2023 Final

Nebraska

College and Career Ready Math Standards

including the

Extended Indicators

for
Students with the Most Significant Cognitive Disabilities
who take the
Statewide Math Alternate Assessment

Nebraska College and Career Ready Math Standards including the Extended Indicators

The Role of Extended Indicators

For students with the most significant intellectual disabilities, achieving grade-level standards is not the same as meeting grade-level expectations because their instructional program addresses extended indicators.

It is important for teachers of students with the most significant intellectual disabilities to recognize that extended indicators are not meant to be viewed as sufficient skills or understandings. Extended indicators must be viewed only as access or entry points to the grade-level standards. The extended indicators in this document are not intended as the end goal, but rather a starting place for moving students forward to conventional reading and writing. Lists following "e.g." in the extended indicator are provided only as possible examples.

Students with the Most Significant Intellectual Disabilities

In the United States, approximately 1% of school-aged children have an intellectual disability that is "characterized by significant impairments both in intellectual and adaptive functioning as expressed in conceptual, social, and practical adaptive domains" (U.S. Department of Education, 2002 and American Association of Intellectual and Developmental Disabilities, 2013). These students show evidence of cognitive functioning in the range of severe to profound and need extensive or pervasive support. Students need intensive instruction and/or supports to acquire, maintain and generalize academic and life skills in order to actively participate in school, work, home or community. In addition to significant intellectual disabilities, students may have accompanying communication, motor, sensory, or other impairments.

Alternate Assessment Determination Guidelines

The student taking a Statewide Alternate Assessment is characterized by significant impairments both in intellectual and adaptive functioning which is expressed in conceptual, social, and practical adaptive domains and that originates before age 18 (American Association of Intellectual and Developmental Disabilities, 2013). It is important to recognize the huge disparity of skills possessed by students taking an alternate assessment and to consider the uniqueness of each child.

Thus, the IEP team must consider **all** of the following guidelines when determining the appropriateness of a curriculum based on Extended Indicators and the use of the Statewide Alternate Assessment.

- **The student requires extensive, pervasive, and frequent supports in order to acquire, maintain, and demonstrate performance of knowledge and skills.**
- **The student's cognitive functioning is significantly below age expectations and has an impact on his/her ability to function in multiple environments (school, home and community).**
- **The student's demonstrated cognitive ability and adaptive functioning prevent completion of the general academic curriculum, even with appropriately designed and implemented modifications and accommodations.**
- **The student's curriculum and instruction is aligned to the Nebraska College and Career Ready Math Standards with Extended Indicators.**
- **The student may have accompanying communication, motor, sensory, or other impairments.**

The Nebraska Department of Education's technical assistance documents ***"IEP Team Decision Making Guidelines – Statewide Assessment for Students with Disabilities,"*** ***"IEP Team Decision Making Flow Chart – Alternate Assessment"*** *and* ***"Alternate Assessment Criteria"*** provide additional information on selecting appropriate statewide assessment for students with disabilities.

Nebraska Third Grade Math Standards and Extended Indicators
for
Students with the Most Significant Disabilities

K-12 Comprehensive Number Standard:

Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

NUMBER

3.N.1 Numeric Relationships	**Students will demonstrate and represent multi-digit numbers using place value understanding.**

Indicator 3.N.1.a	Read, write, and demonstrate multiple equivalent representations for numbers up to 10,000 using objects or visual representations including standard form and expanded form. (only difference is 100,000 vs. 10,000)
Extended Indicator MAE 3.N.1.a	**Read, write, and demonstrate whole numbers 1–20 that are equivalent representations, including visual models, standard forms, and word forms.**
Indicator 3.N.1.b	Represent and justify comparisons of whole numbers up to 10,000 using number lines and reasoning strategies.
Extended Indicator MAE 3.N.1.b	**Compare and order whole numbers 1–20 using number lines or quantities of objects.**

3.N.2 Fractions	**Students will develop understanding of fractions as numbers.**

Indicator 3.N.2.a	Partition two-dimensional figures into equal areas and express the area of each part as a unit fraction of the whole.
Extended Indicator MAE 3.N.2.a	**Partition two-dimensional figures (circles, triangles, rectangles, and squares) into two, three, or four equal shares, and express the area of each part as a unit fraction of the whole using 1/2, 1/3, or 1/4.**
Indicator 3.N.2.b	Find parts of a whole using visual fraction models.
Extended Indicator MAE 3.N.2.b	**Partition two-dimensional figures (circles, triangles, rectangles, and squares) into three, four, or five equal shares, and express the area of each part as a fraction of the whole using 2/3, 3/4, 2/5, 3/5, or 4/5 .**
Indicator 3.N.2.c	Represent and understand a fraction as a number on a number line.
Extended Indicator MAE 3.N.2.c	**Represent halves and wholes on a number line.**

Indicator 3.N.2.d	Show and identify equivalent fractions using visual representations including pictures, manipulatives, and number lines.
Indicator 3.N.2.e	Justify whole numbers as fractions and identify fractions that are equivalent to whole numbers.
Extended Indicator MAE 3.N.2.e	**Given a model, represent a whole number (1, 2, or 3) as a fraction with a denominator of 2, 3, or 4.**
Indicator 3.N.2.f	Compare and order fractions having the same numerators or denominators by reasoning about their size.
Extended Indicator MAE 3.N.2.f	**Use a model to compare unit fractions 1/2, 1/3, and 1/4.**

K-12 Comprehensive Algebra Standard:

Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

ALGEBRA

3.A.1 Operations and Algebraic Thinking	**Students will extend understanding of multiplication and apply operational properties to solve problems.**

Indicator 3.A.1.a	Add and subtract up to four-digit whole numbers with or without regrouping using strategies based on place value and algorithms.
Extended Indicator MAE 3.A.1.a	**Add and subtract without regrouping, limited to maximum sum and minuend of 20.**
Indicator 3.A.1.b	Determine the reasonableness of whole number sums and differences using estimations and number sense.
Extended Indicator MAE 3.A.1.b	**Round one- and two-digit whole numbers to the nearest ten and estimate two-digit sums and differences to the nearest ten.**
Indicator 3.A.1.c	Solve and write one-step whole number equations to represent authentic problems using the four operations including equations with an unknown start, unknown change, or unknown result.
Extended Indicator MAE 3.A.1.c	**Solve one-step addition and subtraction equations using the digits 0–9, limited to equations with an unknown change or unknown result.**
Indicator 3.A.1.d	Interpret and solve two-step authentic problems involving whole numbers and the four operations.
Extended Indicator MAE 3.A.1.d	**Solve one-step authentic addition and subtraction problems using the digits 0–9, limited to problems with an unknown change or unknown result.**
Indicator 3.A.1.e	Apply commutative, associative, distributive, identity, and zero properties as strategies to multiply and divide.
Indicator 3.A.1.f	Use drawings, words, arrays, symbols, repeated addition, equal groups, and number lines to interpret and explain the meaning of multiplication and division and their relationship.
Extended Indicator MAE 3.A.1.f	**Identify multiplication equations, and use models (e.g., number lines, repeated addition, equal groups, arrays) to represent multiplication, limited to groups up to 20.**
Indicator 3.A.1.g	Fluently multiply and divide within 100 using strategies based on understanding and properties of operations.
Indicator 3.A.1.h	Multiply one-digit whole numbers by multiples of 10 in the range of 10 to 90 using strategies based on place value and properties of operations.
Extended Indicator MAE 3.A.1.h	**Multiply 1 and 2 by multiples of 10 with a maximum product of 100.**

K-12 Comprehensive Geometry Standard:

Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.

GEOMETRY

3.G.1 Shapes and Their Attributes	**Students will recognize and represent the attributes of two-dimensional shapes.**

Indicator 3.G.1.a	Sort quadrilaterals into categories according to their attributes.
Extended Indicator MAE 3.G.1.a	**Identify two-dimensional shapes, circles, triangles, rectangles, or squares.**

3.G.2 Area and Perimeter	**Students will recognize perimeter and area as attributes of plane figures and understand concepts of area measurement.**

Indicator 3.G.2.a	Solve authentic problems involving perimeters of polygons when given the side lengths or when given the perimeter and unknown side length(s).
Extended Indicator MAE 3.G.2.a	**Find the perimeter of a square or rectangle given the side lengths and a visual model.**
Indicator 3.G.2.b	Use concrete and pictorial models to measure areas in square units by counting square units.
Extended Indicator MAE 3.G.2.b	**Find the area of a square or rectangle by counting whole-number unit squares.**
Indicator 3.G.2.c	Find the area of a rectangle with whole-number side lengths by modeling with unit squares; show that area can be additive and is the same as it would be found by multiplying the side lengths.
Extended Indicator MAE 3.G.2.c	**Find the area of a square or rectangle with whole-number side lengths by counting unit squares and showing that repeated addition is the same as multiplying the side lengths.**

3.G.3 Measurement	**Students will use tools to solve measurement problems.**

Indicator 3.G.3.a	Identify and use the appropriate tools and units of measurement, both customary and metric, to solve authentic problems involving length, weight, mass, liquid volume, and capacity (within the same system and unit).

