NSCAS NEBRASKA STUDENT-CENTERED ASSESSMENT SYSTEM

Summative Assessment
Mathematics Grade 6 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 6 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.			
6.N.1 Numeric Relationships: Students will demonstrate, represent, and show relationships among fractions, decimals, percents, and integers within the base-ten number system.			
6.N.1.a Determine common factors and common multiples.	Determines common multiples for a given pair of prime numbers. DOK: 1 Max DOK: 1	Determines either common factors or common multiples for two whole numbers both less than 100 when presented with or without their prime factorization. If provided, the prime factorization can be with or without exponents. At least one of the numbers should be a composite number. DOK: 1 Max DOK: 1	Determines common factors or common multiples for two whole numbers with at least one greater than 100 when presented with or without their prime factorization. If provided, the prime factorization can be with or without exponents. At least one of the numbers should be a composite number. DOK: 1 Determines the greatest common factor or least common multiple for two whole numbers presented with or without their prime factorization. If provided, the prime factorization can be with or without exponents. DOK: 2 Do not use terms like GCF or LCM. Max DOK: 2
6.N.1.b Determine prime factorization of numbers with and without exponents.	Determines the prime factorization for a whole number less than or equal to 100 without exponents. DOK: 1 Max DOK: 1	Determines the prime factorization for a whole number less than 100 with exponents. DOK: 1 Determines the prime factorization for a whole number greater than 100 with or without exponents. DOK: 1 Max DOK: 1	Analyzes and explains prime factorization of whole numbers (e.g., The prime factorization of a number is... What is the prime factorization of 4 times that number?). DOK: 3 Max DOK: 3
6.N.1.c Model integers using drawings, words, number lines, models and symbols.	Determines the opposite of a number in numeral form or on a number line. DOK: 1 Identifies integers as including values that are less than zero (e.g., identifying which list of given values includes only whole numbers). DOK: 1 Models an integer greater than zero on a number line. DOK: 1 Determines the integer representing a given situation or description when directional or increase/decrease language is used (e.g., above 0, loses money). DOK: 1 Max DOK: 1	Models an integer less than zero on a number line. DOK: 1 Max DOK: 1	Identifies or describes a scenario to represent integers other than zero. (e.g., describe a scenario that can be modeled by the value -5). DOK: 2 Max DOK: 2

6.N.1.d Determine absolute value of rational numbers.	Determines the absolute value of an integer. DOK: 1 Max DOK: 1	Determines the absolute values of positive and negative fractions, mixed numbers, or decimals. DOK: 1 Max DOK: 1	Determines multiple numbers that have the same given absolute value. DOK: 2 Analyzes the evaluation of the absolute value of a rational number. DOK: 3 Ex: Do -6 and 6 have the same absolute value? Justify your answer using the definition of absolute value. Describes a scenario that uses the definition of absolute value. DOK: 3 Max DOK: 3
6.N.1.e Compare and order numbers including non-negative fractions and decimals, integers, and absolute values and locate them on the number line.	Uses symbols to represent comparisons between two negative integers or one negative and one positive integer, with a number line. DOK: 1 Orders positive and negative numbers where at least one value is a negative integer and no absolute values are used when provided a number line. DOK: 1 Orders three or more positive and negative integers with a number line where at least one value is a negative integer and no absolute values are used. DOK: 1 Records comparisons of positive numbers (whole numbers, mixed numbers, fractions, and/or decimals to the tenths, hundredths, or thousandths) using symbols (e.g., < or >). Must include a number line. DOK: 2 Orders three or more positive numbers (whole numbers, mixed numbers, fractions, and/or decimals to the thousandths). Must include a number line. DOK: 2 Determines what positive number is between two given positive numbers (whole numbers, mixed numbers, fractions, and/or decimals to the thousandths). Must include a number line. DOK: 2 Max DOK: 2	Uses symbols to represent comparisons between an integer and the absolute value of an integer. May or may not be the same integer. DOK: 2 Orders positive and negative integers where at least one value is an absolute value of a positive or negative integer, with or without a number line provided. DOK: 2 Orders three or more positive numbers (whole numbers, mixed numbers, fractions, and/or decimals) with at least one number being a decimal to the ten-thousandths or a percent. DOK: 2 Max DOK: 2	Analyzes comparisons between two integers where at least one value is a negative integer or the absolute value of a negative integer (e.g., explains why |-3| is greater than 2). DOK: 3 Analyzes comparisons between a non-negative fraction or decimal and another value that is a negative integer or the absolute value of a negative integer (e.g., explains why |-3| is greater than 1.2). DOK: 3 Max DOK: 3
6.N.2 Operations: Students will compute with fractions and decimals accurately.			
