NSCAS NEBRASKA STUDENT-CENTERED ASSESSMENT SYSTEM

Summative Assessment
Mathematics Grade 3 Range Achievement Level Descriptors

What are Range Achievement Level Descriptors?

Range Achievement Level Descriptors (ALDs) demonstrate how skills described in the Nebraska College and Career Ready Standards for Mathematics likely change and become more sophisticated as ability and performance increases. The ALDs also describe the evidence needed to help infer where a student is along the range. This range is defined by Nebraska using three levels:

- Developing – not yet demonstrating proficiency
- On Track – demonstrating proficiency
- Advanced– demonstrating advanced proficiency

The ALDs help show the within-standard reasoning complexity that increases in sophistication as the achievement levels increase. Such skill advancement is often related to increases in content difficulty, increases in reasoning complexity, and a reduction in the supports required for students to demonstrate what they know within a task or item.

The Range ALDs provide a way to communicate a progression that is visible and usable to all stakeholders, while also providing a foundation for a robust bank of assessment items that meets the needs of all Nebraska students.

How were the Nebraska's Mathematics Range ALDs updated for the new standards?

Draft Range ALDs for the new standards were created and reviewed by panels comprised of Nebraska educators during Spring of 2023. The updated ALDs were shared with NDE and their feedback was applied.

How will Nebraska's ELA Range ALDs change in relation to the new standards?

The updated ALDs were revised to reflect the new standards. The updated ALDs will be taken to the 2023 Item Writing Workshop where they will be used to help facilitate item writing. Feedback will be recorded at the upcoming Item Writing Workshop from Nebraska educators based on their use of the ALDs for writing items and at the upcoming standard setting from panelists. This feedback will then be used to update the ALDs. The updated ALDs will be shared with NDE to obtain their final recommendations.

NSCAS Mathematics
Grade 3 Range ALDs

Indicator	Developing learners do not yet demonstrate proficiency in the knowledge and skills necessary at this grade level, as specified in the assessed Nebraska College and Career Ready Standards. A developing learner…	On Track learners demonstrate proficiency in the knowledge and skills necessary at this grade level, as specified in the assessed Nebraska College and Career Ready Standards. An on-track learner…	Advanced Benchmark learners demonstrate advanced proficiency in the knowledge and skills necessary at this grade level, as specified in the assessed Nebraska Advanced Standards. An advanced learner…
NUMBER: Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.			
3.N.1 Numeric Relationships: Students will demonstrate and represent multi-digit numbers using place value understanding.			
3.N.1.a Read, write, and demonstrate multiple equivalent representations for numbers up to 10,000 using objects or visual representations including standard form and expanded form.	Reads, writes, and demonstrates equivalent representations for whole numbers up to 1,000 using objects or visual representations. DOK: 1 Determines the place value of a digit in numbers between 1,000 and 10,000. DOK: 1 Determines how many tens, hundreds, or thousands are represented by a given number. (e.g., 20 hundreds is equivalent to 2 thousands). DOK: 1 Determines the value of the missing digit for a whole number from 1,000 up to 10,000 given the incomplete expanded form/notation of the number (e.g., finds the value of the missing number in 5,000 + ? + 40 + 7 = 5,847). DOK: 1 Determines the expanded notation for a whole number up to 999 given the standard form or a visual representation of the number (includes objects). DOK: 1 (Refer to 2.N.3.a and 2.M.3.b for numbers within the range of 0 - 1,000.) Max DOK: 1	Determines the equivalent word form or visual representation for a whole number from 1,000 up to 10,000 given the number in standard form (includes objects). (e.g., determine the word form of a number shown in base-ten blocks.) DOK: 1 Determines the standard or word form for a whole number from 1,000 up to 10,000 given the expanded form/notation or a visual representation of the number (includes objects). DOK: 1 Determines the expanded form/notation for a whole number from 1,000 up to 10,000 given the standard form or a visual representation of the number (includes objects). DOK: 1 Determines the standard form for a whole number from 1,000 up to 10,000 given the number in values of ones, tens, hundreds, or thousands. DOK: 1 Determines the expanded form/notation or a visual representation for a whole number from 1,000 up to 10,000 given the word form of the number. DOK: 1 Max DOK: 1	Analyzes representations of whole numbers between 1,000 and 10,000 (e.g., explain whether or not 6,000 + 400 + 1 represents 6,401). DOK: 2 Max DOK: 2
3.N.1.b Represent and justify comparisons of whole numbers up to 10,000 using number lines and reasoning strategies.	Uses symbols to represent comparisons between two whole numbers when one value is less than 1,000 and one value is between 1,000 and 10,000. DOK: 1 Determines the least or greatest number given two or more numbers between 1,000 and 10,000. DOK: 1 (Refer to 2.N.3.c for three-digit numbers.) Max DOK: 1	Uses symbols to represent comparisons of two whole numbers both being between 1,000 and 10,000. DOK: 1 Determines the number that is greater than a given number and less than another given number, both being between 1,000 and 10,000. (e.g., finds the number that is less than 1,569 and greater than 1,550.) DOK: 2 Analyzes comparisons between two numbers where at least one value is between 1,000 and 10,000 using number lines and reasoning strategies (e.g., explain why 780 is less than 1,040). DOK: 2 Max DOK: 2	Orders three or more whole numbers with at least one value being between 1,000 and 10,000 (may or may not use symbols). DOK: 1 Max DOK: 1
3.N.2 Fractions: Students will develop understanding of fractions as numbers.			

