Grade 6 Montana Standards	Novice A student who performed at this level did not meet grade-level expectations in this subject and needs considerable support to develop the required knowledge, skills, and practices necessary for future coursework in this content area. A student at this level:	Partially Proficient A student who performed at this level partially met grade-level expectations in this subject and needs support to develop the required knowledge, skills, and practices necessary for future coursework in this content area. A student at this level:	Proficient A student who performed at this level met grade-level expectations in this subject. The student has demonstrated the required knowledge, skills, and practices necessary for future coursework in this content area. A student at this level:	Advanced A student who performed at this level exceeded grade-level expectations. The student has demonstrated mastery of the required knowledge, skills, and practices necessary for future coursework in this content area. A student at this level:
Ratios and Proportional Relationship (RP)				
6.RP.A Understand ratio concepts and use ratio reasoning to solve problems.				
6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."	Identifies a ratio relationship between two whole number quantities. Determines ratios in different formats. Does not require determining the values for the equivalent ratio. (e.g., given the ratio of red marbles to green marbles is 3 to 4, equivalent ratios are 3:4 and 3/4.) Does not use "unit rate" language. See 6.RP.A.2 for unit rate. See 7.RP.A.2b for "constant of proportionality" language in relation to unit rate and determining unit rate from a table, graph, equation, or diagram or use of proportional language. See 7.RP.A.3 for multi-step ratio problems (more than two steps).	Identifies a verbal interpretation of a given ratio of two quantities. Determines equivalent ratios based on a given ratio and the numbers used (e.g., if the number red marbles in a box is 6 and the number of green marbles is 3, determines the ratio is 2:1). Does not need to make a decision about what information is represented in the ratio. Does not use "unit rate" language.	Determines a requested ratio when both the information needed for the ratio and extraneous information is given. Requires deciding which information is needed for the ratio. (e.g., if the number of red marbles in a box is 3, the number of green marbles is 2, and the number of blue marbles is 5, the ratio of red marbles to blue marbles is 3:5). Does not use "unit rate" language.	Determines a requested ratio when at least one piece of the information needed for the ratio is not given and must be determined. (e.g., if the number of red marbles in a box is 3, the number of green marbles is 2, and the number of blue marbles is 5, the ratio of green marbles to the total number of marbles in the box is 2/10). Does not use "unit rate" language.
6.RP.A.2 Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0 (b not equal to zero), and use rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger." (Expectations for unit rates in this grade are limited to non-complex fractions.)	Identifies a unit rate as a quantity compared to 1. May include using rate language in relation to the context. Ratios should be whole number to whole number except when the context requires decimals (e.g., price per unit). See 6.RP.A.3b for two-step unit rate problems. See 7.RP.A.2b for "constant of proportionality" language in relation to unit rate and determining unit rate from a table, graph, equation, or diagram or use of proportional language.	Determines a unit rate in one step when extraneous information is not included. May include using rate language in relation to the context. Ratios should be whole number to whole number except when the context requires decimals (e.g., price per unit). Results may be fractions or decimals when appropriate (e.g., 3/4 cup of sugar for each cup of flour). Information should be presented in text and not be presented in tables, graphs, equations or diagrams. Should not use proportional language, only rate/ratio language.	Determines a unit rate in one step when extraneous information is included. May include using rate language in relation to the context. Ratios should be whole number to whole number except when the context requires decimals (e.g., price per unit). Results may be fractions or decimals when appropriate (e.g., 3/4 cup of sugar for each cup of flour). Information should be presented in text and not be presented in tables, graphs, equations or diagrams. Should not use proportional language, only rate/ratio language.	Analyzes/compares/explains unit rates based on the given information. May include using rate language in relation to the context. May also include extraneous information. Information should be presented in text and not be presented in tables, graphs, equations or diagrams. Should not use proportional language, only rate/ratio language.
6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.	See 6.RP.A.3a - 6.RP.A.3d.	See 6.RP.A.3a - 6.RP.A.3d.	See 6.RP.A.3a - 6.RP.A.3d.	See 6.RP.A.3a - 6.RP.A.3d.

