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 (CCR) Standards 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
- College and Career Benchmark – 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 Nebraska's Mathematics ALDs created?

The ALDs were developed in an iterative manner, centered around multiple teacher reviews and evidence of student learning from the NSCAS assessment.

After the 2017 Content/Bias Review of new development to the NE CCR Mathematics Standards, a draft of the ALDs was created based on the feedback from Nebraska educators on the items and standards. NDE reviewed the draft and provided initial feedback which was then incorporated. A committee of Nebraska educators reviewed the ALDs with NDE's feedback implemented. The educator feedback was used to update the ALDs.

The updated ALDs were taken to the 2018 Item Writing Workshop where they were used to help facilitate item writing. Feedback was again gathered from Nebraska educators based on their use of the ALDs for writing items. The ALDs were also used at the 2018 Content/Bias review to help review the items. Additional educator feedback was documented at each grade.

Feedback from both item writing and committee reviews was then used to update the ALDs prior to taking the ALDs to the 2018 Standard Setting meeting and presenting them to the committee, which was comprised of Nebraska educators.

The ALDs were then updated based on the final cut scores from the assessment and a comparison of a representative sample of items in the NSCAS item bank to the ALDs. The updated ALDs were shared with NDE to obtain their final recommendations.

Notes about interpreting the final ALDs can be found at the bottom of each page.

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…	CCR Benchmark learners demonstrate advanced proficiency in the knowledge and skills necessary at this grade level, as specified in the assessed Nebraska College and Career Ready Standards. A college-and-career-ready learner…
MA 3.1 NUMBER: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.			
MA.3.1.1 Numeric Relationships: Students will demonstrate, represent, and show relationships among whole numbers and simple fractions within the base-ten number system.			
MA 3.1.1.a Read, write and demonstrate multiple equivalent representations for numbers up to 100,000 using objects, visual representations, including standard form, word form, expanded form, and expanded notation.	Reads, writes, and demonstrates equivalent representations for whole numbers up to 1,000 using objects or visual representations. Determines the place value of a digit in numbers between 1,000 and 10,000. Determines how many hundreds, thousands, or ten-thousands are represented by a given number. (e.g., 20 thousands is equivalent to 2 ten-thousands). Determines the value of the missing digit for a whole number from 1,000 up to 100,000 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). (Refer to *MA 2.1.1.b*, *MA 2.1.1.c*, and *MA 2.1.1.d* for numbers within the range of 0 - 1,000.)	Determines the equivalent word form or visual representation for a whole number from 1,000 up to 100,000 given the number in standard form (includes objects). Determines the standard or word form for a whole number from 1,000 up to 100,000 given the expanded form/notation or a visual representation of the number (includes objects). Determines the expanded form/notation for a whole number from 1,000 up to 100,000 given the standard form or a visual representation of the number (includes objects).	Determines the expanded form/notation or a visual representation for a whole number from 1,000 up to 100,000 given the word form of the number. Analyzes representations of whole numbers between 1,000 and 100,000 (e.g., explain whether or not 60,000 + 4,000 + 1 represents 64,001).
MA 3.1.1.b Compare whole numbers through the hundred thousands and represent the comparisons using the symbols >, < or =.	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 1,000,000. Determines the least or greatest number given two or more numbers between 1,000 and 1,000,000. (Refer to *MA 2.1.1.e* for three-digit numbers.)	Uses symbols to represent comparisons of two whole numbers, both being between 1,000 and 1,000,000. Orders three whole numbers with at least one value being between 1,000 and 1,000,000 (may or may not use symbols).	Orders more than three whole numbers with at least one value being between 100,000 and 1,000,000 (may or may not use symbols). Analyzes comparisons between two numbers where at least one value is between 1,000 and 1,000,000 (e.g., explain why 7,800 is less than 10,400).
MA 3.1.1.c Round a whole number to the tens or hundreds place, using place value understanding or a visual representation.	Rounds a two-digit or three-digit whole number to the tens or hundreds place with or without a visual model.	Rounds a whole number from 1,000 up to 100,000 to the tens or hundreds place given a visual model.	Uses place value understanding to round a whole number from 1,000 up to 100,000 to the tens or hundreds place without a visual model. Analyzes the rounding of a whole number up to 100,000 to the tens or hundreds place using place value understanding or a visual representation (e.g., explain why 5,610 rounds to 6,000 when rounded to the nearest thousand).