3.N.2.a Partition two-dimensional figures into equal areas and express the area of each part as a unit fraction of the whole	Determines the unit fraction that represents the area of each part of equally partitioned shapes. Area terminology is used. DOK: 1 Shapes are divided but not shaded. Denominators are limited to 2, 3, and 4. Max DOK: 1	Identifies the figure that is partitioned into equal parts of equal area (e.g., partition the figure so that each part has an area of 1/6 the area of the shape). DOK: 2 The words half/halves, third(s), fourth(s), sixth(s) and eighth(s) etc. can be used to describe area. Max DOK: 2	Explains the steps involved in partitioning a shape into equal parts of equal area with or without a visual (e.g., describe how a square can be partitioned so that each part has an area of 1/4 the area of the shape and recognize true statements about how the shape is partitioned). DOK: 2 Max DOK: 2
3.N.2.b Find parts of a whole using visual fraction models.	Determines the parts of a whole given a visual representation and represents the visual representation as a statement (e.g., 2 shaded sections of a circle with 3 equal sections). DOK: 1 Shapes should be divided into 2, 3, or 4 parts. Max DOK: 1	Determines the parts of a whole given a visual representation and represents the visual representation as a statement for partitions other than 2, 3, or 4 (e.g., 4 shaded sections of a circle with 10 equal sections). DOK: 1 Determines the fraction that represents the shaded part of a whole. DOK: 1 Determines the part of a whole that represents a fraction. (e.g. Draws a rectangle with 6 sections and shades 2 of them to represent 2/6.) DOK: 1 Max DOK: 1	Analyzes representations of parts of a whole as fractions or visual representations (e.g.,explains the meaning of the numerator and the meaning of the denominator). DOK: 2 Max DOK: 2
3.N.2.c Represent and understand a fraction as a number on a number line.	Determines the unit fraction represented by a point plotted on a number line with whole number values labeled and the scale of the number line corresponds to the denominator of the fraction. DOK: 1 Plots unit fractions on a number line with whole number values labeled and the scale of the number line corresponds to the denominator. DOK: 1 Max DOK: 1	Determines the non-unit fraction represented by a point plotted on a number line with whole number values labeled and the scale of the number line corresponds to the denominator of the fraction. DOK: 1 Plots non-unit fractions on a number line with whole number values labeled and the scale of the number line corresponds to the denominator. DOK: 1 Plots a fraction from 0 up to and including 1 on a number line when partitions are not provided. DOK: 2 Max DOK: 2	Determines the fraction represented by a point plotted on a number line with whole number values labeled and the scale of the number line is a multiple or factor of the denominator but the fraction itself is not labeled (e.g., asking about 1/5 when scale is tenths or asking about 4/6 when scale is thirds). DOK: 2 Plots a fraction on a number line with whole number values labeled when the scale of the number line is a multiple or factor of the denominator. DOK: 2 Explains the process for representing fractions on a number line using words, numbers, or visual representations. DOK: 2 Max DOK: 2
3.N.2.d Show and identify equivalent fractions using visual representations including pictures, manipulatives, and number lines.	Determines a visual representation/model of an equivalent fraction when given a visual representation/model of the fraction where the parts representing the numerator are adjacent. Includes number lines. DOK: 1 Ex: Given a square with 2/4 shaded, determine a visual model of the same size that also has 2/4 shaded. The shading should be in adjacent parts for the original square and adjacent parts for the new model. Max DOK: 1	Identifies an equivalent fraction given a visual representation/area model of the fraction representing part of a whole. Does not include number lines (Refer to 3.N.2.c). DOK: 1 Determines an equivalent fraction given a visual representation/model of a fraction representing part of a set or whole. Does not include number lines (Refer to 3.N.2.c)). DOK: 2 Determines the fraction represented by a point plotted on a number line with all tick marks for whole numbers and all tick marks for fractions labeled, the scale of the number line is a multiple or factor of the denominator (e.g., asking about 1/5 when scale is tenths and the point is labeled as 1/5 or asking about 4/6 when the scale is thirds and the point is labeled 2/3). DOK: 1 Determines an equivalent fraction given one or more number lines. Each number line has a scale that is a multiple or factor of the denominator (e.g., given one number line marked in thirds and another number line marked in sixths, determine that 1/3 and 2/6 are equivalent) DOK: 1 Determines an equivalent visual representation of a given fraction. Does not include number lines. (Refer to 3.N.2.c). DOK: 2 Max DOK: 2	Determines a visual representation/model of an equivalent fraction when given a visual representation/area model of the fraction where parts representing the numerator are not adjacent DOK: 2 Explains or justifies the relationships between the numerators or denominators of equivalent fractions, using words, symbols, or visual representations. DOK: 2 Ex: The fraction 1/2 is equivalent to another fraction with a numerator of 4 (4/?). What is the denominator of that fraction? Justify your answer. Max DOK: 2