Extended Indicator MAE 3.G.3.a	**Identify the appropriate tool to use to solve authentic problems involving length, weight, and liquid volume.**
Indicator 3.G.3.b	Estimate and measure length to the nearest half inch, fourth inch, and centimeter.
Extended Indicator MAE 3.G.3.b	**Measure the length of an object to the nearest inch.**

3.G.4 Time	**Students will tell time to the nearest minute and find elapsed time.**

Indicator 3.G.4.a	Tell and write time to the minute using both analog and digital clocks.
Extended Indicator MAE 3.G.4.a	**Tell time to the hour using both analog and digital clocks.**
Indicator 3.G.4.b	Solve authentic problems involving addition and subtraction of time intervals and find elapsed time.
Extended Indicator MAE 3.G.4.b	**Solve authentic problems involving addition and subtraction of time intervals to find elapsed time, limited to whole-number hours.**

K-12 Comprehensive Data Standard:

Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

DATA

3.D.1 Data Collection	**Students will formulate questions to collect, organize, and represent data.**

Indicator 3.D.1.a	Create scaled picture graphs and scaled bar graphs to represent a data set with more than four categories, including data collected through observations, surveys, and experiments.
Extended Indicator MAE 3.D.1.a	**Identify characteristics (e.g., title, labels, key, scale, quantities, categories) on a bar graph, pictograph, and circle graph.**
Indicator 3.D.1.b	Generate and represent data using line plots where the horizontal scale is marked off in halves and whole number units.
Extended Indicator MAE 3.D.1.b	**Identify characteristics (e.g., title, labels, horizontal axis, quantities) on a line plot.**

3.D.2 Analyze Data and Interpret Results	**Students will analyze the data and interpret the results.**

Indicator 3.D.2.a	Analyze data and make simple statements using information represented in picture graphs, line plots, and bar graphs.
Extended Indicator MAE 3.D.2.a	**Identify and compare quantities in pictographs and bar graphs.**

Nebraska Fourth Grade Math Standards and Extended Indicators
for
Students with the Most Significant Disabilities

K-12 Comprehensive Number Standard:

Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

NUMBER

4.N.1 Numeric Relationships	**Students will demonstrate and represent multi-digit numbers using relationships with the base-ten number system.**

Indicator 4.N.1.a	Read, write, and demonstrate multiple equivalent representations for whole numbers up to 1,000,000 and decimals to the hundredths using visual representations, standard form, and expanded form.
Extended Indicator MAE 4.N.1.a	**Identify representations of whole numbers up to 100.**
Indicator 4.N.1.b	Represent and justify comparisons of whole numbers up to 1,000,000 and decimals through the hundredths place using number lines and reasoning strategies.
Extended Indicator MAE 4.N.1.b	**Use symbols <, >, and = to compare whole numbers up to 50.**
Indicator 4.N.1.c	Recognize a digit in one place represents ten times what it represents in the place to its right.
Indicator 4.N.1.d	Use decimal notation for fractions with denominators of 10 or 100 (e.g., 43/100 = 0.43).
Extended Indicator MAE 4.N.1.d	**Use decimal notation for fractions from 0 to 1 with a denominator of 10 (e.g., 2/10 = .2), and identify those decimals on a number line from 0 to 1.**

4.N.2 Fractions and Decimals	**Students will extend understanding of fractions by equivalence and ordering and will develop an understanding of decimals.**

Indicator 4.N.2.a	Explain and demonstrate how a mixed number is equivalent to a fraction greater than one and how a fraction greater than one is equivalent to a mixed number using visual fraction models and reasoning strategies.
Extended Indicator MAE 4.N.2.a	**Compare and order mixed numbers with denominators up to 5.**

Indicator 4.N.2.b	Explain and demonstrate how equivalent fractions are generated by multiplying by a fraction equivalent to 1 using visual fraction models and the Identity Property of Multiplication.
Indicator 4.N.2.c	Compare and order fractions having unlike numerators or denominators using number lines, benchmarks, reasoning strategies, and/or equivalence.

4.N.3 Operations with Fractions	**Students will understand and demonstrate fractional computation.**

Indicator 4.N.3.a	Decompose a fraction into a sum of fractions with the same denominator in more than one way and record each decomposition with an equation and a visual representation.
Indicator 4.N.3.b	Explain the meaning of addition and subtraction of fractions with like denominators using visual fraction models, properties of operations, and reasoning strategies.
Indicator 4.N.3.c	Add and subtract fractions and mixed numbers with like denominators.
Extended Indicator MAE 4.N.3.c	**Use visual models to add and subtract fractions with like denominators of halves, thirds, and fourths, limited to minuends and sums with a maximum of 1 whole.**
Indicator 4.N.3.d	Solve authentic problems involving addition and subtraction of fractions and mixed numbers with like denominators.
Extended Indicator MAE 4.N.3.d	**Use visual models to solve authentic problems involving addition and subtraction of fractions with like denominators of halves, thirds, and fourths, limited to minuends and sums with a maximum of 1 whole.**
Indicator 4.N.3.e	Multiply a fraction by a whole number using visual fraction models and properties of operations.

4.N.4 Factors and Multiples	**Students will find factors and multiples and classify numbers as prime or composite.**

Indicator 4.N.4.a	Determine whether a given whole number up to 100 is a multiple of a given one-digit number.
Extended Indicator MAE 4.N.4.a	**Count by 2s, 5s, and 10s with numbers, models, or objects up to 50.**
Indicator 4.N.4.b	Determine factors of any whole number up to 100 and classify a number up to 100 as prime or composite.
Extended Indicator MAE 4.N.4.b	**Identify numbers 1–20 as odd or even, and identify the factors of 4, 6, 8, 9, 10, 12, 15, and 20.**

K-12 Comprehensive Algebra Standard:

Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

ALGEBRA

4.A.1 Operations and Algebraic Thinking	**Students will extend understanding of multiplication and division and apply operational properties to solve problems involving variables.**

Indicator 4.A.1.a	Add and subtract multi-digit numbers using an algorithm.
Extended Indicator MAE 4.A.1.a	**Add and subtract numbers with regrouping, limited to two-digit addends and minuends.**
Indicator 4.A.1.b	Multiply up to a four-digit whole number by a one-digit whole number and multiply a two-digit whole number by a two-digit whole number, using strategies based on place value, properties of operations, and algorithms.
Extended Indicator MAE 4.A.1.b	**Multiply 2s, 5s, and 10's by a single-digit number with a maximum product of 100.**
Indicator 4.A.1.c	Divide up to a four-digit whole number by a one-digit divisor with and without a remainder using strategies based on place value.
Extended Indicator MAE 4.A.1.c	**Identify division equations, and use models (e.g., number lines, repeated addition, equal groups, arrays) to represent division without a remainder, limited to groups up to 20.**
Indicator 4.A.1.d	Determine the reasonableness of whole number products and quotients using estimations and number sense.
Extended Indicator MAE 4.A.1.d	**Round one- and two-digit whole numbers to estimate two-digit products.**
Indicator 4.A.1.e	Create a simple algebraic expression or equation using a variable for an unknown number to represent an authentic mathematical situation (e.g., 3 + n = 15, 81 ÷ n = 9).
Extended Indicator MAE 4.A.1.e	**Identify an addition or subtraction equation in an authentic mathematical situation using a variable for an unknown, limited to an unknown change or unknown result (e.g., 3 + n = 10, 12 - 6 = n).**
Indicator 4.A.1.f	Solve one- and two-step authentic problems using the four operations including interpreting remainders and the use of a letter to represent the unknown quantity.
Extended Indicator MAE 4.A.1.f	**Solve one-step authentic problems involving addition and subtraction and including the use of a letter to represent an unknown quantity, limited to two-digit addends and minuends.**

K-12 Comprehensive Geometry Standard:

Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.

