

# Nebraska



# Math Standards with Extended Indicators and Instructional Clarification for Students with Significant Disabilities taking the NeSA Alternate Assessment Math (NeSA-AAM)

Improving students' ability to learn, communicate, and collaborate through education.

**Nebraska Math Standards with Extended Indicators**  
for  
Students with Significant Disabilities  
Taking the NeSA Alternate Assessment Math (NeSA-AAM)

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Nebraska Math Standards and Extended Indicators  
for  
**Students with Significant Disabilities**  
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## Overview

### Introduction

Numeracy is the “ability to reason with numbers and other mathematical concepts.” Areas involved in numeracy include: basic numbers, orders of magnitude, geometry, algebra, probability and statistics. ([www.wikipedia.org](http://www.wikipedia.org))

The math standards and extended indicators in this document were developed by Nebraska educators to facilitate and direct instruction for students with significant intellectual disabilities. They are directly aligned to the Nebraska Math Standards and indicators adopted in 2009 by the Nebraska State Board of Education.

### Students with Significant Intellectual Disabilities

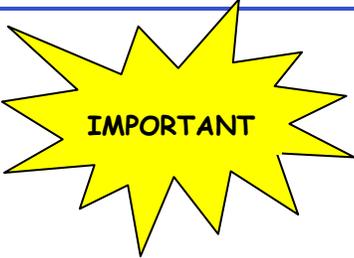
In the United States, approximately 1% of school-aged children have an intellectual disability that is “characterized by significant limitations both in intellectual functioning and adaptive behavior as expressed in conceptual, social, and practical adaptive skills.” (U.S. Department of Education, 2002 and American Association of Intellectual and Developmental Disabilities, 2009) These students show evidence of cognitive functioning in the range of severe to profound and need extensive or pervasive support. In addition to significant intellectual disabilities, students may also have accompanying communication, motor, sensory, or other impairments.

### Background in Literacy and Students with Significant Intellectual Disabilities

Students with significant intellectual disabilities first gained mandated access to the general curriculum through the Individuals with Disabilities Education Act Amendments (IDEA) of 1997 (PL 105-17), with further access guaranteed following the passage of the No Child Left Behind Act (NCLB) of 2001 (PL 107-110). The No Child Left Behind Act was a reauthorization of the Elementary and Secondary Education Act of 1965 (PL 89-10). NCLB required states to

- 1) establish challenging standards aligned with the general education curriculum.
- 2) develop an assessment program that measures student progress against those standards in the areas of reading/language arts and math.
- 3) hold schools accountable for ensuring that students achieve the standards.

An important part of NCLB is the regulation that all children, including those with the most significant intellectual disabilities, make adequate yearly progress (AYP) toward achieving grade-level standards (U.S. Department of Education, 2004). Progress is monitored using alternate assessments reflecting alternate achievement standards and/or extended indicators (Center for Literacy and Disabilities Studies, University of North Carolina at Chapel Hill, 2009). Nebraska students' progress is measured through the Nebraska State Accountability (NeSA) tests.



**IMPORTANT**

### **The Role of Extended Indicators**

For students with 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 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.

## **Alternate Assessment Determination Guidelines**

The student taking a NeSA Alternate Assessment is characterized by significant limitations both in intellectual functioning and adaptive behavior which is expressed in conceptual, social, and practical adaptive skills and that originates before age 18 (American Association of Intellectual and Developmental Disabilities, 2009). 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 NeSA 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 demonstrated cognitive ability and adaptive behavior prevent completion of the general academic curriculum, even with appropriately designed and implemented modifications and accommodations.
- The student’s curriculum and instruction is closely aligned to the Nebraska Reading Standards with extended indicators.
- The student may have accompanying communication, motor, sensory, or other impairments.

The Nebraska Department of Education’s technical assistance document ***“IEP Team Decision Making Guidelines – Nebraska State Accountability (NeSA) Tests for Students with Disabilities”*** provides additional information on selecting appropriate NeSA assessments for students with disabilities.

<http://www.nde.state.ne.us/sped/assessment.html>

**Nebraska Rule 51 007.07A2** requires a “statement of measurable annual goals, including academic and functional goals, designed to:

- 007.07A2a Meet the child’s needs that result from the child’s disability to enable the child to be involved in and make progress in the general education curriculum;...”

**Nebraska Rule 51 007.07A7** requires the student’s IEP to include...”a statement of why:

- 007.07A7a The child cannot participate in the regular assessment; and
- 007.07A7b The particular alternate assessment selected is appropriate for the child;...”

# Nebraska Third Grade Math Standards and Extended Indicators

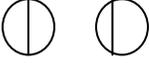
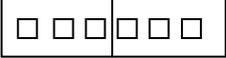
## for Students with Significant Disabilities

**K-12 Comprehensive Number Sense Standard: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

### NUMBER SYSTEM

**MA 3.1.1 Number System: Students will represent and show relationships among positive rational numbers within the base-ten number system.**

Indicator	MA 3.1.1.e Demonstrate multiple equivalent representations for numbers up to 10,000	
<b>Extended Indicator</b>	<b>MAE 3.1.1.e Identify representations of whole numbers 0-10</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will identify whole numbers from 0 – 10 placed in isolation or in random order.               <ul style="list-style-type: none"> <li>➤ Example: Given the number “5”, the student identifies it as a five.</li> <li>➤ Example: Given a set of nine chairs and the numbers “5, 8, and 9”, the student counts the chairs and determines that 9 goes with the set.</li> </ul> </li> </ul>
Indicator	MA 3.1.1.g Compare and order whole numbers through the thousands	
<b>Extended Indicator</b>	<b>MAE 3.1.1.g Compare and order whole numbers 0-10</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• Given a group of numbers in non-numerical order, the student will determine which number is greatest.               <ul style="list-style-type: none"> <li>➤ Example: Given the numbers 5, 3, 7, and 4, the student determines that 7 is greatest.</li> </ul> </li> <li>• Given a group of numbers in non-numerical order, the student will determine which number is least.               <ul style="list-style-type: none"> <li>➤ Example: Given the numbers 7, and 4, the student determines that 4 is less than 7.</li> </ul> </li> <li>• Put random numbers up to 10 in order.</li> </ul>

Indicator	MA 3.1.1.h Use visual models to represent fractions of halves, thirds, and fourths as parts of a whole and parts of a set	
<b>Extended Indicator</b>	<b>MAE 3.1.1.h Use models to represent halves as parts of a whole and parts of a set</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>➤ The student will recognize that fractional parts are equal size. <ul style="list-style-type: none"> <li>➤ Example: The student determines that the first circle is divided into two equal pieces. </li> </ul> </li> <li>• The student will recognize <math>\frac{1}{2}</math> of an object. <ul style="list-style-type: none"> <li>➤ Example: When shown a plastic square divided into halves, the student indicates <math>\frac{1}{2}</math>.</li> </ul> </li> <li>• The student will determine <math>\frac{1}{2}</math> of a set <ul style="list-style-type: none"> <li>➤ Example: When given 6 pencils and asked to put half in a box, the student sorts the pencils into two equal groups and puts 3 in the box.</li> <li>➤ Example: The student determines that the group of six squares is divided into <math>\frac{1}{2}</math> because each set has 3 squares. </li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student must be familiar with the vocabulary one half and the visual representation <math>\frac{1}{2}</math>.</p>
Indicator	MA 3.1.1.i Round a given number to tens or hundreds	
<b>Extended Indicator</b>	<b>MAE 3.1.1.i Recognize basic numerical concepts of closer and farther</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• When using a number line from 0-10, the student will determine which number is closer to a given number. <ul style="list-style-type: none"> <li>➤ Example: The student determines that the 5 is closer to 7 on the number line than 3 is.</li> </ul> </li> <li>• When using a number line from 0-7, the student will determine which number is farther from a given number. <ul style="list-style-type: none"> <li>➤ Example: The student determines that the 5 is farther from 10 on a number line than 7 is.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The terms “closer to and farther from” must be familiar to the student.</p>

**MA 3.1.2 Operations: Students demonstrate the meaning of multiplication and division with whole numbers.**

Indicator	MA 3.1.2.a Represent multiplication as repeated addition using objects, drawings, words and symbols	
<b>Extended Indicator</b>	<b>MAE 3.1.2.a Represent a number up to 10 in equal sized groups</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will recognize when objects (no more than 10) are divided into equal groups.               <ul style="list-style-type: none"> <li>➤ Example: The student determines that the six circles, not the six squares, are divided into equal groups.                   <div style="display: flex; justify-content: center; align-items: center; gap: 20px; margin: 10px 0;"> <div style="border: 1px solid black; padding: 2px;">● ●</div> <div style="border: 1px solid black; padding: 2px;">● ●</div> <div style="border: 1px solid black; padding: 2px;">● ●</div> </div> <div style="display: flex; justify-content: center; align-items: center; gap: 20px;"> <div style="border: 1px solid black; padding: 2px;">■</div> <div style="border: 1px solid black; padding: 2px;">■ ■</div> <div style="border: 1px solid black; padding: 2px;">■ ■ ■</div> </div> </li> </ul> </li> </ul> <p><b>Teacher Note:</b> The term “equal” is not required knowledge if other words such as “the same/the same number” are more appropriate for understanding.</p>
Indicator	MA 3.1.2.d Use drawings, words, and symbols to explain the meaning of multiplication using an array (e.g., an array with 3 rows and 4 columns represents the multiplication sentence $3 \times 4=12$ )	
<b>Extended Indicator</b>	<b>MAE 3.1.2.d Use drawings, words, and symbols to explain the meaning of multiplication</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will recognize drawings which explain multiplication.               <ul style="list-style-type: none"> <li>➤ Example: When given a set of 15 toy trees, the student puts them into 3 groups.                   <div style="display: flex; justify-content: center; align-items: center; gap: 20px; margin: 10px 0;">  </div> </li> </ul> </li> <li>• The student will match drawings to multiplication problems.               <ul style="list-style-type: none"> <li>➤ Example: The student matches the multiplication problem <math>2 \times 4</math> to the drawing.                   <div style="display: flex; justify-content: center; align-items: center; gap: 20px; margin: 10px 0;">  </div> </li> </ul> </li> </ul>

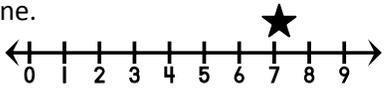
**K-12 Comprehensive Geometric/Measurement Standard: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

**GEOMETRIC/MEASUREMENT CONCEPTS**

**MA 3.2.1 Characteristics: Students will identify characteristics and describe properties of two dimensional shapes and three-dimensional objects.**

Indicator	MA 3.2.1.a Identify the number of sides, angles and vertices of two-dimensional shapes	
<b>Extended Indicator</b>	<b>MAE 3.2.1.a Identify two dimensional shapes (circle, square)</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will identify a circle and a square.               <ul style="list-style-type: none"> <li>➤ Example: When given an assortment of two dimensional shapes, the student picks out all the circles and pastes them on a large sheet of paper cut into a circle.</li> <li>➤ Example: The student uses a template of a square and finds squares in the classroom (e.g., floor tiles, calendar, box top).</li> </ul> </li> </ul>

**MA 3.2.2 Coordinate Geometry: Students will identify distances on a number line.**

Indicator	MA 3.2.2.b Determine the distance between two whole number points on a number line	
<b>Extended Indicator</b>	<b>MAE 3.2.2.b Identify a point on a number line</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• When given a number line with no more than 10 points, the student identifies a specific point on the line.               <ul style="list-style-type: none"> <li>➤ Example: The student determines that the star is located above the 7 of the number line.</li> </ul> </li> </ul> <div style="text-align: center;">  <p>A horizontal number line with arrows at both ends, labeled with integers from 0 to 9. A black star is positioned above the tick mark for the number 7.</p> </div>

**MA 3.2.5 Measurement: Students will apply appropriate procedures and tools to determine measurements using customary and metric units.**

Indicator	MA 3.2.5.e Identify the appropriate customary unit for measuring length, weight, and capacity/volume	
<b>Extended Indicator</b>	<b>MAE 3.2.5.e Identify the purpose of basic tools for measuring time (e.g., calendar, clock)</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will recognize that a clock is used to tell time.               <ul style="list-style-type: none"> <li>➤ Example: The student looks to the clock to see if it is time for lunch.</li> <li>➤ Example: When student recognizes there are different types of clocks (e.g., wristwatch, wall clock of different shapes, alarm clocks) that all tell time.</li> </ul> </li> <li>• The student will recognize that a calendar is used to measure days, months, and years.               <ul style="list-style-type: none"> <li>➤ Example: When asked what day it is, the student walks to the calendar and points to the day or date.</li> </ul> </li> </ul>
Indicator	MA 3.2.5.g Compare and order objects according to length using centimeters and meters	
<b>Extended Indicator</b>	<b>MAE 3.2.5.g Compare and order objects by length</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will compare objects and put them in order from shortest to longest               <ul style="list-style-type: none"> <li>➤ Example: Given a used pencil and a brand new pencil, the student will determine which one is longer (or shorter).</li> <li>➤ Example: Given three strips of paper, the student lays them next to each other to compare lengths and then places them in order with the shortest at the top, the next longest in the middle, and the longest at the bottom.</li> </ul> </li> </ul>

**K-12 Comprehensive Algebraic Standard: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

**ALGEBRAIC CONCEPTS**

**MA 3.3.1 Relationships: Students will represent relationships.**

Indicator	MA 3.3.1.a Identify, describe, and extend numeric and non-numeric patterns	
<b>Extended Indicator</b>	<b>MAE 3.3.1.a Extend non-numeric AB patterns (e.g., a b a b a b)</b>	
<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will recognize a given AB pattern and extend it.           <ul style="list-style-type: none"> <li>➤ Example: Given the pattern  (sun, lightning, sun, lightning, sun, lightning), the student determines that the next two objects will be  (sun, lightning).</li> </ul> </li> </ul>	

**MA 3.3.2 Modeling in Context: Students will create and use models to represent mathematical situations.**

Indicator	MA 3.3.2.a Model situations that involve the addition and subtraction of whole numbers using objects, number lines, and symbols	
<b>Extended Indicator</b>	<b>MAE 3.3.2.a Model situations that involve addition and subtraction of whole numbers 0-10 using objects and symbols</b>	
<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will match addition and subtraction problems with pictures.           <ul style="list-style-type: none"> <li>➤ Example: The student selects the number sentence <math>5 - 2 = 3</math> to go with this picture </li> <li>➤ Example: “Three boys are waiting at the bus stop. Two more boys run to join them.” The student determines the number sentence <math>3 + 2 = 5</math> to the story problem.  </li> </ul> </li> <li>The student will match addition and subtraction problems with models or experiences.           <ul style="list-style-type: none"> <li>➤ Example: The student has 6 crackers on a plate. He gives a cracker to a classmate and a cracker to his teacher. He now has 4 crackers left on the plate. The student and teacher write <math>6 - 2 = 4</math> to match what happened.</li> </ul> </li> </ul>	

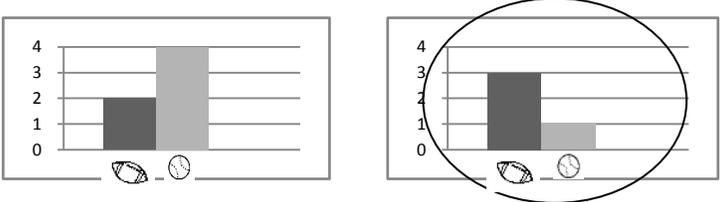
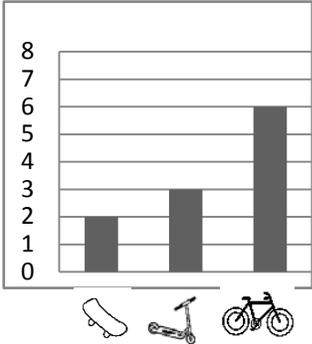
**MA 3.3.3 Procedures: Students will identify and apply properties of whole numbers to solve equations involving addition and subtraction.**

Indicator	MA 3.3.3.b Solve simple one-step whole number equations involving addition and subtraction	
<b>Extended Indicator</b>	<b>MAE 3.3.3.b Solve simple one-step single digit equations involving addition and subtraction with sums and differences 0-9</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will solve addition equations with sums no greater than 9               <ul style="list-style-type: none"> <li>➤ Example: The student determines that <math>n</math> equals 9 in the equation <math>3 + 6 = n</math></li> <li>➤ Example: The student determines that <math>n</math> equals 5 in the equation <math>2 + n = 7</math></li> </ul> </li> <li>• The student will solve subtraction equations using single digit numbers               <ul style="list-style-type: none"> <li>➤ Example: The student determines that <math>n</math> equals 3 in the equation <math>9 - 6 = n</math></li> <li>➤ Example: The student determines that <math>n</math> equals 7 in the equation <math>9 - n = 2</math></li> </ul> </li> </ul> <p><b>Teacher Note:</b> It may help student understanding if the unknown value is always called "<math>n</math>" to stand for <u>number</u>.</p>

**K-12 Comprehensive Data Analysis/Probability Standard: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

**DATA ANALYSIS/PROBABILITY CONCEPTS**

**MA 3.4.1 Display and Analysis: Students will organize, display, compare, and interpret data.**

Indicator	MA 3.4.1.a Represent data using horizontal and vertical bar graphs	
<b>Extended Indicator</b>	<b>MAE 3.4.1.a Represent data using vertical bar graphs</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will match given data to a vertical bar graph               <ul style="list-style-type: none"> <li>➤ Example: The student sees three footballs and 1 baseball in the toy box. He selects the second graph to match the balls in the toy box.</li> </ul> </li> </ul> <div style="display: flex; justify-content: space-around; align-items: center;">  </div>
Indicator	MA 3.4.1.c Interpret data using horizontal and vertical bar graphs	
<b>Extended Indicator</b>	<b>MAE 3.4.1.c Interpret data on vertical bar graphs</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will gain information from a vertical bar graph.               <ul style="list-style-type: none"> <li>• Example: Looking at the bar graph, the student determines that most children have bikes.</li> </ul> </li> </ul> <div style="display: flex; justify-content: center; align-items: center;">  </div>