3.N.2.e Justify whole numbers as fractions and identify fractions that are equivalent to whole numbers.	Determines a fraction with denominator n representing a given whole number and vice versa given a visual representation of a whole number divided into n equal parts (e.g., number line from 0 to 3 using a scale of 1/4, student identifies 12/4 as the fraction equivalent to 3). DOK: 1 Max DOK: 1	Determines a fraction equivalent to a whole number given a whole number, including 1. DOK: 1 Determines a whole number equivalent to a fraction given the fraction. DOK: 1 Explains the relationship between the numerator and denominator for fractions that are equivalent to whole numbers using words, symbols, or visual representations. DOK: 2 Ex: A fraction has a denominator of 5. Explain what the numerator must be for the fraction to equal a whole number. DOK: 1	Analyzes equivalence relationships between a whole number and a fraction. DOK: 2 Ex: Do the fractions 12/4 and 27/9 represent the same whole number? Justify your answer. Explains how to create a model to show a fraction and a whole number are equivalent. DOK: 3 Max DOK: 3
3.N.2.f Compare and order fractions having the same numerators or denominators by reasoning about their size.	Uses symbols to record comparisons between two fractions of the same whole, all having the same denominator but different numerators or all having the same numerator but different denominators given a visual representation of the fractions (e.g., fraction model, number line). DOK: 1 Max DOK: 1	Uses symbols to record comparisons between two fractions of the same whole, all having the same numerator but different denominators or all having the same denominator but different numerators. DOK: 1 Orders three or more fractions of the same whole, all having the same numerator but different denominators or all having the same denominator but different numerators given a visual representation of the fractions. DOK: 2 Orders three or more unit fractions. DOK: 2 Orders three or more fractions of the same whole, all having the same denominator but different numerators. DOK: 2 Orders three or more non-unit fractions of the same whole, all having the same numerator but different denominators. DOK: 2 Analyzes a comparison of two fractions, all having the same denominator but different numerators or all having the same numerator but different denominators using verbal reasoning/or visual representations (e.g., explains why 2/5, is less than 4/5). DOK: 2 Max DOK: 2	Analyzes ordered sequences of three or more fractions, all having the same numerator but different denominators or all having same denominator but different numerators using verbal reasoning and/or visual representations (e.g., explains why 1/8, 1/5, and 1/2 are in order from least to greatest). DOK: 2 Max DOK: 2
ALGEBRA: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.			
3.A.1 Operations and Algebraic Thinking: Students will extend understanding of multiplication and apply operational properties to solve problems.			
3.A.1.a Add and subtract up to 4-digit whole numbers with or without regrouping using strategies based on place value and algorithms.	Adds or subtracts within 10,000, without regrouping. At least one value must be 4 digits. DOK: 1 Max DOK: 1	Adds or subtracts within 10,000, with regrouping. At least one value must be 4 digits. DOK: 2 Max DOK: 2	Analyzes addition or subtraction within 10,000, with or without regrouping. DOK: 2 Max DOK: 2
3.A.1.b Determine the reasonableness of whole number sums and differences using estimations and number sense.	Assessed at the local level		
3.A.1.c Solve and write one-step whole number equations to represent authentic problems using the four operations including equations with an unknown start, unknown change, or unknown result.	Assessed at the local level		
3.A.1.d Interpret and solve two-step authentic problems involving whole numbers and the four operations.	Assessed at the local level		