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- Within a statement, "and" usually means "and/or" unless specifically called out within the progression or at another indicator.
- When assessing content, we allow for both the statement as well as its converse to be assessed.
  Ex: For "Identifies equations or expressions that represent one-step real-world problems with whole numbers." the student may be given the real-world scenario and asked to identify the equation or be given the equation and asked to identify the corresponding real-world scenario. In some cases, the converse is called out for clarity based on teacher feedback. In other cases, the converse may fall at a different level within a progression or a different indicator.

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MA 3.1.1.d 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. Plots unit fractions on a number line with whole number values labeled and the scale of the number line corresponds to the denominator.	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. Plots a non-unit fractions on a number line with whole number values labeled and the scale of the number line corresponds to the denominator.	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). 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. Plots a fraction from 0 up to and including 1 on a number line when partitions are not provided. Explains the process for representing fractions on a number line using words, numbers, or visual representations.
MA 3.1.1.e Express whole numbers as fractions, and recognize 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).	Determines a fraction equivalent to a whole number given a whole number, including 1. Determines a whole number equivalent to an improper fraction given the improper fraction.	Explains the relationship between the numerator and denominator for fractions that are equivalent to whole numbers using words, symbols, or visual representations. Ex: A fraction has a denominator of 5. Explain what the numerator must be for the fraction to equal a whole number. Analyzes equivalence relationships between a whole number and a fraction. Ex: Do the fractions 12/4 and 27/9 represent the same whole number? Justify your answer.

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MA 3.1.1.f 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. Ex: Given a square with 2/4 shaded, determine a visual model that also has 2/4 shaded. The shading should be in adjacent parts for the original square and adjacent parts for the new model.	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 *MA 3.1.1.d*). 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 *MA 3.1.1.d*). Determines the fraction represented by a point plotted on a number line with whole number values labeled, the scale of the number line is a multiple or factor of the denominator, and the hashmarks on the number line have fraction labels (e.g., asking about 1/5 when scale is tenths and the point is labeled as 1/5). Determines an equivalent visual representation of a given fraction. Does not include number lines. (Refer to *MA 3.1.1.d*).	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 Explains or justifies the relationships between the numerators or denominators of equivalent fractions, using words, symbols, or visual representations. 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.
MA 3.1.1.g Find parts of a whole and parts of a set using visual representations.	Determines the parts of a whole or parts of a set given a visual representation and represents the visual representation as a statement (e.g., 4 shaded circles out of 10 total). Determines the fraction that represents the shaded part of a whole. Determines the part of a whole that represents a fraction. (e.g. Draws a rectangle with 4 sections and shades 2 of them to represent 2/4.)	Determines the fraction that represents parts of a set. Determines the parts of a set that represent a fraction.	Analyzes representations of parts of a whole or parts of a set as fractions or visual representations (e.g., explains the meaning of the numerator and the meaning of the denominator).