6.N.2.a Divide multi-digit whole numbers and decimals using an algorithm.	Divides a whole number with 5 or more digits by a one- or two-digit number with or without remainders. DOK: 1 Divides a whole number with 4 digits by a three-digit number with or without remainders. DOK: 1 Max DOK: 1	Divides a whole number with 5 or more digits by a number with three or more digits with or without remainders. DOK: 1 Divides decimals to the thousandths where at least one value is a decimal. DOK: 1 Max DOK: 1	Analyzes division of whole numbers with 5 or more digits by another whole number (e.g., explain why the quotient of 15,562 divided by 31 is greater than the quotient of 15,562 divided by 62). DOK: 3 Max DOK: 3
6.N.2.b Divide non-negative fractions and mixed numbers.	Divides a unit fraction by another unit fraction. DOK: 1 Max DOK: 1	Divides non-unit fractions and whole numbers or mixed numbers. DOK: 1 Divides mixed numbers and whole numbers or other mixed numbers. DOK: 1 Max DOK: 1	Analyzes division of non-negative fractions and mixed numbers with or without a visual reference. DOK: 3 Ex: Is 6/5 ÷ 3/5 = 6÷3? Justify your answer. Max DOK: 3

6.N.2.c Evaluate numerical expressions including absolute value and/or positive exponents with respect to order of operations.	Determines the first step in evaluating a numerical expression involving the order of operations with whole number exponents and/or absolute value. DOK: 1 Evaluates multi-step numerical expressions involving the order of operations that include exponents of 2 and no absolute value. DOK: 1 (Refer to MA 5.N.1.d for evaluating numerical expressions involving the order of operations with whole numbers without exponents.) Max DOK: 1	Evaluates multi-step numerical expressions involving the order of operations with absolute value and/or whole number exponents greater than or equal to 3. DOK: 2 Max DOK: 2	Analyzes the evaluation of numerical or algebraic expressions using order of operations with whole number exponents and/or absolute value (e.g., explains why a value is or is not equal to a numerical expression based on the order of operations). DOK: 3 Determines the operation or placement of grouping symbols needed to make a numerical expression involving the order of operations with whole number exponents and/or absolute value equal a given value. DOK: 2 Max DOK: 3
*RATIOS AND PROPORTIONS: Students will understand ratio concepts and use ratio reasoning to solve problems.			
6.R.1 Ratios and Rates: Students will understand the concept of ratios and unit rates, use language to describe the relationship between two quantities, and use them to solve authentic situations.			