3.A.1.e Apply commutative, associative, distributive, identity and zero properties as strategies to multiply and divide.	Assessed at the local level		
3.A.1.f Use drawings, words, arrays, symbols, repeated addition, equal groups, and number lines to interpret and explain the meaning of multiplication and division and their relationship.	Represents multiplication or division as a numerical expression when given the expression represented in another form (visual, words, repeated addition). DOK: 1 Represents multiplication or division as a description of equal groups or arrays when given a visual (e.g. A picture showing 2 rows of pencils with 8 pencils in each row can be described as 2 rows of 8 pencils). DOK: 1 Max DOK: 1	Generates an equivalent representation of a multiplication or division expression in another form to represent its meaning. DOK: 2 Represents multiplication or division as a description of equal groups or arrays when given a context (e.g. Someone with 16 pencils can make equal groups by arranging the pencils in 2 equal groups of 8). DOK: 2 Identifies the operation that will undo multiplication or division (e.g. Given that a number times 3 is 24 knows that the number is also 24 divided by 3.) DOK: 1 Explains the relationship between multiplication and division using drawings, words, arrays, symbols, repeated addition, equal groups, and number lines. DOK: 3 Max DOK: 3	Explains equivalence between two different representations of multiplication or division using words, symbols, or a visual representation. DOK: 3 Ex: A person has 2 boxes of pencils. And each box has 8 pencils. Explain if 2 x 8 represents the total number of pencils. Then, make an array that shows the number of pencils. Max DOK: 3
3.A.1.g Fluently multiply and divide within 100 using strategies based on understanding and properties of operations.	Assessed at the local level		
3.A.1.h Multiply one-digit whole numbers by multiples of 10 in the range of 10 to 90 using strategies based on place value and properties of operations.	Multiplies any multiple of 10 by 1. DOK: 1 Max DOK: 1	Multiplies a one-digit number times 10, 20, 30, 40, 50, 60, 70, 80, or 90. DOK: 1 Max DOK: 1	Analyzes multiplication of a one-digit whole number by a multiple of 10 within 10 - 90 (e.g., explains a strategies for multiplying 4 times 80). DOK:2 Max DOK: 2
GEOMETRY: Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.			
3.G.1 Shapes and Their Attributes: Students will recognize and represent the attributes of two-dimensional shapes.			
3.G.1.a Sort quadrilaterals into categories according to their attributes.	Determines whether a single quadrilateral belongs in a single category of parallelogram, trapezoid, rhombus, square, or rectangle. DOK: 2 Max DOK: 2	Sorts a set of multiple quadrilaterals into two or more categories of parallelogram, trapezoid, rhombus, square, and/or rectangle. DOK: 2 Determines a single category for three or more quadrilaterals. Includes the use of parallelograms and/or trapezoids. (e.g., when given a trapezoid, rectangle, and rhombus, determine that they are all quadrilaterals). DOK: 2 Max DOK: 2	Sorts quadrilaterals to illustrate the relationship between the categories of parallelogram, trapezoid, rhombus, square, and/or rectangle (e.g., sorting quadrilaterals into a Venn diagram labeled with categories). DOK: 2 Max DOK: 2
3.G.2 Area and Perimeter: Students will recognize perimeter and area as attributes of plane figures and understand concepts of area measurement.			
3.G.2.a Solve authentic problems involving perimeters of polygons when given the side lengths or when given the perimeter and unknown side length(s).	Determines perimeters of polygons when given images of the polygons with all side lengths shown (must include context). DOK: 1 Determines the length of one unknown side of a polygon when given an image, the perimeter, and the lengths of all remaining sides (must include context). DOK: 2 Compares the perimeters of two or more polygons when given all side lengths of the polygons (must include context). DOK: 2 Max DOK: 2	Determines perimeters of polygons when given all side lengths of the polygon without an image (must include context). DOK: 1 Determines the length of one unknown side of a polygon when given perimeter and the lengths of all remaining sides without an image (must include context). DOK: 2 Max DOK: 2	Determines the lengths of the unknown sides of a rectangle when given the perimeter and only one side length or one pair of side lengths, with or without an image (must include context). DOK: 2 Max DOK: 2