GEOMETRY

4.G.1 Shapes and Their Attributes	**Students will draw and identify lines and angles and classify shapes by properties of their lines and angles.**

Indicator 4.G.1.a	Identify, create, and describe points, lines, line segments, rays, angles, parallel lines, perpendicular lines, and intersecting lines.
Extended Indicator MAE 4.G.1.a	**Identify points, lines, line segments, rays, angles, parallel lines, and intersecting lines.**
Indicator 4.G.1.b	Justify the classification of angles as acute, obtuse, or right.
Extended Indicator MAE 4.G.1.b	**Classify angles as acute, obtuse, or right.**
Indicator 4.G.1.c	Justify the classification of two-dimensional shapes based on the presence or absence of parallel and perpendicular lines or the presence or absence of specific angles.
Extended Indicator MAE 4.G.1.c	**Classify quadrilaterals based on the presence or absence of parallel and perpendicular lines and the presence or absence of right angles.**
Indicator 4.G.1.d	Recognize, draw, and justify lines of symmetry in two-dimensional shapes.
Extended Indicator MAE 4.G.1.d	**Identify lines of symmetry in two-dimensional shapes.**

4.G.2 Measurement	**Students will generate simple conversions from a larger unit to a smaller unit to solve authentic problems and measure angles.**

Indicator 4.G.2.a	Identify and use the appropriate tools, operations, and units of measurement, both customary and metric, to solve authentic problems involving time, length, weight, mass, and capacity.
Extended Indicator MAE 4.G.2.a	**Identify and use the appropriate units of measurement to solve authentic problems involving time, length, weight, and liquid volume, using customary units.**
Indicator 4.G.2.b	Determine the reasonableness of measurements involving time, length, weight, mass, capacity, and angles.

Indicator 4.G.2.c	Generate simple conversions from a larger unit to a smaller unit within the customary and metric systems of measurement.
Extended Indicator MAE 4.G.2.c	**Generate simple conversions from larger units to smaller units, using weeks/days, years/months, hours/minutes, or feet/inches.**
Indicator 4.G.2.d	Measure angles in whole number degrees using a protractor and relate benchmark angle measurements to their rotation through a circle (e.g., 180° = 1/2 of a circle).
Extended Indicator MAE 4.G.2.d	**Identify benchmark angles of 90° and 180°, and relate those angle measurements to right angles, straight lines, and perpendicular lines.**
Indicator 4.G.2.e	Recognize angle measures as additive and solve problems involving addition and subtraction to find unknown angles on a diagram.

4.G.3 Area and Perimeter	**Students will apply perimeter and area formulas for rectangles.**

Indicator 4.G.3.a	Apply perimeter and area formulas for rectangles to solve authentic problems.
Extended Indicator MAE 4.G.3.a	**Apply perimeter formulas for rectangles to solve authentic problems.**

K-12 Comprehensive Data Standard:

Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

DATA

4.D.1 Data Collection	**Students will formulate questions to collect, organize, and represent data.**

Indicator 4.D.1.a	Generate and represent data using line plots where the horizontal scale is marked off in appropriate units—whole numbers, halves, fourths, or eighths.
Extended Indicator MAE 4.D.1.a	**Identify and compare quantities in line plots, limited to two data points.**

4.D.2 Analyze Data and Interpret Results	**Students will analyze the data and interpret the results.**

Indicator 4.D.2.a	Solve authentic problems and analyze data involving addition or subtraction of fractions presented in line plots.
Extended Indicator MAE 4.D.2.a	**Solve problems with addition or subtraction of whole numbers using information from pictographs, bar graphs, and line plots.**

Nebraska Fifth Grade Math Standards and Extended Indicators
for
Students with the Most Significant Disabilities

K-12 Comprehensive Number Standard:

Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

NUMBER

5.N.1 Numeric Relationships	**Numeric Relationships: Students will understand the place value system.**

Indicator 5.N.1.a	Read, write, and demonstrate multiple equivalent representations for multi-digit whole numbers and decimals through the thousandths place using standard form and expanded form.
Extended Indicator MAE 5.N.1.a	**Identify representations of whole numbers up to 200.**
Indicator 5.N.1.b	Recognize a digit in one place represents 1/10 of what it represents in the place to its left.
Indicator 5.N.1.c	Use whole number exponents to denote powers of 10.
Extended Indicator MAE 5.N.1.c	**Represent 10, 100, 1,000, or 10,000 as a power of 10.**

5.N.2 Fraction and Decimals	**Students will extend understanding of fraction and decimal equivalence and ordering.**

Indicator 5.N.2.a	Generate equivalent forms of commonly used fractions and decimals (e.g., halves, fourths, fifths, tenths).
Extended Indicator MAE 5.N.2.a	**Use models to represent equivalent fractions with denominators up to 10 (e.g., 2/4 = 1/2, 3/3 = 1 whole).**
Indicator 5.N.2.b	Represent and justify comparisons of whole numbers, fractions, mixed numbers, and decimals through the thousandths place using number lines, reasoning strategies, and/or equivalence.
Extended Indicator MAE 5.N.2.b	**Use symbols <, >, and = to compare and order whole numbers up to 200.**

5.N.3 Operations with Fractions and Decimals	**Students will apply and extend previous understandings of whole number operations to add, subtract, multiply, and divide fractions and decimals.**

Indicator 5.N.3.a	Interpret a fraction as division of the numerator by the denominator.
Indicator 5.N.3.b	Multiply a whole number by a fraction or a fraction by a fraction, including mixed numbers, using visual fraction models and properties of operations.
Extended Indicator MAE 5.N.3.b	**Use a visual model to multiply the fractions 1/3, 1/2, and 1/4 by each other and by the whole numbers 2, 3, and 4.**
Indicator 5.N.3.c	Divide a unit fraction by a whole number and a whole number by a unit fraction using visual fraction models and properties of operations.
Extended Indicator MAE 5.N.3.c	**Use a visual model to divide a whole number by 1/3, 1/2, or 1/4 (e.g., 3 divided by 1/2).**
Indicator 5.N.3.d	Solve authentic problems involving addition, subtraction, and multiplication of fractions and mixed numbers with like and unlike denominators.
Extended Indicator MAE 5.N.3.d	**Use a visual model to solve authentic problems involving addition, subtraction, or multiplication of fractions.**
Indicator 5.N.3.e	Add and subtract fractions and mixed numbers with unlike denominators without simplifying.
Extended Indicator MAE 5.N.3.e	**Use a visual model to add and subtract fractions with like denominators of halves, thirds, fourths, and fifths, limited to minuends and sums with a maximum of 1 whole.**
Indicator 5.N.3.f	Solve authentic problems involving division of fractions by whole numbers and division of whole numbers by unit fractions.
Extended Indicator MAE 5.N.3.f	**Use a visual model to solve authentic problems involving division of whole numbers by the fractions 1/3, 1/2, or 1/4.**
Indicator 5.N.3.g	Add, subtract, multiply, and divide decimals to hundredths using strategies based on place value, properties of operations, and/or algorithms.
Extended Indicator MAE 5.N.3.g	**Add and subtract two decimal numbers without regrouping, limited to 0–10 with at most one decimal place (e.g., 5.2 + 3.7).**

K-12 Comprehensive Algebra Standard:

Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

ALGEBRA

5.A.1 Operations and Algebraic Thinking	**Students will extend understanding of division and apply operational properties to solve problems involving order of operations.**

Indicator 5.A.1.a	Multiply multi-digit whole numbers using an algorithm.
Extended Indicator MAE 5.A.1.a	**Multiply the numbers 1–9 by single-digit numbers and 10, and multiply two-digit numbers 11–20 by single-digit numbers 1–5.**
Indicator 5.A.1.b	Divide four-digit whole numbers by a two-digit divisor, with and without remainders, using strategies based on place value.
Extended Indicator MAE 5.A.1.b	**Divide a two-digit whole number by a single-digit whole number, limited to quotients with no remainders.**
Indicator 5.A.1.c	Justify the reasonableness of computations involving whole numbers, fractions, and decimals.
Extended Indicator MAE 5.A.1.c	**Estimate the sum of two decimal numbers, limited to 0–10 with at most one decimal place (e.g., 5.2 + 3.7 is about 9).**
Indicator 5.A.1.d	Solve authentic numerical or algebraic expressions using order of operations (excluding exponents).
Extended Indicator MAE 5.A.1.d	**Evaluate two-step numerical expressions involving addition or subtraction and multiplication using order of operations, limited to the digits 1–5 (e.g., 4 × (5 - 2), 4 + 2 × 3).**

K-12 Comprehensive Geometry Standard:

Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.