6.R.1.a Determine ratios from concrete models, drawings, and/or words.	Assessed at the local level		
6.R.1.b Explain and determine unit rates.	Assessed at the local level		
6.R.1.c Find a percent of a quantity as a rate per 100 and solve problems involving finding the whole, given a part and the percent.	Solves one-step problems involving calculating the percent of a given whole or calculating a percent from a given part and whole. DOK: 2 Identifies a percent as a rate per 100. DOK: 1 Max DOK: 2	Solves two- or more -step problems involving percents of numbers, excluding percent change. DOK: 2 Solves problems involving finding the whole given the part and percent, excluding percent change. DOK: 2 Max DOK: 2	Justifies, compares, and/or analyzes solutions to problems involving percents of numbers, excluding percent change (e.g., percentages of groups, compare 60% of two groups which have different totals). DOK: 3 Max DOK: 3
6.R.1.d Convert among fractions, decimals, and percents using multiple representations.	Converts between percents and fractions or percents and decimals for whole percents greater than or equal to 1%. DOK: 1 Max DOK: 1	Generates equivalent values for given fractions, decimals, and percents for fractions with denominator greater than 10 (other than 100) or percents that include decimals (e.g., 5.5% = 0.055 = 55/1,000). DOK: 1 Max DOK: 1	Converts among fractions and decimal approximations for fractions with denominators of 3, 6, 7, or 9 (e.g., 3/7 ≈ 0.429, 0.11111111 ≈ 1/9). DOK: 1 Explains and justifies a conversion between fractions, decimals, and percents, using symbols, visual models, or other representations. DOK: 3 Ex: Do 3/5 and 60% represent the same quantity? Justify your answer. Max DOK: 3
6.R.1.e Solve authentic problems using ratios, unit rates, and percents.	Determines the unit rate for a given context. DOK: 2 Max DOK: 2	Solves authentic problems involving percents of numbers, excluding percent change. DOK: 2 Solves authentic problems that involve ratios and unit rates with non-negative rational numbers. DOK: 2 Max DOK: 2	Uses given a:b and b:c ratios to solve multi-step authentic problems involving a:c. DOK: 2 Justifies, compares, and/or analyzes solutions to authentic problems involving percents of numbers, excluding percent change (e.g., percentages of groups, compare 60% of two groups which have different totals). DOK: 3 Determines, compares, and analyzes solutions to authentic problems involving more than one ratio or unit rate with non-negative rational numbers (e.g., better buy of two or more items, comparison of speeds), including identifying details of the problem that are not relevant. DOK: 3 Max DOK: 3

6.R.1.f Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	Determines equivalent measurements between two systems of measurement, metric and customary (i.e. metric to customary or vice versa). May include context. DOK: 2 Information for conversions must be provided in the item or on a reference sheet. Max DOK: 2	Solves two-step authentic problems that involve converting metric to customary or vice versa. The conversion is considered one step in the process. DOK: 2 Information for conversions must be provided in the item or on a reference sheet. Max DOK: 2	Analyzes/evaluates solutions to one-or two-step authentic problems involving conversions between metric and customary units. DOK: 2 Information for conversions must be provided in the item or on a reference sheet. Max DOK: 2
6.R.2 Represent: Students will represent ratios and rates on the coordinate plane.			
6.R.2.a Identify the ordered pair of a given point in the coordinate plane.	Determines the ordered pair for a given point within the first quadrant or for a point on the positive x- or positive y- axis when the point is not on a grid line intersection (e.g., point shown is at (2.5, 7) when the scale for both axes is 1). DOK: 1 Determines the ordered pair for a given point within quadrants 2, 3, or 4 or for a point on the negative x- or negative y-axis when the point is on a grid line intersection (e.g., point shown is at (-5, - 3) when the scale for both axes is 1). DOK: 1 Max DOK: 1	Determines the ordered pair for a point within quadrants 2, 3, or 4 or on the negative x- or negative y-axis when the point is not on a grid line intersection (e.g., point shown is at (-5.5, -3) or (0, -3.5) when the scale for both axes is 1). DOK: 1 Max DOK: 1	Determines how the values in the ordered pairs for two or more points are related based on the coordinate plane. DOK: 2 Ex: Given a coordinate plane with points R and S, determines that the x-value for point S is greater than the x-value for point R since point S is to the right of point R. Max DOK: 2