3.G.2.b Use concrete and pictorial models to measure areas in square units by counting square units.	Assessed at the local level		
3.G.2.c Find the area of a rectangle with whole-number side lengths by modeling with unit squares; show that area can be additive and is the same as it would be found by multiplying the side lengths.	Determines the area of a rectangle when given an image of the rectangle with whole-number side lengths and unit squares shown (may include context). DOK: 1 Identifies multiplication expressions or equations that represent the area of images of rectangles with unit squares (may include context). DOK: 1 Compares the areas of two or more rectangles when given images of the rectangles with whole-number side lengths and unit squares shown (may include context). DOK: 2 Max DOK: 2	Determines or creates images of rectangles with whole-number side lengths and unit squares that result in given areas or multiplication models for the area (may include context). DOK: 2 Writes multiplication expressions or equations to represent the area of images of rectangles with unit squares (may include context). DOK: 2 Shows and explains why the area of a rectangle with unit squares can be found by both counting the unit squares and by multiplying the side lengths (may include context). DOK: 3 Max DOK: 3	Analyzes statements about finding the area of rectangles with unit squares (may include context) (e.g., determines and explains an error in finding the area). DOK: 3 Max DOK: 3
3.G.3 Measurement: Students will use tools to solve measurement problems.			
3.G.3.a Identify and use the appropriate tools and units of measurement, both customary and metric, to solve authentic problems involving length, weight, mass, liquid volume, and capacity (within the same system and unit).	Assessed at the local level		
3.G.3.b Estimate and measure length to the nearest half inch, fourth inch, and centimeter.	Measures length to the nearest half inch or fourth inch or centimeter when the ruler is placed in the diagram. DOK: 2 Max DOK: 2	Uses a ruler to measure length to the nearest half inch or fourth inch or centimeter when the ruler is not placed in the diagram. DOK: 2 Max DOK: 2	None at this level.
3.G.4 Time: Students will tell time to the nearest minute and find elapsed time.			
3.G.4.a Tell and write time to the minute using both analog and digital clocks.	Identifies the time to the minute from a digital or analog clock (may include context). DOK: 1 Max DOK: 1	Writes time to the minute from an analog clock (may include context). DOK: 1 Determines time to the minute from an analog clock using time interval terms quarter to, half past, etc. (may include context). DOK: 1 Represents a given time on an analog clock (e.g., places hour and minute hand on an analog clock to represent 6:01). DOK: 1 Max DOK: 1	Explains or justifies given times and their representations on a digital or analog clock (e.g., explains why a clock with the minute hand at the 3 represents 15 minutes). DOK: 2 Max DOK: 2
3.G.4.b Solve authentic problems involving addition and subtraction of time intervals and find elapsed time.	Determines an end time when given an on-the-hour start time and a duration less than one hour in a context. DOK: 1 Determines an end time when given a start time and a duration that does not extend past the hour in a context. DOK: 1 Max DOK: 1	Determines the end time when given a start time and a duration that extends past the hour mark in a context. DOK: 1 Determines the start time when given an end time and a duration that does not extend beyond the hour in a context. DOK: 1 Determines the elapsed time when given a start time and an end time in a context. DOK: 1 Determines how much longer one duration is than the other when given two different durations in a context. DOK: 2 Determines the total amount of time when given two different durations in a context. DOK: 2 Max DOK: 2	Determines the start time when given an end time and a duration that extends beyond the hour in a context. DOK: 1 Determines the total amount of time when given three or more durations in a context. DOK: 2 Determines the earliest/latest end time when given multiple start times and multiple durations in a context. DOK: 2 Max DOK: 2