GEOMETRY

5.G.1 Shapes and Their Attributes	**Students will classify two-dimensional figures into categories based on their properties.**

Indicator 5.G.1.a	Identify and describe faces, edges, and vertices of rectangular prisms.
Extended Indicator MAE 5.G.1.a	**Identify the faces, edges, and vertices of cubes and other rectangular prisms.**
Indicator 5.G.1.b	Recognize volume as an attribute of solid figures that is measured in cubic units.
Extended Indicator MAE 5.G.1.b	**Identify the difference between two-dimensional (flat) and three-dimensional (solid) figures.**
Indicator 5.G.1.c	Justify the classification of two-dimensional figures in a hierarchy based on their properties.
Extended Indicator MAE 5.G.1.c	**Classify triangles as acute, right, or obtuse.**

5.G.2 Coordinate Geometry	**Graph points on the coordinate plane to solve authentic problems.**

Indicator 5.G.2.a	Identify the origin, x axis, and y axis of the coordinate plane.
Extended Indicator MAE 5.G.2.a	**Identify the origin, x-axis, and y-axis of a coordinate plane.**
Indicator 5.G.2.b	Graph and name points in the first quadrant of the coordinate plane using ordered pairs of whole numbers.
Extended Indicator MAE 5.G.2.b	**Identify the x- or y-coordinate of a point in the first quadrant of a coordinate plane.**
Indicator 5.G.2.c	Form ordered pairs from authentic problems involving rules or patterns and graph the ordered pairs in the first quadrant on a coordinate plane and interpret coordinate values in the context of the situation.
Extended Indicator MAE 5.G.2.c	**Graph and name points in the first quadrant of a coordinate plane using ordered pairs of whole numbers.**

5.G.3 Measurement	Generate conversions within the customary and metric systems of measurement to solve authentic problems.

Indicator 5.G.3.a	Generate conversions in authentic mathematical situations from larger units to smaller units and smaller units to larger units, within the customary and metric systems of measurement.
Extended Indicator MAE 5.G.3.a	**Generate simple conversions from larger units to smaller units and smaller units to larger units in authentic mathematical situations, limited to inches/feet, minutes/hour, and feet/yards.**

5.G.4 Area and Volume	Students will extend area problems for rectangles to include fractions and build meaning for measuring volume.

Indicator 5.G.4.a	Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the fraction side lengths and show that the area is the same as would be found by multiplying the side lengths.
Indicator 5.G.4.b	Multiply fractional side lengths to find areas of rectangles and represent fraction products as rectangular areas.
Indicator 5.G.4.c	Use concrete models to measure the volume of rectangular prisms by counting cubic units.
Extended Indicator MAE 5.G.4.c	**Use concrete and/or visual models to measure the volume of rectangular prisms by counting unit cubes.**
Indicator 5.G.4.d	Find the volume of a rectangular prism with whole-number side lengths by modeling with unit squares and show that the volume can be additive and is the same as would be found by multiplying the area of the base times height.
Extended Indicator MAE 5.G.4.d	**Find the volume of a cube or another rectangular prism with whole-number side lengths by counting unit cubes and showing that repeated addition is the same as multiplying the side lengths (e.g., 9 + 9 + 9 = 27-unit cubes in a 3 × 3 × 3 cube).**
Indicator 5.G.4.e	Solve authentic problems by applying the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of rectangular prisms with whole number edge lengths.
Extended Indicator MAE 5.G.4.e	**Use visual models to solve authentic problems by counting unit cubes to find the volume of rectangular prisms.**

K-12 Comprehensive Data Standard:

Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

DATA

5.D.1 Data Collection	**Students will formulate questions to collect, organize, and represent data.**

No additional indicator(s) at this level. Mastery is expected at previous grade levels.

5.D.2 Analyze Data and Interpret Results	**Students will analyze the data and interpret the results.**

Indicator 5.D.2.a	Represent, analyze, and solve authentic problems using information presented in one or more tables or line plots including whole numbers and fractions.
Extended Indicator MAE 5.D.2.a	**Represent data on tables, pictographs, bar graphs, and line plots.**

Nebraska Sixth Grade Math Standards and Extended Indicators
for
Students with the Most Significant Disabilities

K-12 Comprehensive Number Standard:

Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

NUMBER

6.N.1 Numeric Relationships	**Students will demonstrate, represent, and show relationships among fractions, decimals, percents, and integers within the base-ten number system.**

Indicator 6.N.1.a	Determine common factors and common multiples.
Extended Indicator MAE 6.N.1.a	**Identify the common factors of 4, 6, 8, 9, 10, 12, 15, and 20, given the factors of both numbers in an array or a multiplication sentence.**
Indicator 6.N.1.b	Determine prime factorization of numbers with and without exponents.
Indicator 6.N.1.c	Model integers using drawings, words, number lines, models and symbols.
Extended Indicator MAE 6.N.1.c	**Identify models of integers from –10 to 10 using drawings, words, manipulatives, number lines, and symbols.**
Indicator 6.N.1.d	Determine absolute value of rational numbers.
Extended Indicator MAE 6.N.1.d	**Identify the absolute value of an integer between –10 and 10.**
Indicator 6.N.1.e	Compare and order numbers including non-negative fractions and decimals, integers, and absolute values and locate them on the number line.
Extended Indicator MAE 6.N.1.e	**Compare and order halves with halves, quarters with quarters, and tenths with tenths from 0 to 1 on a number line and compare and order integers from -10 to 10 on a number line.**

6.N.2 Operations	**Students will compute with fractions and decimals accurately.**

Indicator 6.N.2.a	Divide multi-digit whole numbers and decimals using an algorithm.
Extended Indicator MAE 6.N.2.a	**Divide a two-digit number by a one-digit number with a remainder.**
Indicator 6.N.2.b	Divide non-negative fractions and mixed numbers.
Extended Indicator MAE 6.N.2.b	**Use models to divide positive fractions with like denominators, limited to halves, fourths, thirds, and tenths.**
Indicator 6.N.2.c	Evaluate numerical expressions including absolute value and/or positive exponents with respect to order of operations.
Extended Indicator MAE 6.N.2.c	**Evaluate numerical expressions involving addition, subtraction, and multiplication with respect to order of operations.**

K-12 Comprehensive Ratios and Proportions Standard:
Students will understand ratio concepts and use ratio reasoning to solve problems.

Ratios and Proportions

6.R.1 Ratios and Rates	**Students will understand the concept of ratios and unit rates, use language to describe the relationship between two quantities, and use ratios and unit rates to solve authentic situations.**

Indicator 6.R.1.a	Determine ratios from concrete models, drawings, and/or words.
Extended Indicator MAE 6.R.1.a	**Determine ratios from concrete models and drawings.**
Indicator 6.R.1.b	Explain and determine unit rates.
Indicator 6.R.1.c	Find a percent of a quantity as a rate per 100 and solve problems involving finding the whole, given a part and the percent.
Extended Indicator MAE 6.R.1.c	**Recognize 1/10 and 1/100 as ratios and convert to equivalent percents.**
Indicator 6.R.1.d	Convert among fractions, decimals, and percents using multiple representations.
Extended Indicator MAE 6.R.1.d	**Using a model, convert halves, fourths, and tenths to decimals and identify the corresponding percentages for the fractions 1/4/, 1/2, and 3/4.**
Indicator 6.R.1.e	Solve authentic problems using ratios, unit rates, and percents.
Extended Indicator MAE 6.R.1.e	**Solve authentic problems using the ratios 1:1, 1:2, 1:3, 1:5, and 1:10.**
Indicator 6.R.1.f	Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

6.R.2 Represent	**Students will represent ratios and rates on the coordinate plane.**

Indicator 6.R.2.a	Identify the ordered pair of a given point in the coordinate plane.

Indicator 6.R.2.b	Plot the location of an ordered pair in the coordinate plane.
Indicator 6.R.2.c	Identify the location of a given point in the coordinate plane (e.g., axis, origin, quadrant).
Indicator 6.R.2.d	Make tables of equivalent ratios relating quantities with whole number measurements.
Indicator 6.R.2.e	Use the constant of proportionality to find the missing value in ratio tables.
Indicator 6.R.2.f	Plot the pair of values from a ratio table on the coordinate plane.
Extended Indicator MAE 6.R.2.f	**Identify the line on a coordinate grid that represents the values given in a ratio table.**
Indicator 6.R.2.g	Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation.