# Nebraska Fourth Grade Math Standards and Extended Indicators

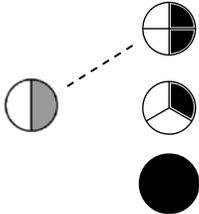
## for Students with Significant Disabilities

**K-12 Comprehensive Number Sense Standard: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

### NUMBER SYSTEM

**MA 4.1.1 Number System: Students will represent and show relationships among positive rational numbers within the base-ten number system.**

Indicator	MA 4.1.1.b Demonstrate multiple equivalent representations for decimal numbers through the hundredths place	
<b>Extended Indicator</b>	<b>MAE 4.1.1.b Identify representations of whole numbers from 0-20</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will identify whole numbers from 0 – 20 placed in isolation or in random order.               <ul style="list-style-type: none"> <li>➤ Example: Given the number “15”, the student correctly names the number.</li> <li>➤ Example: Given a set of 11 chairs and the numbers “ 8, 11 and 13”, the student counts the chairs and determines that the numeral 11 goes with the set.</li> </ul> </li> </ul>
Indicator	MA 4.1.1.c Compare and order whole numbers and decimals through the hundredth place	
<b>Extended Indicator</b>	<b>MAE 4.1.1.c Compare and order whole numbers 0-20</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• Given a group of numbers in non-numerical order, the student will determine which number is greatest.               <ul style="list-style-type: none"> <li>➤ Example: Given the numbers 10, 17, 12, and 16, the student determines that 17 is greatest.</li> </ul> </li> <li>• Given a group of numbers in non-numerical order, the student will determine which number is least               <ul style="list-style-type: none"> <li>➤ Example: Given the numbers 12 and 14, the student determines that 12 is less than 14.</li> </ul> </li> <li>• Put random numbers up to 20 in order.</li> </ul> <p><b>Teacher Note:</b> The terms “greatest” and “least” are required knowledge for this standard.</p>

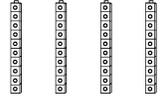
Indicator	MA 4.1.1.e Represent a fraction as parts of a whole and/or parts of a set	
<b>Extended Indicator</b>	<b>MAE 4.1.1.e Use models to represent halves and fourths as parts of a whole and parts of a set</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will recognize that fractional pieces are of equal size. <ul style="list-style-type: none"> <li>➤ Example: The student determines that the first square is divided into four equal (same, same size) pieces. </li> </ul> </li> <li>The student will recognize <math>\frac{1}{4}</math> of an object. <ul style="list-style-type: none"> <li>➤ Example: When shown a circle divided into halves and a square divided into fourths, the student selects the square divided into fourths.</li> </ul> </li> <li>The student will determine <math>\frac{1}{4}</math> of a set <ul style="list-style-type: none"> <li>➤ Example: When given 8 counters, the student puts them into four equal groups. The student then selects a card that reads "<math>\frac{1}{4}</math>" and places it on one of the groups.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student must be familiar with the term one half and one fourth and the visual representations <math>\frac{1}{2}</math> and <math>\frac{1}{4}</math>.</p>
Indicator	MA 4.1.1.f Use visual models to find equivalent fractions	
<b>Extended Indicator</b>	<b>MAE 4.1.1.f Use models to identify equivalent fractions <math>\frac{1}{2}</math>, and whole</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will match equivalent fractions including <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, and a whole. <ul style="list-style-type: none"> <li>➤ Example: The student recognizes that <math>\frac{1}{2}</math> is equal to <math>\frac{2}{4}</math>. </li> </ul> </li> <li>➤ Example: The student places <math>\frac{1}{4}</math> pieces on top of a whole shape and determines it takes four pieces to cover the whole.</li> </ul>
Indicator	MA 4.1.1.h Locate fractions on a number line <b>Mastery not expected.</b>	

**MA 4.1.2 Operations: Students will demonstrate the meaning of division with whole numbers.**

Indicator	MA 4.1.2.a Use drawings, words and symbols to explain the meaning of division	
<b>Extended Indicator</b>	<b>MAE 4.1.2.a Represent a number up to 20 in equal sized groups</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will recognize when objects (up to 20) are divided into equal groups.               <ul style="list-style-type: none"> <li>Example: The student is given 15 pretzels. He is asked to put the pretzels into three groups that are the same. He makes three groups of 5 pretzels.</li> <li>Example: Given 18 counters, the student is asked to divide them into two equal piles.</li> </ul> </li> </ul>

**MA 4.1.3 Computation: Students will compute fluently and accurately using appropriate strategies and tools.**

Indicator	MA 4.1.3.b Add and subtract decimals to the hundredths place	
<b>Extended Indicator</b>	<b>MAE 4.1.3.b Add and subtract single digit numbers</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will add and subtract single digit numbers in both a vertical and horizontal format.               <ul style="list-style-type: none"> <li>Example: The student uses manipulatives and determines the answer 3 to the problem <math>7 - 4 =</math></li> <li>Example: The student determines the answer is 5 to the problem                   <math display="block">\begin{array}{r} 3 \\ + 2 \\ \hline \end{array}</math> </li> </ul> </li> </ul>
Indicator	MA 4.1.3.c Multiply two-digit whole numbers	
<b>Extended Indicator</b>	<b>MAE 4.1.3.c Add equal groups with sums up to 20 (e.g., repeated addition)</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will add equal groups with sums up to 20.               <ul style="list-style-type: none"> <li>Example: The student recognizes that there are four groups with two hats in each group. He counts the hats (or counts by 2s) and determines there are a total of 8 hats.                    </li> </ul> </li> </ul>

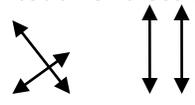
Indicator	MA 4.1.3.e Mentally compute multiplication and division involving powers of 10	
<b>Extended Indicator</b>	<b>MAE 4.1.3.e Use groups of 10 for computation up to 50</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will add groups of ten with no sum greater than 50. <ul style="list-style-type: none"> <li>➤ Example: The student determines that there are four sets of 10 counting cubes and that makes a total 40 cubes.  </li> <li>➤ Example: The student computes <math>10 + 10 + 10 = 30</math> and then determines that 3 times 10 is 30</li> </ul> </li> </ul>
Indicator	MA 4.1.3.f Select and apply the appropriate method of computation when problem solving	
<b>Extended Indicator</b>	<b>MAE 4.1.3.f Select the appropriate method of computation (addition and subtraction) when problem solving</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>When given a story problem or real-life situation, the student will determine “how” to solve the problem (add, subtract). <ul style="list-style-type: none"> <li>➤ Example: After ordering several items from a menu, the student determines addition must be used to find the total amount to be paid.</li> <li>➤ Example: After reading the following story problem, the student determines that subtraction must be used to find how many are left. <p>“Jack had 45 baseball cards in his collection. He gave 20 to his best friend, Jose. How many cards does Jack have left?”</p> </li> </ul> </li> </ul> <p><b>Teacher Note:</b> Actual calculation is not required for this standard. The phrase “How will you find...” may help students master this concept.</p>

**K-12 Comprehensive Geometric/Measurement Standard: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

**GEOMETRIC/MEASUREMENT CONCEPTS**

**MA 4.2.1 Characteristics: Students will classify two-dimensional shapes and three-dimensional objects.**

Indicator	MA 4.2.1.a Identify two- and three- dimensional shapes according to their sides and angle properties	
<b>Extended Indicator</b>	<b>MAE 4.2.1.a Identify two dimensional shapes ( triangle and rectangle)</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will identify a triangle and a rectangle.               <ul style="list-style-type: none"> <li>➤ Example: When given an assortment of two dimensional shapes, the student picks out all the rectangles and pastes them on a large sheet of rectangular paper.</li> <li>➤ Example: When given a plastic triangle, circle, square, and rectangle, the student determines which shape is a triangle.</li> <li>➤ Example: The student uses a template of a rectangle and finds rectangles in the classroom (e.g., book cover, calendar, desk top).</li> </ul> </li> </ul>
Indicator	MA 4.2.1.b Classify an angle as acute, obtuse, or right	
<b>Extended Indicator</b>	<b>MAE 4.2.1.b Identify the number of angles/corners of a given shape (e.g., square, triangle, rectangle)</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will count the number of angles/corners in a shape.               <ul style="list-style-type: none"> <li>➤ Example: The student determines that a square has 4 angles.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The term “angle” is not required knowledge if the term “corner” is more appropriate for student understanding.</p>
Indicator	MA 4.2.1.c Identify parallel, perpendicular, and intersecting lines	
<b>Extended Indicator</b>	<b>MAE 4.2.1.c Recognize parallel and intersecting lines</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will recognize that parallel lines never touch or cross each other.               <ul style="list-style-type: none"> <li>➤ Example: When given two sets of lines, the student identifies the second set as parallel lines because they will do not touch or will not cross each other.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student should be exposed to the term “parallel”. The term “intersect” is not required knowledge if “cross” is more appropriate for student understanding.</p>



**MA 4.2.2 Coordinate Geometry:** Students will describe locations using coordinate geometry.

Indicator	MA 4.2.2.a Identify the ordered pair of a plotted point in the first quadrant by its location	
<b>Extended Indicator</b>	<b>MAE 4.2.2.a Determine the distance between two points on a number line</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will determine the distance between two points on a number line.               <ul style="list-style-type: none"> <li>➤ Example: The student counts the number of “jumps” between 4 and 9 and determines there are five spaces between the two numbers.</li> </ul> </li> </ul> <div style="text-align: center;"> </div>

**MA 4.2.5 Measurement:** Student will apply appropriate procedures and tools to estimate and determine measurement using customary and metric units.

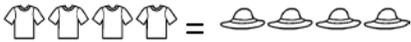
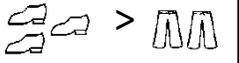
Indicator	MA 4.2.5.b Identify time to the minute on an analog clock	
<b>Extended Indicator</b>	<b>MAE 4.2.5.b Identify time to the hour on an analog clock</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will be able to tell time (hours) on an analog clock.               <ul style="list-style-type: none"> <li>➤ Example: The student recognizes the time is four o'clock </li> <li>➤ Given three clocks that say “2:00, 5:00, and 7:00”, the student selects the clock that says 7:00.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student should be familiar with the term “o'clock” but the terms “a.m. and p.m.” are not required knowledge for this standard</p>
Indicator	MA 4.2.5.c Solve problems involving elapsed time	
<b>Extended Indicator</b>	<b>MAE 4.2.5.c Solve problems involving elapsed time to the hour</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will be able to determine how many hours have passed from one time to another.               <ul style="list-style-type: none"> <li>➤ Example: The clock says  when the student’s family leaves for grandfather’s house. The clock says  when they arrive. The student determines that it took two hours to travel from his home to his grandfather’s.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student should be familiar with the term “o'clock” but the terms “a.m. and p.m.” are not required knowledge for this standard</p>

Indicator	MA 4.2.5.d Identify the appropriate metric unit for measuring length, weight, and capacity/volume	
<b>Extended Indicator</b>	<b>MAE 4.2.5.d Determine the appropriate tool for measuring length, capacity/volume, and weight</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will recognize the appropriate tools to measure length. <ul style="list-style-type: none"> <li>➤ Example: Asked to measure the length of table, the student gets a ruler out of the drawer.</li> </ul> </li> <li>• The student will recognize the appropriate tools to measure capacity/volume. <ul style="list-style-type: none"> <li>➤ Example: When making pudding, the student gets a measuring cup to measure the correct amount of milk.</li> </ul> </li> <li>• The student will recognize the appropriate tools to measure weight. <ul style="list-style-type: none"> <li>➤ Example: The student selects a balancing scale to determine if a pear or a baseball weights more.</li> </ul> </li> </ul>
Indicator	MA 4.2.5.g Compute simple unit conversions for length within a system of measurement	
<b>Extended Indicator</b>	<b>MAE 4.2.5.g Identify the length of an object using non-standard units (e.g., paper clips, crayons, shoes)</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will accurately measure the length of objects with non-standard units. <ul style="list-style-type: none"> <li>➤ The student measures the bottom of her shoe with a chain of large paperclips and finds it is 7 paperclips long.</li> </ul> </li> </ul>

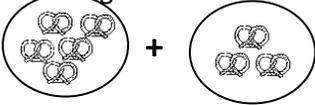
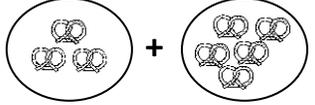
**K-12 Comprehensive Algebraic Standard: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

**ALGEBRAIC CONCEPTS**

**MA 4.3.1 Relationships: Students will represent and analyze relationships.**

Indicator	MA 4.3.1.c Use symbols to compare quantities	
<b>Extended Indicator</b>	<b>MAE 4.3.1.c Use objects and symbols (&lt;, &gt;, =) to compare quantities</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will use groups of objects and compare quantities using &lt;, &gt;, = signs.               <ul style="list-style-type: none"> <li>➤ Example: The student determines that the group of hats and group of shirts have equal amounts. The student selects the = sign to put between the two groups, </li> <li>➤ Example: The student determines that the group of shoes are less than the group of shirts and puts a &lt; sign between the two groups.                   <div style="text-align: center; margin: 10px 0;">  </div> </li> <li>➤ Example: The student determines that there are more shoes than pants and puts the &gt; sign between the two groups.                   <div style="text-align: center; margin: 10px 0;">  </div> </li> </ul> </li> </ul>
Indicator	MA 4.3.1.d Select appropriate operational and relational symbols to make a number sentence true	
<b>Extended Indicator</b>	<b>MAE 4.3.1.d Select appropriate operational symbols (addition and subtraction) to make a number sentence true</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will select the addition sign (+) or subtraction sign (-) to make a number sentence true.               <ul style="list-style-type: none"> <li>➤ Example: The student places a plus sign in the circle to make the number sentence true. <math>8 \bigcirc 6 = 14</math></li> <li>➤ Example: The student places a take away sign in the number sentence to make it match the picture.                   <div style="display: flex; align-items: center; margin: 10px 0;"> <div style="margin-right: 20px;"> <math>11 \bigcirc 2 = 9</math> </div>  </div> </li> </ul> </li> </ul> <p><b>Teacher Note:</b> The terms “addition and subtraction” are not required knowledge if the terms “add, plus, or take away” are more appropriate for student understanding.</p>

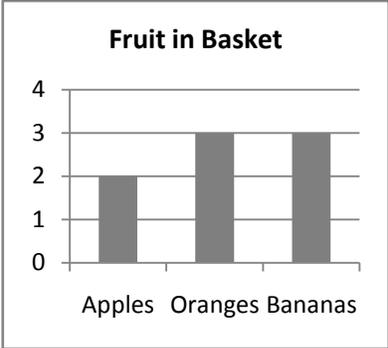
**MA 4.3.3 Procedures: Students will identify and apply properties of whole numbers to solve equations involving multiplication and division.**

Indicator	MA 4.3.3.c Use symbolic representations of the commutative property of multiplication	
<b>Extended Indicator</b>	<b>MAE 4.3.3.c Identify the commutative property of addition using pictures and models</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student recognizes two number sentences that model the commutative property of addition.               <ul style="list-style-type: none"> <li>➤ Example: The student has two plates. There are 5 pretzels on one plate and 3 pretzels on the second plate. The student determines there are 8 pretzels all together.</li> </ul> </li> </ul> <div style="text-align: center;">  </div> <p>The student switches the order of the plates and recognizes that the total number of pretzels remains the same.</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>➤ Example: The student determines that <math>14 + 6</math> is the same as <math>6 + 14</math> and that both equals 20.</li> </ul> <p><b>Teacher Note:</b> The term “commutative Property”, is not required knowledge for this standard. Only the concept is expected.</p>
Indicator	MA 4.3.3.d Solve simple one-step whole number equations	
<b>Extended Indicator</b>	<b>MAE 4.3.3.d Solve simple one-step single digit equations involving addition and subtraction with sums and differences 0 - 20</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will solve addition equations with sums no greater than 20               <ul style="list-style-type: none"> <li>➤ Example: Using a calculator, the student determines that <math>n</math> equals 15 in the equation <math>9 + 6 = n</math></li> <li>➤ Example: Using manipulatives, the student determines that <math>n</math> equals 8 in the equation <math>7 + n = 15</math></li> </ul> </li> <li>• The student will solve subtraction equations using single digit numbers               <ul style="list-style-type: none"> <li>➤ Example: Using manipulatives, the student determines that <math>n</math> equals 2 in the equation <math>8 - 6 = n</math></li> <li>➤ Example: The student determines that <math>n</math> equals 7 in the equation <math>9 - n = 2</math></li> </ul> </li> </ul> <p><b>Teacher Note:</b> It may help student understanding if the unknown value is always called “<math>n</math>” to stand for <u>number</u>.</p>

**K-12 Comprehensive Data Analysis/Probability Standard: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

**DATA ANALYSIS/PROBABILITY CONCEPTS**

**MA 4.4.1 Display and Analysis: Students will organize, display, compare, and interpret data.**

Indicator	MA 4.4.1.b Compare different representations of the same data									
<b>Extended Indicator</b>	<b>MAE 4.4.1.b Compare different representations of the same data</b>									
<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will compare data displayed in two different formats and determine if the data matches.                             <ul style="list-style-type: none"> <li>➤ Example: Looking at a basket of fruit on a table, the student determines that there are 3 oranges, 3 bananas, and 2 apples in the basket. The student then reads the bar graph and recognizes that the graph is correct.</li> </ul> </li> </ul>	 <p align="center"><b>Fruit in Basket</b></p> <table border="1"> <tr><td>Apples</td><td>2</td></tr> <tr><td>Oranges</td><td>3</td></tr> <tr><td>Bananas</td><td>3</td></tr> </table>	Apples	2	Oranges	3	Bananas	3		
Apples	2									
Oranges	3									
Bananas	3									
	<ul style="list-style-type: none"> <li>➤ Example: The student determines that this table does not match fruit in the basket.</li> </ul>	<table border="1"> <tr><th colspan="2">Fruit in Basket</th></tr> <tr><td>Apples</td><td>1</td></tr> <tr><td>Oranges</td><td>4</td></tr> <tr><td>Bananas</td><td>3</td></tr> </table>	Fruit in Basket		Apples	1	Oranges	4	Bananas	3
Fruit in Basket										
Apples	1									
Oranges	4									
Bananas	3									