6.R.2.b Plot the location of an ordered pair in the coordinate plane.	Assessed at the local level		
6.R.2.c Identify the location of a given point in the coordinate plane (e.g. axis, origin, quadrant).	Determines the quadrant of a given point in the coordinate plane when the ordered pair only contains positive numbers, with or without a visual. DOK 1 Recognizes points that lie on the x-axis, y-axis, or origin. DOK: 1 Max DOK: 1	Determines the quadrant of a given point in the coordinate plane when the ordered pair contains at least one negative number, with or without a visual. DOK: 1 Determines which axis (or the origin) a given point belongs on when the ordered pair contains at least one zero, with or without a visual. DOK: 1 Max DOK: 1	Explains or justifies the general properties of a coordinate based upon which quadrant it is graphed in (e.g., (-2, -3) is in quadrant 3 because they are both negatives, and quadrant 3 always has both coordinates being negative.). DOK: 2 Max DOK: 2
6.R.2.d Make tables of equivalent ratios relating quantities with whole number measurements.	Identifies tables of equivalent ratios relating quantities with whole-number measurements without a given ratio. DOK: 2 Max DOK: 2	Completes a table of equivalent ratios relating quantities with whole-number measurements when the ratio is not given but can be determined from other measurements in the table or problem. DOK: 2 Solves one- and two-step problems that can be solved using tables of equivalent ratios relating quantities with whole-number measurements to compare ratios. Generating the table(s) is one step in the process. DOK: 2 Max DOK: 2	Explains or justifies a method for determining relationships from tables and using that information to extend the table. DOK: 2 Determines or creates a ratio that converts the part:part from the table to part:whole or converts the part:whole from the table to part:part when given a proportional relationship (e.g., The table shows the amount of yellow and blue paint in a mixture used to make green paint, and the ratio shows the amount of yellow to green paint from the mixture.). DOK: 2 Uses given a:b and b:c ratios to determine or complete a table that uses a:c. DOK: 2 Explains or justifies the use of a given ratio to complete a table. DOK: 2 Max DOK: 2
6.R.2.e Use the constant of proportionality to find the missing value in ratio tables.	Determines the missing table value(s) when given a ratio and partial table with consecutive multiples. DOK: 1 Identifies tables of equivalent ratios relating quantities with whole-number measurements given a ratio. DOK: 2 Max DOK: 2	Determines the missing value(s) in a table when given a proportional relationship shown in the table. DOK: 1 Determines or creates a proportional table when given a ratio. DOK: 2 Max DOK: 2	Determines or creates a ratio to describe the relationship in a proportional table. DOK: 2 Determines the proportional relationship in a table and uses the relationship to extend the table. DOK: 2 Max DOK: 2
6.R.2.f Plot the pair of values from a ratio table on the coordinate plane.	Plots pairs of values representing equivalent ratios of whole-number measurements on the coordinate plane (in the first quadrant) when the ratio and/or completed table is given. DOK: 2 Max DOK: 2	Plots pairs of values representing equivalent ratios of whole-number measurements on the coordinate plane (in the first quadrant) when the ratio is not given but can be determined from other measurements in a table or problem. DOK: 2 Max DOK: 2	Plots pairs of values representing equivalent ratios of whole-number measurements on the coordinate plane (in the third quadrant) when the ratio is not given but can be determined from other measurements in a table or problem. DOK: 2 Max DOK: 2

6.R.2.g Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation.	Identifies points within a propotional context using the ordered pairs and graph (e.g. after 3 hours, how many widgets had been produced?) DOK: 1 Max DOK: 1	Explains the meaning of coordinates of any point on the graph of a proportional relationship in terms of the context given the graph. DOK: 2 Max DOK: 2	Explains what a change from one point to another on the graph means in terms of the given situation. 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.			
6.A.1 Algebraic Processes: Students will apply the operational properties when evaluating expressions and solving equations and inequalities.			