K-12 Comprehensive Algebra Standard:

Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

ALGEBRA

6.A.1 Algebraic Processes	**Students will apply the operational properties when evaluating expressions and solving equations and inequalities.**

Indicator 6.A.1.a	Recognize and generate equivalent algebraic expressions involving the distributive property and combining like terms.
Extended Indicator MAE 6.A.1.a	**Identify equivalent expressions with one variable by combining like terms, limited to digits 1–9 (e.g., 2n + 3n = 5n).**
Indicator 6.A.1.b	Given the value of the variable, evaluate algebraic expressions with non-negative rational numbers with respect to order of operations, which may include absolute value.
Extended Indicator MAE 6.A.1.b	**Given the positive integer value of the single variable, evaluate an addition or subtraction expression.**
Indicator 6.A.1.c	Use substitution to determine if a given value for a variable makes an equation or inequality true.
Extended Indicator MAE 6.A.1.c	**Use substitution to determine if a given value for a variable makes an equation true.**
Indicator 6.A.1.d	Solve one-step equations with non-negative rational numbers using addition, subtraction, multiplication, and division.
Extended Indicator MAE 6.A.1.d	**Add and subtract two decimal numbers without regrouping, limited to hundredths.**
Indicator 6.A.1.e	Solve one-step inequalities with whole numbers using addition, subtraction, multiplication, and division and represent solutions on a number line (e.g., graph $3x > 3$).
Extended Indicator MAE 6.A.1.e	**Identify a solution to an inequality on a number line from 0 to 10, limited to whole numbers (e.g., $x < 9$, $x \geq 3$).**

6.A.2 Applications	**Students will solve authentic problems with algebraic expressions, equations, and inequalities.**

Indicator 6.A.2.a	Create algebraic expressions (e.g., one operation, one variable as well as multiple operations, one variable) from word phrases.
Extended Indicator MAE 6.A.2.a	**Match a simple word phrase with an input-output box.**

Indicator 6.A.2.b	Write equations (e.g., one operation, one variable) to represent authentic situations involving non-negative rational numbers.
Extended Indicator MAE 6.A.2.b	**Solve authentic problems with addition and subtraction of decimal numbers to the hundredth, without regrouping.**
Indicator 6.A.2.c	Write inequalities (e.g., one operation, one variable) to represent authentic situations involving whole numbers.
Extended Indicator MAE 6.A.2.c	**Identify an inequality that represents a solution to a problem involving an authentic situation (e.g., $x < 9$, $x \geq 3$).**

K-12 Comprehensive Geometry Standard:

Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.

GEOMETRY

6.G.1 Attributes	**Students will identify and describe geometric attributes of two-dimensional shapes.**

Indicator 6.G.1.a	Identify and create nets to represent two-dimensional drawings of prisms and pyramids.
Extended Indicator MAE 6.G.1.a	**Use two-dimensional representations (e.g., drawings, nets) and/or three-dimensional models to identify cubes, cylinders, cones, rectangular prisms, pyramids, and spheres.**

6.G.2 Coordinate Geometry	**Students will determine location, orientation, and relationships on the coordinate plane.**

SEE WORK WITH COORDINATE PLANES IN RATIOS AND PROPORTIONS (6.R.2)

6.G.3 Measurement	**Students identify geometric attributes that create two- and three-dimensional shapes in order to perform measurements and apply formulas to find area and volume.**

Indicator 6.G.3.a	Determine the area of quadrilaterals and triangles by composition and decomposition of these shapes, as well as applications of properties and formulas. Quadrilaterals include parallelograms and trapezoids.
Extended Indicator MAE 6.G.3.a	**Find the area of a rectangle using its whole-number side lengths.**
Indicator 6.G.3.b	Determine the surface area of rectangular prisms and triangular prisms using nets as well as application of formulas.
Extended Indicator MAE 6.G.3.b	**Find the surface area of a rectangular prism by counting unit squares in a net of the figure.**
Indicator 6.G.3.c	Apply volume formulas for triangular prisms.
Extended Indicator MAE 6.G.3.c	**Use the volume formula to determine the volume of a rectangular prisms, limited to whole-number side lengths.**

K-12 Comprehensive Data Standard:

Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

DATA

6.D.1 Data Collection and Statistical Methods	**Students will formulate statistical investigative questions, collect data, and organize data.**

No additional indicators at this level.

6.D.2 Analyze Data and Interpret Results	**Students will represent and analyze the data and interpret the results.**

Indicator 6.D.2.a	Represent data using dot plots, box-and-whisker plots, and histograms.
Extended Indicator MAE 6.D.2.a	**Identify characteristics (e.g., title, labels, intervals, quantities) of a histogram and identify a histogram that matches a data set.**
Indicator 6.D.2.b	Solve problems using information presented in dot plots, box-and-whisker plots, histograms, and circle graphs.
Extended Indicator MAE 6.D.2.b	**Solve problems using information presented in histograms and circle graphs, limited to halves, thirds, and fourths of a circle.**
Indicator 6.D.2.c	Find and interpret the mean, median, mode, and range for a set of data.
Extended Indicator MAE 6.D.2.c	**Find the mode and/or range of a set of ordered whole-number data.**
Indicator 6.D.2.d	Compare the mean, median, mode, and range from two sets of data.
Extended Indicator MAE 6.D.2.d	**Find the median of a set of ordered whole-number data.**
Indicator 6.D.2.e	Compare and interpret data sets based upon their measures of central tendency and graphical representations (e.g., center, spread, shape).

6.D.3 Probability	Students will interpret and apply concepts of probability.

Indicator 6.D.3.a	Identify a list of possible outcomes for a simple event.
Extended Indicator MAE 6.D.3.a	**Identify a list of possible outcomes for a simple event, limited to four possible outcomes.**
Indicator 6.D.3.b	Describe the theoretical and experimental probability of an event using a fraction, percentage, and decimal.
Indicator 6.D.3.c	Express the degree of likelihood (possible, impossible, certain, more likely, equally likely, or less likely) of simple events.
Extended Indicator MAE 6.D.3.c	**Identify the probability of an event as always, sometimes, or never.**
Indicator 6.D.3.d	Compare and contrast theoretical and experimental probabilities.

Nebraska Seventh Grade Math Standards and Extended Indicators
for
Students with the Most Significant Disabilities

K-12 Comprehensive Number Standard:

Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

NUMBER

7.N.1 Numeric Relationships	**Students will demonstrate, represent, and show relationships among rational numbers within the base-ten number system.**

No additional indicator(s) at this level.

7.N.2 Operations	**Students will compute with rational numbers accurately.**

Indicator 7.N.2.a	Add, subtract, multiply, and divide rational numbers (e.g., positive and negative fractions, decimals, and integers).
Extended Indicator MAE 7.N.2.a	**Add and subtract fractions and mixed numbers with like denominators up to 10 without regrouping.**
Indicator 7.N.2.b	Apply properties of operations (commutative, associative, distributive, identity, inverse, zero) as strategies for problem solving with rational numbers.

K-12 Comprehensive Ratios and Proportions Standard:
Students will understand ratio concepts and use ratio reasoning to solve problems.

Ratios and Proportions

7.R.1 Proportional Relationships	**Students will understand the concept of proportions, use language to describe the relationship between two quantities, and use proportions to solve authentic situations.**

Indicator 7.R.1.a	Decide whether two quantities are in a proportional relationship (e.g., by testing for equivalent ratios in a table).
Extended Indicator MAE 7.R.1.a	**Determine unit rate when given a table, limited to ratios of 1:2, 1:3, 1:5, and 1:10.**
Indicator 7.R.1.b	Represent and solve authentic problems with proportions.
Extended Indicator MAE 7.R.1.b	**Given a proportional relationship that represents an authentic situation, determine the missing quantity.**
Indicator 7.R.1.c	Use proportional relationships to solve authentic percent problems (e.g., percent change, sales tax, mark-up, discount, tip).
Extended Indicator MAE 7.R.1.c	**Identify the percentage for an authentic discount problem, limited to 10%, 25%, and 50%.**
Indicator 7.R.1.d	Solve authentic problems involving scale drawings.
Extended Indicator MAE 7.R.1.d	**Given a scale drawing, identify the scale, limited to 1/4, 1/3, and 1/2.**

K-12 Comprehensive Algebra Standard:

Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

ALGEBRA

7.A.1 Algebraic Processes	**Students will apply the operational properties when evaluating expressions, and solving equations and inequalities.**

Indicator 7.A.1.a	Use factoring and properties of operations to create equivalent algebraic expressions (e.g., 2x + 6 = 2(x + 3)).
Indicator 7.A.1.b	Given the value of the variable(s), evaluate algebraic expressions, which may include absolute value.
Indicator 7.A.1.c	Solve one- and two-step equations involving rational numbers.
Extended Indicator MAE 7.A.1.c	**Solve a one-step equation using multiplication.**
Indicator 7.A.1.d	Solve equations using the distributive property and combining like terms.
Extended Indicator MAE 7.A.1.d	**Identify equivalent expressions using the distributive property, limited to digits 1–9 (e.g., 2(3 + 4) = (2 × 6) + (2 × 4)).**
Indicator 7.A.1.e	Solve one- and two-step inequalities involving integers and represents solutions on a number line.
Extended Indicator MAE 7.A.1.e	**Identify a solution to a one-step inequality involving addition, subtraction, or multiplication (e.g., n + 1 < 4, 2n > 8).**

7.A.2 Applications	**Students will solve authentic problems with algebraic expressions, equations, and inequalities.**

Indicator **7.A.2.a**	Write one- and two-step equations involving rational numbers from words, tables, and authentic situations.
Extended Indicator MAE 7.A.2.a	**Identify one-step addition, subtraction, and multiplication equations that represent authentic situations.**
Indicator **7.A.2.b**	Write one- and two-step inequalities to represent authentic situations involving integers.
Extended Indicator MAE 7.A.2.b	**Identify an inequality that represents a solution to a one-step problem involving addition, subtraction, or multiplication in an authentic situation.**

K-12 Comprehensive Geometry Standard:

Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.