Indicator	MA 4.4.1.c Interpret data and draw conclusions using dot/line plots																			
<b>Extended Indicator</b>	<b>MAE 4.4.1.c Interpret data on vertical and horizontal bar graphs</b>																			
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will gain information from vertical and horizontal bar graphs. <ul style="list-style-type: none"> <li>➤ Example: The student determines from the bar graph that most students swim when they have fun. <div data-bbox="727 388 1360 674" data-label="Figure"> <table border="1"> <caption>Having Fun</caption> <thead> <tr> <th>Activity</th> <th>Number of Students</th> </tr> </thead> <tbody> <tr> <td>Bike Ride</td> <td>3</td> </tr> <tr> <td>Swim</td> <td>4</td> </tr> <tr> <td>Ice Skate</td> <td>1</td> </tr> </tbody> </table> </div> </li> <li>➤ Example: From the bar graph, the student determines buying a Snickers cost less than other candy at the store. <div data-bbox="691 850 1395 1339" data-label="Figure"> <table border="1"> <caption>Candy</caption> <thead> <tr> <th>Candy</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td>m &amp; m</td> <td>\$0.25</td> </tr> <tr> <td>Snickers</td> <td>\$0.20</td> </tr> <tr> <td>Taffy</td> <td>\$0.30</td> </tr> <tr> <td>Jelly Beans</td> <td>\$0.40</td> </tr> </tbody> </table> </div> </li> </ul> </li> </ul>	Activity	Number of Students	Bike Ride	3	Swim	4	Ice Skate	1	Candy	Cost	m & m	\$0.25	Snickers	\$0.20	Taffy	\$0.30	Jelly Beans	\$0.40
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**MA 4.4.2 Predictions and Inferences: Student will construct predictions based on data.**

Indicator	MA 4.4.2a Make predictions based on data to answer questions from tables and bar graphs <b>MASTERY NOT EXPECTED</b>
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# Nebraska Fifth Grade Math Standards and Extended Indicators

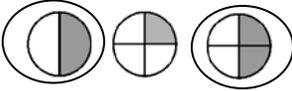
## for Students with Significant Disabilities

*K-12 Comprehensive Number Sense Standard: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.*

### NUMBER SYSTEM

**MA 5.1.1 Number System:** Students will represent and show relationships among positive rational numbers.

Indicator	MA 5.1.1.a Demonstrate multiple equivalent representations for whole numbers and decimals through the thousandths place	
<b>Extended Indicator</b>	<b>MAE 5.1.1.a Identify equivalent representations of whole numbers 0 - 50</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will recognize equivalent representations of numbers up to 50               <ul style="list-style-type: none"> <li>➤ Example: The student determines that the cubes  represent 23</li> <li>➤ Example: Given the number 45, the student selects 4 base-ten blocks and 5 individual blocks to represent the number. </li> </ul> </li> </ul>
Indicator	MA 5.1.1.b Compare and order whole numbers, fractions, and decimals through the thousandths place	
<b>Extended Indicator</b>	<b>MAE 5.1.1.b Compare and order whole numbers 0 - 30</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• Given a group of numbers in non-numerical order, the student will determine which number is greatest.               <ul style="list-style-type: none"> <li>➤ Example: Given the numbers 20, 17, 12, 26, the student determines that 26 is greatest.</li> </ul> </li> <li>• Given a group of numbers in non-numerical order, the student will determine which number is least               <ul style="list-style-type: none"> <li>➤ Example: Given the numbers 17, 23, 27, 19, the student uses manipulations and determines that 17 is least.</li> </ul> </li> <li>• The student determines missing numbers in a sequence.               <ul style="list-style-type: none"> <li>➤ Example: The student determines 24 is missing in the sequence 21, 22, 23, __, 25, 26</li> </ul> </li> <li>• Put random numbers up to 30 in order.</li> </ul>

Indicator	MA 5.1.1.c Identify and name fractions in their simplest form and find common denominators for fractions	
<b>Extended Indicator</b>	<b>MAE 5.1.1.c Use models to represent halves, fourths, and thirds as parts of a whole and parts of a set</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will recognize <math>\frac{1}{2}</math> and <math>\frac{1}{4}</math> of an object or set.</li> <li>The student will recognize <math>\frac{1}{3}</math> of an object or set. <ul style="list-style-type: none"> <li>Example: When given two squares, one divided into thirds and a square divided into fourths, the student selects the square divided into three equal parts.</li> <li>Example: When given 12 counters, the student puts them into three equal groups. The student selects cards that reads “<math>\frac{1}{3}</math>” and lays one card on each group.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student must be familiar with the vocabulary one half, one fourth and one third and the visual representations <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, and <math>\frac{1}{3}</math>.</p>
Indicator	MA 5.1.1.d Recognize and generate equivalent forms of commonly used fractions, decimals, and percents	
<b>Extended Indicator</b>	<b>MAE 5.1.1.d Use models to identify equivalent fractions <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, and whole</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will match equivalent fractions including <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, and a whole. <ul style="list-style-type: none"> <li>Example: <b>The student recognizes that <math>\frac{1}{2}</math> is equal to <math>\frac{2}{4}</math>.</b></li> </ul> </li> </ul>  <ul style="list-style-type: none"> <li>Example: When given a square, the student makes a matching square using four <math>\frac{1}{4}</math> pieces.</li> </ul> 
Indicator	MA 5.1.1.e Classify a number as prime or composite	
<b>Extended Indicator</b>	<b>MAE 5.1.1.e Classify a number as even or odd</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will determine even and odd numbers. <ul style="list-style-type: none"> <li>Example: Counting by two, the student picks up all the even numbers from the numbers laid out on his desk.</li> <li>Example: The student, using a chart with odd numbers in 1-20 listed, the student determines 7 is the odd number in the set. 4 6 7</li> </ul> </li> </ul> <p><b>Teacher Note:</b> A number is even if you can divide it into two equal groups without a remainder.</p>

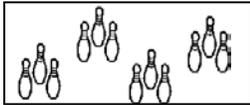
Indicator	MA 5.1.1.f Identify factors and multiples of any whole number	
<b>Extended Indicator</b>	<b>MAE 5.1.1.f Identify groups of 2s, 5s, and 10s</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will recognize objects divided into equal groups of 2, 5 and 10. <ul style="list-style-type: none"> <li>➤ Example: The student recognizes that the cups, not the bowls, are in groups of 5. <div style="display: flex; justify-content: space-around; align-items: center;">   </div> </li> <li>➤ Example: Given a group of 30 straws, the student separates them into groups of ten and determines there are three groups. The student then counts by 10 and determines there are 30 straws altogether.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> Students need to know how to count by 10s and 5s to at least fifty and 2s to at least ten.</p>

**MA 5.1.2 Operations: Students demonstrate the meaning of arithmetic operations with whole numbers.**

Indicator	MA 5.1.2.c Use words and symbols to explain the distributive property of multiplication over addition <b>MASTERY NOT EXPECTED</b>
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**MA 5.1.3 Computation: Students will compute fluently and accurately using appropriate strategies and tools.**

Indicator	MA 5.1.3.a Add and subtract positive rational numbers	
<b>Extended Indicator</b>	<b>MAE 5.1.3.a Add and subtract 2-digit by 2-digit whole numbers without regrouping</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will add and subtract two digit numbers without regrouping. <ul style="list-style-type: none"> <li>➤ Example: Using a calculator or other accommodation, the student adds 24 and gets the sum 36. <math display="block">\begin{array}{r} 24 \\ + 12 \\ \hline \end{array}</math> </li> <li>➤ Example: The student uses accommodations or manipulatives, the student subtracts 37 and gets the difference 12. <math display="block">\begin{array}{r} 37 \\ - 25 \\ \hline \end{array}</math> </li> </ul> </li> </ul>

Indicator	MA 5.1.3.b Select, apply, and explain the appropriate method of computation when problem solving	
<b>Extended Indicator</b>	<b>MAE 5.1.3.b Select the appropriate method of computation (addition, subtraction, and multiplication) when problem solving</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>When given a story problem or real-life situation, the student will determine “how” to solve the problem (add, subtract, multiply). <ul style="list-style-type: none"> <li>➤ After ordering several items from a menu, the student determines addition must be used to find the total amount to be paid.</li> <li>➤ After reading the following story problem, the student determines that subtraction must be used to find how many are left. “Jack had 45 baseball cards in his collection. He gave 20 to his best friend, Jose. How many cards does Jack have left?”</li> <li>➤ Given 5 packages of cookies with 6 cookies in each package, the student determines that multiplication or addition may be used to find the total number of cookies.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> Actual calculation is not required for this standard. The phrase “How will you find...” may help students master this concept.</p>
Indicator	MA 5.1.3.c Multiply decimals	
<b>Extended Indicator</b>	<b>MAE 5.1.3.c Multiply single-digit numbers (0 to 5)</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>➤ The student will multiply single digit numbers (0-5) <ul style="list-style-type: none"> <li>➤ The student calculates the answer to <math>3 \times 2</math> by making three groups of two counters and determines the answer 6.</li> <li>➤ The student uses multiplication table to determine that 8 is the answer to <math>4 \times 2</math>.</li> <li>➤ The student determines that this picture matches the problem <math display="block">\begin{array}{r} 3 \\ \times 4 \\ \hline \end{array}</math>  </li> </ul> </li> </ul>
Indicator	MA 5.1.3.d Divide a decimal by a whole number	
<b>Extended Indicator</b>	<b>MAE 5.1.3.d Divide single digit numbers by single digit numbers resulting in a quotient that is a whole number</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will divide a single digit number by a single digit number. Answers will be whole numbers with no fractions. <ul style="list-style-type: none"> <li>➤ Using manipulatives, the student divides 8 objects into 2 groups and determines there are 4 in each group.</li> <li>➤ The student uses manipulatives to compute the problem <math>6 \div 3</math> and determines the answer is 2.</li> <li>➤ Example: Given the illustration  the student matches to the problem <math>8 \div 2 = 4</math></li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student needs to recognize the division sign <math>\div</math>. The sign <math>\overline{)}</math> will not be required for this standard.</p>

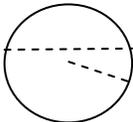
**MA 5.1.4 Estimation:****Students will estimate and check reasonableness of answers using appropriate strategies and tools.**

Indicator	MA 5.1.4.a Estimate the sums and differences of positive rational numbers to check the reasonableness of such results	
<b>Extended Indicator</b>	<b>MAE 5.1.4.a Apply estimation to the nearest 10 on addition results</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"><li>• The student will compute an addition problem and apply estimation to the nearest 10 to the sum.<ul style="list-style-type: none"><li>➤ Example: The student uses a number line and manipulations to add <math>15 + 3</math> and determines that 18 is closer to 20 than 10.</li></ul></li></ul>

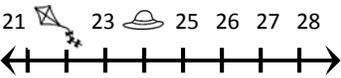
**K-12 Comprehensive Geometric/Measurement Standard: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

**GEOMETRIC/MEASUREMENT CONCEPTS**

**MA 5.2.1 Characteristics: Students will describe relationships among two-dimensional shapes and three-dimensional objects.**

Indicator	MA 5.2.1.a Identify the number of edges, faces, and vertices of triangular and rectangular prisms	
<b>Extended Indicator</b>	<b>MAE 5.2.1.a Identify the number of sides of a given polygon</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• <b>The student will count the sides of various given polygons.</b> <ul style="list-style-type: none"> <li>➤ <b>Example: The student determines this polygon has five sides.</b> </li> </ul> </li> </ul> <p><b>Teacher Note:</b> The term “polygon” is not required knowledge. It may be more appropriate for student understanding to use the term “shape”.</p>
Indicator	MA 5.2.1.d Identify degrees on a circle	
<b>Extended Indicator</b>	<b>MAE 5.2.1.d Identify the radius and diameter of a circle</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student recognizes that the diameter of a circle is the distance across the middle of the circle.</li> <li>• The student recognizes that the radius of a circle is the distance from the middle of the circle to its edge.               <ul style="list-style-type: none"> <li>➤ Given several circles with lines drawn in them, the student finds the circle that shows a diameter. </li> <li>➤ The student uses a crayon and traces the line that is the radius of the circle. </li> </ul> </li> </ul> <p><b>Teacher Note:</b> Students need to understand the terms “radius” and “diameter”.</p>

**MA 5.2.2 Coordinate Geometry:** Students will identify locations using coordinate geometry.

Indicator	MA 5.2.2.a Plot the location of an ordered pair in the first quadrant	
<b>Extended Indicator</b>	<b>MAE 5.2.2.a Determine the location of a number on a number line</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will determine the value of a missing number on a number line no greater than 30.               <ul style="list-style-type: none"> <li>The student determines that the number 24 goes in the hat space.</li> </ul> </li> </ul> 

**MA 5.2.5 Measurement:** Student will apply appropriate procedures, tools, and formulas to determine measurements using customary and metric units.

Indicator	MA 5.2.5.b Identify correct unit (customary or metric) to the measurement situation	
<b>Extended Indicator</b>	<b>MAE 5.2.5.b Identify the customary units for measuring length (e.g., inch, foot, yard, mile)</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will determine the “best” unit for measuring a specified object.               <ul style="list-style-type: none"> <li>The student determines miles is the best unit for measuring how far it is from one town to another.</li> <li>The student determines that inches is the unit for measuring a pencil.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student should be familiar with the phrase “best unit for measuring” in order to understand this standard.</p>
Indicator	MA 5.2.5.f Determine the area of rectangles and squares	
<b>Extended Indicator</b>	<b>MAE 5.2.5.f Identify the perimeter of an object</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will identify the meaning/concept of “perimeter”.               <ul style="list-style-type: none"> <li>Given representations of geometric concepts, the student selected the representation of perimeter.</li> </ul> </li> </ul>  <p><b>Teacher Note:</b> The student will know what a perimeter is, but is not required to calculate the perimeter.</p>

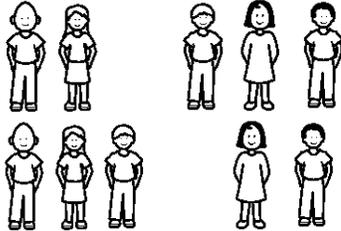
**K-12 Comprehensive Algebraic Standard: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

**ALGEBRAIC CONCEPTS**

**MA 5.3.2 Modeling in Context: Students will create, use, and compare models representing mathematical situations.**

Indicator	MA 5.3.2.a Model situations that involve the addition, subtraction, and multiplication of positive rational numbers using words, graphs, and tables	
<b>Extended Indicator</b>	<b>MAE 5.3.2.a Model situations that involve addition and subtraction of numbers up to 50</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will match addition and subtraction problems with situations.               <ul style="list-style-type: none"> <li>➤ Example: There are 20 red marbles and 5 blue marbles in a bag. How many marbles are there in the bag? The student selects the number sentence <math>20 + 5 = 25</math> to go with this situation.</li> <li>➤ Example: There are 35 children in the class. 12 of them go to the library. There are still 23 children in the classroom. From the number sentences <math>35 - 12 = 23</math>, <math>35 + 12 = 47</math>, and <math>23 - 12 = 11</math>, the student selects <math>35 - 12 = 23</math> to go with this situation.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The skill of modeling in context always includes a situation or story problem.</p>

**MA 5.3.3 Procedures: Students will apply properties of simple positive rational numbers to solve one-step equations.**

Indicator	MA 5.3.3.b Use symbolic representations of the associative property	
<b>Extended Indicator</b>	<b>MAE 5.3.3.b Identify the associative property of addition using pictures and models</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student recognizes the concept of the associative property of addition using pictures and models. <ul style="list-style-type: none"> <li>➤ Example: The teacher asks two students, Jim and Mary, to stand beside each other in front of the room. A few feet away stand three other students, Bill, Kate, and Sam. The student determines that there are 5 children standing in front of the room. Bill moves to stand with Jim and Mary. The student determines there are still 5 children no matter which group Bill is in.</li> </ul> </li> </ul> <div style="text-align: center;">  </div> <p><b>Teacher Note:</b> The term “associative property” is not required knowledge for this standard, only the concept.</p>
Indicator	MA 5.3.3.c Evaluate numerical expressions by using parentheses with respect to order of operations	
<b>Extended Indicator</b>	<b>MAE 5.3.3.c Demonstrate understanding of order of operations involving one-digit addition with parentheses</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will perform one-digit addition problems by always completing the operation in parentheses first. <ul style="list-style-type: none"> <li>➤ Example: Given the problem <math>7 + (3+2) =</math>, the student will add <math>3+2</math> and get 5. Then the student will add <math>7 + 5</math> and determine the final answer is 12.</li> </ul> </li> </ul>

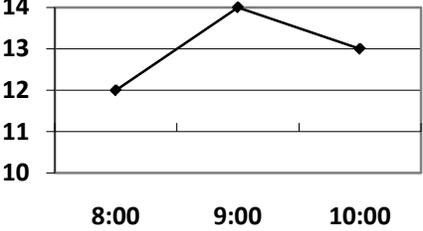
Indicator	MA 5.3.3.d Evaluate simple algebraic expressions involving addition and subtraction	
<b>Extended Indicator</b>	<b>MAE 5.3.3.d Evaluate simple algebraic expressions involving addition</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will determine the value of an algebraic expression involving addition. <ul style="list-style-type: none"> <li>➤ Example: When given the algebraic expression <math>n+4</math> and <math>n=1</math>, the student determined that he gets 5. <math display="block">n + 4</math> <math display="block">n = 1</math> </li> </ul> </li> </ul> <p><b>Teacher Note:</b> It may help student understanding if the unknown value is always called “<math>n</math>” to stand for <u>n</u>umber. An appropriate way to phrase the question to this type of problem may be “If <math>n</math> is 1, what do you get?”</p>
Indicator	MA 5.3.3.e Solve one-step addition and subtraction equations involving common positive rational numbers	
<b>Extended Indicator</b>	<b>MAE 5.3.3.e Solve simple one-step equations involving addition</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will determine the unknown value in a simple one-step equation involving addition. <ul style="list-style-type: none"> <li>➤ Example: Using manipulatives, the student determines that <math>n</math> is 15 in the equation <math>n + 5 = 20</math></li> </ul> </li> </ul> <p><b>Teacher Note:</b> It may help student understanding if the unknown value is always called “<math>n</math>” to stand for <u>n</u>umber.</p>

