

June 2020

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

It is the policy of the Nebraska Department of Education not to discriminate on the basis of gender, disability, race, color, religion, marital status, age, national origin or genetic information in its education programs, administration, policies, employment or other agency programs

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 communicate number concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 3.1	NUMBER
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MA 3.1.1 Numeric Relationships	Students will demonstrate, represent, and show relationships among whole numbers and simple fractions within the base-ten number system.
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Indicator MA 3.1.1.a	Read, write, and demonstrate multiple equivalent representations for numbers up to 100,000 using objects, visual representations, including standard form, word form, expanded form, and expanded notation.
Extended Indicator MAE 3.1.1.a	Read, write, and demonstrate whole numbers up to 20 that are equivalent representations including visual models, standard form, and word form.
Indicator MA 3.1.1.b	Compare whole numbers through the hundred thousands and represent the comparisons using the symbols $>$, $<$, or $=$.
Extended Indicator MAE 3.1.1.b	Compare and order whole numbers, 1- 20.
Indicator MA 3.1.1.c	Round a whole number to the tens or hundreds place, using place value understanding or a visual representation.
Extended Indicator MAE 3.1.1.c	Identify a number closer to a given number on a number line, 1-20.
Indicator MA 3.1.1.d	Represent and understand a fraction as a number on a number line.
Extended Indicator MAE 3.1.1.d	Represent halves and wholes on a number line.
Indicator MA 3.1.1.e	Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.
Extended Indicator MAE 3.1.1.e	Given a model, represent a whole number (1–3) as a fraction with a denominator of 2, 3, or 4.
Indicator MA 3.1.1.f	Show and identify equivalent fractions using visual representations including pictures, manipulatives, and number lines.

Indicator MA 3.1.1.g	Find parts of a whole and parts of a set using visual representations.
Extended Indicator MAE 3.1.1.g	Identify parts of a set as one-half, one-fourth, or the whole of the set, limited to four objects.
Indicator MA 3.1.1.h	Explain and demonstrate how fractions $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, and a whole relate to time, measurement, and money, and demonstrate using visual representations.
Indicator MAE 3.1.1.i	Compare and order fractions having the same numerators or denominators using visual representations, comparison symbols, and verbal reasoning.
Extended Indicator MAE 3.1.1.i	Use a model to compare unit fractions one-half, one-third, and one-fourth.

MA 3.1.2 Operations	Students will demonstrate the meaning of multiplication and division with whole numbers and compute accurately.
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Indicator MA 3.1.2.a	Add and subtract within 1,000 with or without regrouping.
Extended Indicator MAE 3.1.2.a	Add and subtract, through 20 without regrouping.
Indicator MA 3.1.2.b	Select and apply the appropriate methods of computation when solving one- and two-step addition and subtraction problems with four-digit whole numbers through the thousands (e.g., visual representations, mental computation, paper-pencil).
Indicator MA 3.1.2.c	Use drawings, words, arrays, symbols, repeated addition, equal groups, and number lines to explain the meaning of multiplication.
Extended Indicator MAE 3.1.2.c	Use a model to show multiplication as repeat addition with a product no greater than 20.
Indicator MA 3.1.2.d	Use words and symbols to explain the meaning of the Zero Property and Identity Property of multiplication.
Indicator MA 3.1.2.e	Multiply one-digit whole numbers by multiples of 10 in the range of 10 to 90.
Extended Indicator MAE 3.1.2.e	Multiply one and two by ten, twenty, and thirty up to 60.
Indicator MA 3.1.2.f	Use objects, drawings, arrays, words, and symbols to explain the relationship between multiplication and division (e.g., if $3 \times 4 = 12$ then $12 \div 3 = 4$).
Extended Indicator MAE 3.1.2.f	Count the number of twos in four, six, and eight and the number of threes in six and nine using a model.

Indicator MA 3.1.2.g	Fluently (i.e., automatic recall based on understanding) multiply and divide within 100.
Indicator MA 3.1.2.h	Determine the reasonableness of whole number sums and differences in real-world problems using estimation, compatible numbers, mental computations, or other strategies.

K-12 Comprehensive Algebra Standard:

Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 3.2	ALGEBRA
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MA 3.2.1 Algebraic Relationship	Students will demonstrate, represent, and show relationships with expressions and equations.
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Indicator MA 3.2.1.a	Identify arithmetic patterns (including patterns in the addition or multiplication tables) using properties of operations.
Extended Indicator MAE 3.2.1.a	Identify the next term in numeric and non-numeric AB patterns.
Indicator MA 3.2.1.b	Interpret a multiplication equation as equal groups (e.g., interpret 4×6 as the total number of objects in four groups of six objects each). Represent verbal statements of equal groups as multiplication equations.
Extended Indicator MAE 3.2.1.b	Identify a multiplication equation as representing equal groups up to 20.

MA 3.2.2 Algebraic Processes	Student will apply the operational properties when multiplying and dividing.
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Indicator MA 3.2.2.a	Apply the commutative, associative, and distributive properties as strategies to multiply and divide.
Indicator MA 3.2.2.b	Solve one-step whole number equations involving addition, subtraction, multiplication, or division, including the use of a letter to represent the unknown quantity.
Extended Indicator MAE 3.2.2.b	Solve a one-step equation for sums and differences 0–9.

MA 3.2.3 Applications	Students will solve real-world problems involving equations with whole numbers.
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Indicator MA 3.2.3.a	Solve real-world problems involving two-step equations (involving two operations) involving whole numbers using addition and subtraction.
Extended Indicator MAE 3.2.3.a	Solve a one-step real-world problem using addition or subtraction 0–9.
Indicator MA 3.2.3.b	Write an equation (e.g., one operation, one variable) to represent real-world problems involving whole numbers.
Extended Indicator MAE 3.2.3.b	Identify a one-step equation that represents a real-world problem with a variable limited to addition or subtraction with sums and differences 0-9.

K-12 Comprehensive Geometry Standard:

Students will communicate geometric concepts and measurement concepts, using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 3.3	GEOMETRY
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MA 3.3.1 Characteristics	Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.
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Indicator MA 3.3.1.a	Identify the number of sides, angles, and vertices of two-dimensional shapes.
Extended Indicator MAE 3.3.1.a	Identify the number of sides or angles in a regular polygon.
Indicator MA 3.3.1.b	Sort quadrilaterals into categories (e.g., rhombuses, squares, and rectangles).
Extended Indicator MAE 3.3.1.b	Identify two-dimensional shapes, circles, triangles, rectangles, or squares from a collection of circles, triangles, rectangles, and squares.
Indicator MA 3.3.1.c	Draw lines to separate two-dimensional figures into equal areas, and express the area of each part as a unit fraction of the whole.
Extended Indicator MAE 3.3.1.c	Identify a line that separates a symmetric two-dimensional shape into halves.

MA 3.3.2 Coordinate Geometry	Students will determine location, orientation, and relationships on the coordinate plane.
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	No additional indicator(s) at this level. Mastery is expected at previous grade levels.
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MA 3.3.3 Measurement	Students will perform and compare measurements and apply formulas.
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Indicator MA 3.3.3.a	Find the perimeter of polygons given the side lengths, and find an unknown side length.
Extended Indicator MAE 3.3.3.a	Find the perimeter of a rectangle given the side lengths and a figure.

Indicator MA 3.3.3.b	Tell and write time to the minute using both analog and digital clocks.
Extended Indicator MAE 3.3.3.b	Tell time to the hour.
Indicator MA 3.3.3.c	Solve real-world problems involving addition and subtraction of time intervals, and find elapsed time.
Extended Indicator MAE 3.3.3.c	Add whole numbers of hours to find elapsed time.
Indicator MA 3.3.3.d	Identify and use the appropriate tools and units of measurement, both customary and metric, to solve real-world problems involving length, weight, mass, liquid volume, and capacity (within the same system and unit).
Indicator MA 3.3.3.e	Estimate and measure length to the nearest half inch, quarter inch, and centimeter.
Extended Indicator MAE 3.3.3.e	Measure length to the nearest inch using a model of an object.
Indicator MA 3.3.3.f	Use concrete and pictorial models to measure areas in square units by counting square units.
Indicator MA 3.3.3.g	Find the area of a rectangle with whole number side lengths by modeling with unit squares, and show that the area is the same as would be found by multiplying the side lengths.
Extended Indicator MAE 3.3.3.g	Find the area of a square by counting whole number unit squares.
Indicator MA 3.3.3.h	Identify and draw rectangles with the same perimeter and different areas or with the same area and different perimeters.
Extended Indicator MAE 3.3.3.h	Identify congruent non-square rectangles.