GEOMETRY

7.G.1 Attributes	**Students will identify angle relationships and apply properties to determine angle measures.**

Indicator 7.G.1.a	Apply properties of adjacent, complementary, supplementary, linear pair, and vertical angles to find missing angle measures.
Extended Indicator MAE 7.G.1.a	**Identify a pair of angles as complementary (equal to 90°) or supplementary (equal to 180°).**

7.G.2 Coordinate Geometry	**Students will determine location, orientation, and relationships on the coordinate plane.**

Indicator 7.G.2.a	Draw polygons in the coordinate plane given coordinates for the vertices.
Extended Indicator MAE 7.G.2.a	**Given a triangle in quadrant 1 with one vertex on the origin, identify the location of one of the other vertices.**
Indicator 7.G.2.b	Calculate vertical and horizontal distances in the coordinate plane to find perimeter and area of rectangles.

7.G.3 Measurement	**Students will identify geometric attributes that create two- and three-dimensional shapes in order to perform measurements and apply formulas to find area and volume.**

Indicator 7.G.3.a	Solve authentic problems involving perimeter and area of composite shapes made from triangles and quadrilaterals.
Extended Indicator MAE 7.G.3.a	**Solve authentic problems involving the perimeter and area of two adjoining rectangles by counting unit lengths and unit squares.**
Indicator 7.G.3.b	Determine surface area and volume of composite rectangular and triangular prisms.

Indicator 7.G.3.c	Determine the area and circumference of circles both on and off the coordinate plane using 3.14 for the value of Pi.
Extended Indicator MAE 7.G.3.c	**Identify the center, radius, and diameter of a circle, and distinguish between the area of a circle and the circumference of a circle.**

K-12 Comprehensive Data Standard:

Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

DATA

7.D.1 Data Collection and Statistical Methods	**Students will formulate statistical investigative questions, collect data, and organize data.**

Indicator 7.D.1.a	Create an investigative question and collect data.
Extended Indicator MAE 7.D.1.a	**Collect data to answer an investigative question.**
Indicator 7.D.1.b	Generate conclusions about a population based on a random sample.
Indicator 7.D.1.c	Identify and critique biases in various data representations.

7.D.2 Analyze Data and Interpret Results	**Students will represent and analyze the data and interpret the results.**

No additional indicator(s) at this level.

7.D.3 Probability	**Students will interpret and apply concepts of probability.**

Indicator 7.D.3.a	Find theoretical and experimental probabilities for compound independent and dependent events.
Extended Indicator MAE 7.D.3.a	**Given an event that will sometimes happen, identify the degree of likelihood of an event as more likely, equally likely, or less likely.**
Indicator 7.D.3.b	Identify complementary events and calculate their probabilities.

Nebraska Eighth Grade Math Standards and Extended Indicators
for
Students with the Most Significant Disabilities

K-12 Comprehensive Number Standard:
Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

NUMBER

8.N.1 Numeric Relationships	**Students will demonstrate, represent, and show relationships among real numbers within the base-ten number system.**

Indicator 8.N.1.a	Determine subsets of numbers as natural, whole, integer, rational, irrational, or real based on the definitions of these sets of numbers.
Extended Indicator MAE 8.N.1.a	**Distinguish between whole numbers, fractions, and decimals (e.g., 3/5, 4, 1.7).**
Indicator 8.N.1.b	Represent numbers with positive and negative exponents and in scientific notation.
Extended Indicator MAE 8.N.1.b	**Represent numbers with the bases of 2, 3, 4, or 5 and positive exponents of 2 and 3 in expanded form (e.g., 4^3 = 4 × 4 × 4).**
Indicator 8.N.1.c	Describe the difference between a rational and irrational number.
Indicator 8.N.1.d	Approximate, compare, and order real numbers, both rational and irrational, and locate them on the number line.
Extended Indicator MAE 8.N.1.d	**Compare and order tenths, fifths, fourths, thirds, halves, and whole numbers 1–100 using a number line.**

8.N.2 Operations	**Students will compute with exponents and roots.**

Indicator 8.N.2.a	Evaluate the square roots of perfect squares less than or equal to 400 and cube roots of perfect cubes less than or equal to 125.
Extended Indicator MAE 8.N.2.a	**Identify the squares of whole numbers up to 10.**

Indicator 8.N.2.b	Simplify numerical expressions involving integer exponents, square roots, and cube roots (e.g., 4-2 is the same as 1/16).
Indicator 8.N.2.c	Evaluate numerical expressions involving absolute value.
Extended Indicator MAE 8.N.2.c	**Determine absolute value using a model (e.g., temperature below zero).**
Indicator 8.N.2.d	Multiply and divide numbers using scientific notation.

K-12 Comprehensive Algebra Standard:

Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

ALGEBRA

8.A.1 Algebraic Processes	**Students will apply the operational properties when evaluating expressions and solving equations.**

Indicator 8.A.1.a	Describe single variable equations as having one solution, no solution, or infinitely many solutions.
Extended Indicator MAE 8.A.1.a	**Identify the point of intersection (solution) for intersecting lines on a coordinate plane, limited to naming the point without determining the coordinate pair.**
Indicator 8.A.1.b	Solve multi-step equations involving rational numbers with the same variable appearing on both sides of the equation.
Extended Indicator MAE 8.A.1.b	**Use substitution to determine if a given value for a variable makes a two-step equation true.**
Indicator 8.A.1.c	Solve equations of the form x2 = k(k <= 400) and x3 = k(k <= 125), where k is a positive rational number, using square root and cube root symbols.

8.A.2 Applications	**Students will solve authentic problems involving multi-step equations.**

Indicator 8.A.2.a	Write multi-step single variable equations from words, tables, and authentic situations.
Extended Indicator MAE 8.A.2.a	**Identify a two-step expression that represents an authentic situation, limited to addition, subtraction, and multiplication.**
Indicator 8.A.2.b	Determine and describe the rate of change for given situations through the use of tables and graphs.
Extended Indicator MAE 8.A.2.b	**Given a table, determine the rate of change of a proportional relationship.**
Indicator 8.A.2.c	Graph proportional relationships and interpret the rate of change.
Extended Indicator MAE 8.A.2.c	**Given a graph of a line through the origin and a point on the line, determine another point on the line.**

K-12 Comprehensive Geometry Standard:

Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.

GEOMETRY

8.G.1 Attributes	**Students will apply properties of angle relationships in triangles and with lines to determine angle measures.**

Indicator 8.G.1.a	Determine and use the relationships of the interior angles of a triangle to solve for missing measures.
Extended Indicator MAE 8.G.1.a	**Identify the missing angle measure in 45-45-90 triangles and 30-60-90 triangles when given two of the angles and a drawing of the triangle.**
Indicator 8.G.1.b	Identify and apply geometric properties of parallel lines cut by a transversal and the resulting corresponding same side interior, alternate interior, and alternate exterior angles to find missing measures.
Extended Indicator MAE 8.G.1.b	**Identify any pair of congruent angles in two intersecting lines or in two parallel lines cut by a transversal, limited to locating but not naming as vertical, corresponding, alternate interior, or alternate exterior.**

8.G.2 Coordinate Geometry	**Students will determine location, orientation, and relationships on the coordinate plane.**

Indicator 8.G.2.a	Perform and describe positions and orientations of shapes under single transformations including rotations in multiples of 90 degrees about the origin, translations, reflections, and dilations on and off the coordinate plane.
Extended Indicator MAE 8.G.2.a	**Identify the image of a shape or letter following a reflection.**
Indicator 8.G.2.b	Determine if two-dimensional figures are congruent or similar.
Extended Indicator MAE 8.G.2.b	**Determine if a pair of two-dimensional figures is congruent, non-congruent, similar, or non-similar.**
Indicator 8.G.2.c	Perform and describe positions and orientations of shapes under a sequence of transformations on and off the coordinate plane.

8.G.3 Measurement	Students will reason with formulas and context to determine and compare length, area, and volume.