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MA 3.1.1.h Explain and demonstrate how fractions ¼, ½, ¾ and a whole relate to time, measurement, and money, and demonstrate using visual representation.	Determines that 1/4 of an hour is 15 minutes using statements or a visual representation. Determines that 1/2 of an hour is 30 minutes using statements or a visual representation. Determines that 1/4 of a dollar is one quarter out of four quarters using statements or a visual representation. Determines that 1/2 of a dollar is 50 cents or two quarters using statements or a visual representation. Determines liquid measures of 1/4, 1/2, or 3/4 units.	Determines various coin combinations to arrive at 1/4 or 1/2 of a dollar using statements or a visual representation. Determines that 3/4 of a dollar is three quarters using statements or a visual representation. Determines that 3/4 of an hour is 45 minutes using statements or a visual representation. Classifies fractions of time, money, or other measurements based on the relationship to an hour, dollar, appropriate units respectively. Ex: Given a visual and told it measures 1 inch, determines a visual that measures 1/2 inch or 1/4 inch based on fraction understanding instead of using a ruler.	Determines various coin combinations to arrive at 3/4 of a dollar. Analyzes fractions and their relationship to time, money, or other measurements using words or visual representations (limit 1/4, 1/2, 3/4, whole). Ex: Explains why 1/2 of a dollar is equivalent to 50 cents.
MA 3.1.1.i Compare and order fractions having the same numerators or denominators using visual representations, comparison symbols, and verbal reasoning.	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).	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. 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. Orders three or more unit fractions. Orders three or more fractions of the same whole, all having the same denominator but different numerators. 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).	Orders three or more non-unit fractions of the same whole, all having the same numerator but different denominators. 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).
MA 3.1.2 Operations: Students will demonstrate the meaning of multiplication and division with whole numbers and compute accurately.			
MA 3.1.2.a Add and subtract within 1,000 with or without regrouping.	Adds or subtracts within 1,000, without regrouping. At least one value must be 3 digits.	Adds or subtracts within 1,000, with regrouping. At least one value must be 3 digits.	Analyzes addition or subtraction within 1,000, with or without regrouping.

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MA 3.1.2.b Select and apply the appropriate methods of computation when solving one- and two- step addition and subtraction problems with four-digit whole numbers through the thousands (e.g., visual representations, mental computation, paper-pencil).	Assessed at the local level		
MA 3.1.2.c Use drawings, words, arrays, symbols, repeated addition, equal groups, and number lines to explain the meaning of multiplication.	Represents multiplication as a symbol expression when given the expression represented in another form (visual, words, repeated addition).	Generates an equivalent representation of a multiplication symbol expression in another form to represent its meaning.	Explains equivalence between two different representations of multiplication using words, symbols, or a visual representation. 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.
MA 3.1.2.d Use words and symbols to explain the meaning of the Zero Property and Identity Property of multiplication.	Assessed at the local level		
MA 3.1.2.e Multiply one digit whole numbers by multiples of 10 in the range of 10 to 90.	Multiplies a one-digit number times 10, 20, 30, 40, or 50. Multiplies any multiple of 10 by 1.	Multiplies a one-digit number times 60, 70, 80, or 90.	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).
MA 3.1.2.f Use objects, drawings, arrays, words and symbols to explain the relationship between multiplication and division (e.g., if 3 x 4 = 12 then 12 ÷ 3 = 4).	Determines a visual representation of a multiplication or division problem within 100 when given a related visual representation of the problem. Determines the symbolic multiplication and division problems within 100 for a given visual representation.	Determines related multiplication and division problems within 100 when both are written in symbolic form or one is symbolic and one is a visual representation or words.	Explains the relationship between multiplication and division within 100 using words, symbols, or a visual representation.
MA 3.1.2.g Fluently (i.e. automatic recall based on understanding) multiply and divide within 100.	Assessed at the local level		
MA 3.1.2.h Determine the reasonableness of whole number sums and differences in real-world problems using estimation, compatible numbers, mental computations, or other strategies.	Assessed at the local level		
MA 3.2 ALGEBRA: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.			
MA 3.2.1 Algebraic Relationships: Students will demonstrate, represent, and show relationships with expressions and equations.			