K-12 Comprehensive Data Standard:

Students will communicate data analysis/probability concepts, using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 3.4	DATA
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MA 3.4.1 Representations	Students will create displays that represent data.
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Indicator MA 3.4.1.a	Create scaled pictographs and scaled bar graphs to represent a data set—including data collected through observations, surveys, and experiments—with several categories.
Extended Indicator MAE 3.4.1.a	Identify a characteristic of a bar graph or a pictograph. (e.g., quantities, comparisons)
Indicator MA 3.4.1.b	Represent data using line plots where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.
Extended Indicator MAE 3.4.1.b	Identify the scale of a bar graph and/or the key of a pictograph.

MA 3.4.2 Analysis & Applications	Students will analyze data to address the situation.
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Indicator MA 3.4.2.a	Solve problems and make simple statements about quantity differences (e.g., how many more and how many less) using information represented in pictographs and bar graphs.
Extended Indicator MAE 3.4.2.a	Solve a problem using a bar graph or a pictograph.

MA 3.4.3 Probability	Students will interpret and apply concepts of probability.
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	No additional indicator(s) at this level. Mastery is expected at previous grade levels.
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**Nebraska Fourth Grade Math Standards and Extended Indicators
for
Students with the Most Significant Disabilities**

K-12 Comprehensive Number Standard:

Students will communicate number concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 4.1	NUMBER
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MA 4.1.1 Numeric Relationships	Students will demonstrate, represent, and show relationships among fractions and decimals within the base-ten number system.
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Indicator MA 4.1.1.a	Read, write, and demonstrate multiple equivalent representations for whole numbers up to one million and decimals to the hundredths, using objects, visual representations, standard form, word form, and expanded notation.
Extended Indicator MAE 4.1.1.a	Identify representations of numbers 0–100.
Indicator MA 4.1.1.b	Recognize a digit in one place represents ten times what it represents in the place to its right and 1/10 what it represents in the place to its left.
Indicator MA 4.1.1.c	Classify a number up to 100 as prime or composite.
Extended Indicator MAE 4.1.1.c	Identify odd and even numbers up to 20.
Indicator MA 4.1.1.d	Determine whether a given whole number up to 100 is a multiple of a given one-digit number.
Extended Indicator MAE 4.1.1.d	Count by twos and fives, and tens with numbers, models, or objects up to 40.
Indicator MA 4.1.1.e	Determine factors of any whole number up to 100.
Extended Indicator MAE 4.1.1.e	Identify the factors of 4, 6, 10, 15, and 20.
Indicator MA 4.1.1.f	Compare whole numbers up to one million and decimals through the hundredths place using >, <, and = symbols, and visual representations.
Extended Indicator MAE 4.1.1.f	Use symbols <, >, and = to compare whole numbers up to 40.

Indicator MAE 4.1.1.g	Round a multi-digit whole number to any given place.
Extended Indicator MAE 4.1.1.g	Round a 2-digit number, 1–100, to the nearest ten using a number line.
Indicator MA 4.1.1.h	Use decimal notation for fractions with denominators of 10 or 100.
Extended Indicator MAE 4.1.1.h	Identify decimals on a number line from 0 to 1 (tenths only).
Indicator MA 4.1.1.i	Generate and explain equivalent fractions by multiplying by an equivalent fraction of 1.
Indicator MA 4.1.1.j	Explain how to change a mixed number to a fraction and how to change a fraction to a mixed number.
Indicator MA 4.1.1.k	Compare and order fractions having unlike numerators and unlike denominators using visual representations (number line), comparison symbols and verbal reasoning (e.g., using benchmarks or common numerators or common denominators).
Extended Indicator MAE 4.1.1.k	Compare and order mixed numbers with fourths and halves less than 3.
Indicator MA 4.1.1.l	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.

MA 4.1.2 Operations	Students will demonstrate the meaning of addition and subtraction of whole numbers and fractions and compute accurately.
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Indicator MA 4.1.2.a	Add and subtract multi-digit numbers using the standard algorithm.
Indicator MA 4.1.2.b	Multiply a four-digit whole number by a one-digit whole number.
Extended Indicator MAE 4.1.2.b	Multiply 2's, 5's and 10's by a single digit number.
Indicator MA 4.1.2.c	Multiply a two-digit whole number by a two-digit whole number using the standard algorithm.
Extended Indicator MAE 4.1.2.c	Multiply two-digit multiples of 10 by 2 or 5.

Indicator MA 4.1.2.d	Divide up to a four-digit whole number by a one-digit divisor with and without a remainder.
Extended Indicator MAE 4.1.2.d	Identify numbers 2–20 in equal-size groups.
Indicator MA 4.1.2.e	Use drawings, words, and symbols to explain the meaning of addition and subtraction of fractions with like denominators.
Indicator MA 4.1.2.f	Add and subtract fractions and mixed numbers with like denominators.
Extended Indicator MAE 4.1.2.f	Add and subtract halves to halves, thirds to thirds, fourths to fourths, and fifths to fifths...to a whole.
Indicator MA 4.1.2.g	Multiply a fraction by a whole number.
Indicator MA 4.1.2.h	Determine the reasonableness of whole number products and quotients in real-world problems using estimation, compatible numbers, mental computations, or other strategies.

K-12 Comprehensive Algebra Standard:

Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 4.2	ALGEBRA
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MA 4.2.1 Algebraic Relationships	Students will demonstrate, represent, and show relationships with expressions and equations.
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Indicator MA 4.2.1.a	Create a simple algebraic expression or equation using a variable for an unknown number to represent a math process (e.g., $3 + n = 15$, $81 \div n = 9$).
Extended Indicator MAE 4.2.1.a	Solve simple one-step single-digit equations using addition or subtraction.
Indicator MA 4.2.1.b	Generate and analyze a number or shape pattern to follow a given rule, such as $y = 3x + 5$ is a rule to describe a relationship between two variables and can be used to find a second number when a first number is given.

MA 4.2.2 Algebraic Processes	Students will apply the operational properties when evaluating expressions and solving equations.
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Indicator MA 4.2.2.a	Solve one- and two-step problems that use any or all of the four basic operations and include the use of a letter to represent the unknown quantity.
Extended Indicator MAE 4.2.2.a	Evaluate numerical expressions using order of operations using numbers 1 through 5.

MA 4.2.3 Applications	Students will solve real-world problems involving equations with whole numbers.
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Indicator MA 4.2.3.a	Solve real-world problems involving multi-step equations comprised of whole numbers using the four operations, including interpreting remainders.
Extended Indicator MAE 4.2.3.a	Solve addition and subtraction real-world problems with addition and subtraction up to 40 without regrouping.
Indicator MA 4.2.3.b	Solve real-world problems involving addition and subtraction of fractions and mixed numbers with like denominators.
Extended Indicator MAE 4.2.3.b	Solve addition real-world problems with halves and fourths.