6.A.1.a Recognize and generate equivalent algebraic expressions involving the distributive property and combining like terms.	Assessed at the local level		
6.A.1.b Given the value of the variable, evaluate algebraic expressions with non-negative rational numbers with respect to order of operations which may include absolute value.	Evaluates one- or two-step algebraic expressions involving the order of operations, excluding exponents and/or absolute value, with non-negative rational numbers when given the value of the variable. DOK: 1 Max DOK: 1	Evaluates multi-step algebraic expressions involving the order of operations, which may or may not include exponents and/or absolute value, with non-negative rational numbers when given the value of the variable. DOK: 2 Max DOK: 2	Analyzes the use of a given value of the variable to evaluate algebraic expressions involving the order of operations, which may include exponents and/or absolute value, with non-negative rational numbers (e.g., explains predicts why a given value for the variable does or does not result in a specific evaluation for the algebraic expression). DOK: 3 Max DOK: 3
6.A.1.c Use substitution to determine if a given value for a variable makes an equation or inequality true.	Uses substitution of a whole number to determine if a given value for a variable makes a one- or two-step equation involving whole numbers true (e.g., Which value of x makes the equation x + 6 = 9 - 2 true?). DOK: 2 Max DOK: 2	Uses substitution of a non-negative rational number to determine if a given value for a variable makes an equation involving non-negative rational numbers with one or more steps true (e.g., Which value of x makes the equation 1/3x +6 = 9 + 12 true?). DOK: 2 Uses substitution with non-negative rational numbers to determine if a given value for a variable makes a one-step inequality true (e.g., Which value of x makes the inequality x + 6 > 9 true?). DOK: 2 Max DOK: 2	Uses substitution with non-negative rational numbers to determine if a given value for a variable makes a two-step inequality true (e.g., Which value of x makes the inequality 1/3x + 6 > 9 true?). DOK: 2 Justifies a conclusion about solutions to an equation or inequality with non-negative rational numbers based on the results of substitution. For two-step inequalities, limit substitution to whole numbers. DOK: 2 Max DOK: 2
6.A.1.d Solve one-step equations with non-negative rational numbers using addition, subtraction, multiplication, and division.	Solves one-step equations where the unknown is the solution. DOK: 1 Max DOK: 1	Solves one-step equations with non-negative rational numbers, including at least one fraction or decimal, using any of the four basic operations (e.g., What is the value of x in the equation 7 - x = 5 2/3?). DOK: 1 Max DOK: 1	Explains or justifies solutions to one-step equations with non-negative rational numbers, including at least one fraction or decimal, using the four basic operations. DOK: 2 Determines two or more one-step equations with non-negative rational numbers, including at least one fraction or decimal, that have the same value for the unknown (e.g., Which equation has the same solution for x as x + 1 1/3 = 5 2/3?). DOK: 2 Max DOK: 2

6.A.1.e Solve one-step inequalities with whole numbers using addition, subtraction, multiplication, and division and represent solutions on a number line (e.g., graph 3x > 3).	Matches inequalities to graphs. DOK: 1 Max DOK: 1	Solves one-step inequalities involving addition or subtraction of whole numbers (e.g., Which inequality is equivalent to x + 5 > 20?). DOK: 1 Represents solutions on a number line for one-step inequalities involving addition or subtraction of whole numbers. DOK: 2 Solves one-step inequalities involving multiplication or division of whole numbers. DOK: 1 Represents solutions on a number line for one-step inequalities involving multiplication or division of whole numbers. DOK: 2 Max DOK: 2	Compares the solutions of one-step inequalities involving whole numbers. DOK: 2 Explains or justifies solutions to one-step inequalities involving whole numbers. DOK: 2 Explains or justifies representations of solutions on a number line for one-step inequalities involving whole numbers. DOK: 2 Max DOK: 2
6.A.2 Applications: Students will solve authentic problems with algebraic expressions, equations, and inequalities.			