DATA: Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.			
3.D.1 Data Collection: Students will formulate questions to collect, organize, and represent data.			
3.D.1.a Create scaled picture graphs and scaled bar graphs to represent a data set with more than four categories, including data collected through observations, surveys, and experiments.	Identifies a scaled pictograph or scaled bar graph that represents a given data set. DOK: 1 Creates a scaled pictograph or scaled bar graph to represent data requiring scales of 2, 5, or 10. Includes answering questions about steps in creating the graph. DOK: 2 (Note: Graphs must have more than 4 categories) Max DOK: 2	Identifies a scaled pictograph or scaled bar graph that represents an incomplete data set or data set that requires interpretation. DOK: 2 Ex: Janice, Ty, Deb and Fred earned a total of 13 points. Ty earned 4 points. Janice, Deb, and Fred earned the same number of points. Which bar graph shows this data? Creates a scaled pictograph or scaled bar graph to represent the data requiring scales other than 1, 2, 5, or 10. Includes answering questions about steps in creating the graph. DOK: 2 (Note: Graphs must have more than 4 categories) Max DOK: 2	Analyzes scaled pictographs or scaled bar graphs in relation to their corresponding data (e.g., explains an error in how a pictograph was created given a data set and a pictograph that incorrectly represents the data). DOK: 3 (Note: Graphs must have more than 4 categories) Max DOK: 3
3.D.1.b Generate and represent data using line plots where the horizontal scale is marked off in halves and whole number units.	Determines a line plot that represents the data when given data consisting of whole numbers. May include answering a question about a step in creating the line plot. DOK: 2 Max DOK: 2	Determines a line plot that represents the data when given data that includes whole numbers and halves. May include answering a question about a step in creating the line plot. DOK: 2 Max DOK: 2	Answers multiple questions about the creation of a line plot that represents data when given data consisting of whole numbers, or halves. DOK: 2 Analyzes line plots with a scale of 1/2 in relation to their corresponding data (e.g., explain why using a scale from 0 - 2 marked in halves on a line plot is a good fit for the given data.). DOK: 3 Max DOK: 3
3.D.2 Analyze Data and Interpret Results: Students will analyze the data and interpret the results.			
3.D.2.a Analyze data and make simple statements using information represented in picture graphs, line plots, and bar graphs.	Answers questions about quantities based on data given a pictograph, line plot, or bar graph with a scale of 1. Includes combining or comparing multiple categories of data to answer questions about quantity. DOK: 2 Max DOK: 2	Answers questions about quantities based on data given a pictograph, line plot, or bar graph with a scale other than 1. Includes combining or comparing multiple categories of data to answer questions about quantity. DOK: 2 Solves problems about missing information related to quantities in data given a pictograph, line plot, or bar graph with a scale of 1, 2, 5, or 10. DOK: 2 Ex: Given the total quantity and a graph with three of the four categories represented, determines the quantity of the fourth category. Max DOK: 2	Solves problems about missing information related to quantities given data in a pictograph, line plot, or bar graph with a scale other than 1, 2, 5, or 10, DOK: 2 Answers questions about quantities that must be estimated based on data given a bar graph with a scale other than 1 or 2. Includes combining or comparing multiple categories of data to answer questions about quantity. DOK: 2 Analyzes statements about quantities based on data represented in a pictograph, line plot, or bar graph (e.g., determine the error in a given statement was caused by misreading the key in a pictograph). DOK: 3 Max DOK: 3