6.RP.A.3a Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.	Identifies tables of equivalent ratios relating quantities with whole-number measurements given a ratio. Does not use "unit rate" language. See 6.RP.A.2 for unit rate. See 6.NS.C.6 and 6.NS.C.8 for plotting points with negative coordinates. See 7.RP.A.2b for "constant of proportionality" language in relation to unit rate and determining unit rate from a table, graph, equation, or diagram or use of proportional language. See 7.RP.A.3 for multi-step ratio problems (more than two steps). See 6.RP.A.3b for two-step unit rate problems.	Completes or extends a table of equivalent ratios relating quantities with whole-number measurements given the ratio. 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. Does not use "unit rate" language.	Completes or extends 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. 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. 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. Does not use "unit rate" language.	Analyzes/compares/evaluates solutions to one- or two-step problems involving ratios. Does not use "unit rate" language.
6.RP.A.3b Solve unit rate problems including those involving unit pricing and constant speed. For example, If it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?	Solves one-step real-world problems involving unit rate when the unit rate is given in the problem. Unit rate may be referred to by name or by using rate language containing "per." Finds unit rates given two whole-number quantities where one divides evenly into the other. See 7.RP.A.3 for multi-step ratio problems (more than two steps).	Solves two-step real-world problems involving unit rate when the unit rate is given. Unit rate may be referred to by name or by using rate language containing "per."	Solves two-step real-world problems involving unit rate when the unit rate is not given. Determining the unit rate is considered one step.	Analyzes/compares/evaluates solutions to one- or two-step real-world problems involving unit rates.
6.RP.A.3c Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole given a part and the percent.	Determines equivalent formats of percentages (e.g., 15% = 15/100 = 0.15) or percent statements (e.g., Which expression is equivalent to 15% of 50? ((15/100) x 50). Determines the value of the percentage given the part and the whole. See 7.RP.A.3 for multi-step percent problems (more than one-step) or percent change.	Determines the part given the whole and the percentage.	Solves one-step real-world problems that involve percentages but does not include percent change. Determines the whole given a part and the percentage.	Analyzes/compares/evaluates solutions to one- or two-step real-world problems involving percentages. Does not include percent change (e.g., percentages of groups, compare 40% of two groups which have different totals).
6.RP.A.3d Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	Determines equivalent measurements within the same system using three degrees of change. May include context. Information for conversions must be provided in the item or on the reference sheet. See 4.MD.A.1 and 5.MD.A.1 for converting within the same system within two degrees. See 7.RP.A.3 for multi-step ratio problems (more than two steps).	Determines equivalent measurements between two systems of measurement, metric and customary (i.e. metric to customary or vice versa). May include context. Information for conversions must be provided in the item or on the reference sheet.	Solves two-step real-world problems that involve converting metric to customary or vice versa. The conversion is considered one step in the process. Information for conversions must be provided in the item or on the reference sheet. Does not include percentages or unit rate problems. See 6.RP.3a-3c for percentages and unit rates.	Analyzes/compares/evaluates solutions to one-or two-step real-world problems involving conversions between metric and customary units. Information for conversions must be provided in the item or on the reference sheet. Does not include percentages or unit rate problems. See 6.RP.3a-3c for percentages and unit rates.
The Number System (NS)				
6.NS.A Apply and extend previous understandings of multiplication and division to divide fractions by fractions.				
6.NS.A.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc.) How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?	Solves mathematical problems involving division of a non-unit fraction or mixed number by a whole number or whole number by a non-unit fraction or mixed number given a fraction model. See 5.NFB.7 for divisions of unit fractions and whole numbers. See 6.RP.A.3 for word problems around unit rate, percentages, measurement conversions, and ratios. See 7.RP.A for word problems around percent change and ratios (multi-step).	Solves mathematical problems involving division of a non-unit fraction or mixed number by a whole number or whole number by a non-unit fraction or mixed number without a given fraction model. Solves mathematical problems involving division of a fraction or mixed number by a fraction or mixed number or whole number given a fraction model. Solves one-step word problems involving division of fractions, mixed numbers, and/or whole numbers. Must include at least one fraction or mixed number.	Solves mathematical problems involving division of a fraction or mixed number by another fraction or mixed number without a given fraction model. Solves one- or two-step word problems involving division of fractions, mixed numbers, and/or whole numbers without a given fraction model. Must include at least one fraction or mixed number.	Explains/analyzes strategies used to divide fractions, mixed numbers, and whole numbers. Includes identifying errors in flawed work. The standard algorithm is not required. Must include at least one fraction or mixed number. Creates a context or problem for a given division statement involving fractions and/or mixed numbers. Must include at least one fraction or mixed number.