6.A.2.a Create algebraic expressions (e.g., one operation, one variable as well as multiple operations, one variable) from word phrases.	Determines one-variable, one-operation algebraic expressions that correspond to word phrases (may include basic context). DOK: 1 Determines multiple-operation numerical expressions that correspond to word phrases (may include basic context). DOK: 1 Max DOK: 1	Determines one-variable, multiple-operation algebraic expressions that correspond to word phrases (may include basic context). DOK: 1 Creates one-variable, one- or multiple-operation algebraic expressions from word phrases (may include basic context). DOK: 2 Max DOK: 2	Determines one-variable algebraic expressions from word phrases for more complex contexts. DOK: 2 Explains or justifies a given algebraic expression does or does not match a word phrase (may include basic or complex context). DOK: 3 Max DOK: 3
6.A.2.b Write equations (e.g., one operation, one variable) to represent authentic situations involving non-negative rational numbers.	Assessed at the local level		
6.A.2.c Write inequalities (e.g., one operation, one variable) to represent authentic situations involving whole numbers.	Determines one-variable one-step inequalities from a graph shown on the number line with out without a context. DOK: 1 Max DOK: 1	Represents a comparison statement with a one variable inequality (must include context) (e.g., represent "the door must be no more than 7 feet tall" as d ≤ 7). DOK: 1 Determines one-variable one-step inequalities from word phrases or pictures (e.g., create a picture of a balance scale to represent x + 3 > 4). DOK: 2 Max DOK: 2	Explains or justifies the creation of a one-variable one-step inequality from a picture and vice versa. DOK: 3 Explains or justifies the creation of a one-variable one-step inequality from a word phrase and vice versa. DOK: 3 Max DOK: 3
GEOMETRY: Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.			
6.G.1 Attributes: Students will identify and describe geometric attributes of two- dimensional shapes.			
6.G.1.a Identify and create nets to represent two-dimensional drawings of prisms and pyramids.	Determines the name of the three-dimensional solid when given a net of a rectangular prism (including cubes). DOK: 1 Max DOK: 1	Determines the name of the three-dimensional solid when given a net of a pyramid or non-rectangular prism. DOK: 1 Determines nets based on two-dimensional drawings of rectangular prisms (e.g., given the shape(s) for the faces, put them together to form the net). DOK: 2 Determines nets based on two-dimensional drawings of pyramids. DOK: 2 Max DOK: 2	Justifies why a specific net does or does not represent a given prism, or pyramid (e.g., explain why the net represents the pyramid shown or explain how to change the net so it represents the pyramid). DOK: 3 Max DOK: 3
6.G.2 Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.			

SEE WORK WITH COORDINATE PLANES IN RATIOS AND PROPORTIONS (6.R.2)			
6.G.3 Measurement: Students identify geometric attributes that create two- and three-dimensional shapes in order to perform measurements and apply formulas to find area and volume.			
6.G.3.a Determine the area of quadrilaterals and triangles, by composition and decomposition of these shapes, as well as applications of properties and formulas. Quadrilaterals include parallelograms and trapezoids.	Determines the areas of parallelograms (other than squares and rectangles) and triangles when given necessary dimensions and no extraneous dimensions (may include context). DOK: 1 This includes representations of models which lend themselves to decomposition and rearrangement. (Refer to MA 4.G.3.a for areas of squares and rectangles.) Max DOK: 1	Determines the areas of parallelograms (other than squares and rectangles) and triangles when given necessary dimensions and extraneous dimensions (may include context). DOK: 2 Determines the areas of trapezoids when given the necessary dimensions with or without extraneous dimensions (may include context). DOK: 1 Determines the area of quadrilaterals (including parallelograms and trapezoids) and triangles by composition of polygons with or without extraneous dimensions (may include context). DOK: 2 Determines an unknown height or base of parallelograms (other than squares and rectangles) and triangles when given the area and one necessary dimension (may include context). DOK: 2 Max DOK: 2	Determines an unknown height or base of trapezoids when given the area and one necessary dimension (may include context). DOK: 2 Explains how changing one or more dimensions will affect the area of a quadrilateral or triangle (may include context). DOK: 3 Determines the area of quadrilaterals (including parallelograms and trapezoids) and triangles by decomposition of polygons with or without extraneous dimensions (may include context). DOK: 2 Max DOK: 3