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MA 3.2.1.a Identify arithmetic patterns (including patterns in the addition or multiplication tables) using properties of operations.	Determines the rule for an increasing or decreasing arithmetic pattern shown in a list or table without any gaps using addition or subtraction only. Determines the missing value in a list or table with a single gap when given a sequence from an increasing or decreasing arithmetic pattern using addition or subtraction only.	Determines the rule for an increasing or decreasing arithmetic pattern shown in a list or table without any gaps using multiplication or division only. Determines the rule for an increasing or decreasing arithmetic pattern shown in a list or table with gaps in the pattern using addition, subtraction, or multiplication. Determines the next number in a list or table based on an increasing and/or decreasing arithmetic pattern with or without the rule given. Determines the missing values for an increasing and/or decreasing arithmetic pattern shown in a list or table with gaps in the pattern using addition, subtraction or multiplication. Determines a list or table based on a given increasing and/or decreasing arithmetic rule.	Determines the rule for a decreasing arithmetic pattern shown in a list or table with gaps in the pattern using division. Extends a list or table by two or more terms based on an increasing and/or decreasing arithmetic pattern with or without the rule given. Determines the missing values for a decreasing arithmetic pattern shown in a list or table with gaps in the pattern using division. Analyzes rules for an increasing and/or decreasing arithmetic pattern from a list or table (e.g., explains why a rule does or does not match a list or table).
MA 3.2.1.b Interpret a multiplication equation as equal groups (e.g., interpret 4 × 6 as the total number of objects in four groups of six objects each). Represent verbal statements of equal groups as multiplication equations.	Determines the multiplication expression or equation that represents a visual model of equal groups of objects.	Determines the multiplication expression or equation that represents a description about equal groups of objects.	Determines a description of a situation that could be modeled by a given multiplication expression or equation. Analyzes interpretations and/or representations of a multiplication expression or equation as equal groups (e.g., explains why an interpretation/representation does or does not represent a given multiplication expression or equation).
MA 3.2.2 Algebraic Processes: Student will apply the operational properties when multiplying and dividing.			
MA 3.2.2.a Apply the commutative, associative, and distributive properties as strategies to multiply and divide.	Assessed at the local level		
MA 3.2.2.b Solve one-step whole number equations involving addition, subtraction, multiplication, or division, including the use of a letter to represent the unknown quantity.	Solves one-step whole number addition equations with an unknown. Solves one-step whole number subtraction equations with an unknown as the subtrahend or the difference. (e.g. 12 - x = 8)	Solves one-step whole number subtraction equations with an unknown as the minuend. (e.g. x - 4 = 8) Solves one-step whole number multiplication equations with an unknown. Solves one-step whole number division equations with an unknown as the dividend (e.g. x/4 = 8).	Solves one-step whole number division equations with an unknown as the divisor (e.g. 30/x =6). Determines two or more one-step whole number equations that have the same value for the unknown. Analyzes the process of solving one-step whole number equations (e.g., explain why 5 = x/4 is the same as x = 4 × 5).
MA 3.2.3 Applications: Students will solve real-world problems involving equations with whole numbers.			

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MA 3.2.3.a Solve real-world problems involving two-step equations (involving two operations) involving whole numbers using addition and subtraction.	Solves two-step real-world addition and/or subtraction problems that can be solved with whole number equations involving 1 or 2 two-digit numbers. Ex: Sara bought 40 stickers. She gave 2 stickers to Juan and 6 stickers to Kyle. How many stickers does Sara have left?	Solves two-step real-world addition and/or subtraction problems that can be solved with whole number equations involving 1 or 2 three-digit numbers. Ex: Sara bought 400 stickers. She gave 25 stickers to Juan and 26 stickers to Kyle. How many stickers does Sara have left?	Solves two-step real-world addition and/or subtraction problems that can be solved with whole number equations involving 3 or more three-digit numbers. Ex: Sara bought 400 stickers. She gave 125 stickers to Juan and 126 stickers to Kyle. How many stickers does Sara have left?
MA 3.2.3.b Write an equation (e.g., one operation, one variable) to represent real-world problems involving whole numbers.	Identifies equations or expressions that represent one-step real-world problems with whole numbers. Does not include the use of a letter to represent the unknown quantity.	Identifies equations or expressions that represent one-step real-world problems with whole numbers and include the use of a letter to represent the unknown quantity. Writes an equation or expression that represents a one-step real-world problem with whole numbers both with and without a letter to represent the unknown quantity. Identifies the meaning of the unknown variable in a given one-step equation or expression based on the context of a given real-world situation with whole numbers.	Identify relevant and/or irrelevant details of a one-step equation or expression given a real-world problem. Analyzes one-step equations or expressions representing real-world problems with whole numbers (e.g., identifies why a one-step equation does or does not match the real-world problem). Identifies equations or expressions that represent two-step real-world problems with whole numbers using the same operation twice.
MA 3.3 GEOMETRY: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.			
MA 3.3.1 Characteristics: Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.			
MA 3.3.1.a Identify the number of sides, angles, and vertices of two-dimensional shapes	Determines the number of sides, angles, and vertices given a picture of a 2-dimensional shape. Determines the number of sides, angles, or vertices given the name of a common 2-dimensional shape (triangle, square, rectangle, quadrilateral, pentagon, hexagon, octagon). Identifies common 2-dimensional shapes that have the same number of sides, angles, or vertices based on pictures or shape names (e.g., a square and a quadrilateral).	Compares the number of sides, angles, and/or vertices of two-dimensional shapes by determining the numeric difference based on pictures or shape names (e.g. a square has 1 more vertex than a triangle).	Analyzes statements about creating 2-dimensional shape with a given a number of sides, angles, or vertices (e.g., explain why a square cannot be drawn with three lines).
MA 3.3.1.b Sort quadrilaterals into categories (e.g., rhombuses, squares, and rectangles).	Determines whether a single quadrilateral belongs in a single category of rhombus, square, or rectangle.	Sorts a set of multiple quadrilaterals into two or more categories of parallelogram, trapezoid, rhombus, square, and/or rectangle.	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).