K-12 Comprehensive Geometry Standard:

Students will communicate geometric concepts and measurement concepts, using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 4.3	GEOMETRY
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MA 4.3.1 Characteristics	Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.
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Indicator MA 4.3.1.a	Recognize angles as geometric shapes that are formed where two rays share a common endpoint.
Indicator MA 4.3.1.b	Classify an angle as acute, obtuse, or right.
Extended Indicator MAE 4.3.1.b	Compare larger and smaller angles.
Indicator MA 4.3.1.c	Identify and draw points, lines, line segments, rays, angles, parallel lines, perpendicular lines, and intersecting lines, and recognize them in two-dimensional figures.
Extended Indicator MAE 4.3.1.c	Identify parallel and intersecting lines.
Indicator MA 4.3.1.d	Classify 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 4.3.1.d	Identify acute, right, and obtuse triangles.
Indicator MA 4.3.1.e	Identify right triangles.
Extended Indicator MAE 4.3.1.e	Identify right angles.
Indicator MA 4.3.1.f	Measure angles in whole number degrees using a protractor.
Indicator MA 4.3.1.g	Sketch angles of a specified measure.
Extended Indicator MAE 4.3.1.g	Identify 45°, 90° and 180° angles without measuring.
Indicator MA 4.3.1.h	Recognize and draw lines of symmetry in two-dimensional shapes.
Extended Indicator MAE 4.3.1.h	Identify a line of symmetry in a rectangle, square, or circle.

MA 4.3.2 Coordinate Geometry	Students will determine location, orientation, and relationships on the coordinate plane.
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	No additional indicator(s) at this level. Mastery is expected at previous grade levels.
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MA 4.3.3 Measurement	Students will perform and compare measurements and apply formulas.
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Indicator MA 4.3.3.a	Apply perimeter and area formulas for rectangles.
Extended Indicator MAE 4.3.3.a	Identify the area of a rectangle by counting unit squares.
Indicator MA 4.3.3.b	Identify and use the appropriate tools, operations, and units of measurement, both customary and metric, to solve real-world problems involving time, length, weight, mass, capacity, and volume.
Indicator MA 4.3.3.c	Generate simple conversions from a larger unit to a smaller unit within the customary and metric systems of measurement.
Extended Indicator MAE 4.3.3.c	Identify the number of inches in one or two feet using a model of a ruler.

K-12 Comprehensive Data Standard:

Students will communicate data analysis/probability concepts, using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 4.4	DATA
MA 4.4.1 Representations	Students will create displays that represent data.
Indicator MA 4.4.1.a	Represent data using line plots where the horizontal scale is marked off in appropriate units (e.g., whole numbers, halves, quarters, or eighths).
Extended Indicator MAE 4.4.1.a	Interpret information in a line plot using two data points.
MA 4.4.2 Analysis & Applications	Students will analyze data to address the situation.
Indicator MA 4.4.2.a	Solve problems involving addition or subtraction of fractions using information presented in line plots.
Extended Indicator MAE 4.4.2.a	Solve a problem with addition or subtraction of whole numbers using information from a line plot.
MA 4.4.3 Probability	Students will interpret and apply concepts of probability.
	No additional indicator(s) at this level. Mastery is expected at previous grade levels.

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

K-12 Comprehensive Number Standard:

Students will communicate number concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 5.1	NUMBER
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MA 5.1.1 Numeric Relationships	Students will demonstrate, represent, and show relationships among whole numbers, fractions, and decimals within the base-ten number system.
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Indicator MA 5.1.1.a	Determine multiple equivalent representations for whole numbers and decimals through the thousandths place using standard form, word form, and expanded notation.
Extended Indicator MAE 5.1.1.a	Identify representations of whole numbers up to 200.
Indicator MA 5.1.1.b	Compare whole numbers, fractions, mixed numbers, and decimals through the thousandths place and represent comparisons using symbols $<$, $>$, or $=$.
Extended Indicator MAE 5.1.1.b	Compare and order whole numbers using symbols $<$, $>$, and $=$ up to 200.
Indicator MA 5.1.1.c	Round whole numbers and decimals to any given place.
Extended Indicator MAE 5.1.1.c	Round whole numbers to the nearest tens place up to 200.
Indicator MA 5.1.1.d	Recognize and generate equivalent forms of commonly used fractions, decimals, and percents (e.g., halves, thirds, fourths, fifths, and tenths).
Extended Indicator MAE 5.1.1.d	Use models to identify equivalent fractions between thirds, fourths, halves, and one whole.
Indicator MA 5.1.1.e	Write powers of 10 with exponents.

MA 5.1.2 Operations	Students will demonstrate the meaning of operations and compute accurately with whole numbers, fractions, and decimals.
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Indicator MA 5.1.2.a	Multiply multi-digit whole numbers using the standard algorithm.
Extended Indicator MAE 5.1.2.a	Multiply a two-digit number by a single-digit number.
Indicator MA 5.1.2.b	Divide four-digit whole numbers by a two-digit divisor, with and without remainders using the standard algorithm.
Extended Indicator MAE 5.1.2.b	Divide a two-digit whole number by a single-digit number with no remainder.
Indicator MA 5.1.2.c	Multiply a whole number by a fraction or a fraction by a fraction using models and visual representations.
Extended Indicator MAE 5.1.2.c	Multiply $\frac{1}{3}$, $\frac{1}{2}$, or $\frac{1}{4}$ by 2, 3, and 4.
Indicator MA 5.1.2.d	Divide a unit fraction by a whole number and a whole number by a unit fraction.
Extended Indicator MAE 5.1.2.d	Divide a whole number by $\frac{1}{3}$, $\frac{1}{2}$, or $\frac{1}{4}$ using a visual model (e.g., 3 divided by one-half).
Indicator MA 5.1.2.e	Explain division of a whole number by a fraction using models and visual representations.
Indicator MA 5.1.2.f	Interpret a fraction as division of the numerator by the denominator.
Indicator MA 5.1.2.g	Add, subtract, multiply, and divide decimals to the hundredths using concrete models or drawings and strategies based on place value, properties of operations (i.e., Commutative, Associative, Distributive, Identity, Zero), and/or relationships between operations.
Indicator MA 5.1.2.h	Add and subtract fractions and mixed numbers with unlike denominators.
Extended Indicator MAE 5.1.2.h	Add and subtract fractions with like denominators using a visual model without regrouping.
Indicator MA 5.1.2.i	Determine the reasonableness of computations involving whole numbers, fractions, and decimals.
Indicator MA 5.1.2.j	Multiply and divide by powers of 10.
Extended Indicator MAE 5.1.2.j	Multiply a one-digit whole number by 100.

K-12 Comprehensive Algebra Standard:

Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 5.2	ALGEBRA
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MA 5.2.1 Algebraic Relationships	Students will demonstrate, represent, and show relationships with expressions and equations.
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Indicator MA 5.2.1.a	Form ordered pairs from a rule such as $y = 2x$, and graph the ordered pairs on a coordinate plane.
Extended Indicator MAE 5.2.1.a	Identify the location of the ordered pairs on a coordinate plane (1st quadrant).

MA 5.2.2 Algebraic Processes	Students will apply the operational properties when evaluating expressions and solving equations.
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Indicator MA 5.2.2.a	Interpret and evaluate numerical or algebraic expressions using order of operations (excluding exponents).
Extended Indicator MAE 5.2.2.a	Evaluate a numerical expression with addition or subtraction and multiplication, 1–5.

MA 5.2.3 Applications	Students will solve real-world problems involving equations with whole numbers.
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Indicator MA 5.2.3.a	Solve real-world problems involving addition and subtraction of fractions and mixed numbers with like and unlike denominators.
Extended Indicator MAE 5.2.3.a	Solve real-world problems with addition or subtraction of fractions limited to like denominators without regrouping involving halves, thirds, and fourths.

K-12 Comprehensive Geometry Standard:

Students will communicate geometric concepts and measurement concepts, using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 5.3	GEOMETRY
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MA 5.3.1 Characteristics	Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.
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Indicator MA 5.3.1.a	Identify three-dimensional figures including cubes, cones, pyramids, prisms, spheres, and cylinders.
Extended Indicator MAE 5.3.1.a	Identify three-dimensional models limited to cube, cylinder, and cone.
Indicator MA 5.3.1.b	Identify faces, edges, and vertices of rectangular prisms.
Extended Indicator MAE 5.3.1.b	Identify the faces, edges, and vertices of a cube.
Indicator MA 5.3.1.c	Justify the classification of two-dimensional figures based on their properties.
Extended Indicator MAE 5.3.1.c	Sort triangles, rectangles, and squares by number of sides and/or angles.