6.G.3.b Determine the surface area of rectangular prisms and triangular prisms using nets as well as application of formulas.	Determines the surface area of rectangular and triangular prisms from the net of the prisms, where at least one of each unique face has the required measurements labeled (may include context). DOK: 1 Max DOK: 1	Determines the surface area of rectangular and triangular prims from the net of the prisms, where at least one unique face has one or more measurements that must be inferred from other labeled measurements (may include context). DOK: 2 Determines the surface area of a rectangular prism or triangular prism when no net is given and the necessary dimensions are given. DOK: 2 Max DOK: 2	Determines the value of an unknown dimension when given a net of a rectangular or triangular prism with an unknown dimension and the surface area of the prism (may include context). DOK: 2 Analyzes how changing one or more dimensions on the net of a rectangular or triangular prism will affect the surface area of the prism (may include context). DOK: 3 Ex: Determines that adding 2 to the length of a rectangular prism makes the surface area greater but does not make it two times greater. Max DOK: 3
6.G.3.c Apply volume formulas for triangular prisms.	Determines the volume of a triangular prism when area of base and height of prism are given. DOK: 1 Max DOK: 1	Determines the volume of a triangular prism when all necessary dimensions are given. DOK: 2 Max DOK: 2	Determines the missing height of a triangular prism when given the volume and the area of the Base or the necessary dimensions of the base. DOK: 2 Analyzes how changing one or more dimensions on triangular prism will affect the volume of the prism (may include context). DOK: 3 Max DOK: 3
DATA: Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.			
6.D.1 Data Collection & Statistical Methods: Students will formulate statistical investigative questions, collect data, and organize data. No additional indicators at this level.			
6.D.2 Analyze Data and Interpret Results: Students will represent and analyze the data and interpret the results.			

6.D.2.a Represent data using dot plots, box-and-whisker plots, and histograms.	Assessed at the local level		
6.D.2.b Solve problems using information presented in dot plots, box-and-whisker plots, histograms, and circle graphs.	Solves problems not related to measures of central tendency using information presented in dot plots, box plots, histograms, or circle graphs. DOK: 2 Max DOK: 2	Solves problems related to measures of central tendency using information presented in dot plots, box plots, or histograms. Measures of central tendency should be easily read from the graph. DOK: 2 Max DOK: 2	Compares different representations of the same set of data and draw conclusions about the data based on those representations (one data set, two representations). DOK: 3 Max DOK: 3
6.D.2.c Find and interpret the mean, median, mode, and range for a set of data.	Determines the mode for a set of data presented in a list, table, or visual representation. DOK: 2 Determines the range of a set of data presented in a list or table. DOK: 2 Determines median for a given set of data that is ordered (and has an odd amount) in a list or table or a visual representation where some calculation or interpretation is still required. DOK: 2 Max DOK: 2	Determines the range for a set of data presented in a visual representation. DOK: 2 Determines the mean and/or median for a given set of data in a list or table or a visual representation where some calculation or interpretation is still required. DOK: 2 Interprets the mode and/or range of a set of data based on the context. DOK: 2 Ex: The range of students attending an after school art class is 11. The fewest number of students to attend is 25. How many students attended on the day with the greatest attendance? Max DOK: 2	Determines the missing value(s) in an incomplete list of data when given a measure of central tendency (mean, median, or mode). DOK: 2 Interprets the meaning of the mean and/or median of a set of data based on the context. DOK: 2 Ex: Given a list of costs. A store wants to make $1 profit on the sale of each item. The store uses the average cost to determine the sale price of the item. What is the sale price of the item? Max DOK: 2
6.D.2.d Compare the mean, median, mode, and range from two sets of data.	Makes comparison statements about the mean, median, mode, and/or range between two sets of data where both sets include numbers less than 10. DOK: 2 Max DOK: 2	Makes comparison statements about the mean, median, mode, and/or range between two sets of data where at least one set of data includes numbers greater than or equal to 10. May include how changing the data set affects the measure of central tendency. DOK: 2 Max DOK: 2	Evaluates and critiques a comparison of two sets of data regarding mean, median, mode, and/or range. Must include mean and/or median. DOK: 3 Ex: Given two data sets and a statement comparing the means of the data sets, justify whether or not the comparison is true. Max DOK: 3
