

HIGH SCHOOL MATH ALTERNATE CONTENT STANDARDS

ALGEBRA

Goal 1: Students will use the language of algebra to explore, describe, represent, and analyze number expressions and relations that represent variable quantities.

Indicator 1: Use procedures to transform algebraic expressions.

General Education Standards	Alternate Content Standards
9-12.A.1.1. Write equivalent forms of algebraic expressions using properties of the set of real numbers.	9-12.A.A.1.1 Uses properties to simplify first degree algebraic expressions using identities, commutative, associative, properties using fractions, and decimals.

Indicator 2: Use a variety of algebraic concepts and methods to solve equations and inequalities.

General Education Standards	Alternate Content Standards
9-12.A.2.1. Use algebraic properties to transform multi-step, single variable, and first-degree equations.	9-12.A.A.2.1 Solves two step, first degree equations (properties, variables, symbols).
9-12.A.2.2. Use algebraic properties to transform multi-step, single variable, and first-degree inequalities and represent solutions using a number line.	9-12.A.A.2.2 Translates verbal/written expression into an algebraic inequality.

Indicator 3: Interpret and develop mathematical models.

General Education Standards	Alternate Content Standards
9-12.A.3.1. Create linear models to represent problem situations.	9-12.A.A.3.1 Interpret and develop relationships between problems with constant rate of change.
9-12.A.3.2. (Comprehension) Distinguish between linear and nonlinear models.	9-12.A.A.3.2/4.1 Complete the next three numbers in a given pattern (graphs, tables, equations)

Indicator 4: Describe and apply the properties and behaviors of relations, functions and inverses.

General Education Standards	Alternate Content Standards
9-12.A.4.1. Use graphs, tables, and equations to represent linear functions.	9-12.A.A.4.1 <i>Combined with</i> 9-12.A.A.3.2

South Dakota HS Algebra Alternate Achievement Descriptors

Levels	Descriptors
Advancing	<ul style="list-style-type: none"> • Uses properties of real numbers; including the distributive property. • Solves multi-step, single variables and first-degree equations. • Solves inequalities (properties, variables, symbols) with representations • Create linear models using independent and dependent variables. • Explains the rule of the pattern.
Applying	<ul style="list-style-type: none"> • Uses properties to simplify first degree algebraic expressions using identities, commutative, associative, properties using fractions, and decimals. • Solves two step, first degree equations (properties, variables, symbols) • Translates verbal/written expression into an algebraic inequality. • Interpret and develop relationships between problems with constant rate of change. • Complete the next three numbers in a given pattern (graphs, tables, equations)
Developing	<ul style="list-style-type: none"> • Uses properties to simplify first degree algebraic expressions using identities, commutative, associative, properties using whole numbers. • Solves one-step, first degree equations (properties, variables, symbols) • Understands inequalities (properties, variables, symbols) with representations (The student puts the correct symbol in the problem.) • Graph or table to illustrate constant rates of change. • Distinguish if a pattern exists (graphs, tables, equations)
Introducing	<ul style="list-style-type: none"> • Recognize equivalent expressions. • Recognizes a first degree equation. • Recognizes greater than or less than on a number line. • Recognizes various rates of change. • Explores various patterns.

Continuum of frequency, setting, and support.	
4	Students demonstrate knowledge and skills consistently across multiple settings without support.
3	Students demonstrate knowledge and skills more than once in more than one setting without support.
2	Students demonstrate knowledge and skills once in one setting with minimal support.
1	Students attempt to demonstrate knowledge and skills once in one setting with support.

GEOMETRY

Goal 2: Students will use the language of geometry to discover, analyze, and communicate geometric concepts, properties, and relationships.

Indicator 1: Use deductive and inductive reasoning to recognize and apply properties of geometric figures.

General Education Standards	Alternate Content Standards
9-12.G.1.1. Apply the properties of triangles and quadrilaterals to find unknown parts.	9-12.A.G.1.1. Identify similarities and differences of angles/lengths of sides of triangles and quadrilaterals (3 and 4 sided figures).
9-12.G.1.2. Identify and apply relationships among triangles.	9-12.A.G.1.2. OMIT

Indicator 2: Use properties of geometric figures to solve problems from a variety of perspectives.