MA 5.3.2 Coordinate Geometry	Students will determine location, orientation, and relationships on the coordinate plane.
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Indicator MA 5.3.2.a	Identify the origin, x axis, and y axis of the coordinate plane.
Indicator MA 5.3.2.b	Graph and name points in the first quadrant of the coordinate plane using ordered pairs of whole numbers.
Extended Indicator MAE 5.3.2.b	Identify the x- or y-coordinate of whole-numbered points in quadrant I.

MA 5.3.3 Measurement	Students will perform and compare measurements and apply formulas.
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Indicator MA 5.3.3.a	Recognize that solid figures have volume that is measured in cubic units.
Indicator MA 5.3.3.b	Use concrete models to measure the volume of rectangular prisms in cubic units by counting cubic units.
Extended Indicator MAE 5.3.3.b	Find the volume of a rectangular prism by counting unit cubes.
Indicator MA 5.3.3.c	Generate conversions within the customary and metric systems of measurement.
Extended Indicator MAE 5.3.3.c	Convert whole-numbers of feet to inches using a model.

K-12 Comprehensive Data Standard:

Students will communicate data analysis/probability concepts, using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 5.4	DATA
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MA 5.4.1 Representations	Students will create displays that represent data.
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	No additional indicator(s) at this level. Mastery is expected at previous grade levels.
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MA 5.4.2 Analysis & Applications	Students will analyze data to address the situation.
-----------------------------------------------------	-------------------------------------------------------------

Indicator MA 5.4.2.a	Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (e.g., frequency charts) and bar graphs.
Extended Indicator MAE 5.4.2.a	Interpret information in a bar graph using at least two data points.
Indicator MA 5.4.2.b	Formulate questions that can be addressed with data and make predictions about the data.
Extended Indicator MAE 5.4.2.b	Solve a problem with addition or subtraction of whole numbers using information from a bar graph.

MA 5.4.3 Probability	Students will interpret and apply concepts of probability.
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	No additional indicator(s) at this level. Mastery is expected at previous grade levels.
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**Nebraska Sixth Grade Math Standards and Extended Indicators
for
Students with the Most Significant Disabilities**

K-12 Comprehensive Number Standard:

Students will communicate number concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 6.1	NUMBER
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MA 6.1.1 Numeric Relationships	Students will demonstrate, represent, and show relationships among fractions, decimals, percents, and integers within the base-ten number system.
-------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------

Indicator MA 6.1.1.a	Determine common factors and common multiples using prime factorization of numbers with and without exponents.
Extended Indicator MAE 6.1.1.a	Identify the common factors of 4 and 6, 6 and 9, 8 and 10, given the factors of both numbers.
Indicator MA 6.1.1.b	Represent non-negative whole numbers using exponential notation.
Extended Indicator MAE 6.1.1.b	Represent 10, 100, 1,000, or 10,000 as a power of 10.
Indicator MA 6.1.1.c	Compare and order rational numbers both on the number line and not on the number line.
Extended Indicator MAE 6.1.1.c	Compare and order halves, quarters, and tenths of whole numbers 0–1 on a number line.
Indicator MA 6.1.1.d	Convert among fractions, decimals, and percents using multiple representations.
Extended Indicator MAE 6.1.1.d	Convert halves, fourths, and tenths to decimals using a model.
Indicator MA 6.1.1.e	Determine ratios from drawings, words, and manipulatives.
Indicator MA 6.1.1.f	Explain and determine unit rates.

Indicator MA 6.1.1.g	Model integers using drawings, words, manipulatives, number lines, and symbols.
Extended Indicator MAE 6.1.1.g	Identify models of integers –10 to 10 using drawings, words, manipulatives, number line and symbols.
Indicator MA 6.1.1.h	Compare and order integers and absolute values both on a number line and not on a number line.
Extended Indicator MAE 6.1.1.h	Compare and order integers (–10 to 10) on a number line.
Indicator MA 6.1.1.i	Determine absolute value of rational numbers.
Extended Indicator MAE 6.1.1.i	Identify the absolute value of an integer –10 to 10.

MA 6.1.2 Operations	Students will demonstrate the meaning of addition and subtraction of whole numbers and fractions and compute accurately.
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Indicator MA 6.1.2.a	Multiply and divide non-negative fractions and mixed numbers.
Extended Indicator MAE 6.1.2.a	Multiply and divide positive fractions, halves, fourths, thirds and tenths using models.
Indicator MA 6.1.2.b	Evaluate expressions with positive exponents.
Indicator MA 6.1.2.c	Divide multi-digit whole numbers using the standard algorithm.
Extended Indicator MAE 6.1.2.c	Divide a two-digit number by a one-digit number with a remainder.
Indicator MA 6.1.2.d	Add, subtract, multiply, and divide decimals using the standard algorithms.
Extended Indicator MAE 6.1.2.d	Add and subtract numbers 0–10 with one decimal place without regrouping.
Indicator MA 6.1.2.e	Estimate and check reasonableness of answers using appropriate strategies and tools.
Extended Indicator MAE 6.1.2.e	Estimate the sum of two decimal numbers with tenths (e.g., 5.2 + 3.7 is about 9).

K-12 Comprehensive Algebra Standard:

Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 6.2	ALGEBRA
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MA 6.2.1 Algebraic Relationships	Students will demonstrate, represent, and show relationships with expressions, equations, and inequalities.
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Indicator MA 6.2.1.a	Create algebraic expressions (e.g., one operation, one variable as well as multiple operations, one variable) from word phrases.
Extended Indicator MAE 6.2.1.a	Match a simple word phrase with an input/output box.
Indicator MA 6.2.1.b	Recognize and generate equivalent algebraic expressions involving distributive property and combining like terms.
Indicator MA 6.2.1.c	Represent and analyze the relationship between two variables using graphs, tables, and one-step equations.

MA 6.2.2 Algebraic Processes	Students will apply the operational properties when evaluating expressions and solving equations.
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Indicator MA 6.2.2.a	Simplify expressions using the distributive property and combining like terms.
Extended Indicator MAE 6.2.2.a	Identify whole number expressions using the distributive property (e.g., $2(3 + 4)$).
Indicator MA 6.2.2.b	Use substitution to determine if a given value for a variable makes an equation or inequality true.
Indicator MA 6.2.2.c	Evaluate numerical expressions, including absolute value and exponents, with respect to order of operations.
Extended Indicator MAE 6.2.2.c	Demonstrate understanding of order of operations involving addition, subtraction, and multiplication.
Indicator MA 6.2.2.d	Given the value of the variable, evaluate algebraic expressions (which may include absolute value) with respect to order of operations (non-negative rational numbers).

Indicator MA 6.2.2.e	Solve one-step equations with non-negative rational numbers using addition, subtraction, multiplication, and division.
Extended Indicator MAE 6.2.2.e	Solve a one-step equation using addition and subtraction.
Indicator MA 6.2.2.f	Use equivalent ratios relating quantities with whole numbers to create a table. Find missing values in the table.
Extended Indicator MAE 6.2.2.f	Find a missing number in a table with the ratio of 1:2, 1:3, or 1:10.
Indicator MA 6.2.2.g	Represent inequalities on a number line (e.g., graph $x > 3$).
Extended Indicator MAE 6.2.2.g	Identify a solution to an inequality on a number line (-10 to 10).

MA 6.2.3 Applications	Students will solve real-world problems involving equations with whole numbers.
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Indicator MA 6.2.3.a	Write equations (e.g., one operation, one variable) to represent real-world problems involving non-negative rational numbers.
Indicator MA 6.2.3.b	Solve real-world problems involving non-negative rational numbers.
Extended Indicator MAE 6.2.3.b	Solve real-world problems with addition and subtraction of decimal numbers to the hundredth without regrouping.
Indicator MA 6.2.3.c	Solve real-world problems involving percents of numbers.
Indicator MA 6.2.3.d	Solve real-world problems using ratios and unit rates.
Extended Indicator MAE 6.2.3.d	Solve real-world problems using ratios up to 1:3.