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MA 3.3.1.c Draw lines to separate two-dimensional figures into equal areas, and express the area of each part as a unit fraction of the whole.	Determines rectangular or circular shapes divided into equivalent halves, thirds, fourths, fifths, or sixths. Determines the unit fraction of a rectangular or circular shape divided into halves, thirds, fourths, fifths, or sixths.	Determines rectangular or circular two-dimensional shapes divided into fractions with even denominators of 8 to 12. Determines a non-rectangular, non-circular two-dimensional shape divided into fractions with even denominators less than 10. Determines the unit fraction of a two-dimensional shape to describe the equal part of the whole area with a denominator of 7 to 12.	Determines rectangular or circular two-dimensional shapes divided into fractions with odd denominators of 5 to 11. Determines non-rectangular, non-circular two-dimensional shapes divided into fractions with odd denominators of 3 or 5. Explains how dividing a whole shape into equal areas relates to unit fractions.
MA 3.3.2 Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.	Assessed at the local level		
No additional indicator(s) at this level. Mastery is expected at previous grade levels.			
MA 3.3.3 Measurement: Students will perform and compare measurements and apply formulas.			
MA 3.3.3.a Find the perimeter of polygons given the side lengths, and find an unknown side length.	Determines perimeters of polygons when given images of the polygons with all side lengths shown (may include context). Determines the length of one unknown side of a polygon when given an image, the perimeter, and the lengths of all remaining sides (may include context). Compares the perimeters of two or more polygons when given all side lengths of the polygons (may include context).	Determines perimeters of polygons when given all side lengths of the polygon without an image (may include context). Determines the length of one unknown side of a polygon when given perimeter and the lengths of all remaining sides without an image (may include context).	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 (may include context).
MA 3.3.3.b Tell and write time to the minute using both analog and digital clocks.	Determines time to the minute from a digital or analog clock (may include context).	Determines time to the minute from an analog clock using time interval terms quarter to, half past, etc. (may include context). Represents a given time on an analog clock (e.g., places hour and minute hand on an analog clock to represent 6:01).	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).