General Education Standards	Alternate Content Standards
9-12.G.2.1. Recognize the relationship between a three-dimensional figure and its two-dimensional representation.	9-12.A.G.2.1 Given a three dimensional figure, the student will determine what two dimensional shapes exists.
9-12.G.2.2. Reflect across vertical or horizontal lines, and translate two dimensional figures.	9-12.A.G.2.2 Traces a mirror image vertically or horizontally.
9-12.G.2.3. Use proportions to solve problems	9-12.A.G.2.3 Write and solve proportions through visual groupings.

South Dakota HS Geometry Alternate Achievement Descriptors

Levels	Descriptors
Advancing	<ul style="list-style-type: none"> • Apply the properties of triangles and quadrilaterals to find unknown parts • Given a two dimensional representation the student will create a three dimensional figure. • Translates two dimensional figures. • Will write and solve proportions from word problems.
Applying	<ul style="list-style-type: none"> • Identify similarities and differences of angles/lengths of sides of triangles and quadrilaterals (3 and 4 sided figures). • Traces a mirror image vertically or horizontally. • Will write and solve equivalent proportions through visual groupings.

Developing	<ul style="list-style-type: none"> • Define the characteristics of triangles and quadrilaterals. • Will identify and explain the differences between a two dimensional and three dimensional shapes. • Identifies a vertical and horizontal reflection • Solve proportions.
Introducing	<ul style="list-style-type: none"> • Classifies types of triangles and quadrilaterals • Will identify the name of the 3-dimensional shape when given visual representation (cone, prism, and cylinder). • Identifies a properly reflected image. • Demonstrates how to reduce fractions.

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MEASUREMENT

Goal 3: Students will apply systems of measurement and use appropriate measurement tools to describe and analyze the world around them.

Indicator 1: Apply measurement concepts in practical applications.

General Education Standards	Alternate Content Standards
9-12.M.1.1. Choose appropriate unit label, scale, and precision.	9-12.A.M.1.1. Applies appropriate labels and scales for length, weight, and volume in English units.
9-12.M.1.2. Use suitable units when describing rate of change.	9-12.A.M.1.2 Use suitable units when describing rate of change.
9-12.M.1.3. Use formulas to find perimeter, circumference, and area to solve problems involving common geometric figures.	9-12.A.M.1.3 When given formulas, students will solve circumference, area and perimeter from a given visual geometric figure.

South Dakota HS Measurement Alternate Achievement Descriptors

Levels	Descriptors
Advancing	<ul style="list-style-type: none"> • Applies the metric system of measurement. • Graph suitable units when describing rate of change. • Choose from formulas provided, students will solve circumference, area and perimeter from a given visual geometric figure.

Applying	<ul style="list-style-type: none"> • Applies appropriate labels and scales for length, weight, and volume in English units. • Use suitable units when describing rate of change. • When given formulas, students will solve circumference, area and perimeter from a given visual geometric figure.
Developing	<ul style="list-style-type: none"> • Converts measures of lengths, or weight, or volumes to different units. • Student will extract appropriate information from a real-life situation. • Identifies the correct formulas for different geometric figures.
Introducing	<ul style="list-style-type: none"> • Defines the different units of measurement and recognizes the appropriate tools for measurement. • Student will recognize a rate of change in a given situation. • Calculates the perimeter of quadrilaterals.

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NUMBER SENSE

Goal 4: Students will develop and use number sense to investigate the characteristics of numbers in a variety of forms and modes of operation.

Indicator 1: Analyze the structural characteristics of the real number system and its various subsystems. Analyze the concept of value, magnitude, and relative magnitude of real numbers.

General Education Standards	Alternate Content Standards
9-12.N.1.1. Identify multiple representations of a real number.	9-12.A.N.1.1. Identify equivalent representations of numbers using fractions, decimals, diagrams and percents.
9-12.N.1.2. Apply the concept of place value, magnitude, and relative magnitude of real numbers.	9-12.A.N.1.2 Apply the concept of place value, magnitude, and relative magnitude using percents, fractions, diagrams and decimals.

Indicator 2: Apply operations within the set of real numbers.