K-12 Comprehensive Geometry Standard:

Students will communicate geometric concepts and measurement concepts, using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 6.3	GEOMETRY
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MA 6.3.1 Characteristics	Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.
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Indicator MA 6.3.1.a	Identify and create nets to represent two-dimensional drawings of prisms, pyramids, cylinders, and cones.
Extended Indicator MAE 6.3.1.a	Identify a cube, cylinder, or cone from a given two-dimensional representation.

MA 6.3.2 Coordinate Geometry	Students will determine location, orientation, and relationships on the coordinate plane.
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Indicator MA 6.3.2.a	Identify the ordered pair of a given point in the coordinate plane.
Indicator MA 6.3.2.b	Plot the location of an ordered pair in the coordinate plane.
Indicator MA 6.3.2.c	Identify the quadrant of a given point in the coordinate plane.
Extended Indicator MAE 6.3.2.c	Identify a point on a 4 by 4 grid in quadrant 1.
Indicator MA 6.3.2.d	Draw polygons in the coordinate plane given coordinates for the vertices.
Extended Indicator MAE 6.3.2.d	Identify the location of one vertex of a triangle in quadrant 1 with one vertex on the origin.
Indicator MA 6.3.2.e	Calculate vertical and horizontal distances in the coordinate plane to find perimeter and area.

MA 6.3.3 Measurement	Students will perform and compare measurements and apply formulas.
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Indicator MA 6.3.3.a	Determine the area of quadrilaterals, including parallelograms, trapezoids, and triangles by composition and decomposition of polygons as well as application of formulas.
Extended Indicator MAE 6.3.3.a	Find the area of a rectangle using its whole number side lengths.
Indicator MA 6.3.3.b	Determine the surface area of rectangular prisms and triangular prisms using nets.
Extended Indicator MAE 6.3.3.b	Find the surface area of a rectangular prism by counting unit squares in a net.
Indicator MA 6.3.3.c	Apply volume formulas for rectangular prisms.
Extended Indicator MAE 6.3.3.c	Find the volume of a rectangular prism using the volume formula.

K-12 Comprehensive Data Standard:

Students will communicate data analysis/probability concepts, using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 6.4	DATA
---------------	-------------

MA 6.4.1 Representations	Students will create displays that represent data.
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Indicator MA 6.4.1.a	Represent data using line plots, dot plots, box plots, and histograms.

MA 6.4.2 Analysis & Applications	Students will analyze data to address the situation.
-----------------------------------------------------	-------------------------------------------------------------

Indicator MA 6.4.2.a	Solve problems using information presented in line plots, dot plots, box plots, and histograms.
Extended Indicator MAE 6.4.2.a	Interpret a histogram that matches a data set.
Indicator MA 6.4.2.b	Compare and interpret data sets based upon their graphical representations (e.g., center, spread, and shape).
Extended Indicator MAE 6.4.2.b	Solve basic problems using histograms (e.g., How many times did Sara knock down 9 pins? How many more students have 1 pet than have 2 pets?).
Indicator MA 6.4.2.c	Find and interpret the mean, median, mode, and range for a set of data.
Extended Indicator MAE 6.4.2.c	Find the mode of a set of ordered whole number data.
Indicator MA 6.4.2.d	Compare the mean, median, mode, and range from two sets of data.
Extended Indicator MAE 6.4.2.d	Find the median of a set of ordered whole number data.

MA 6.4.3 Probability	Students will interpret and apply concepts of probability.
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	No additional indicator(s) at this level. Mastery is expected at previous grade levels.
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**Nebraska Seventh Grade Math Standards and Extended Indicators
for
Students with the Most Significant Disabilities**

K-12 Comprehensive Number Standard:

Students will communicate number concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 7.1	NUMBER
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MA 7.1.1 Numeric Relationships	Students will compute with rational numbers accurately.
-------------------------------------------	----------------------------------------------------------------

	No additional indicator(s) at this level. Mastery is expected at previous grade levels.
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MA 7.1.2 Operations	Students will demonstrate the meaning of addition and subtraction of whole numbers and fractions and compute accurately.
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Indicator MA 7.1.2.a	Solve problems using proportions and ratios (e.g., cross products, percents, tables, equations, and graphs).
Extended Indicator MAE 7.1.2.a	Given a fraction $\frac{1}{4}$, $\frac{1}{2}$, or $\frac{3}{4}$, write the corresponding percentage.
Indicator MA 7.1.2.b	Add, subtract, multiply, and divide rational numbers (e.g., positive and negative fractions, decimals, and integers).
Extended Indicator MAE 7.1.2.b	Add and subtract positive rational numbers with like denominators up to 10 without regrouping.
Indicator MA 7.1.2.c	Apply properties of operations as strategies for problem solving with rational numbers.
Indicator MA 7.1.2.d	Use multiple strategies to add, subtract, multiply, and divide integers.
Extended Indicator MAE 7.1.2.d	Add positive and negative integers (-10 to 10).

Indicator MA 7.1.2.e	Estimate and check reasonableness of answers using appropriate strategies and tools.
Extended Indicator MAE 7.1.2.e	Estimate addition and subtraction results to the nearest 10 up to 100.

K-12 Comprehensive Algebra Standard:

Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 7.2	ALGEBRA
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MA 7.2.1 Algebraic Relationships	Students will demonstrate, represent, and show relationships with expressions, equations, and inequalities.
---------------------------------------------	--------------------------------------------------------------------------------------------------------------------

Indicator MA 7.2.1.a	Describe and create an inequality from words and pictures (e.g., one-step, one-variable).
Extended Indicator MAE 7.2.1.a	Identify a solution to a given inequality.
Indicator MA 7.2.1.b	Represent real-world situations with proportions.
Extended Indicator MAE 7.2.1.b	Identify a ratio between two quantities using a model.

MA 7.2.2 Algebraic Processes	Students will apply the operational properties when evaluating expressions and solving equations and inequalities.
-----------------------------------------	---------------------------------------------------------------------------------------------------------------------------

Indicator MA 7.2.2.a	Solve equations using the distributive property and combining like terms.
Indicator MA 7.2.2.b	Use factoring and properties of operations to create equivalent algebraic expressions (e.g., $2x + 6 = 2(x + 3)$).
Extended Indicator MAE 7.2.2.b	Identify equivalent expressions with one variable ($2n + 3n$ is the same as $5n$).
Indicator MA 7.2.2.c	Given the value of the variable(s), evaluate algebraic expressions (including absolute value).
Extended Indicator MAE 7.2.2.c	Given the positive integer value of the single variable, evaluate an addition or subtraction expression.
Indicator MA 7.2.2.d	Solve two-step equations involving rational numbers which include the integers.
Extended Indicator MAE 7.2.2.d	Solve a one-step equation using multiplication.

Indicator MA 7.2.2.e	Solve one-step inequalities involving integers and rational numbers and represent solutions on a number line.
Extended Indicator MAE 7.2.2.e	Identify a solution to an inequality involving multiplication using a number line (-10 to 10).

MA 7.2.3 Applications	Students will solve real-world problems involving expressions, equations, and inequalities.
----------------------------------	----------------------------------------------------------------------------------------------------

Indicator MA 7.2.3.a	Describe and write linear equations from words and tables.
Indicator MA 7.2.3.b	Write a two-step equation to represent real-world problems involving rational numbers in any form.
Extended Indicator MAE 7.2.3.b	Identify a one-step linear equation containing a positive integer that represents a solution to a real-world problem.
Indicator MA 7.2.3.c	Solve real-world problems with equations that involve rational numbers in any form.
Extended Indicator MAE 7.2.3.c	Solve a one-step linear equation using a positive integer that represents a solution to a real-world problem.
Indicator MA 7.2.3.d	Solve real-world problems with inequalities.
Extended Indicator MAE 7.2.3.d	Identify an inequality that represents a solution to a real-world problem using a model.
Indicator MA 7.2.3.e	Use proportional relationships to solve real-world problems, including percent problems, (e.g., % increase, % decrease, mark-up, tip, simple interest).
Extended Indicator MAE 7.2.3.e	Identify the percent for a discount problem (10%, 25%, or 50%).
Indicator MA 7.2.3.f	Solve real-world problems involving scale drawings using a proportional relationship.
Extended Indicator MAE 7.2.3.f	Identify the measure of a scale drawing using the scale of $\frac{1}{4}$, $\frac{1}{3}$, or $\frac{1}{2}$.