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MA 3.3.3.c Solve real-world 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. Determines an end time when given a start time and a duration that does not extend past the hour in a context.	Determines the end time when given a start time and a duration that extends past the hour mark in a context. Determines the start time when given an end time and a duration that does not extend beyond the hour in a context. Determines the elapsed time when given a start time and an end time in a context. Determines how much longer one duration is than the other when given two different durations in a context. Determines the total amount of time when given two different durations in a context.	Determines the start time when given an end time and a duration that extends beyond the hour in a context. Determines the total amount of time when given three ore more durations in a context. Determines the earliest/latest end time when given multiple start times and multiple durations in a context.
MA 3.3.3.d Identify and use the appropriate tools and units of measurement, both customary and metric, to solve real-world problems involving length, weight, mass, liquid volume, and capacity (within the same system and unit).	Assessed at the local level		
MA 3.3.3.e Estimate and measure length to the nearest half inch, quarter inch, and centimeter.	Measures length to the nearest centimeter, half-inch, or quarter inch when the ruler is placed in the diagram.	Uses a ruler to measure length to the nearest centimeter, half-inch, or quarter-inch when the ruler is not placed in the diagram.	Estimates length to the nearest centimeter, half-inch, or quarter-inch based on one or more references but without the aid of a ruler.
MA 3.3.3.f Use concrete and pictorial models to measure areas in square units by counting square units.	Assessed at the local level		
MA 3.3.3.g Find the area of a rectangle with whole-number side lengths by modeling with unit squares, and show that the area is the same as would be found by multiplying the side lengths.	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). Identifies multiplication expressions or equations that represent the area of images of rectangles with unit squares (may include context). 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).	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). Writes multiplication expressions or equations to represent the area of images of rectangles with unit squares (may include context).	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). 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).

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MA 3.3.3.h Identify and draw rectangles with the same perimeter and different areas or with the same area and different perimeters.	Refer to *MA 3.3.3.a* and *MA 3.3.3.g* for items that do not involve comparison of perimeter and area.	Identifies two rectangles that have the same perimeter but different areas (may include context). Identifies two rectangles that have the same area but different perimeters (may include context).	Creates a rectangle that has the same perimeter and a different area or the same area but a different perimeter when given a rectangle with a specific perimeter and area (may include context).
MA 3.4 DATA: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.			
MA 3.4.1 Representations: Students will create displays that represent data.			
MA 3.4.1.a Create scaled pictographs and scaled bar graphs to represent a data set—including data collected through observations, surveys, and experiments—with several categories.	Identifies a scaled pictograph or scaled bar graph that represents a given data set. 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.	Identifies a scaled pictograph or scaled bar graph that represents an incomplete data set or data set that requires interpretation. Ex: Ty, Deb and Fred earned a total of 12 points. Ty earned 8 points. 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.	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).
MA 3.4.1.b Represent data using line plots where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.	Determines a line plot that represents the data given data consisting of whole numbers. Includes answering questions about steps in creating the line plot.	Determines a line plot that represents the data given data that includes whole numbers and halves or whole numbers and quarters. Includes answering questions about steps in creating the line plot.	Determines a line plot that represents the data given data that includes a mix of halves and quarters. Includes answering questions about steps in creating the line plot. Data can include whole numbers. Analyzes line plots with a scale of 1/2 or 1/4 in relation to their corresponding data (e.g., explain why using a scale from 0 - 2 marked in fourths on a line plot is a good fit for the given data.).
MA 3.4.2 Analysis & Applications: Students will analyze data to address the situation.			

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MA 3.4.2.a Solve problems and make simple statements about quantity differences (e.g., how many more and how many less) using information represented in pictographs and bar graphs.	Answers questions about quantity differences based on data given a pictograph or bar graph with a scale of 1.	Answers questions about quantity differences based on data given a pictograph or bar graph with a scale of 2, 5, or 10. Solves problems about missing information related to quantity differences in data given a pictograph or bar graph with a scale of 1, 2, 5, or 10. Ex: Given the total quantity and a graph with three of the four categories represented, determines the quantity of the fourth category.	Answers questions about quantity differences based on data given a pictograph or bar graph with a scale other than 1, 2, 5, or 10. Solves problems about missing information related to quantity differences given data in a pictograph or bar graph with a scale other than 1, 2, 5, or 10, Answers questions about quantity differences that must be estimated based on data given a bar graph with a scale other than 1 or 2. Analyzes statements about quantity differences based on data represented in a pictograph or bar graph (e.g., determine the error in a given statement was caused by misreading the key in a pictograph).
MA 3.4.3 Probability: Students will interpret and apply concepts of probability.			
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