General Education Standards	Alternate Content Standards
9-12.N.2.1. Add, subtract, multiply, and divide real numbers including integral exponents.	9-12.A.N.2.1 Add and subtract real numbers with or without a calculator.

Indicator 3: Develop conjectures, predictions, or estimations in the process of problem solving and verify or justify the results.

General Education Standards	Alternate Content Standards
9-12.N.3.1. Use estimation strategies in problem situations to predict results and to check the reasonableness of results.	9-12.A.N.3.1 Uses estimation strategies in problem situations to predict results.
9-12.N.3.2. Select alternative computational strategies and explain the chosen strategy.	9-12.A.N.3.2 Omit

South Dakota HS Number Sense Alternate Achievement Descriptors

Levels	Descriptors
Advancing	<ul style="list-style-type: none"> • Identify equivalent representations of numbers using fractions, decimals, diagrams, percents and numbers with exponents. • Apply the concept of place value, magnitude, and relative magnitude using percents, fractions, diagrams, decimals and numbers of exponents. • Add, subtract, multiply, and divide real numbers including integral exponents. • Uses estimation strategies in problem situations to predict results and to check the reasonableness of results.
Applying	<ul style="list-style-type: none"> • Identify equivalent representations of numbers using fractions, decimals, diagrams and percents. • Apply the concept of place value, magnitude, and relative magnitude using percents, fractions, diagrams and decimals. • Add and subtract real numbers with or without a calculator. • Uses estimation strategies in problem situations to predict results.
Developing	<ul style="list-style-type: none"> • Identify equivalent representations of numbers using decimals, diagrams and percents. • Apply the concept of place value, magnitude, and relative magnitude using percents, diagrams and decimals. • Subtracts real numbers • Rounds to appropriate decimal place value.

Introducing	<ul style="list-style-type: none"> • Identify equivalent representations of numbers using decimals and diagrams. • Apply the concept of place value, magnitude, and relative magnitude using diagrams and decimals. • Adds real numbers. • Rounds to nearest whole number.
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STATISTICS AND PROBABILITY

Goal 5: Students will apply statistical methods to analyze data and explore probability for making decisions and predictions.

Indicator 1: Use statistical models to gather, analyze, and display data to draw conclusions.

General Education Standards	Alternate Content Standards
9-12.S.1.1. Draw conclusions from a set of data.	9-12.A.S.1.1. Gather and organize data.
9-12.S.1.2. Compare multiple one-variable data sets, using range, interquartile range, mean, mode, and median.	9-12.A.S.1.2 Compare multiple one-variable data sets using range, mean, mode, and median.
9-12.S.1.3. Represent a set of data in a variety of graphical forms and draw conclusions.	9-12.A.S.1.3 Interprets data in a variety of graphical forms and draw conclusions.

Indicator 2: Apply the concepts of probability to predict events/outcomes and solve problems.

General Education Standards	Alternate Content Standards
9-12.S.2.1. Distinguish between experimental and theoretical probability.	9-12.A.S.2.1. Distinguish between experimental and theoretical probability.
9-12.S.2.2. Predict outcomes of simple events using given theoretical probabilities.	9-12.A.S.2.2 Omit

South Dakota HS Statistics and Probability Alternate Achievement Descriptors

Levels	Descriptors
Advancing	<ul style="list-style-type: none"> • Gather, organize and draw conclusions from data. • Compare multiple one-variable data sets using interquartile range, mean, mode, and median. • Creates a graph using different graphical forms. • Predicts and compare outcomes based on theoretical and experimental probability.
Applying	<ul style="list-style-type: none"> • Gather and organize data. • Compare multiple one-variable data sets, using range, mean, mode, and median. • Interpret data in a variety of graphical forms and draw conclusions. • Distinguish between experimental and theoretical probability.
Developing	<ul style="list-style-type: none"> • Organizes given data in a logical manner. • Compare multiple one-variable data sets using range, mode, and medians of an odd numbered set. • Read data in a variety of graphical forms • Records accurate information from possible outcomes.
Introducing	<ul style="list-style-type: none"> • Sorts relevant from irrelevant information from a given scenario. • Compare multiple one-variable data sets using range and mode. • Identifies the different types of graphs (bar, line, pie, and pictograph). • Explores what events are predictable.

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