**K-12 Comprehensive Data Analysis/Probability Standard: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

**DATA ANALYSIS/PROBABILITY CONCEPTS**

**MA 5.4.1 Display and Analysis: Students will organize, display, compare, and interpret data.**

Indicator	MA 5.4.1.a Represent data using line graphs																					
<b>Extended Indicator</b>	<b>MAE 5.4.1.a Identify data on a line graph</b>																					
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will answer questions using information from a line graph.                             <ul style="list-style-type: none"> <li>➤ Example: When asked which day had the most rain, the student recognizes it was Thursday.</li> </ul> </li> </ul> <div style="text-align: center;"> <table border="1" style="margin: 0 auto;"> <caption>Inches of Rain</caption> <thead> <tr> <th>Day</th> <th>Inches of Rain</th> </tr> </thead> <tbody> <tr> <td>Monday</td> <td>2</td> </tr> <tr> <td>Tuesday</td> <td>3</td> </tr> <tr> <td>Wednesday</td> <td>1</td> </tr> <tr> <td>Thursday</td> <td>4</td> </tr> </tbody> </table> </div>	Day	Inches of Rain	Monday	2	Tuesday	3	Wednesday	1	Thursday	4										
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Indicator	MA 5.4.1.b Represent the same set of data in different formats																					
<b>Extended Indicator</b>	<b>MAE 5.4.1.b Identify the same data in different formats (e.g. table to graph)</b>																					
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will identify data in different formats and determine if the data is the same.                             <ul style="list-style-type: none"> <li>➤ Example: The student looked at the tally marks next to each color and determined that the table showed the same data.                                     <div style="display: flex; align-items: center; margin-top: 5px;"> <div style="margin-right: 20px;"> <p>Red      </p> <p>Blue     </p> <p>Yellow    </p> </div> <table border="1" style="border-collapse: collapse;"> <thead> <tr> <th colspan="2">Favorite Colors</th> </tr> </thead> <tbody> <tr> <td>Red</td> <td>8</td> </tr> <tr> <td>Blue</td> <td>5</td> </tr> <tr> <td>Yellow</td> <td>3</td> </tr> </tbody> </table> </div> </li> <li>➤ Example: The student compared the table to the bar graph and determined that both say there are 8 boys and 14 girls in the fifth grade.                                     <div style="display: flex; align-items: center; margin-top: 20px;"> <table border="1" style="border-collapse: collapse; margin-right: 20px;"> <thead> <tr> <th colspan="2">Fifth Grade</th> </tr> </thead> <tbody> <tr> <td>Boys</td> <td>8</td> </tr> <tr> <td>Girls</td> <td>14</td> </tr> </tbody> </table> <div style="text-align: center;"> <table border="1" style="margin: 0 auto;"> <caption>Fifth Grade</caption> <thead> <tr> <th>Gender</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>Boys</td> <td>8</td> </tr> <tr> <td>Girls</td> <td>14</td> </tr> </tbody> </table> </div> </div> </li> </ul> </li> </ul>	Favorite Colors		Red	8	Blue	5	Yellow	3	Fifth Grade		Boys	8	Girls	14	Gender	Count	Boys	8	Girls	14
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Indicator	MA 5.4.1.c Draw conclusions based on a set of data	
<b>Extended Indicator</b>	<b>MAE 5.4.1.c Interpret data on a line graph</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student compare data on a line graph. <ul style="list-style-type: none"> <li>➤ Example: The student looks at the line graph and determines that more kids go to bed at 9:00 than at 8:00</li> </ul> </li> </ul> 

**MA 5.4.3 Probability: Students will determine theoretical probabilities.**

Indicator	MA 5.4.3.b Generate a list of possible outcomes for a simple event	
<b>Extended Indicator</b>	<b>MAE 5.4.3.b Identify a possible outcome</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will look at a spinner and determine a possible outcome when spinning. <ul style="list-style-type: none"> <li>➤ Example: The student determines that if he spins the arrow, he could land on a D.</li> <li>➤ Example: The student determines that if he spins the arrow, she cannot land on a B.</li> </ul> </li> <li>When given a situation, the student will determine the possible outcome. <ul style="list-style-type: none"> <li>➤ Example: The student puts pencils into a sack. He is told he may reach into the sack and pull one thing out. He determines he cannot pull a crayon out of the sack. He can only draw a pencil out of the sack.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The term “probability” is not required knowledge for this standard.</p> 

# Nebraska Sixth Grade Math Standards and Extended Indicators

## for Students with Significant Disabilities

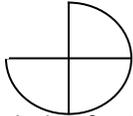
**K-12 Comprehensive Number Sense Standard: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

### NUMBER SYSTEM

**MA 6.1.1 Number System: Students will represent and show relationships among positive rational numbers and integers.**

Indicator	MA 6.1.1.b Compare and order positive and negative integers	
<b>Extended Indicator</b>	<b>MAE 6.1.1.b Compare and order whole numbers up to 40</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will be able to determine which number (of two given numbers up to 40) is less, more, or the same.               <ul style="list-style-type: none"> <li>➤ Example: When given a number line, the student determines that 38 is more than 24.</li> </ul> </li> <li>• The student will be able to put random numbers up to 40 in correct order.               <ul style="list-style-type: none"> <li>➤ Example: Given the numbers 36, 27, 15, 18, the student puts them in correct order (15, 18, 27, 36).</li> </ul> </li> </ul>
Indicator	MA 6.1.1.d Represent large numbers using exponential notation <b>MASTERY NOT EXPECTED</b>	
Indicator	MA 6.1.1.e Identify the prime factorization of numbers	
<b>Extended Indicator</b>	<b>MAE 6.1.1.e Identify factorization of a number up to 20</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student determines correct factors of a given number.               <ul style="list-style-type: none"> <li>➤ Example: Given choices 4x2, 4x3, 4x4, and asked which shows the numbers that make 12, the student uses a multiplication fact card and determines 4x3 are the correct numbers (factors).</li> <li>➤ Example: When asked what two numbers the student can multiply together to make 15, the student uses a fact table and determines the factors are 3 and 5.</li> </ul> </li> </ul>

**MA 6.1.2 Operations: Students demonstrate the meaning of arithmetic operations with positive fractions and decimals.**

Indicator	MA 6.1.2.a Use drawings, words, and symbols to explain the meaning of addition and subtraction of fractions	
<b>Extended Indicator</b>	<b>MAE 6.1.2.a Use drawings to subtract halves, thirds, and fourths from a whole</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>With the use of drawings or manipulatives, the student will subtract fractions halves, thirds and fourths from a whole. <ul style="list-style-type: none"> <li>➤ Example: The student has a cracker that is scored into halves. After breaking the cracker into the two equal pieces giving one piece to a friend, the student recognizes that he has <math>\frac{1}{2}</math> of a cracker left.</li> <li>➤ Example: Given a wooden circle divided into fourths, the student removes one piece and determines she has three pieces, left and each piece is called <math>\frac{1}{4}</math>.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The terms <math>\frac{1}{4}</math>, <math>\frac{1}{3}</math>, and <math>\frac{1}{2}</math> are required knowledge for this standard.</p> 
Indicator	MA 6.1.2.b Use drawings, words, and symbols to explain the meaning of addition and subtraction of decimals	
<b>Extended Indicator</b>	<b>MAE 6.1.2.b Recognize decimal representation of money</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will recognize the decimal representation of a given amount of money <ul style="list-style-type: none"> <li>➤ Given a dollar and a quarter, the student selects \$1.25 as the correct written representation of that amount.</li> <li>➤ From the following choices “\$3.50, \$35.0 and \$.35”, the student selects “\$3.50” as the correct representation of three dollars and fifty cents.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> Decimals are always represented as money for this standard.</p>

**MA 6.1.3 Computation: Students will compute fluently and accurately using appropriate strategies and tools.**

Indicator	MA 6.1.3.a Multiply and divide positive rational numbers	
<b>Extended Indicator</b>	<b>MAE 6.1.3.a Multiply positive single digit numbers</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will multiple positive single digit numbers <ul style="list-style-type: none"> <li>➤ Using a calculator, the student will multiple 3 x 8 and determine the answer is 24.</li> <li>➤ Using a multiplication table, the student determines that the answer to <math>\begin{array}{r} 5 \\ \times 4 \\ \hline \end{array}</math> is 20.</li> </ul> </li> </ul>

Indicator	MA 6.1.3.b Select and apply the appropriate method of computation when problem solving	
<b>Extended Indicator</b>	<b>MAE 6.1.3.b Select the appropriate method of computation (addition, subtraction, multiplication, and division) when problem solving</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• When given a story problem or real-life situation, the student will determine “how” to solve the problem (add, subtract, multiply or divide). <ul style="list-style-type: none"> <li>➤ After ordering several items from a menu, the student determines addition must be used to find the total amount to be paid.</li> <li>➤ After reading the following story problem, the student determines that subtraction must be used to find how many are left. “Jack had 45 baseball cards in his collection. He gave 20 to his best friend, Jose. How many cards does Jack have left?”</li> <li>➤ Given 5 packages of cookies with 6 cookies in each package, the student determines that multiplication or addition may be used to find the total number of cookies.</li> <li>➤ The student and a friend bake cookies and hold a bake sale. The student determines the total money earned must be divided by 2 people to decide how much money each person makes.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> Actual calculation is not required for this standard. The phrase “How will you find...” may help students master this concept.</p>

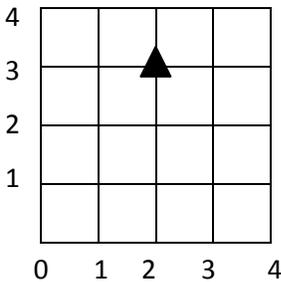
**MA 6.1.4 Estimation: Students will estimate and check reasonableness of answers using appropriate strategies and tools.**

Indicator	MA 6.1.4.a Use appropriate estimation methods to check the reasonableness of solutions for problems involving positive rational numbers	
<b>Extended Indicator</b>	<b>MAE 6.1.4.a Apply estimation to the nearest 10 on addition and subtraction results</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will compute an addition problem and apply estimation to the nearest 10 to the sum. <ul style="list-style-type: none"> <li>➤ Example: The student will use a number line and add <math>15 + 3</math> and determines that 18 is closer to 20 than 10.</li> </ul> </li> <li>• The student will compute a subtraction problem and apply estimation to the nearest 10 to the difference. <ul style="list-style-type: none"> <li>➤ Example: The student uses a calculator to find the difference to <math>46 - 23</math> and determines that 33 is closer to 30 than 40.</li> </ul> </li> </ul>

**K-12 Comprehensive Geometric/Masurement Standard: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

**GEOMETRIC/MEASUREMENT CONCEPTS**

**MA 6.2.2 Coordinate Geometry: Students will identify locations using coordinate geometry.**

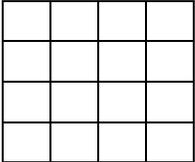
Indicator	MA 6.2.2.a Identify the ordered pair of plotted point in the coordinate plane	
<b>Extended Indicator</b>	<b>MAE 6.2.2.a Identify the plotted point on a 4 x 4 grid</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• Given a point on a 4 x 4 grid, the student will determine the coordinates.               <ul style="list-style-type: none"> <li>➤ Example: When given the coordinates (2,3), (1,2), and (3,3), the student recognizes that the triangle is at (2,3).</li> </ul> </li> </ul> <div style="text-align: center;">  </div> <p><b>Teacher Note:</b> The student should be exposed to the term “grid” but the terms “coordinate/coordinates” are not required knowledge if another word/phrase is more appropriate for student understanding.</p> <p>When teaching students the order for determining coordinates, the saying “Walk to the elevator before you go up.” may be helpful.</p>

**MA 6.2.4 Spatial Modeling: Students will use visualization of geometric models to solve problems.**

Indicator	MA 6.2.4.a Identify two-dimensional drawings of three-dimensional objects	
<b>Extended Indicator</b>	<b>MAE 6.2.4.a Identify a two-dimensional shape and match it to a three-dimensional object (e.g., square to cube, triangle to pyramid, circle to sphere)</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>The student will identify a square, triangle, and circle and then match them to a cube, pyramid, and sphere.               <ul style="list-style-type: none"> <li>➤ Example: The student identifies a picture of a square and finds an object in the room (a box previously placed in the room by the teacher) that matches the square.</li> <li>➤ Example: After blowing bubbles outside, the student makes a picture of the experience by pasting blue-circles in the pictures to represent the bubbles.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student must identify by name squares, circles, and triangles but the names of matching three-dimensional (cube, sphere, pyramid) are not required knowledge if other words are more appropriate for student understanding.</p>

**MA 6.2.5 Measurement: Student will apply appropriate procedures, tools, and formulas and determine measurements.**

Indicator	MA 6.2.5.d Determine the perimeter of polygons	
<b>Extended Indicator</b>	<b>MAE 6.2.5.d Determine the perimeter of polygons (triangle, rectangle, square)</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>The student recognizes that perimeter is the distance around a closed figure.               <ul style="list-style-type: none"> <li>➤ Example: The student counts the steps it takes to walk around the mat by the school front door.</li> <li>➤ Example: The student uses a calculator add <math>3+8+3+8</math> and determine the perimeter of this rectangle is 22.</li> </ul> </li> </ul> <div style="text-align: right;">  </div> <p><b>Teacher Note:</b> The term “perimeter” should be familiar to the student. The student will be required to know how to calculate the perimeter of a polygon.</p>

Indicator	MA6.2.5.e Determine the area of parallelograms and triangles	
<b>Extended Indicator</b>	<b>MAE 6.2.5.e Determine the area of a square</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will determine the area of a given square. <ul style="list-style-type: none"> <li>➤ Example: Given a 3"x 3" piece of cardboard, the student lays one-inch squares on the surface and determines the cardboard's area is 9. The teacher adds the term "square inches" to the 9.</li> <li>➤ Example: Given this figure, the student determines the area of the rectangle is 16 (teacher adds the terms "square unit")</li> </ul> </li> </ul> <div style="text-align: right; margin-top: 10px;">  </div> <p style="margin-top: 20px;"><b>Teacher Note:</b> The student should be familiar with the term "area". Although the student may not use the terms "square units, square inches, square feet" when determining area, the teacher should always ask for the number of "square units, inches, feet".</p>
Indicator	MA 6.2.5.f Determine the volume of rectangular prisms MASTERY NOT EXPECTED	

**K-12 Comprehensive Algebraic Standard: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

## ALGEBRAIC CONCEPTS

**MA 6.3.1 Relationships: Students will represent, analyze, and use relationships to make generalizations.**

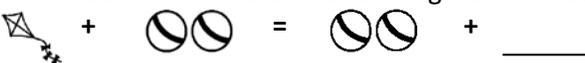
Indicator	MA 6.3.1.a Describe and create simple algebraic expressions from words and tables											
<b>Extended Indicator</b>	<b>MAE 6.3.1.a Match a simple algebraic expression involving addition to given tables</b>											
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will determine the algebraic expression involving addition shown in a table.               <ul style="list-style-type: none"> <li>➤ Example: The teacher and the student discuss the table and look at the first number under the “<math>n</math>”. Then they look at the 6 next to the 5. When the teacher asks what happened to 5 to make 6, the student determines 1 was added to 5. The teacher writes <math>n</math> (standing for <u>n</u>umber) + 1 at the top of the second column.                   <table border="1" style="display: inline-table; margin-left: 20px;"> <tr><td><math>n</math></td><td>?</td></tr> <tr><td>5</td><td>6</td></tr> </table> </li> <li>➤ Example: The student looks at the table and determines that 6 had 3 added to it to make 9 and 11 had 3 added to it to make it 14. He decides the <math>n + 3</math> goes at the top of the second column.                   <table border="1" style="display: inline-table; margin-left: 20px;"> <tr><td><math>n</math></td><td>?</td></tr> <tr><td>6</td><td>9</td></tr> <tr><td>11</td><td>14</td></tr> </table> </li> </ul> </li> </ul>	$n$	?	5	6	$n$	?	6	9	11	14
$n$	?											
5	6											
$n$	?											
6	9											
11	14											
Indicator	MA 6.3.1.b Use a variable to describe a situation with an equation											
<b>Extended Indicator</b>	<b>MAE 6.3.1.b Use a symbol to represent a numeric value in a simple equation</b>											
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will recognize the numeric value of a symbol in a simple equation.               <ul style="list-style-type: none"> <li>➤ Example: The student reads the equation <math>5 + n = 7</math> and determines that <math>n</math> represents the number 2.</li> <li>➤ Example: The student reads the equation <math>12 - n = 4</math> and uses manipulatives to determine that the <math>n</math> is equal to 8.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> It may help student understanding if the unknown value is always called “<math>n</math>” to stand for <u>n</u>umber. An appropriate way to phrase the question to this type of problem may be “If <math>n</math> is 1, what do you get?”</p>										

**MA 6.3.2 Modeling in Context:****Students will create, use, and interpret models of quantitative relationships.**

Indicator	MA 6.3.2.a Model contextualized problems using various representations	
<b>Extended Indicator</b>	<b>MAE 6.3.2.a Model representations of coin combinations up to \$1.00</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will determine various coin combinations that are equal in value. <ul style="list-style-type: none"> <li>➤ Example: Given a quarter and two dimes, the student recognizes that the quarter and two dimes (45¢) is the same as four dimes and a nickel (45¢).</li> <li>➤ Example: After ordering an ice cream bar at the snack bar for 25¢, the student determines he can pay for it with a quarter or two dimes and a nickel.</li> <li>➤ Example: Given a set of coins including quarters, dimes, nickels, and pennies, the student determines at least two ways to make a given amount of money.</li> </ul> </li> </ul>