K-12 Comprehensive Geometry Standard:

Students will communicate geometric concepts and measurement concepts, using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 7.3	GEOMETRY
---------------	-----------------

MA 7.3.1 Characteristics	Students will identify and describe geometric characteristics of two-dimensional shapes.
-------------------------------------	-------------------------------------------------------------------------------------------------

Indicator MA 7.3.1.a	Apply and use properties of adjacent, complementary, supplementary, and vertical angles to find missing angle measures.
Extended Indicator MAE 7.3.1.a	Identify a pair of congruent angles in two intersecting lines.
Indicator MA 7.3.1.b	Draw triangles (freehand, using a ruler and a protractor, and using technology) with given conditions of three measures of angles or sides, and notice when the conditions determine a unique triangle, more than one triangle, or no triangle.

MA 7.3.2 Coordinate Geometry	Students will determine location, orientation, and relationships on the coordinate plane.
---------------------------------------------	--------------------------------------------------------------------------------------------------

	No additional indicator(s) at this level. Mastery is expected at previous grade levels.
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MA 7.3.3 Measurement	Students will perform and compare measurements and apply formulas.
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Indicator MA 7.3.3.a	Solve real-world problems involving perimeter and area of composite shapes made from triangles, quadrilaterals, and polygons.
Extended Indicator MAE 7.3.3.a	Find the perimeter of two adjoining rectangles by counting unit lengths.
Indicator MA 7.3.3.b	Solve real-world problems involving surface area and volume of composite shapes made from rectangular and triangular prisms.
Extended Indicator MAE 7.3.3.b	Find the area of two adjoining rectangles by counting unit squares.

Indicator MA 7.3.3.c	Determine the area and circumference of circles both on and off the coordinate plane.
Extended Indicator MAE 7.3.3.c	Identify the center and radius of a circle.

K-12 Comprehensive Data Standard:

Students will communicate data analysis/probability concepts, using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 7.4	DATA
---------------	-------------

MA 7.4.1 Representations	Students will create displays that represent data.
-------------------------------------	-----------------------------------------------------------

Indicator MA 7.4.1.a	Represent data using circle graphs.

MA 7.4.2 Analysis & Applications	Students will analyze data to address the situation.
-----------------------------------------------------	-------------------------------------------------------------

Indicator MA 7.4.2.a	Solve problems using information presented in circle graphs.
Extended Indicator MAE 7.4.2.a	Solve problems with thirds and fourths of a circle using a circle graph.
Indicator MA 7.4.2.a	Explain the difference between a population and a sample.
Indicator MA 7.4.2.a	Generate conclusions about a population based upon a random sample.
Indicator MA 7.4.2.a	Determine and critique biases in different data representations.

MA 7.4.3 Probability	Students will interpret and apply concepts of probability.
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Indicator MA 7.4.3.a	Generate a list of possible outcomes for a simple event.
Indicator MA 7.4.3.b	Describe the theoretical probability of an event using a fraction, percentage, and decimal.

Indicator MA 7.4.3.c	Find theoretical probabilities for independent events.
Extended Indicator MAE 7.4.3.c	Identify the probability of an event as always, sometimes, or never.
Indicator MA 7.4.3.d	Perform simple experiments and express the degree of likelihood (possible, impossible, certain, more likely, equally likely, or less likely); write as fractions and percentages.
Indicator MA 7.4.3.e	Find experimental probability for independent events.
Indicator MA 7.4.3.f	Compare and contrast theoretical and experimental probabilities.
Indicator MA 7.4.3.g	Find the probability of dependent compound events.
Indicator MA 7.4.3.h	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 communicate number concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 8.1	NUMBER
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MA 8.1.1 Numeric Relationships	Students will demonstrate, represent, and show relationships among fractions and decimals within the base-ten number system.
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Indicator MA 8.1.1.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 8.1.1.a	Distinguish among whole numbers, fractions, and decimals.
Indicator MA 8.1.1.b	Represent numbers with positive and negative exponents and in scientific notation.
Extended Indicator MAE 8.1.1.b	Represent numbers with the base of 2, 3, 4, or 5 and positive exponents of 2 and 3 in expanded form (e.g., $4^3 = 4 \times 4 \times 4$).
Indicator MA 8.1.1.c	Describe the difference between a rational and irrational number.
Indicator MA 8.1.1.d	Approximate, compare, and order real numbers (both rational and irrational) and order real numbers both off and on the number line.
Extended Indicator MAE 8.1.1.d	Compare and order tenths, fourths, thirds, halves, and whole numbers 1–100 with a number line.

MA 8.1.2 Operations	Students will compute with exponents and roots.
--------------------------------	--------------------------------------------------------

Indicator MA 8.1.2.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 8.1.2.a	Identify the squares of whole numbers up to 5.
Indicator MA 8.1.2.b	Simplify numerical expressions involving exponents and roots (e.g., $4(-2)$ is the same as $1/16$).
Indicator MA 8.1.2.c	Simplify numerical expressions involving absolute value.
Extended Indicator MAE 8.1.2.c	Determine absolute value using a model (e.g., temperature below zero).
Indicator MA 8.1.2.d	Multiply and divide numbers using scientific notation.
Indicator MA 8.1.2.e	Estimate and check reasonableness of answers using appropriate strategies and tools.
Extended Indicator MAE 8.1.2.e	Estimate multiplication results to the nearest 10 up to 100.

K-12 Comprehensive Algebra Standard:

Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 8.2	ALGEBRA
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MA 8.2.1 Algebraic Relationships	Students will demonstrate, represent, and show relationships with expressions, equations, and inequalities.
---------------------------------------------	--------------------------------------------------------------------------------------------------------------------

Indicator MA 8.2.1.a	Create algebraic expressions, equations, and inequalities (e.g., two-step, one variable) from word phrases, tables, and pictures.
Extended Indicator MAE 8.2.1.a	Identify an expression with two different operations that matches the description.
Indicator MA 8.2.1.b	Determine and describe the rate of change for given situations through the use of tables and graphs.
Extended Indicator MAE 8.2.1.b	Describe the rate of change of a proportional relationship given a table.
Indicator MA 8.2.1.c	Describe equations and linear graphs as having one solution, no solution, or infinitely many solutions.
Extended Indicator MAE 8.2.1.c	Identify the point of intersection (solution) for intersecting lines on a coordinate plane.
Indicator MA 8.2.1.d	Graph proportional relationships and interpret the slope.
Extended Indicator MAE 8.2.1.d	Given a graph of a line through the origin and a point on the line, determine another point on the line.

MA 8.2.2 Algebraic Processes	Students will apply the operational properties when evaluating expressions and solving expressions, equations, and inequalities.
-----------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------

Indicator MA 8.2.2.a	Solve multi-step equations involving rational numbers with the same variable appearing on both sides of the equal sign.
Extended Indicator MAE 8.2.2.a	Solve a two-step equation using whole numbers (e.g., $2n - 8 = 0$; $n = 4$).
Indicator MA 8.2.2.b	Solve two-step inequalities involving rational numbers and represent solutions on a number line.
Extended Indicator MAE 8.2.2.b	Solve a two-step inequality using whole numbers (e.g., $2n - 8 > 0$; $n > 4$).

MA 8.2.3 Applications	Students will solve real-world problems involving equations with whole numbers.
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Indicator MA 8.2.3.a	Describe and write equations from words, patterns, and tables.
Extended Indicator MAE 8.2.3.a	Identify an equation that represents a number pattern.
Indicator MA 8.2.3.b	Write a multi-step equation to represent real-world problems using rational numbers in any form.
Extended Indicator MAE 8.2.3.b	Identify an equation that represents a real-world problem with fractions.
Indicator MA 8.2.3.c	Solve real-world multi-step problems involving rational numbers in any form.
Extended Indicator MAE 8.2.3.c	Solve a real-world problem with fractions.