Indicator 8.G.3.a	Explain a model of the Pythagorean Theorem.
Indicator 8.G.3.b	Apply the Pythagorean Theorem to find side lengths of triangles and to solve authentic problems.
Indicator 8.G.3.c	Find the distance between any two points on the coordinate plane using the Pythagorean Theorem.
Extended Indicator MAE 8.G.3.c	**Find the distance between two points on horizontal and vertical lines on a coordinate graph, limited to the first quadrant.**
Indicator 8.G.3.d	Determine the volume of cones, cylinders, and spheres and solve authentic problems using volumes.
Extended Indicator MAE 8.G.3.d	**Identify the cone, cylinder, and sphere with the greatest volume when given three cone-shaped containers with either the same base or the same height, three cylinder-shaped containers with either the same base or the same height, or three spheres.**

K-12 Comprehensive Data Standard:

Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

DATA

8.D.1 Data Collection and Statistical Methods	**Students will formulate statistical investigative questions, collect data, and organize data.**

No additional indicator(s) at this level.

8.D.2 Analyze Data and Interpret Results	**Students will represent and analyze the data and interpret the results.**

Indicator 8.D.2.a	Represent and interpret bivariate data (e.g., ordered pairs) using scatter plots.
Indicator 8.D.2.b	Describe patterns such as positive or negative association, linear or nonlinear association, clustering, and outliers when bivariate data is represented on a coordinate plane.
Indicator 8.D.2.c	Draw an informal line of best fit based on the closeness of the data points to the line.
Extended Indicator MAE 8.D.2.c	**Determine a line of best fit based on the closeness of data points to the line.**
Indicator 8.D.2.d	Use a linear model to make predictions and interpret the rate of change and y-intercept in context.
Extended Indicator MAE 8.D.2.d	**Use a line of best fit to make a prediction.**

8.D.3 Probability	**Students will interpret and apply concepts of probability.**

No additional indicator(s) at this level.

Nebraska High School Math Standards and Extended Indicators
for
Students with the Most Significant Disabilities

K-12 Comprehensive Number Standard:

Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

NUMBER

HS.N.1 Estimation and Technology	**Students will use estimation strategies and technology to reason, to solve problems, and to make connections within mathematics and across disciplines.**

Indicator HS.N.1.a	Select, apply, and explain the method of computation when problem solving using real numbers (e.g., models, mental computation, paper-pencil, technology).
Extended Indicator MAE HS.N.1.a	**Identify an operation that leads to a solution in a word problem.**
Indicator HS.N.1.b	Determine if the context of a problem calls for an approximation or an exact value.
Extended Indicator MAE HS.N.1.b	**Determine if the context of a problem calls for an approximation or an exact value.**
Indicator HS.N.1.c	Determine the rounding convention to be used based on the context of a problem.
Indicator HS.N.1.d	Estimate a value using the concept of betweenness by bounding above and below (e.g., since log(10) = 1 and log(1,000) = 3 we know log(500) is between 1 and 3).
Indicator HS.N.1.e	Determine the tolerance interval and percent of error in measurement.
Indicator HS.N.1.f	Convert equivalent rates (e.g., miles per hour to feet per second).
Extended Indicator MAE HS.N.1.f	**Use knowledge of equivalent rates to convert equivalent values with money (e.g., two dimes and a nickel is equal to one quarter).**
Indicator HS.N.1.g	Determine whether extremely large or extremely small quantities can be reasonably represented by a calculator or graphing utility.
Indicator HS.N.1.h	Use scientific notation to appropriately represent large and small quantities.

HS.N.2 Sets and Operations	**Students will use number sets and operations to reason and to solve problems.**

Indicator HS.N.2.a	Extend the properties of exponents to rational numbers.
Extended Indicator MAE HS.N.2.a	**Rewrite a repeated multiplication problem as an exponential expression with a whole number base and a whole number exponent (e.g., 3 × 3 × 3 × 3 = 3^4).**
Indicator HS.N.2.b	Use properties of rational and irrational numbers.
Indicator HS.N.2.c	Demonstrate, represent, and show relationships among the subsets of real numbers and the complex number system.
Indicator HS.N.2.d	Compute with subsets of the complex number system including imaginary, rational, irrational, integers, whole, and natural numbers.
Extended Indicator MAE HS.N.2.d	**Add and subtract two-digit numbers with regrouping.**

HS.N.3 Interpretation and Sense Making	**Students will reason abstractly and quantitatively using units to solve problems and interpret results in context.**

Indicator HS.N.3.a	Understand roundoff error and why roundoff error accumulates when rounding occurs prior to the last step in a computation.
Indicator HS.N.3.b	Use estimation methods to check the reasonableness of real number computations and decide if the problem calls for an approximation (including appropriate rounding) or an exact number.
Indicator HS.N.3.c	Use units to assess the validity of an answer in the context of a problem.
Indicator HS.N.3.d	Communicate the meaning of an answer in the context of a problem.

K-12 Comprehensive Algebra Standard:

Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

ALGEBRA

HS.A.1 Algebraic Relationship	**Students will demonstrate, represent, and show relationships with functions.**

Indicator HS.A.1.a	Demonstrate that functions are a well mapped subdomain of relations.
Indicator HS.A.1.b	Analyze a relation to determine if it is a function given mapping diagrams, function notation (e.g., f(x)=x^2), a table, or a graph.
Extended Indicator MAE HS.A.1.b	**Given a linear function represented with a table, identify the graph of the linear function.**
Indicator HS.A.1.c	Classify a function given its mapping diagram, function notation, table, or graph as a linear, quadratic, absolute value, exponential, or other function.
Extended Indicator MAE HS.A.1.c	**Identify a linear function from a graph.**
Indicator HS.A.1.d	Analyze a function's domain and range to determine if it is one-to-one and has an inverse function both algebraically and graphically.
Extended Indicator MAE HS.A.1.d	**Identify the domain and range of a function when given an input-output table.**
Indicator HS.A.1.e	Define, interpret, and analyze linear, quadratic, absolute value, and exponential functions using the points of interest of the functions and graphing technology.
Extended Indicator MAE HS.A.1.e	**Given a graph of a linear function, determine the coordinate pair where x = 0.**
Indicator HS.A.1.f	Identify, analyze, and apply transformations of existing functions (including translation and dilation).
Indicator HS.A.1.g	Interpret logarithmic equations as exponential equations.
Indicator HS.A.1.h	Describe arithmetic sequences using tables of values and functions in explicit and recursive forms.

Indicator HS.A.1.i	Describe geometric sequences using tables of values and functions in explicit and recursive forms.

HS.A.2 Algebraic Processes	**Students will apply the operational properties when evaluating rational expressions and solving linear and quadratic equations and inequalities.**

Indicator HS.A.2.a	Analyze and explain the properties used in solving equations, inequalities, systems of linear equations, systems of linear inequalities, and literal equations.
Extended Indicator MAE HS.A.2.a	**Identify the ordered pair of the graphical solution to a system of two linear equations.**
Indicator HS.A.2.b	Generate expressions in equivalent forms by using algebraic properties to make different characteristics or features visible.
Extended Indicator MAE HS.A.2.b	**Given a graph of a linear function, determine the coordinate pair where y = 0.**
Indicator HS.A.2.c	Analyze equations and inequalities to determine and apply efficient methods to solve and use appropriate technology as needed.
Indicator HS.A.2.d	Calculate the slope (rate of change) of a line given coordinate points, a graph, or a table of values.
Extended Indicator MAE HS.A.2.d	**Given an x-y table of values, determine if the graph of the values forms a horizontal line or a vertical line.**
Indicator HS.A.2.e	Write and graph equations of functions (linear, absolute value, quadratic, and exponential) using the points of interest of the function.
Indicator HS.A.2.f	Given a line, write the equation of a line that is parallel or perpendicular to it.
Extended Indicator MAE HS.A.2.f	**Distinguish between parallel, perpendicular, and intersecting lines on a coordinate grid.**
Indicator HS.A.2.g	Perform and explain operations such as addition, subtraction, multiplication, division, and factoring on polynomials.
Indicator HS.A.2.h	Explain the connection between the factors of a polynomial and the zeros of a polynomial.
Indicator HS.A.2.i	Combine functions by composition and perform operations on functions.

HS A.3 Applications	Students will solve authentic problems using nonlinear functions.

Indicator HS.A.3.a	Analyze and model authentic situations using various representations and appropriate technology.
Indicator HS.A.3.b	Identify, interpret, relate, and graph the factors, x-intercepts, roots, and zeros of polynomial functions using algebraic and graphing methods.
Indicator HS.A.3.c	Identify and predict appropriate solutions to equations given context and domain/range (e.g., extraneous solutions, imaginary solutions, no solution, infinitely many solutions).