**MA 6.3.3 Procedures:****Students will apply properties to solve equations.**

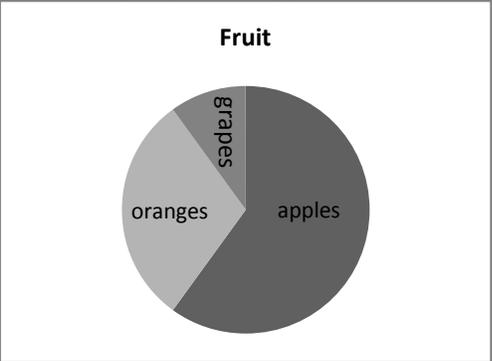
Indicator	MA 6.3.3.b Evaluate numerical expressions containing multiple operations with respect to order of operations	
<b>Extended Indicator</b>	<b>MAE 6.3.3.b Demonstrate understanding of order of operations involving one-digit addition, subtraction, and multiplication with parentheses</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will perform one-digit subtraction problems by always completing the operation in parentheses first. <ul style="list-style-type: none"> <li>➤ Example: Given the problem <math>7 - (3 + 2) =</math>, the student recognizes that they must first add <math>3 + 2</math></li> <li>➤ Example: Given the problem <math>(10 - 1) - 2 =</math>, the student recognizes they must first calculate <math>10 - 1</math>.</li> <li>➤ Example: Given the problem <math>(5 + 1) \times 2 =</math>, the student recognizes that they must first add <math>5 + 1</math>.</li> <li>➤ Example: Given the problem <math>5 + (2 \times 3) =</math>, the student recognizes that they must first multiply <math>2 \times 3</math>.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> Calculation is not required for this standard.</p>

Indicator	MA 6.3.3.c Evaluate simple algebraic expressions involving multiplication and division	
<b>Extended Indicator</b>	<b>MAE 6.3.3c Evaluate simple algebraic expressions involving addition and subtraction</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will determine the value of <math>n</math> in a simple algebraic expression involving addition. <ul style="list-style-type: none"> <li>➤ Example: When given the algebraic expression <math>n + 4</math> and <math>n = 1</math>, the student determined that he gets 5.</li> </ul> </li> <li>The student will determine the value of <math>n</math> in a simple algebraic expression involving subtraction. <ul style="list-style-type: none"> <li>➤ Example: When given the algebraic expression <math>n - 4</math> and <math>n = 14</math>, the student determined that he gets 10.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> It may help student understanding if the unknown value is always called “<math>n</math>” to stand for <u>number</u>. An appropriate way to phrase the question to this type of problem may be “If <math>n</math> is 1, what do you get?”</p>
Indicator	MA 6.3.3.d Solve one-step equations involving positive rational numbers	
<b>Extended Indicator</b>	<b>MA 6.3.3.d Solve simple one-step equations involving addition and subtraction</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will determine the unknown value in a simple one-step equation involving addition. <ul style="list-style-type: none"> <li>➤ Example: Using manipulatives, the student determines that <math>n</math> is 15 in the equation <math>5 + n = 20</math></li> </ul> </li> <li>The student will determine the unknown value in a simple one-step equation involving subtraction. <ul style="list-style-type: none"> <li>➤ Example: Using manipulatives, the student determines that <math>n</math> is 6 in the equation <math>15 - n = 9</math></li> </ul> </li> </ul> <p><b>Teacher Note:</b> It may help student understanding if the unknown value is always called “<math>n</math>” to stand for <u>number</u>.</p>
Indicator	MA 6.3.3.e Identify and explain the properties of equality used in solving equations	
<b>Extended Indicator</b>	<b>MAE 6.3.3.e Solve an addition problem demonstrating the commutative property of equality</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will recognize the commutative property of addition in order to determine the missing value in a second problem. <ul style="list-style-type: none"> <li>➤ Example: The student determines that a kite goes in the blank. <div style="text-align: center;">  </div> </li> <li>➤ The student determines 15 is the missing number. <math display="block">6 + 15 = \_ + 6</math> </li> </ul> </li> </ul> <p><b>Teacher Note:</b> The term “commutative” is not required knowledge if another word/phrase is more appropriate for student understanding.</p>

**K-12 Comprehensive Data Analysis/Probability Standard: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

**DATA ANALYSIS/PROBABILITY CONCEPTS**

**MA 6.4.1 Display and Analysis: Students will organize, display, compare, and interpret data.**

Indicator	MA 6.4.1.b Compare and interpret data sets and their graphical representations											
<b>Extended Indicator</b>	<b>MAE 6.4.1.b Interpret data on a circle graph</b>											
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will gain information and answer questions using the data in a circle graph.               <ul style="list-style-type: none"> <li>➤ Example: Using the information in the circle graph, the student determines that most people like apples best.</li> </ul> </li> </ul> <div style="text-align: center; margin: 10px 0;">  </div>										
Indicator	MA 6.4.1.c Find the mean, median, mode and range for a set of data											
<b>Extended Indicator</b>	<b>MAE 6.4.1.c Find the mode for a set of data</b>											
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will find the mode for a set of data.               <ul style="list-style-type: none"> <li>➤ Example: The student orders the numbers 4, 8, 5, 8, 2, 9 and then determines that 8 is the mode.</li> <li>➤ Example: The student looks at a chart that shows the points scored by the baseball team in five games. She ordered the scores and determined the mode is 2.</li> </ul> </li> </ul> <div style="text-align: center; margin: 10px 0;"> <table border="1" style="border-collapse: collapse; width: 150px; margin: auto;"> <thead> <tr> <th colspan="5">Baseball Scores</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">8</td> <td style="text-align: center;">2</td> <td style="text-align: center;">6</td> <td style="text-align: center;">2</td> <td style="text-align: center;">4</td> </tr> </tbody> </table> </div> <p><b>Teacher Note:</b> Students should be exposed to the term “mode” in order to understand this standard.</p> <p>The mode of a set of data is the value that occurs most often in a set of data. To find the mode of a data set, determine which one appears most often.</p>	Baseball Scores					8	2	6	2	4
Baseball Scores												
8	2	6	2	4								

**MA 6.4.3 Probability: Students will apply basic concepts of probability.**

Indicator	MA 6.4.3.b Compute theoretical probabilities for independent events	
<b>Extended Indicator</b>	<b>MAE 6.4.3.b Determine the theoretical probability of an event using given data</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will determine the theoretical probability of an event using given data.               <ul style="list-style-type: none"> <li>➤ Example: The student is given a sack with pencils in it. When asked what he will pull out of the sack when he reaches inside, the student determines he will pull out a pencil.</li> <li>➤ Example: When asked if he can pull out a candy bar, the student answers “no”.</li> <li>➤ Example: Given a picture of a can with nuts in it, the student determines that he will reach in the can and take out nuts.</li> </ul> </li> </ul> <div style="text-align: right;">  </div> <p><b>Teacher Note:</b> The term “theoretical probability” is not required knowledge for this standard.</p> <p>Theoretical probability is finding the probability of an event without doing an experiment or analyzing data.</p>
Indicator	MA 6.4.3.c Find experimental probability for independent events <b>Mastery not expected</b>	

# Nebraska Seventh Grade Math Standards and Extended Indicators

## for Students with Significant Disabilities

**K-12 Comprehensive Number Sense Standard: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

### NUMBER SYSTEM

**MA 7.1.1 Number System: Students will represent and show relationships among rational numbers.**

Indicator	MA 7.1.1.a Show equivalence among fractions, decimals, and percents							
<b>Extended Indicator</b>	<b>MAE 7.1.1.a Use models to identify equivalents between fractions and percents (1 and 100%, <math>\frac{1}{2}</math> and 50%, <math>\frac{1}{4}</math> and 25%)</b>							
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• When provided with pictures or manipulatives, the student will match fractions and percents of 1 to 100%, <math>\frac{1}{2}</math> to 50%, and <math>\frac{1}{4}</math> to 25%.               <ul style="list-style-type: none"> <li>➤ Example: Given <math>\frac{1}{2}</math> of a cookie, the student identifies it as 50% of the cookie.</li> <li>➤ Example: The student matches cards with the fractions <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, and 1 with cards with 25%, 50% and 100%.</li> </ul> <div style="text-align: center; margin: 10px 0;"> <table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 5px; margin: 0 5px;">25%</td> <td style="border: 1px solid black; padding: 5px; margin: 0 5px;"><math>\frac{1}{4}</math></td> <td style="border: 1px solid black; padding: 5px; margin: 0 5px;">100%</td> <td style="border: 1px solid black; padding: 5px; margin: 0 5px;">1</td> <td style="border: 1px solid black; padding: 5px; margin: 0 5px;">50%</td> <td style="border: 1px solid black; padding: 5px; margin: 0 5px;"><math>\frac{1}{2}</math></td> </tr> </table> </div> <ul style="list-style-type: none"> <li>➤ Example: When given 12 pretzels and told he may eat 50% of them, the student takes 6 pretzels to eat.</li> </ul> <p><b>Teacher Note:</b> The term “equivalent” is not required knowledge if another term, such as “equal” is more appropriate for student understanding.</p> </li></ul>	25%	$\frac{1}{4}$	100%	1	50%	$\frac{1}{2}$
25%	$\frac{1}{4}$	100%	1	50%	$\frac{1}{2}$			
Indicator	MA 7.1.1.b Compare and order rational numbers (fractions, decimals, percents)							
<b>Extended Indicator</b>	<b>MAE 7.1.1.b Compare and order numbers up to 50</b>							
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will be able to determine which number (of two given numbers up to 50) is greater.               <ul style="list-style-type: none"> <li>➤ Example: When given a number line, the student determines that 49 is greater than 39.</li> </ul> </li> <li>• The student will be able to put random numbers up to 50 in correct order.               <ul style="list-style-type: none"> <li>➤ Example: Given the numbers 36, 47, 25, 18, the student puts them in correct order (18, 25, 36, 47).</li> </ul> </li> </ul>						
Indicator	MA 7.1.1.c Represent large numbers using scientific notation <b>MASTERY NOT EXPECTED</b>							

**MA 7.1.3 Computation: Students will compute fluently and accurately using appropriate strategies and tools.**

Indicator	MA 7.1.3.a Compute accurately with integers	
<b>Extended Indicator</b>	<b>MAE 7.1.3.a Divide a positive two digit number by a single digit number</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will divide a positive two digit number by a single digit number. <ul style="list-style-type: none"> <li>➤ Example: Given the problem <math>24 \div 6</math>, the student uses a calculator to determine the answer 4.</li> <li>➤ Example: To compute <math>16 \div 2</math>, the teacher gives the student 16 blocks and he divides them into two groups of 8.</li> </ul> </li> </ul>
Indicator	MA 7.1.3.b Select, apply, and explain the method of computation when problem solving using integers and positive rational numbers	
<b>Extended Indicator</b>	<b>MAE 7.1.3.b Select and apply the appropriate method of computation (addition, subtraction, and multiplication) when problem solving</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• When given a story problem or real-life situation, the student will determine “how” to solve the problem (add, subtract, or multiply) and then correctly compute the answer. <ul style="list-style-type: none"> <li>➤ Example: Mother finds \$15 in her purse. She finds four more dollars in her pocket. How much money does Mother have now? After reading this story problem, the student determines she needs to add <math>15 + 4</math>. The student gets the answer \$19.00.</li> <li>➤ Example: The student has four small bags of marbles with 7 marbles in each bag. When asked how many marbles he has altogether, the student gets his a multiplication table and determines he has 28 marbles.</li> </ul> </li> </ul>
Indicator	MA 7.1.3.c Solve problems involving percent of numbers	
<b>Extended Indicator</b>	<b>MAE 7.1.3.c Compare given percents ( greater than, less than, equal to)</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will compare two given percents (100%, 50% and 25%) and determine which one is greater than, less than, or equal to the other given percent. <ul style="list-style-type: none"> <li>➤ Example: The student compares 25% and 50% and determines that 50% is greater.</li> <li>➤ Example: When given a whole cookie and told it is 100% of the cookie and <math>\frac{1}{2}</math> of a cookie and told it is 50% of a cookie, the student determines the <math>\frac{1}{2}</math> cookie (50%) is less than the whole cookie.</li> <li>➤ Example: The teacher and student look at an apple and discuss that the whole apple is 100%. The apple is cut in half. The teacher and student discuss that the <math>\frac{1}{2}</math> apple is 50% of the whole apple. The student determines that one whole apple, or 100%, is bigger than 50% of an apple.</li> <li>➤ The student has two ads for new sunglasses. One ad says 25% off. The other says 50% off. The student determines 50% is the best buy.</li> </ul> </li> </ul>

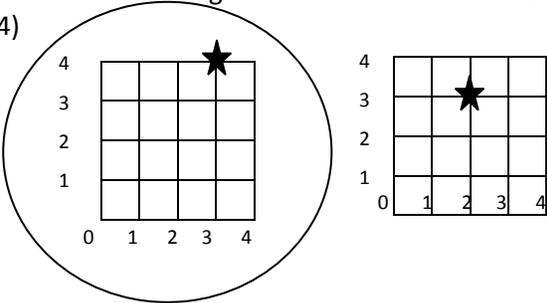
**MA 7.1.4 Estimation:****Students will estimate and check reasonableness of answers using appropriate strategies and tools.**

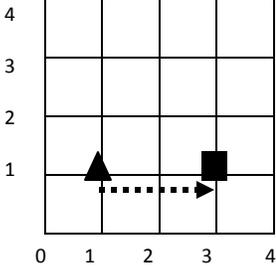
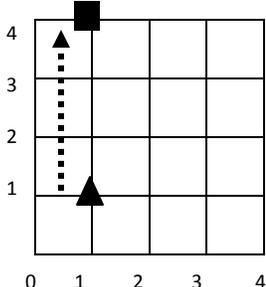
Indicator	MA 7.1.4.a Use estimation methods to check the reasonableness of solutions for problem involving integers and positive rational numbers	
<b>Extended Indicator</b>	<b>MAE 7.1.4.a Apply estimation to the nearest 10 on addition, subtraction, and multiplication results</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"><li>• The student will compute an addition problem and apply estimation to the nearest 10 to the sum.<ul style="list-style-type: none"><li>➤ Example: The student will add <math>15 + 3</math> and determines that 18 is closer to 20 than 10.</li></ul></li><li>• The student will compute a subtraction problem and apply estimation to the nearest 10 to the difference.<ul style="list-style-type: none"><li>➤ Example: The student uses a calculator to find the difference to <math>46 - 23</math> and determines that 33 is closer to 30 than 40.</li></ul></li><li>• The student will compute a multiplication problem and apply estimation to the nearest 10 to the product.<ul style="list-style-type: none"><li>➤ Example: The student uses an accommodation to find the product of <math>12 \times 4</math> and determines that 48 is closer to 50 than 40.</li></ul></li></ul>

**K-12 Comprehensive Geometric/Masurement Standard: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

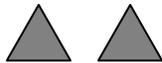
**GEOMETRIC/MEASUREMENT CONCEPTS**

**MA 7.2.2 Coordinate Geometry: Students will identify locations using coordinate geometry.**

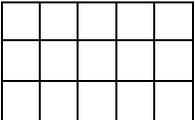
Indicator	MA 7.2.2.a Plot the location of an ordered pair in the coordinate plane	
<b>Extended Indicator</b>	<b>MAE 7.2.2.a Plot the location of an ordered pair on a 4 x 4 grid</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will plot the location of an ordered pair on a 4 x 4 grid.               <ul style="list-style-type: none"> <li>➤ Example: Given the coordinates (1,2), the student stands at those coordinates on a 4x4 grid drawn on the playground.</li> <li>➤ Example: The student circles the grid that shows a star at the coordinates (3, 4)</li> </ul> </li> </ul> <div style="text-align: center;">  </div> <p><b>Teacher Note:</b> The student should be exposed to the term “grid” but the terms “coordinate/coordinates” are not required knowledge if another word/phrase is more appropriate for student understanding.</p> <p>When teaching student the order for determining coordinates, the saying “Walk to the elevator before you go up.” may be helpful.</p>

Indicator	MA 7.2.2.c Find the distance between points along horizontal and vertical lines of a coordinate plane	
<b>Extended Indicator</b>	<b>MAE 7.2.2.c Identify the distance between two given points along horizontal and vertical lines of a grid</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will determine the distance between two given points on a horizontal line on a grid. <ul style="list-style-type: none"> <li>➤ The student counts the squares and determines that the distance between the triangle and the square is 2.</li> </ul>  </li>   <li>• The student will determine the distance between two given points on a vertical line on a grid. <ul style="list-style-type: none"> <li>➤ The student counts the squares and determines that the distance between the triangle and the square is 3.</li> </ul>  </li> </ul>

**MA 7.2.3 Transformations:** Students will use transformations and symmetry to analyze geometric shapes.

Indicator	MA 7.2.3.b Perform and describe positions and orientation of shapes under a single transformation on an coordinate plane	
<b>Extended Indicator</b>	<b>MAE 7.2.3.b Identify congruent shapes</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>The student will identify congruent shapes.               <ul style="list-style-type: none"> <li>➤ Example: The student determines that these three shapes are congruent.                   <div style="text-align: center;">  </div> </li> <li>➤ Even though the shapes are going in different directions, the student recognizes that they are congruent.                   <div style="text-align: center;">  </div> </li> <li>➤ Example: the student recognizes these circles are not congruent because they are not the same size.                   <div style="text-align: center;">  </div> </li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student must be exposed to and understand the meaning of the term “congruent”. “Congruent” means that shapes exactly match. It's more specific than “same shape.” Congruent figures are the same shape and size, even though their orientations may differ.</p>

**MA 7.2.5 Measurement:** Students will select and apply appropriate procedures, tools, and formulas to determine measurements.