6.D.2.e Compare and interpret data sets based upon their measures of central tendency and graphical representations (e.g., center, spread, and shape).	Makes a general statement about the central tendency of data (mean, median or mode) presented in a dot plot or histogram. DOK: 2 Max DOK: 2	Solves problems not related to measures of central tendency using information presented in stem-and-leaf plots. DOK: 2 Makes a general statement about the measures of central tendency (mean, median or mode), spread, and/or shape of data presented in a box plot, stem-and-leaf plot, or histogram. DOK: 2 Makes a general statement about the spread and/or shape of data presented in a dot plot or histogram. (e.g., the data is skewed to the left). DOK: 2 Max DOK: 2	Compares measures of central tendency, spread, and/or shape of two data sets presented in graphs. Comparisons that use central tendency should be general comparisons that avoid the need to calculate the measures of central tendency. DOK: 2 Justifies reasonableness of interpretations about data based on a comparison of the graph of two data sets. DOK: 3 Ex: Compare the graphs of two data sets and explain whether the mean or median is the best measure used to compare them. Max DOK: 3
6.D.3 Probability: Students will interpret and apply concepts of probability.			
6.D.3.a Identify a list of possible outcomes for a simple event.	Identifies a single outcome for a simple event. DOK: 1 Max DOK: 1	Identifies a list of possible outcomes for a simple event. DOK: 1 Max DOK: 1	Identifies a missing outcome from an incomplete list of possible outcomes for a simple event. DOK: 1 Max DOK: 1

6.D.3.b Describe the theoretical and experimental probability of an event using a fraction, percentage, and decimal.	None at this level.	Describes an event when given the theoretical or experimental probability as a fraction, percentage, or decimal and any necessary information (e.g., Based on the diagram, which event has a probability of 1/5.). DOK: 2 Determines and describes the theoretical or experimental probability of one event using a fraction, percentage, or decimal when given the description of the event and necessary information. DOK: 2 Max DOK: 2	Analyzes the theoretical or experimental probability of an event represented by a fraction, percentage, or decimal. DOK: 3 Ex: Explains how to change the calculations to better represent the event or situation. Max DOK: 3
6.D.3.c Express the degree of likelihood (possible, impossible, certain, more likely, equally likely, or less likely) of simple events.	Determines if an event is impossible, unlikely, equally likely or unlikely, more likely, or certain from given probability. DOK: 1 Max DOK: 1	Determines if an event is impossible, unlikely, equally likely or unlikely, more likely, or certain from a description. DOK: 1 Determines an appropriate probability from a description of impossible, unlikely, equally likely or unlikely, more likely, or certain. DOK: 1 Max DOK: 1	Explains why an event is impossible, unlikely, equally likely, more likely, or certain. DOK: 2. Max DOK: 2
6.D.3.d Compare and contrast theoretical and experimental probabilities.	Differentiates between experimental or theoretical probabilities. DOK: 1 Ex: Given how the probability was calculated, determine whether it is experimental or theoretical, or given the probabilities and different pieces of information, determine which is theoretical and which is experimental. Compares/contrasts experimental and theoretical probabilities when the theoretical probability is provided in addition to the number of outcomes of the experiment. DOK: 2 Max DOK: 2	Compares/contrasts experimental and theoretical probabilities for given independent events when given the number of outcomes for the desired event and the total number of outcomes for each type of probability (no calculations). DOK: 2 Compares/contrasts experimental and theoretical probabilities for given independent events that require some calculations. Primary focus should be on compare/contrast. DOK: 2 Max DOK: 2	Extends the use of experimental or theoretical probabilities to making decisions about the outcomes or experiments. DOK: 3 Ex: Based on the outcomes to this point, explain whether the theoretical or experimental probability should be used to plan for or predict the total number of each outcome. Ex: Determine which spinner is most likely to produce the given experimental outcomes. Max DOK: 3