K-12 Comprehensive Geometry Standard:

Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.

GEOMETRY

HS.G.1 Attributes	**Students will identify and describe geometric attributes, apply properties and theorems, and create two-dimensional shapes.**

Indicator HS.G.1.a	Demonstrate that two figures are similar or congruent by using a sequence of rigid motions and dilations that map a figure onto the other, in problems both with and without coordinates.
Indicator HS.G.1.b	Describe symmetries of a figure in terms of rigid motions that map a figure onto itself and make inferences about symmetric figures (e.g., unknown side lengths or angle measures) in problems both with and without coordinates.
Extended Indicator MAE HS.G.1.b	**Identify corresponding angles by position when congruent triangles and similar triangles have the same orientation.**
Indicator HS.G.1.c	Explain how the criteria for triangle congruence and similarity (ASA, SAS, and AAS SSS congruence; AA similarity criterion) follow from the definition of congruence and similarity in terms of corresponding parts.
Indicator HS.G.1.d	Identify and apply right triangle relationships including converse of the Pythagorean Theorem.
Extended Indicator MAE HS.G.1.d	**Identify the legs and the hypotenuse of a right triangle.**
Indicator HS.G.1.e	Apply side and angle relationships of special right triangles (30-60-90 and 45-45-90) to solve geometric problems.
Indicator HS.G.1.f	Identify and apply right triangle relationships including sine, cosine, and tangent.
Indicator HS.G.1.g	Apply interior and exterior angle formulas for n-gons and apply to authentic situations.
Indicator HS.G.1.h	Compare/contrast the properties of quadrilaterals: parallelograms, rectangles, rhombi, squares, kites, trapezoids, and isosceles trapezoids.
Extended Indicator MAE HS.G.1.h	**Identify all four-sided polygons as quadrilaterals, and distinguish between parallelograms, rectangles, squares, and kites.**

Indicator HS.G.1.i	Use slope and the distance formula to determine the type of quadrilateral.
Extended Indicator MAE HS.G.1.i	**Identify the quadrilateral on the coordinate grid as a parallelogram, rectangle, square, or kite.**
Indicator HS.G.1.j	Identify, describe, apply, and reason through properties of central angles, inscribed angles, angles formed by intersecting chords, secants, and/or tangents to find the measures of angles related to the circle, arc lengths, and areas of sectors.
Extended Indicator MAE HS.G.1.j	**Differentiate between a chord, radius, diameter, and arc of a circle, and identify the arc length as one-fourth, one-half, or three-fourths of the circle.**

HS.G.2 Attributes	**Students will identify and describe geometric attributes, apply properties and theorems and create three-dimensional shapes.**

Indicator HS.G.2.a	Convert between various units of volume (e.g., cubic feet to cubic yards).
Indicator HS.G.2.b	Apply the effect of a scale factor to determine the volume of similar three-dimensional shapes and solids.
Indicator HS.G.2.c	Determine surface area and volume of pyramids, as well as solids that are composites of pyramids, prisms, spheres, cylinders, and cones, using formulas and appropriate units.
Extended Indicator MAEHS.G.2.c	**Find the area of one face of a rectangular prism.**

HS.G.3 Coordinate Geometry & Transformations	**Students will demonstrate and represent location, orientation, and relationships on the coordinate plane.**

Indicator HS.G.3.a	Derive the midpoint formula using the concept of average and apply the midpoint formula to find coordinates.
Indicator HS.G.3.b	Find the images and preimages of transformations of a point, shape, or a relation on the coordinate plane. Transformations include the following and their compositions: reflections across horizontal and vertical lines and the lines y=x and y=-x, rotations about the origin of 90 degrees, dilations about the origin by any positive scale factor, and any translation.
Indicator HS.G.3.c	Find the equation of a circle given the radius and the center.

HS.G.4 Logic & Proof	**Students will use geometric definitions and theorems to reason abstractly and quantitatively.**

Indicator HS.G.4.a	Know and use definitions to make deductions in mathematical argumentation (e.g., syllogism, detachment).
Indicator HS.G.4.b	Evaluate the validity of conditional statements, including biconditional statements (e.g., conditional, converse, contrapositive, inverse).
Indicator HS G.4.c	Evaluate the validity of an argument communicated in different ways (e.g., a flow format, two-column, or paragraph format).
Indicator HS.G.4.d	Use coordinate geometry to prove triangles are right, acute, obtuse, isosceles, equilateral, or scalene.
Extended Indicator MAE HS.G.4.d	**Identify isosceles, equilateral, or scalene triangles on and off a coordinate grid.**
Indicator HS.G.4.e	Prove and apply geometric properties and theorems regarding triangles, congruence, and similarity using deductive reasoning.
Indicator HS.G.4.f	Prove and apply geometric theorems about quadrilaterals using deductive reasoning.

K-12 Comprehensive Data Standard:

Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

DATA

HS.D.1 Data Collection and Statistical Methods	**Students will formulate statistical investigative questions, collect data, and organize data.**

Indicator HS.D.1.a	Formulate multi-variable statistical investigative questions and determine how data can be collected and analyzed to provide an answer.
Extended Indicator MAE HS.D.1.a	**Determine more than one method to collect data to answer an investigative question.**
Indicator HS.D.1.b	Apply an appropriate data collection plan when collecting primary data for the statistical investigative question of interest.
Extended Indicator MAE HS.D.1.b	**Follow a plan to collect data for an investigative question of interest.**
Indicator HS.D.1.c	Use appropriate technology, including spreadsheet-based logic, to organize data for analysis
Extended Indicator MAE HS.D.1.c	**Use appropriate technology to organize data collected for an investigative question of interest.**
Indicator HS.D.1.d	Distinguish between surveys, observational studies, and experiments.
Extended Indicator MAE HS.D.1.d	**Identify the difference between a survey, an experiment, and/or an observational study.**
Indicator HS.D.1.e	Understand what constitutes good practice in designing a sample survey, an experiment, and an observational study.
Indicator HS.D.1.f	Understand issues of bias and confounding variables in a study and their implications for interpretation.

HS D.2 Analyze Data & Interpret Results	**Students will represent and analyze the data and interpret the results.**

Indicator HS.D.2.a	Identify appropriate ways to summarize and then represent the distribution of univariate data and bivariate data through the construction of histograms, dot plots, stem plots, box plots, cumulative relative frequency graphs, time plots, circle graphs, stacked bar graphs, and mosaic bar graphs by hand or with technology.
Indicator HS.D.2.b	Describe the shape, identify any outliers, and determine the spread of a data set.
Indicator HS.D.2.c	Select and determine the appropriate measure of center based on the shape of a distribution and/or the presence of outliers.
Indicator HS.D.2.d	Recognize when a data set can be reasonably said to be normally distributed and draw conclusions about the data from the associated normal distribution.
Indicator HS.D.2.e	Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data and recognize possible associations and trends in the data.
Extended Indicator MAE HS.D.2.e	**Interpret categorical data for two categories in a two-way frequency table.**
Indicator HS.D.2.f	Represent data on two quantitative variables on a scatter plot and describe how the variables are related.
Extended Indicator MAE HS.D.2.f	**Given a scatter plot with a clear trend, determine if there is a positive or negative association.**
Indicator HS.D.2.g	Use technology to develop regression models for linear and non-linear data to predict unobserved outcomes. Interpret slope and y-intercept in the context of the problem.
Indicator HS.D.2.h	Measure the strength of association using correlation coefficients for regression curves and interpret their meanings for the model.
Indicator HS.D.2.i	Use residuals and residual plots to judge the quality of a regression model.
Indicator HS.D.2.j	Recognize and explain when arguments based on data confuse correlation with causation.

Indicator HS.D.2.k	Understand what constitutes statistical significance. Interpret statistical significance in the context of a situation and answer investigative questions appropriately.
Indicator HS.D.2.l	Use probability as a tool for assessing risk and for informed decision making by interpreting P-values.

HS.D.3 Probability	**Students will interpret and apply concepts of probability.**

Indicator HS.D.3.a	Describe events as subsets of a sample space using characteristics of the outcomes or as unions, intersections, or complements of other events.
Indicator HS.D.3.b	Explain independent versus dependent probability of an event.
Indicator HS.D.3.c	Determine when order in counting matters and use permutations and combinations to compute probabilities of events accordingly.
Indicator HS.D.3.d	Determine whether or not events are mutually exclusive (disjoint) and calculate their probabilities in either case.
Extended Indicator MAE HS.D.3.d	**Identify a pair of mutually exclusive outcomes.**
Indicator HS.D.3.e	Recognize and explain the concepts of conditional probability in everyday language and everyday situations.