lesson 1: Analyzing Paint Splatters A1 M6 Lesson 2: Using Residual Plots to Select Models for Data A1 M6 Lesson 3: Populations of US Cities
S.ID.B.6.b Informally and using technology assess the fit of a function by plotting and analyzing residuals.	A1 M2 Lesson 18: Calculating and Analyzing Residuals A1 M2 Lesson 19: Analyzing Residuals A1 M6 Lesson 1: Analyzing Paint Splatters A1 M6 Lesson 2: Using Residual Plots to Select Models for Data A1 M6 Lesson 3: Populations of US Cities
S.ID.B.6.c Fit a linear function for a scatter plot that suggests a linear association.	A1 M2 Lesson 17: Modeling Relationships with a Line A1 M2 Lesson 18: Calculating and Analyzing Residuals A1 M2 Lesson 20: Interpreting Correlation A1 M6 Lesson 1: Analyzing Paint Splatters A1 M6 Lesson 2: Using Residual Plots to Select Models for Data A1 M6 Lesson 3: Populations of US Cities

Interpreting Categorical and Quantitative Data

S.ID.C Interpret linear models.

South Dakota State Standards for Mathematics	Aligned Components of *Eureka Math²*
S.ID.C.7 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	A1 M2 Lesson 16: Using Lines to Model Bivariate Quantitative Data A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data
S.ID.C.8 Compute (using technology) and interpret the correlation coefficient of a linear fit.	A1 M2 Lesson 20: Interpreting Correlation A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data
S.ID.C.9 Distinguish between correlation and causation.	A1 M2 Lesson 20: Interpreting Correlation A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data