K-12 Comprehensive Geometry Standard:

Students will communicate geometric concepts and measurement concepts, using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 8.3	GEOMETRY
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MA 8.3.1 Characteristics	Students will identify and describe geometric characteristics of two-dimensional shapes.
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Indicator MA 8.3.1.a	Determine and use the relationships of the interior angles of a triangle to solve for missing measures.
Extended Indicator MAE 8.3.1.a	Identify the missing angle measure in 45-45-90 triangles and 30-60-90 triangles given two of the angles and a drawing of the triangle.
Indicator MA 8.3.1.b	Identify and apply geometric properties of parallel lines cut by a transversal and the resulting corresponding, alternate interior, and alternate exterior angles to find missing measures.

MA 8.3.2 Coordinate Geometry	Students will determine location, orientation, and relationships on the coordinate plane.
---------------------------------------------	--------------------------------------------------------------------------------------------------

Indicator MA 8.3.2.a	Perform and describe positions and orientation 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 8.3.2.a	Identify the orientation of a shape or letter following a reflection.
Indicator MA 8.3.2.b	Find congruent two-dimensional figures and define congruence in terms of a series of transformations.
Extended Indicator MAE 8.3.2.b	Distinguish between pairs of congruent and non-congruent two-dimensional shapes.
Indicator MA 8.3.2.c	Find similar two-dimensional figures and define similarity in terms of a series of transformations.
Extended Indicator MAE 8.3.2.c	Distinguish between pairs of similar and non-similar two-dimensional shapes.

MA 8.3.3 Measurement	Students will perform and compare measurements and apply formulas.
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Indicator MA 8.3.3.a	Explain a model of the Pythagorean Theorem.
Indicator MA 8.3.3.b	Apply the Pythagorean Theorem to find side lengths of triangles and to solve real-world problems.
Indicator MA 8.3.3.c	Find the distance between any two points on the coordinate plane using the Pythagorean Theorem.
Extended Indicator MAE 8.3.3.c	Find the distance between two points on the x- or y-axis in quadrant I.
Indicator MA 8.3.3.d	Determine the volume of cones, cylinders, and spheres, and solve real-world problems using volumes.
Extended Indicator MAE 8.3.3.d	Identify the cone, cylinder, or sphere with the greatest volume when given three cones with either the same base or the same height, three cylinders with either the same base or the same height, or three spheres.

K-12 Comprehensive Data Standard:

Students will communicate data analysis/probability concepts, using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 8.4	DATA
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MA 8.4.1 Representations	Students will create displays that represent data.
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Indicator MA 8.4.1.a	Represent bivariate data (i.e., ordered pairs) using scatter plots.
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MA 8.4.2 Analysis & Applications	Students will analyze data to address the situation.
-----------------------------------------------------	-------------------------------------------------------------

Indicator MA 8.4.2.a	Solve problems and make predictions using an approximate line of best fit.
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MA 8.4.3 Probability	Students will interpret and apply concepts of probability.
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	No additional indicator(s) at this level. Mastery is expected at previous grade levels.
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**Eleventh Grade Math Standards and Extended Indicators
for
Students with the Most Significant Disabilities**

K-12 Comprehensive Number Standard:

Students will communicate number concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 11.1	NUMBER
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MA 11.1.1 Numeric Relationships	Students will demonstrate, represent, and show relationships among the subsets of real numbers and the complex number system.
--------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------

Indicator MA 11.1.1.a	Compare and contrast subsets of the complex number system, including imaginary, rational, irrational, integers, whole, and natural numbers.
Extended Indicator MAE 11.1.1.a	Sort fractions, decimals, and whole numbers by type (e.g., 3/5, 4, 1.7).
Indicator MA 11.1.1.b	Recognize that closure properties apply to the subsets of the complex number system, under the standard operations.
Indicator MA 11.1.1.c	Use drawings, words, and symbols to explain the effects of operations such as multiplication and division on the magnitude of quantities in the real number system, including powers and roots (e.g., if you take the square root of a number, will the result always be smaller than the original number?).

MA 11.1.2 Operations	Students will compute with real and complex numbers.
---------------------------------	-------------------------------------------------------------

Indicator MA 11.1.2.a	Compute with subsets of the complex number system, including imaginary, rational, irrational, integers, whole, and natural numbers.
Extended Indicator MAE 11.1.2.a	Add and subtract two-digit numbers with regrouping.
Indicator MA 11.1.2.b	Simplify expressions with rational exponents.
Extended Indicator MAE 11.1.2.b	Rewrite a repeated multiplication problem as an exponential expression with a whole number base and a whole number exponent (e.g., $3 \times 3 \times 3 \times 3 = 3^4$).

Indicator MA 11.1.2.c	Select, apply, and explain the method of computation when problem solving using real numbers (e.g., models, mental computation, paper-pencil, or technology).
Extended Indicator MAE 11.1.2.c	Given a real-world problem, identify an operation that leads to a solution.
Indicator MA 11.1.2.d	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.

K-12 Comprehensive Algebra Standard:

Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 11.2	ALGEBRA
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MA 11.2.1 Algebraic Relationships	Students will demonstrate, represent, and show relationships with functions.
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Indicator MA 11.2.1.a	Define a function and use function notation.
Indicator MA 11.2.1.b	Analyze a relation to determine if it is a function given graphs, tables, or algebraic notation.
Extended Indicator MAE 11.2.1.b	Identify a graph that represents a given linear function from a table.
Indicator MA 11.2.1.c	Classify a function given graphs, tables, or algebraic notation, as linear, quadratic, or neither.
Extended Indicator MAE 11.2.1.c	Identify a linear function from a graph.
Indicator MA 11.2.1.d	Identify domain and range of functions represented in either algebraic or graphical form.
Indicator MA 11.2.1.e	Analyze and graph linear functions and inequalities (point-slope form, slope-intercept form, standard form, intercepts, rate of change, parallel and perpendicular lines, vertical and horizontal lines, and inequalities).
Extended Indicator MAE 11.2.1.e	Given an x-, y-table of values, determine if the graph of the values forms a horizontal line or a vertical line.
Indicator MA 11.2.1.f	Analyze and graph absolute value functions (finding the vertex, symmetry, transformations, determine intercepts, and minimums or maximums using the piecewise definition).
Indicator MA 11.2.1.g	Analyze and graph quadratic functions (standard form, vertex form, finding zeros, symmetry, transformations, determine intercepts, and minimums or maximums).
Extended Indicator MAE 11.2.1.g	Use the graph of a linear function to locate the ordered pair where $y = 0$.
Indicator MA 11.2.1.h	Represent, interpret, and analyze inverses of functions algebraically and graphically.

MA 11.2.2 Algebraic Processes	Students will apply the operational properties when evaluating rational expressions and solving linear and quadratic equations and inequalities.
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Indicator MA 11.2.2.a	Convert equivalent rates (e.g., miles per hour to feet per second).
Extended Indicator MAE 11.2.2.a	Convert equivalent rate using money.
Indicator MA 11.2.2.b	Identify and explain the properties used in solving equations and inequalities.
Indicator MA 11.2.2.c	Simplify algebraic expressions involving integer and fractional exponents.
Indicator MA 11.2.2.d	Perform operations on rational expressions (add, subtract, multiply, divide, and simplify).
Extended Indicator MAE 11.2.2.d	Add two linear expressions (e.g., $(2x + 1) + (3x + 2) = 5x + 3$).
Indicator MA 11.2.2.e	Evaluate expressions at specified values of their variables (polynomial, rational, radical, and absolute value).
Extended Indicator MAE 11.2.2.e	Evaluate a linear expression at a specified value of the variable. Include cases where combining like terms or using the distributive property is necessary (e.g., Evaluate $3x + 8 - 2x$ when $x = 5$. Evaluate $2(x - 1)$ when $x = 8$).
Indicator MA 11.2.2.f	Solve an equation involving several variables for one variable in terms of the others.
Indicator MA 11.2.2.g	Solve linear and absolute value equations and inequalities.
Extended Indicator MAE 11.2.2.g	Identify the absolute value of a negative integer.
Indicator MA 11.2.2.h	Analyze and solve systems of two linear equations and inequalities in two variables algebraically and graphically.
Extended Indicator MAE 11.2.2.h	Identify the ordered pair of the graphical solution to a system of two linear equations.
Indicator MA 11.2.2.i	Perform operations (addition subtraction, multiplication, and division) on polynomials.