Indicator	MA 7.2.5.b Determine the area of trapezoids and circles, and the circumference of circles	
<b>Extended Indicator</b>	<b>MAE 7.2.5.b Determine the area of a rectangle (not a square)</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>The student will determine the area of a rectangle.               <ul style="list-style-type: none"> <li>➤ Example: The student counts the squares in the rectangle and determines the area is 15 square units.                   <div style="text-align: center;">  </div> </li> <li>➤ Example: Using the square tiles places on a floor, the student will find the area of a rectangular space.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student should be familiar with the term “area”. Although the student may not use the terms “square units, square inches, square feet ” when determining area, the teacher should always ask for the number of “square units, inches, feet”.</p>

**K-12 Comprehensive Algebraic Standard: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

**ALGEBRAIC CONCEPTS**

**MA 7.3.1 Relationships: Students will represent and analyze relationships using algebraic symbols.**

Indicator	MA 7.3.1.a Describe and create algebraic expressions from words, tables, and graphs											
<b>Extended Indicator</b>	<b>MAE 7.3.1.a Match a simple algebraic expression involving addition and subtraction to a given table, chart, or illustration</b>											
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will determine the algebraic expression involving addition shown in a table.               <ul style="list-style-type: none"> <li>➤ Example: The teacher and the student discuss the table and look at the first number under the “<math>n</math>”. Then they look at the 10 next to the 9. When the teacher asks what happened to 10 to make 9, the student determines 1 was subtracted from 10. The teacher writes <math>n</math> (standing for <u>n</u>umber) - 1 at the top of the second column.                   <table border="1" style="margin-left: 40px; margin-top: 10px;"> <tr><td><math>n</math></td><td>?</td></tr> <tr><td>10</td><td>9</td></tr> </table> </li> <li>➤ Example: The student looks at the table and determines that 15 had 3 taken from it to make 12 and 7 had 3 taken from it to make it 4. He decides the <math>n - 3</math> goes at the top of the second column.                   <table border="1" style="margin-left: 40px; margin-top: 10px;"> <tr><td><math>n</math></td><td>?</td></tr> <tr><td>15</td><td>12</td></tr> <tr><td>7</td><td>4</td></tr> </table> </li> </ul> </li> </ul>	$n$	?	10	9	$n$	?	15	12	7	4
$n$	?											
10	9											
$n$	?											
15	12											
7	4											
Indicator	MA 7.3.1.b Use a variable to describe a situation with an inequality											
<b>Extended Indicator</b>	<b>MAE 7.3.1.b Identify a correct inequality</b>											
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will determine if a given inequality is true.               <ul style="list-style-type: none"> <li>➤ Example: Given two inequalities (<math>15 &gt; 6</math> and <math>15 &lt; 6</math>), the student determines that <math>15 &gt; 6</math> is the true one.</li> <li>➤ Example: The student determines that <math>25 &lt; 15</math> is not true.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student should know terms “is greater than” and “is less than” and the signs <math>&lt;</math> and <math>&gt;</math>.</p>										

**MA 7.3.2 Modeling in Context:****Students will create, use, and interpret models of quantitative relationships.**

Indicator	MA 7.3.2.a Model contextualized problems using various representations	
<b>Extended Indicator</b>	<b>MAE 7.3.2.a Recognize addition number sentences using various representations</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• Given a story problem, the student will identify the number sentence that represents the problem.               <ul style="list-style-type: none"> <li>➤ Example: “There are 3 apples in the bowl. Dad bought 5 more apples at the store and put them in the bowl. Now there are 8 apples in the bowl.” The student recognizes that <math>3 + 5 = 8</math> as the number sentence that goes with the story.</li> </ul> </li> </ul>

**MA 7.3.3 Procedures:****Students will apply properties to solve equations and inequalities.**

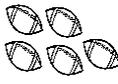
Indicator	MA 7.3.3.c Given the value of the variable(s), evaluate variable expressions with respect to order of operations	
<b>Extended Indicator</b>	<b>MAE 7.3.3.c Evaluate variable expressions with respect to order of operations in addition, subtraction, and multiplication with parentheses</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will determine the answer to a variable expression with parentheses when given the value of the variable.               <ul style="list-style-type: none"> <li>➤ Example: Given the problem <math>(7 - n) + 2 =</math> and told that <math>n = 3</math>, the student first subtracts <math>7 - 3 = 4</math>. Then the student adds <math>4 + 2</math> and gets 6.</li> <li>➤ Example: Given the problem <math>(9 - 2) + n =</math> and told that <math>n = 5</math>, the student first computes <math>9 - 2 = 7</math>. Then the student adds <math>7 + 5</math> and gets the answer 12.</li> <li>➤ Example: Given the problem <math>(6 - 2) \times n =</math> and told that <math>n = 5</math>, the student first computes <math>6 - 2 = 4</math>. Then the student multiplies <math>4 \times 5</math> and gets the answer 20.</li> <li>➤ Example: Given the problem <math>3 \times (n + 4)</math> and told that <math>n = 2</math>, the student first computes <math>2 + 4 = 6</math>. Then the student multiplies <math>3 \times 6</math> and gets the answer 18.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> It may help student understanding if the unknown value is always called “<math>n</math>” to stand for <u>number</u>. An appropriate way to phrase the question to this type of problem may be “If <math>n</math> is 1, what do you get?”</p>

Indicator	MA 7.3.3.d Solve two-step equations involving integers and positive rational numbers	
<b>Extended Indicator</b>	<b>MAE 7.3.3.d Solve one-step equations involving addition or subtraction</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will find the missing value (number) in one-step addition equation. <ul style="list-style-type: none"> <li>➤ Example: The student and his teacher play a game called “What’s Missing”. The teacher writes the addition problem <math>12 + 5 = 17</math>. The teacher then covers the 5 with a card that has an “<math>n</math>” on it. The student determines that the “<math>n</math> card” is covering the number 5 .</li> </ul> </li> <li>• The student will find the missing value (number) in a one-step subtraction equations. <ul style="list-style-type: none"> <li>➤ Example: Given the equation <math>10 - n = 4</math>, the student determines that <math>n</math> is 6.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The term “equation” is not required knowledge if another word/phrase is more appropriate for student understanding.</p>
Indicator	MA 7.3.3.e Solve one-step inequalities involving positive rational numbers <b>MASTERY NOT EXPECTED</b>	

**K-12 Comprehensive Data Analysis/Probability Standard: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

**DATA ANALYSIS/PROBABILITY CONCEPTS**

**MA 7.4.1 Display and Analysis: Students will formulate questions that can be addressed with data, and then organize, display, and analyze the relevant data to answer their questions.**

Indicator	MA 7.4.1.a Analyze data sets and interpret their graphical representations													
<b>Extended Indicator</b>	<b>MAE 7.4.1.a Identify and interpret a data set</b>													
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>The student will identify and interpret data presented in picture representations.                             <ul style="list-style-type: none"> <li>➤ Example: Given this data set,   the student will recognize that the set of footballs is greater.</li> </ul> </li> <li>The student will identify and interpret data presented in a table.                             <ul style="list-style-type: none"> <li>➤ The student reads and interprets the data in the table and determines the Bears scored the most points at the track meet.</li> </ul> </li> </ul> <table border="1" data-bbox="1263 1018 1471 1234"> <thead> <tr> <th colspan="2">Track Meet</th> </tr> <tr> <th>Team</th> <th>Points</th> </tr> </thead> <tbody> <tr> <td>Chiefs</td> <td>14</td> </tr> <tr> <td>Stars</td> <td>30</td> </tr> <tr> <td>Bears</td> <td>35</td> </tr> <tr> <td>Bulldogs</td> <td>27</td> </tr> </tbody> </table>	Track Meet		Team	Points	Chiefs	14	Stars	30	Bears	35	Bulldogs	27
Track Meet														
Team	Points													
Chiefs	14													
Stars	30													
Bears	35													
Bulldogs	27													
Indicator	MA 7.4.1.b Find and interpret mean, median, mode, and range for set of data													
<b>Extended Indicator</b>	<b>MAE 7.4.1.b Find the median for a set of data ( the set will have an uneven number of members written in order)</b>													
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>The student will select the median from a group of numbers                             <ul style="list-style-type: none"> <li>➤ Example: The student determines that the middle number in the set (3, 5, 7, 9, 11) is 7 .</li> </ul> </li> </ul> <p><b>Teacher Note:</b> Median – the middle number in a set of numbers. The term “median” is not required knowledge if the term “middle” is more appropriate for student understanding.</p> <p>The median is determined by arranging members in order from lowest to highest and determining the middle number.</p>												

**MA 7.4.3 Probability: Students will apply and interpret basic concepts of probability.**

Indicator	MA 7.4.3.a Find the probability of independent compound events	
<b>Extended Indicator</b>	<b>MAE 7.4.3.a Determine the probability of a given event (always, sometimes, never)</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• When given a situation, the student will determine its probability of happening as always, sometimes or never.               <ul style="list-style-type: none"> <li>➤ Example: The student determines that “dogs driving cars” will never happen.</li> <li>➤ Example: The student determines that of these two statements “Dad goes fishing and catches a fish”, “Dad goes fishing and catches an elephant.”, Dad catching a fish could sometimes happen.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The term “probability” is not required knowledge if the term “chance” is more appropriate for student understanding.</p>
Indicator	MA 7.4.3.b Compare and contrast theoretical and experimental probabilities	
<b>Extended Indicator</b>	<b>MAE 7.4.3.b Compare theoretical probabilities</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• When given a situation, the student will determine which choice gives them a better chance of getting a specific outcome.               <ul style="list-style-type: none"> <li>➤ Example: Mom has two cookie jars. She puts chocolate chip cookies in the round cookie jar and in the square cookie jar she puts chocolate chip and sugar cookies. The student determines that if he wants a better chance of getting a chocolate chip cookie, he should reach into the round cookie jar.</li> <li>➤ Example: The teacher puts 10 pretzels and 4 mini- candy bars in one bag. In a second bag she puts 4 pretzels and 10 mini-candy bars. The student wants a candy bar so determines she will reach into the second bag in order to have a better chance of getting what she wants.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The term “theoretical probability” is not required knowledge if the term “better chance” or “best chance” might be more appropriate terms for student understanding.</p> <p>Theoretical probability is finding the probability of an event without doing an experiment or analyzing data.</p>

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

**K-12 Comprehensive Number Sense Standard: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

## NUMBER SYSTEM

**MA 8.1.1 Number System: Students will represent and show relationships among real numbers.**

Indicator	MA 8.1.1.a Compare and order real numbers	
<b>Extended Indicator</b>	<b>MAE 8.1.1.a Compare and order positive and negative integers (-50 to 50)</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will determine whether a given integer is greater than or less than another given integer.               <ul style="list-style-type: none"> <li>➤ Example: When provided a number line with positive and negative integers, the student determines that 35 is less than 42.</li> <li>➤ Example: When provided a number line with positive and negative integers, the student determines that the missing integer is 5.</li> </ul> </li> </ul> <div style="text-align: center; margin: 10px 0;"> <math display="block">\leftarrow -5 \quad -4 \quad -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4 \quad \underline{\quad} \quad 6 \quad 7 \rightarrow</math> </div> <ul style="list-style-type: none"> <li>➤ Example: When provided with a number line with negative integers, the student will determine that -5 is less than -2.</li> </ul> <p><b>Teacher Note:</b> Students should be aware of the concept that all (negative and positive) numbers get larger as one moves right on a number line.</p> <p>The student needs to be aware of the meaning of “positive” (+) and “negative” (-) numbers. The word “integer” is not required knowledge if the term “number” is more appropriate for student understanding.</p>
Indicator	MA 8.1.1.c Represent small numbers using scientific notation <b>MASTERY NOT EXPECTED</b>	

Indicator	MA 8.1.1.d Classify numbers as natural, whole, integer, rational, irrational, or real	
<b>Extended Indicator</b>	<b>MAE 8.1.1.d Classify numbers as natural or whole</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will recognize that whole numbers are the counting numbers (natural) plus the 0. <ul style="list-style-type: none"> <li>➤ Example: Given a chart that displays whole numbers and counting numbers, the student determines the following statement is true. The number 4 is a whole number and a counting number.</li> <li>➤ Example: Given a chart that displays whole numbers and counting numbers, the student determines the following statement is false. The number 0 is a counting number.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> Students need to know the term “whole numbers” but “natural numbers” may be referred to as “counting numbers” if that is more appropriate for student understanding.</p>

**MA 8.1.3 Computation: Students will compute fluently and accurately using appropriate strategies and tools.**

Indicator	MA 8.1.3.a Compute accurately with rational numbers	
<b>Extended Indicator</b>	<b>MAE 8.1.3.a Add and subtract decimals without regrouping</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will add (with or without a calculator or other accommodation) two amounts of money with no regrouping. <ul style="list-style-type: none"> <li>➤ Example: The student, using a calculator, determines the answer to <math display="block">\begin{array}{r} \\$7.34 \\ + 2.15 \\ \hline \end{array}</math> is \$ 9.49 </li> </ul> </li> <li>The student will subtract (with or without a calculator or other accommodation) two amounts of money with no regrouping. <ul style="list-style-type: none"> <li>➤ Example: The student, using a calculator, determines the sum of <math display="block">\begin{array}{r} \\$2.45 \\ - 1.22 \\ \hline \end{array}</math> is \$3.67. </li> </ul> </li> </ul> <p><b>Teacher Note:</b> Decimals are represented as dollars and cents for this standard.</p>

Indicator	MA 8.1.3.b Evaluate expressions involving absolute value of integers	
<b>Extended Indicator</b>	<b>MAE 8.1.3.b Determine the absolute value of a given situation</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>Given a number line, the student will determine the distance a given number is from 0. <ul style="list-style-type: none"> <li>Example: Using a large number line taped on the floor, the student determines there are 7 steps from the 0 to 7.</li> <li>Example: Using a small block, the student will “hop” the block along a number line from the 0 to a -5 and determine the number of hops is 5.</li> <li>By counting the dotted line “jumps” indicated on the number line, the student will determine the distance from 0 to 4 is 4.</li> </ul> </li> </ul> <div style="text-align: center;"> </div> <p><b>Teacher Note:</b> Absolute value is the distance a number is from 0 on a number line.</p>
Indicator	MA 8.1.3.d Select, apply, and explain the method of computation when problem solving using rational numbers	
<b>Extended Indicator</b>	<b>MAE 8.1.3.d Select and apply the method of computation (addition, subtraction, multiplication, division) when problem solving</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>When given a story problem or real-life situation, the student will determine “how” to solve the problem (add, subtract, multiply or divide) and then correctly compute the answer. <ul style="list-style-type: none"> <li>Example: Mother finds \$15 in her purse. She finds four more dollars in her pocket. How much money does Mother have now? After reading this story problem, the student determines add 15 and 4 and computes the answer \$19.00.</li> <li>Example: The student and his friend bake 12 cupcakes. The student determines that he must divide the 12 cupcakes into two groups (<math>12 \div 2</math>) in order to share the cupcakes evenly with his friend. He calculates that he and his friend will each get 6 cupcakes.</li> </ul> </li> </ul>
Indicator	MA 8.1.3.e Solve problems involving ratios and proportions	
<b>Extended Indicator</b>	<b>MAE 8.1.3.e Solve problems involving ratios</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will determine the ratio of a given problem or situation. <ul style="list-style-type: none"> <li>Example: When given the situation “Three frogs are in the pond and one jumps out.”, the student determines that one frog out of three jumped out of the pond.</li> <li>Example: Knowing that one car has four tires, the student will determine that 3 cars have 12 tires.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The word “ratio” is not required knowledge for this standard. The term “___ out of ___” may help the student learn this concept.</p>

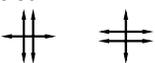
**MA 8.1.4 Estimation:****Students will estimate and check reasonableness of answers using appropriate strategies and tools.**

Indicator	MA 8.1.4.a Use estimation methods to check the reasonableness of solutions for problems involving rational numbers	
<b>Extended Indicator</b>	<b>MAE 8.1.4.a Apply estimation to the nearest 10 on situations (story problems) involving addition and subtraction</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"><li>• The student will determine how to compute addition and subtraction story problems, compute the answer, and apply estimation to the nearest 10 to the result.<ul style="list-style-type: none"><li>➤ Example: The student is given the story problem “There are 25 fish in the tank. 7 new fish were added to the tank.” The student determines he will need to add <math>25 + 7</math>, gets his calculator, and gets the answer 32 fish. The student then determines that 32 is closer to 30 than to 40.</li></ul></li></ul>

**K-12 Comprehensive Geometric/Measurement Standard: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

**GEOMETRIC/MEASUREMENT CONCEPTS**

**MA 8.2.1 Characteristics: Students will describe, compare, and contrast characteristics, properties and relationships of geometric shapes and objects.**

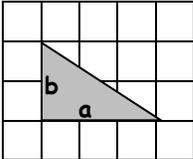
Indicator	MA 8.2.1.c Identify geometric properties of parallel lines cut by a transversal and related angles	
<b>Extended Indicator</b>	<b>MAE 8.2.1c Identify geometric properties of parallel lines cut by a perpendicular transversal that creates right angles</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>The student will recognize that when parallel lines are cut by a perpendicular line, right angles are created.               <ul style="list-style-type: none"> <li>➤ Example: Using craft sticks to make examples of parallel lines cut by another line, the student will determine which examples have all right angles.</li> </ul> </li> </ul>  <p><b>Teacher Note:</b> The student should be exposed to the terms “perpendicular” and “right angles”. The term “transversal” is not required knowledge if other terms are more appropriate for student understanding.</p> <p>Students should be exposed to perpendicular lines that are both horizontal and vertical.</p> 
Indicator	MA 8.2.1.d Identify pairs of angles	
<b>Extended Indicator</b>	<b>MAE 8.2.1.d Identify pairs of right angles</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>The student will identify right angles in a group of several types of angles.               <ul style="list-style-type: none"> <li>➤ Example: The student uses a model of a right angle to find other right angles in an assortment various angles.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student should be exposed to the term “right angle”.</p>