Indicator MA 11.2.2.j	Factor polynomials to include factoring out monomial terms and factoring quadratic expressions.
Indicator MA 11.2.2.k	Recognize polynomial multiplication patterns and their related factoring patterns (e.g., $(a + b)^2 = a^2 + 2ab + b^2$, $a^2 - b^2 = (a + b)(a - b)$).
Indicator MA 11.2.2.l	Make the connection between the factors of a polynomial and the zeros of a polynomial.
Indicator MA 11.2.2.m	Combine functions by composition and perform operations (addition, subtraction, multiplication, division) on functions.
Indicator MA 11.2.2.n	Solve quadratic equations involving real coefficients and real or imaginary roots.

MA 11.2.3 Applications	Students will solve real-world problems involving linear equations and inequalities, systems of linear equations, quadratic, exponential, square root, and absolute value functions.
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Indicator MA 11.2.3.a	Analyze, model, and solve real-world problems using various representations (graphs, tables, linear equations and inequalities, systems of linear equations, quadratic, exponential, square root, and absolute value functions).
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K-12 Comprehensive Geometry Standard:

Students will communicate geometric concepts and measurement concepts, using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 11.3	GEOMETRY
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MA 11.3.1 Characteristics	Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.
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Indicator MA 11.3.1.a	Know and use precise definitions of ray, line segment, angle, perpendicular lines, parallel lines, and congruence based on the undefined terms of geometry: point, line, and plane.
Indicator MA 11.3.1.b	Prove geometric theorems about angles, triangles, congruent triangles, similar triangles, parallel lines with transversals, and quadrilaterals using deductive reasoning.
Indicator MA 11.3.1.c	Apply geometric properties to solve problems involving similar triangles, congruent triangles, quadrilaterals, and other polygons.
Extended Indicator MAE 11.3.1.c	Identify corresponding angles of congruent triangles.
Indicator MA 11.3.1.d	Identify and apply right triangle relationships including sine, cosine, tangent, special right triangles, and the converse of the Pythagorean Theorem.
Extended Indicator MAE 11.3.1.d	Distinguish between right triangles and non-right triangles.
Indicator MA 11.3.1.e	Create geometric models to visualize, describe, and solve problems using similar triangles, right triangles, and trigonometry.
Indicator MA 11.3.1.f	Know and use precise definitions and terminology of circles, including central angle, inscribed angle, arc, intercepted arc, chord, secant, and tangent.
Indicator MA 11.3.1.g	Apply the properties of central angles, inscribed angles, angles formed by intersecting chords, and angles formed by secants and/or tangents to find the measures of angles related to the circle.
Indicator MA 11.3.1.h	Sketch, draw, and construct appropriate representations of geometric objects using a variety of tools and methods which may include ruler/straight edge, protractor, compass, reflective devices, paper folding, or dynamic geometric software.

MA 11.3.2 Coordinate Geometry	Students will determine location, orientation, and relationships on the coordinate plane.
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Indicator MA 11.3.2.a	Derive and apply the midpoint formula.
Indicator MA 11.3.2.b	Use coordinate geometry to analyze linear relationships to determine if lines are parallel or perpendicular.
Extended Indicator MAE 11.3.2.b	Distinguish between perpendicular, intersecting, and parallel lines.
Indicator MA 11.3.2.c	Given a line, write the equation of a line that is parallel or perpendicular to it.
Extended Indicator MAE 11.3.2.c	Identify graphs of linear equations that have parallel lines or same slopes.
Indicator MA 11.3.2.d	Derive and apply the distance formula.
Extended Indicator MAE 11.3.2.d	Identify the hypotenuse of right triangles.
Indicator MA 11.3.2.e	Use coordinate geometry to prove triangles are right, acute, obtuse, isosceles, equilateral, or scalene.
Extended Indicator MAE 11.3.2.e	Identify isosceles, equilateral, or scalene triangles.
Indicator MA 11.3.2.f	Use coordinate geometry to prove quadrilaterals are trapezoids, isosceles trapezoids, parallelograms, rectangles, rhombi, kites, or squares.
Extended Indicator MAE 11.3.2.f	Identify the quadrilateral on the coordinate grid as a trapezoid, a rectangle, or a kite.
Indicator MA 11.3.2.g	Perform and describe positions and orientation of shapes under a single translation using algebra.
Indicator MA 11.3.2.h	Perform and describe positions and orientation of shapes under a rotation about the origin in multiples of 90 degrees using algebraic notation on a coordinate plane.
Indicator MA 11.3.2.i	Perform and describe positions and orientation of shapes under a reflection across a line using algebraic notation on a coordinate plane.
Indicator MA 11.3.2.j	Perform and describe positions and orientation of shapes under a single dilation on a coordinate plane.
Indicator MA 11.3.2.k	Derive the equation of a circle given the radius and the center.

MA 11.3.3 Measurement	Students will perform and compare measurements and apply formulas.
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Indicator MA 11.3.3.a	Convert between various units of length, area, and volume (e.g., square feet to square yards).
Indicator MA 11.3.3.b	Convert between metric and standard units of measurement.
Indicator MA 11.3.3.c	Apply the effect of a scale factor to determine the length, area, and volume of similar two- and three-dimensional shapes and solids.
Indicator MA 11.3.3.d	Find arc length and area of sectors of a circle.
Extended Indicator MAE 11.3.3.d	Find the arc length of a circle as one-fourth, one-half, or three-fourths of the circle.
Indicator MA 11.3.3.e	Determine surface area and volume of spheres, cones, pyramids, and prisms using formulas and appropriate units.
Extended Indicator MAE 11.3.3.e	Find the surface area of one face of a rectangular prism.

K-12 Comprehensive Data Standard:

Students will communicate data analysis/probability concepts, using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.

MA 11.4	DATA
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MA 11.4.1 Representations	Students will create displays that represent data.
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	No additional indicator(s) at this level. Mastery is expected at previous grade levels.
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MA 11.4.2 Analysis & Applications	Students will analyze data to address the situation.
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Indicator MA 11.4.2.a	Identify and compute measures of central tendency (mean, median, mode) when provided data both with and without technology.
Extended Indicator MAE 11.4.2.a	Find the mean and median of an odd-numbered set of ordered data.
Indicator MA 11.4.2.b	Explain how transformations of data, including outliers, affect measures of central tendency.
Indicator MA 11.4.2.c	Compare data sets and formulate conclusions.
Indicator MA 11.4.2.d	Support conclusions with valid arguments.
Indicator MA 11.4.2.e	Develop linear equations for linear models to predict unobserved outcomes using the regression line and correlation coefficient with technology.
Indicator MA 11.4.2.f	Describe the shape, identify any outliers, and determine the spread of a data set.
Indicator MA 11.4.2.g	Explain the impact of sampling methods, bias, and the phrasing of questions asked during data collection, and the conclusions that can rightfully be made.

Indicator MA 11.4.2.h	Explain the differences between a randomized experiment and observational studies.
Indicator MA 11.4.2.i	Using scatter plots, analyze patterns and describe relationships in paired data.
Indicator MA 11.4.2.j	Recognize when arguments based on data confuse correlation with causation.
Indicator MA 11.4.2.k	Interpret data represented by the normal distribution, formulate conclusions, and recognize that some data sets are not normally distributed.

MA 11.4.3 Probability	Students will interpret and apply concepts of probability.
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Indicator MA 11.4.3.a	Construct sample spaces and probability distributions.
Indicator MA 11.4.3.b	Use appropriate counting techniques to determine the probability of an event.
Extended Indicator MAE 11.4.3.b	Use appropriate counting principle to determine the combinations for an event.
Indicator MA 11.4.2.c	Determine if events are mutually exclusive and calculate their probabilities in either case.
Extended Indicator MAE 11.4.3.c	Identify a pair of mutually exclusive outcomes.