Indicator	MA 8.2.1.e Examine the relationships of the interior angles to a triangle (e.g., the sum of the angles is 180 degrees)	
<b>Extended Indicator</b>	<b>MAE 8.2.1.e Match congruent triangles based on interior angles</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>When given triangles that are the same size but with different interior angles, the student will determine pairs of identical triangles. <ul style="list-style-type: none"> <li>Example: Given a box containing 6 triangles, the student will sort the triangles into identical pairs. <div data-bbox="1068 453 1256 569" data-label="Image"> </div> </li> <li>Example: Given a specific wooden triangle, the student will sort through a miscellaneous group of triangles and find an identical (congruent) triangle.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The term “congruent” is not required knowledge if the terms “identical” or “exactly the same” are more appropriate for student understanding.</p>

**MA 8.2.2 Coordinate Geometry: Students will specify locations and describe relationships using coordinate geometry.**

Indicator	MA 8.2.2.a Use coordinate geometry to represent and examine the properties of rectangles and squares using horizontal and vertical segments	
<b>Extended Indicator</b>	<b>MAE 8.2.2.a Use coordinate geometry to determine the measurement of a side (rectangle, square)</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>Given a grid with a rectangle or a square placed on it, the student will count the squares on the grid to determine the length of a given side. <ul style="list-style-type: none"> <li>Example: The student lays a construction paper rectangle on a piece of graph paper and determines the length of side “a” is 3 and side “b” is 2.</li> </ul> </li> </ul> <div data-bbox="842 1577 1036 1753" data-label="Image"> </div>

**MA 8.2.5 Measurement:** Students will apply appropriate procedures, tools, and formulas to determine measurements.

Indicator	MA 8.2.5.c Apply the Pythagorean theorem to find missing lengths in right triangles and to solve problems	
<b>Extended Indicator</b>	<b>MAE 8.2.5.c Find the missing length and/or height in a right triangle</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• Given a grid with a right triangle placed on it, the student will count the squares on the grid to determine the length and or height of a given side.               <ul style="list-style-type: none"> <li>➤ Example: The student lays a construction paper right triangle on a piece of graph paper and determines the length of side “a” is 3 and side “b” is 2.</li> </ul> </li> </ul> <div style="text-align: center;">  </div>
Indicator	MA 8.2.5.d Use scale factors to find missing lengths in similar shapes	
<b>Extended Indicator</b>	<b>MAE 8.2.5.d Match similar geometric shapes represented in different scales</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will determine similar geometric shapes that are of different sizes.               <ul style="list-style-type: none"> <li>➤ Example: Given the group of shapes  the student determines that  are similar.</li> </ul> </li> </ul>

**K-12 Comprehensive Algebraic Standard: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

**ALGEBRAIC CONCEPTS**

**MA 8.3.1 Relationships: Students will represent and analyze relationships using algebraic symbols.**

Indicator	MA 8.3.1.b Describe relationships using algebraic expressions, equations, and inequalities	
<b>Extended Indicator</b>	<b>MAE 8.3.1.b Identify relationships using algebraic expressions</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• When given a specific situation using an unknown, the student will determine the algebraic expression that matches the situation.               <ul style="list-style-type: none"> <li>➤ Example: When given the situation “You want to subtract (or take away) 10 from <math>n</math>”, the student determines the correct algebraic expression is <math>n - 10</math>.</li> <li>➤ Example: When given the situation “Jim wants to add <math>n</math> and 25, the student determines the correct algebraic expression is <math>n + 25</math>.</li> <li>➤ Example: When given the situation “Multiply <math>n</math> times 9.” The student will determine the correct algebraic expression is <math>n \times 9</math>.</li> </ul> </li> </ul> <p><b>Teachers Note:</b> Always using “<math>n</math>” for the unknown number may be helpful for student understanding since “<math>n</math>” could stand for the unknown or missing “<u>n</u>number”.</p> <p>By putting the unknown at the beginning of the equation, students read from left to right and making this concept more understandable.</p>

**MA 8.3.2 Modeling in Context: Students will create, use, and interpret models of quantitative relationships.**

Indicator	MA 8.3.2.a Model contextualized problems using various representations	
<b>Extended Indicator</b>	<b>MAE 8.3.2.a Recognize addition and subtraction number sentences using various representations</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• Given a story problem, the student will identify the number sentence that represents the problem.               <ul style="list-style-type: none"> <li>➤ Example: “There are 20 students in the class. 3 moved away. Now there are 17 students in the class.” The student recognizes that <math>20 - 3 = 17</math> as the number sentence that goes with the story.</li> </ul> </li> </ul>

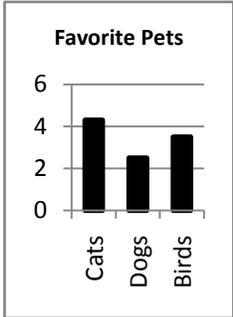
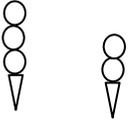
**MA 8.3.3 Procedures: Students will apply properties to solve equations and inequalities.**

Indicator	MA 8.3.3.b Evaluate numerical expressions containing whole number exponents	
<b>Extended Indicator</b>	<b>MAE 8.3.3.b Identify representations of numbers squared</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will recognize that a given number squared means the number is multiplied by itself.                             <ul style="list-style-type: none"> <li>➤ Example: The student will recognize that <math>8^2</math> is <math>8 \times 8</math>.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student should be familiar with the term “squared”.</p>
Indicator	MA 8.3.3.c Solve multi-step equations involving rational numbers	
<b>Extended Indicator</b>	<b>MAE 8.3.3.c Solve one-step equations involving addition, subtraction, and multiplication</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will determine the value of an unknown in a one-step equation.                             <ul style="list-style-type: none"> <li>➤ Example: Given the problem <math>n + 8 = 10</math>, the student will use manipulatives to determine that <math>n = 2</math></li> <li>➤ Example: Given the problem <math>n - 5 = 7</math>, the student will use manipulatives to determine that <math>n = 12</math></li> <li>➤ Example: Given the problem <math>n \times 2 = 12</math>, the student will determine that <math>n = 6</math></li> </ul> </li> </ul> <p><b>Teachers Note:</b> Always using “n” for the unknown number may be helpful for student understanding since “n” could stand for the unknown or missing “number”.</p> <p>By putting the unknown at the beginning of the equation, students read from left to right and may make this concept more understandable.</p>
Indicator	MA 8.3.3.d Solve two-step inequalities involving rational numbers	
<b>Extended Indicator</b>	<b>MAE 8.3.3.d Identify values that make inequalities true</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will know the meaning of “greater than” (<math>&gt;</math>) and “less than” (<math>&lt;</math>) symbols</li> <li>The student will identify true <math>&lt;</math> and <math>&gt;</math> statements.                             <ul style="list-style-type: none"> <li>➤ Example: The student recognizes the statement <math>5 &lt; 8</math> is true.</li> <li>➤ Example: The student recognizes that the statement <math>43 &gt; 34</math> is true.</li> </ul> </li> <li>The student will identify a missing value in a <math>&lt;</math> and <math>&gt;</math> statement to make the statement true.                             <ul style="list-style-type: none"> <li>➤ Example: When given choices of 33, 23, and 13, the student determines that the number 33 will make the statement <math>\underline{\quad} &gt; 25</math> true.</li> <li>➤ Example: The student determines the number 45 will make the statement <math>\underline{\quad} &lt; 50</math> true.</li> </ul> </li> </ul>

**K-12 Comprehensive Data Analysis/Probability Standard: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

**DATA ANALYSIS/PROBABILITY CONCEPTS**

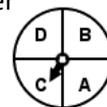
**MA 8.4.1 Display and Analysis: Students will formulate questions that can be addressed with data, and then organize, display, and analyze the relevant data to answer their questions.**

Indicator	MA 8.4.1.b Compare characteristics between sets of data or within a given set of data																					
<b>Extended Indicator</b>	<b>MAE 8.4.1.b Compare characteristics in a set of data</b>																					
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will compare data (e.g., which is more, which is less, which is the same)             <ul style="list-style-type: none"> <li>➤ When looking at the bar graph about favorite pets, the student determines that most people like cats .</li> </ul> </li> </ul> <div style="text-align: right; margin-right: 100px;">  </div> <ul style="list-style-type: none"> <li>➤ After collecting data from friends, the student makes a picture graph and determines that most friends like chocolate ice cream.</li> </ul> <div style="text-align: right; margin-right: 100px;">  <p align="center"><b>Chocolate    Vanilla</b></p> </div> <ul style="list-style-type: none"> <li>➤ The student reads the data on the table and determines that all the new cars have CD players.</li> </ul> <div style="text-align: center; margin-top: 20px;"> <table border="1" style="border-collapse: collapse; width: 100%;"> <thead> <tr> <th colspan="4">New Cars</th> </tr> <tr> <th></th> <th>CD Player</th> <th>Sun Roof</th> <th>Leather Seats</th> </tr> </thead> <tbody> <tr> <td><b>Ford</b></td> <td align="center">X</td> <td align="center">X</td> <td></td> </tr> <tr> <td><b>Chevy</b></td> <td align="center">X</td> <td></td> <td align="center">X</td> </tr> <tr> <td><b>Honda</b></td> <td align="center">X</td> <td></td> <td align="center">X</td> </tr> </tbody> </table> </div>	New Cars					CD Player	Sun Roof	Leather Seats	<b>Ford</b>	X	X		<b>Chevy</b>	X		X	<b>Honda</b>	X		X
New Cars																						
	CD Player	Sun Roof	Leather Seats																			
<b>Ford</b>	X	X																				
<b>Chevy</b>	X		X																			
<b>Honda</b>	X		X																			

Indicator	MA 8.4.1.d Select the most appropriate unit of central tendency for sets of data									
<b>Extended Indicator</b>	<b>MAE 8.4.1.d Find the median for a set of data ( the set will have an uneven number of members in random order)</b>									
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will select the median from a group of numbers <ul style="list-style-type: none"> <li>➤ Example: The student will order the numbers 4, 2, 1, 9, 7 from lowest to highest and then determine the middle number is 4.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The term “median” is not required knowledge</p> <p>Median – the middle number in a set of numbers. The median is determined by arranging members in order from lowest to highest and by counting to the middle.</p>								
Indicator	MA 8.4.1.e Identify misrepresentation and misinterpretation of data represented in circle graphs and box plots									
<b>Extended Indicator</b>	<b>MAE 8.4.1.e Recognize accurate representation of data in a circle graph</b>									
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>The student will determine if a circle graph accurately reflects the information/data given. <ul style="list-style-type: none"> <li>➤ Example: “ Most people go barefoot when at the beach.” The student will look at the circle graph and determine if the statement is correct.</li> </ul> </li> </ul> <div data-bbox="1101 999 1393 1304" data-label="Figure"> </div> <ul style="list-style-type: none"> <li>➤ Example: The student compares data in the table with the data in the circle graph and determines the circle graph is not correct.</li> </ul> <div data-bbox="789 1444 1045 1696" data-label="Figure"> </div> <div data-bbox="1110 1444 1390 1562" data-label="Table"> <table border="1"> <thead> <tr> <th colspan="2">Spring Track Meet</th> </tr> </thead> <tbody> <tr> <td>Team A</td> <td>40 points</td> </tr> <tr> <td>Team B</td> <td>20 points</td> </tr> <tr> <td>Team C</td> <td>7 points</td> </tr> </tbody> </table> </div>	Spring Track Meet		Team A	40 points	Team B	20 points	Team C	7 points
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**MA 8.4.3 Probability: Students will apply and interpret basic concepts of probability.**

Indicator	MA 8.4.3.a Identify complementary events and calculate their probabilities	
<b>Extended Indicator</b>	<b>MAE 8.4.3.a Determine complementary events</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• When given a situation with complementary events, the student will determine the correct response to the situation.               <ul style="list-style-type: none"> <li>➤ Example: “Bill heard the weatherman says there is a great chance of snow today.” The student determines that Bill should wear his boots. (Complementary events- snow/no snow)</li> <li>➤ Example: “Nancy is a good runner. She almost always wins her races.” The student determines that, since Nancy almost always wins, she will win the race tomorrow. (Complementary events- win/lose)</li> </ul> </li> </ul> <p><b>Teacher Notes:</b> Two events are complementary when one event occurs if and only if the other does not. The probabilities of two complimentary events add up to 100%.</p> <p>Understanding percentages is not required knowledge for student understanding of this concept. Words such as “almost always”, “almost never”, “seldom”, “hardly ever”, “little chance”, “good chance”, etc. may be used in place of percents.</p>
Indicator	MA 8.4.3.b Compute probabilities for independent compound events	
<b>Extended Indicator</b>	<b>MAE 8.4.3.b Determine the probability for an independent event</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will determine the probability of an independent event.               <ul style="list-style-type: none"> <li>➤ Example: The student will look at the spinner and determine that there is a 1 out of 4 chance of the arrow landing on a C.</li> <li>➤ Example: Knowing that the sack has one chocolate chip cookie and one sugar cookie in it, the student determines that he has a 1 out of 2 chance of reaching inside and grabbing a sugar cookie.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The term “probability” is not required knowledge if the term “chance” and “__ out of __ chance” is more appropriate for student understanding.</p> <p>Independent events are two events in which the outcome of the first event does not affect the outcome of the second event.</p>



# Nebraska Twelfth Grade Math Standards and Extended Indicators

## for Students with Significant Disabilities

**K-12 Comprehensive Number Sense Standard: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

### NUMBER SYSTEM

**MA 12.1.3 Computation: Students will compute fluently and accurately using appropriate strategies and tools.**

Indicator	MA 12.1.3.a Compute accurately with real numbers													
<b>Extended Indicator</b>	<b>MAE 12.1.3a Add and subtract two-digit by two digit numbers with regrouping</b>													
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will add two-digit numbers with regrouping.               <ul style="list-style-type: none"> <li>➤ Example: Using a calculator or other accommodations, the student computes <math>47</math> and gets <math>71</math>.  <math display="block">\begin{array}{r} 47 \\ + 24 \\ \hline \end{array}</math></li> <li>➤ Example: Using a calculator or other accommodation, the student computes <math>34</math> and gets <math>19</math>.  <math display="block">\begin{array}{r} 34 \\ - 15 \\ \hline \end{array}</math></li> </ul> </li> </ul>												
Indicator	MA 12.1.3.b Simplify exponential expressions													
<b>Extended Indicator</b>	<b>MAE 12.1.3.b Recognize expanded forms of exponents (powers)</b>													
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• Identify equivalent exponential expressions               <ul style="list-style-type: none"> <li>➤ Example: The student determines that <math>5 \times 5 \times 5</math> is the same as <math>5^3</math>.</li> <li>➤ Example: The student matches <math>4^2</math> it to its expanded form <math>4 \times 4</math>.</li> <li>➤ Example: Given these two sets of cards, the student finds matching pairs.</li> </ul> </li> </ul> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin: 10px 0;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td><math>2 \times 2 \times 2</math></td></tr> <tr><td><math>6 \times 6</math></td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td><math>4 \times 4 \times 4</math></td></tr> <tr><td><math>4 \times 4</math></td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td><math>2 \times 2 \times 2 \times 2</math></td></tr> <tr><td><math>6 \times 6 \times 6</math></td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td><math>4^3</math></td></tr> <tr><td><math>6^3</math></td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td><math>4^2</math></td></tr> <tr><td><math>6^2</math></td></tr> </table> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td><math>2^3</math></td></tr> <tr><td><math>2^2</math></td></tr> </table> </div> <p><b>Teacher Note:</b> Exponents may be read in two different ways. Select the option that better facilitates student understanding</p> <ol style="list-style-type: none"> <li>1) <math>4^2</math> is read “four squared”, <math>6^3</math> is read “six cubed”, and <math>3^4</math> is read “three to the fourth power”.</li> <li>2) <math>4^2</math> is read “four to the second power”, <math>6^3</math> is read “six to the third power”, and <math>3^4</math> is read “three to the fourth power”.</li> </ol>	$2 \times 2 \times 2$	$6 \times 6$	$4 \times 4 \times 4$	$4 \times 4$	$2 \times 2 \times 2 \times 2$	$6 \times 6 \times 6$	$4^3$	$6^3$	$4^2$	$6^2$	$2^3$	$2^2$
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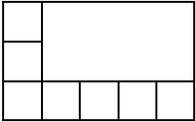
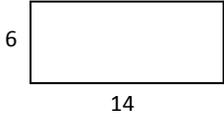
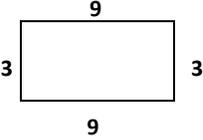
**MA 12.1.4 Estimation: Students will estimate and check reasonableness of answers using appropriate strategies and tools.**

Indicator	MA 12.1.4.a Use estimation methods to check the reasonableness of real number computations and decide if the problem calls for an approximation or an exact number	
<b>Extended Indicator</b>	<b>MAE 12.1.4.a Apply estimation to the nearest 10 on situations (story problems) results involving addition, subtraction, and multiplication</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will determine how to compute addition, subtraction, and multiplication story problems, compute the answer, and apply estimation to the nearest 10 to the result.             <ul style="list-style-type: none"> <li>➤ Example: The student is given the story problem “There are 25 fish in the tank. 7 new fish were added to the tank.” The student determines he will need to add <math>25 + 7</math>, gets his calculator, and gets the answer 32 fish. The student then determines that 32 is closer to 30 than to 40.</li> <li>➤ Example: The student is given 30 pencils and gives one to each of his 7 classmates. To find out how many pencils he will have left, the student determines he must subtract 7 from 30. He takes the answer 23 and determines it is closer to 20 than to 30.</li> <li>➤ Example: The student is given three packages of markers. Each package has 9 markers in it. To determine how many markers she has, the student multiplies <math>3 \times 9</math> and gets 27. She determines that 27 is closer to 30 than 20.</li> </ul> </li> </ul>

**K-12 Comprehensive Geometric/Measurement Standard: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

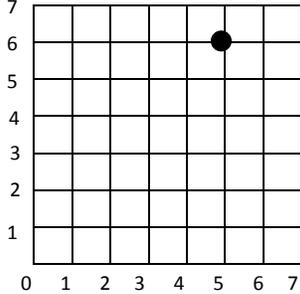
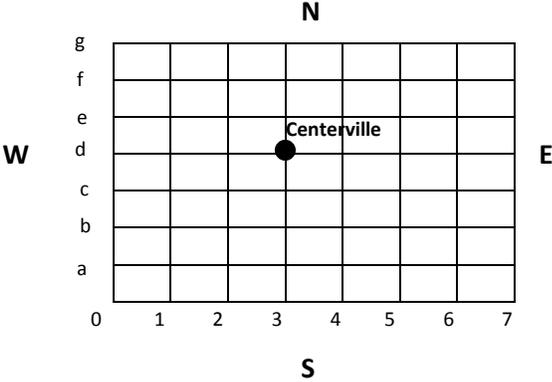
**GEOMETRIC/MEASUREMENT CONCEPTS**

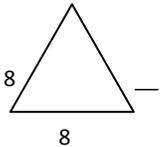
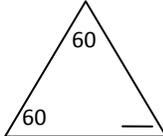
**MA 12.2.1 Characteristics: Students will analyze characteristics, properties, and relationships among geometric shapes and objects.**

Indicator	MA 12.2.1.d Apply geometric properties to solve problems	
<b>Extended Indicator</b>	<b>MAE 12.2.1.d Apply the geometric property, length times width, to find the area of a rectangle</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will find the area of a rectangle by multiplying one side (length) times the other side (width).               <ul style="list-style-type: none"> <li>➤ Example: The student determines the area of the rectangle is 15 square units by 1) counting the 5 boxes along the bottom side (length), 2) counting the 3 boxes along the other side (width), and 3) multiply the two numbers 5 x 3.</li> </ul> </li> </ul> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>➤ Example: The student determines the area of this rectangle by using a calculator to multiply 6 x 14 and get 84 square units.</li> </ul> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>➤ Example: Given a rectangle with the dimensions of each side, the student determines that the numbers 3 and 9 should be multiplied to calculate the area of 27.</li> </ul> <div style="text-align: center;">  </div>

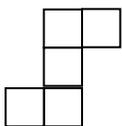
Indicator	MA 12.2.1.e Identify and apply right triangle relationships	
<b>Extended Indicator</b>	<b>MAE 12.2.1.e Identify a right triangle</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will identify a right triangle by recognizing the right angle in the triangle. <ul style="list-style-type: none"> <li>➤ Example: When given examples of several triangles, the student uses a right angle template, lays it on the angles of each triangle, and finds a triangle that has a right angle.</li> <li>➤ Example: The student identifies a right triangle from drawings of various types of triangles.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student should be familiar with the terms “right angle” and “right triangle”.</p>

**MA 12.2.2 Coordinate Geometry:** Students will use coordinate geometry to analyze and describe relationships in the coordinate plane.

Indicator	MA 12.2.2.a Use coordinate geometry to analyze geometric situations	
<b>Extended Indicator</b>	<b>MAE 12.2.2.a Determine the coordinates for a point on a 7 x 7 or larger grid</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will identify the coordinates of an object placed on a 7 x 7 or larger grid.             <ul style="list-style-type: none"> <li>➤ The student looks at the grid and determines that the dot is located at (5,6)</li> </ul> </li> </ul>  <ul style="list-style-type: none"> <li>• The student will determine the location of a point on a simple map grid.             <ul style="list-style-type: none"> <li>➤ Example: The student determines that the town, Centerville, is located at (3,d) on the map.</li> </ul> </li> </ul>  <p><b>Teacher Note:</b> The student should be exposed to the term “grid” but the terms “coordinate/coordinates” are not required knowledge if another word/phrase is more appropriate for student understanding.</p> <p>When teaching students the order for determining coordinates, the saying “Walk to the elevator before you go up.” may be helpful.</p>

Indicator	MA 12.2.2.c Apply the distance formula <b>MASTERY NOT EXPECTED</b>	
Indicator	MA 12.2.2.d Prove special types of triangles and quadrilaterals	
<b>Extended Indicator</b>	<b>MAE 12.2.2.d Identify the properties of equilateral triangles</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>The student will recognize that all sides of an equilateral triangle are the same length. <ul style="list-style-type: none"> <li>➤ Example: When given an equilateral triangle, the student determines the missing side is 8 long.</li> </ul>  </li> <li>The student will recognize that all angles of an equilateral triangle are the same. <ul style="list-style-type: none"> <li>➤ Example: When given an equilateral triangle, the student determines the missing angle is 60</li> </ul>  </li> </ul> <p><b>Teacher Note:</b> The student should be exposed to the term “equilateral triangle”. The term “degrees” when measuring angles is not required knowledge. It may be more appropriate for student understanding to say “The angle is 60 (omit the word degrees)” or ask “How big is this angle?”</p>

**MA 12.2.4 Spatial Modeling: Students will use visualization, spatial reasoning, and geometric modeling to solve problems.**

Indicator	MA 12.2.4.b Use geometric models to visualize, describe, and solve problems	
<b>Extended Indicator</b>	<b>MAE 12.2.4.b Use geometric models to solve problems</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>The student will find the area of irregular shapes using geometric models. <ul style="list-style-type: none"> <li>➤ Example: The student determines the area of this irregular shape is 5 (square units) by counting the squares.</li> </ul>  </li> </ul> <p><b>Teacher Note:</b> Although the student may not use the term “square units, square inches, square feet ” when determining area, the teacher should always ask for the number of “square units, inches, feet”.</p>

**MA 12.2.5 Measurement:** Students will apply the units, systems, and formulas to solve problems.

Indicator	MA 12.2.5.d Convert equivalent rates	
<b>Extended Indicator</b>	<b>MAE 12.2.5.d Convert equivalent rates using money</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"><li>• The student will use rates to determine equivalent amounts of money.<ul style="list-style-type: none"><li>➤ Example: The student recognizes that a nickel is the same as 5 pennies (1 to 5).</li><li>➤ Example: The student has a dollar and wants to trade it for ten dimes. (1 to 10)</li></ul></li></ul>

**K-12 Comprehensive Algebraic Standard: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

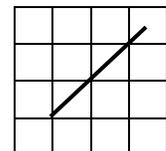
**ALGEBRAIC CONCEPTS**

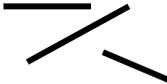
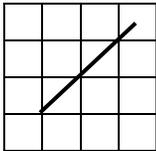
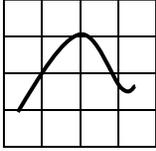
**MA 12.3.1 Relationships: Students will generalize, represent, and analyze relationships using algebraic symbols.**

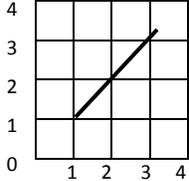
Indicator	MA 12.3.1.a Represent, interpret, and analyze functions with graphs, tables, and algebraic notation, and convert among these representations																
<b>Extended Indicator</b>	<b>MAE 12.3.1.a Interpret values of a function in a table</b>																
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will recognize the pattern in a table to determine an unknown.               <ul style="list-style-type: none"> <li>➤ Example: The following story is read to the student. “Jill picked 10 apples at 8:00. By 9:00, she had picked 20 apples.” The student looks at the table, recognizes that the amount of apples is increasing by 10, and determines that Jill will pick 30 apples by 10:00.</li> <li>➤ Example: The student looks at the table below and recognizes that one package has 2 cookies in it. If there are two packages, he will have 4 cookies. He recognizes that the number of packages is multiplied by 2 to get the total number of cookies. The student uses his calculator to take <math>6 \times 2</math> and determines he will have 12 cookies.</li> </ul> </li> </ul> <div style="text-align: center; margin-top: 10px;"> <table border="1" style="margin: auto;"> <thead> <tr> <th colspan="5">Cookies</th> </tr> </thead> <tbody> <tr> <td>Packages</td> <td>1</td> <td>2</td> <td>3</td> <td>6</td> </tr> <tr> <td>Number of Cookies</td> <td>2</td> <td>4</td> <td>6</td> <td>n</td> </tr> </tbody> </table> </div>	Cookies					Packages	1	2	3	6	Number of Cookies	2	4	6	n
Cookies																	
Packages	1	2	3	6													
Number of Cookies	2	4	6	n													
Indicator	MA 12.3.1.c Identify the slope and intercepts of a linear relationship from an equation or graph																
<b>Extended Indicator</b>	<b>MAE 12.3.1.c Identify a linear relationship from a graph</b>																
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will recognize linear graphs with straight lines.               <ul style="list-style-type: none"> <li>➤ Example: The student determines that this graph is linear.</li> </ul> </li> </ul> <p style="margin-top: 10px;"><b>Teacher Note:</b> The student should be familiar with the term “linear” (a straight line)</p>															

Picking Apples	
8:00	10
9:00	20
10:00	n

Cookies				
Packages	1	2	3	6
Number of Cookies	2	4	6	n



Indicator	MA 12.3.1.d Identify characteristics of linear and non-linear functions	
<b>Extended Indicator</b>	<b>MAE 12.3.1.d Compare linear and non-linear segments and graphs</b>	
	<b>Standards Clarification</b>	<ul style="list-style-type: none"> <li>• The student will determine if a graph is linear or not linear. <ul style="list-style-type: none"> <li>➤ Example: Given several line segments, the student sorts them into two groups –linear and not linear.</li> </ul> </li> </ul> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Linear</p>  </div> <div style="text-align: center;"> <p>Not Linear</p>  </div> </div> <ul style="list-style-type: none"> <li>➤ Example: Given these two graphs, the student compares the graphs and determines that graph “B” is nonlinear.</li> </ul> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p><b>A</b></p> </div> <div style="text-align: center;">  <p><b>B</b></p> </div> </div> <p><b>Teacher Note:</b> The student should be familiar with the term “linear” (a straight line)</p>

Indicator	MA 12.3.1.f Compare and analyze the rate of change by using ordered pairs, tables, graphs, and equations									
<b>Extended Indicator</b>	<b>MAE 12.3.1.f Analyze the effect of the rate of change in a table or graph</b>									
	<p><b>Standards Clarification</b></p> <ul style="list-style-type: none"> <li>The student analyze the rate of change on a graph or table and determine if it rises, falls, or stays the same. <ul style="list-style-type: none"> <li>➤ Example: The student determines that the rate of change goes up on this graph.  </li> <li>➤ The student determines the rate of change is going down on this table. <table border="1" data-bbox="797 743 1081 890"> <thead> <tr> <th colspan="2">Monthly Rainfall</th> </tr> </thead> <tbody> <tr> <td>May</td> <td>5 inches</td> </tr> <tr> <td>June</td> <td>3 inches</td> </tr> <tr> <td>July</td> <td>1 inch</td> </tr> </tbody> </table> </li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student is not expected to know the terms “rise” and “fall” if other words such as “goes up” and “goes down” are more appropriate.</p>	Monthly Rainfall		May	5 inches	June	3 inches	July	1 inch	
Monthly Rainfall										
May	5 inches									
June	3 inches									
July	1 inch									

**MA 12.3.2 Modeling in Context: Students will model and analyze quantitative relationships.**

Indicator	MA 12.3.2.b Represent a variety of quantitative relationships using linear equations and one variable inequalities	
<b>Extended Indicator</b>	<b>MAE 12.3.2.b Solve the quantitative relationship of one variable inequalities using addition and subtraction</b>	
	<p><b>Standards Clarification</b></p> <ul style="list-style-type: none"> <li>The student will determine numbers that make one variable addition inequalities true. <ul style="list-style-type: none"> <li>➤ Example: Given the choices 2 and 6, the student determines the value of n must be 5 in order to make the inequality <math>n + 3 &lt; 8</math> True.</li> <li>➤ Example: Given the choices of 9, 12, and 15, the student determines the value of n must be 15 in order to the inequality <math>n - 4 &gt; 10</math> true.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student must be exposed to the term “inequality”. The term “variable” is not required knowledge if other words or phrases are more appropriate for student understanding.</p>	

**MA 12.3.3 Procedures: Students will apply properties to solve equations and inequalities.**

Indicator	MA 12.3.3.b Exponents <b>MASTERY NOT EXPECTED</b>
Indicator	MA 12.3.3.c Add and subtract polynomials <b>MASTERY NOT EXPECTED</b>
Indicator	MA 12.3.3.d Multiply and divide polynomials <b>MASTERY NOT EXPECTED</b>
Indicator	MA 12.3.3.f Identify and generate equivalent forms of linear equations <b>MASTERY NOT EXPECTED</b>

**K-12 Comprehensive Data Analysis/Probability Standard: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**

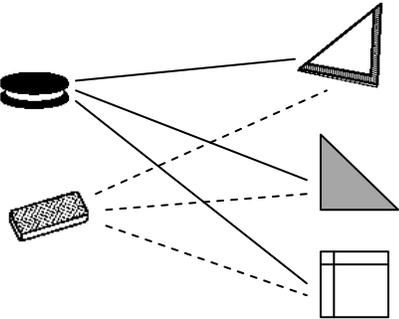
**DATA ANALYSIS/PROBABILITY CONCEPTS**

**MA 12.4.1 Display and Analysis:** Students will formulate a question and design a survey or an experiment in which data is collected and displayed in a variety of formats then select and use appropriate statistical methods to analyze the data.

Indicator	MA 12.4.1.d Describe the shape and determine the center, spread, and outliers of a data set													
<b>Extended Indicator</b>	<b>MAE 12.4.1.d Determine the range of a data set</b>													
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will determine the range of a data set.               <ul style="list-style-type: none"> <li>➤ Example: Given the set of numbers 8, 5, 7, 3, the student will recognize the lowest number is 3 and the highest number is 8. The student will subtract 3 from 8 and determine the range is 5.</li> </ul> </li> <li>• The student will read a table, determine the set of data, and compute the range of the data set.               <ul style="list-style-type: none"> <li>➤ The student reads the table below and determines the data set is 3, 8, and 12. The student then calculates that the range is 9.</li> </ul> </li> </ul> <div style="text-align: center; margin: 10px 0;"> <table border="1" style="margin: auto;"> <thead> <tr> <th colspan="4">Cookie Packages</th> </tr> <tr> <th>Bag Sizes</th> <th>Small</th> <th>Medium</th> <th>Large</th> </tr> </thead> <tbody> <tr> <td>Cookies</td> <td style="text-align: center;">3</td> <td style="text-align: center;">8</td> <td style="text-align: center;">12</td> </tr> </tbody> </table> </div> <p><b>Teacher Note:</b> Students should be exposed to the term “range” in order to understand this standard.</p> <p>To find the range of a data set, the student takes the largest number in the set and subtracts the smallest number in the set. The difference is the range of the set.</p>	Cookie Packages				Bag Sizes	Small	Medium	Large	Cookies	3	8	12
Cookie Packages														
Bag Sizes	Small	Medium	Large											
Cookies	3	8	12											

**MA 12.4.3 Probability: Students will apply and analyze concepts of probability.**

Indicator	MA 12.4.3.b Identify dependent and independent events and calculate their probabilities	
<b>Extended Indicator</b>	<b>MAE 12.4.3.b Differentiate between a dependent and independent event</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>• The student will recognize that sometimes what happens first makes a difference in what happens next. These are dependent events.               <ul style="list-style-type: none"> <li>➤ Example: The student will make a chart of things that happen in their personal life that are dependent events (e.g., stays up late-tired the next day, mom cooks spaghetti for dinner- he eats spaghetti for dinner)</li> <li>➤ Example: The student may pick a new pencil out of a box. There are three pencils (two red and one blue) in a box. The teacher selects the blue pencil first. The student recognizes that he can only pick a red pencil. The student determines that these are dependent events.</li> </ul> </li> <li>• The student will recognize that sometimes what happens first does not make a difference in what happens next. These are independent events.               <ul style="list-style-type: none"> <li>➤ Example: The student recognizes independent events that occur in his daily life (e.g., what he had for breakfast – what his friend had for breakfast, the shirt he pulls from his drawer – the pants he pulls from another drawer)</li> <li>➤ Example: The student is given two spinners with red, blue and yellow spaces. He spins the first spinner and lands on the red space. He gets ready to spin the second spinner and determines that it doesn't matter he landed on a red space on the first spinner. He can get any of the colors, including red, on the second spinner. The student determines that these are independent events.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student must be exposed to the terms “dependent and independent events”.</p> <p>Dependent events are two events in which the outcome of the first event affects the outcome of the second event.</p> <p>Independent events are two events in which the outcome of the first event does not affect the outcome of the second event.</p>

Indicator	MA 12.4.3.c Use the appropriate counting techniques to determine the probability of an event	
<b>Extended Indicator</b>	<b>MAE 12.4.3.c Use the appropriate Counting Principle to determine the combinations for an event</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>The student will use a Counting Principle to determine combinations. <ul style="list-style-type: none"> <li>➤ Example: The student is given three different colored napkins and two different kinds of cookies. Using the Counting Technique, the student determines that there are 6 possible combinations of cookies with napkins</li> </ul> </li> </ul> <p><b>Teacher Note:</b> The student will need to be taught the “Counting Principle” for determining probability (see below).</p> <p style="text-align: center;"><u>Counting Principle Demonstration</u> (cookie example above)</p>  <p>After drawing a line from each cookie to a different napkin, the student counts the total number of lines drawn (6 in this example) to determine the number of cookie/napkin combinations possible.</p>
Indicator	MA 12.4.3.d Analyze events to determine if they are mutually exclusive	
<b>Extended Indicator</b>	<b>MAE 12.4.3.d Determine if two events are mutually exclusive</b>	
	<p><b>Standards Clarification</b></p>	<ul style="list-style-type: none"> <li>The student will determine if two given events are mutually exclusive. <ul style="list-style-type: none"> <li>➤ The student is given two pairs of shoes that he can wear. He recognizes that he can't wear both pairs at the same time.</li> <li>➤ The student watches the coin flip at the beginning of a football game and recognizes that the coin can't land on both heads and tails at the same time.</li> </ul> </li> </ul> <p><b>Teacher Note:</b> Events are <b>mutually exclusive</b> if they cannot happen at the same time. The student is not expected to know the term “mutually exclusive” if another term such as “at the same time” is more appropriate for student understanding.</p>