6.NS.B Compute fluently with multi-digit numbers and find common factors and multiples.				
6.NS.B.2 Fluently divide multi-digit numbers using the standard algorithm.	Divides whole numbers with 5 or more digits by 1-digit whole numbers without remainders. See 4.NBT.B.6 and 5.NBT.B.6 for dividing up to 4-digit numbers by 1- and 2-digit numbers.	Divides whole numbers with 5 or more digits by 1-digit whole numbers with remainders. Divides whole numbers with 5 or more digits by 2-digit whole numbers without remainders. Divides whole numbers with 3 or more digits by 3-digit whole numbers without remainders. Remainders are written as decimals or fractions.	Divides whole numbers with 5 or more digits by 2-digit whole numbers with remainders. Divides whole numbers with 3 or more digits by 3-digit whole numbers with remainders. Remainders are written as decimals or fractions.	Explains/analyzes strategies used to divide whole numbers with 5 or more digits by 1- and 2-digit numbers. May include the standard algorithm. Explains/analyzes strategies used to divide whole numbers with 3 or more digits by 3-digit numbers. May include the standard algorithm. Explains/analyzes use of the standard algorithm when used to divide multi-digit whole numbers. Remainders are written as decimals or fractions.
6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	Adds or subtracts numbers where at least one value is a decimal number to the thousandths. May not have context. See 5.NBT.B.7 for operations with decimals to the tenths or hundredths and with 4-digit dividends. See grade 7 for operations with negative values.	Multiplies a decimal number to the thousandths place by a whole number. Divides a 5-digit decimal number to the tenths or hundredths by a whole number (e.g., 834.25 ÷ 5). May not have context.	Multiplies two decimal numbers with at least one to the thousandths place. Divides a whole number by a decimal to the tenths or hundredths. Adds, subtracts, multiplies, and divides decimals where two operations are required and at least one value is a decimal to the thousandths. May not have context.	Multiplies two decimal numbers each to the thousandths place. Divides a whole number by a decimal to the thousandths. Adds, subtracts, multiplies, and divides decimals where three or more operations are required and at least one value is a decimal to the thousandths. May not have context.
6.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express 36 + 8 as 4 (9 + 2).	Determines common factors of two whole numbers less than or equal to 50. Determines common multiples of two whole numbers less than or equal to 6. Does not require use of exponents. Note: Prime factorization is not a topic in the standards. See 4.OA.B.4 for determining factors of one composite number or whether a whole number 1–100 is a multiple of given one-digit numbers.	Determines common factors of two whole numbers less than or equal to 50 or common multiples of two whole numbers less than or equal to 6 when exponents are used. Determines the greatest common factor of two whole numbers less than or equal to 50. Determines the least common multiple of two whole numbers less than or equal to 6. Does not require use of exponents.	Determines the greatest common factor of two whole numbers less than or equal to 100. At least one number must be from 51–100. Determines the least common multiple of two whole numbers less than or equal to 12. At least one number must be from 7–12. Determines the greatest common factor of two 2-digit numbers and uses it to rewrite a numerical expression using the Distributive Property. Does not require use of exponents.	Solves real-world problems involving least common multiple of two whole numbers less than or equal to 12. Solves real-world problems involving greatest common factor of two whole numbers less than or equal to 100. At least one number must be from 51–100. Solves real-world problems involving equivalent numerical expressions and the distributive property. Must reward understanding of factors and multiples rather than computation of equivalent expressions. Does not require use of exponents.
6.NS.C Apply and extend previous understandings of numbers to the system of rational numbers.				
6.NC.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge): use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	Identifies contexts that can be represented by positive and negative numbers (e.g., temperature above/below zero can be represented with positive and negative numbers but height of a person cannot be represented with negative numbers). See 6.NS.C.6a for purely opposites of numbers. See 6.NS.C.7b for context related to comparisons.	Determines the context related to a positive/negative value given the integer (e.g., given -8, identifies 8 feet below the surface and 8 degrees below zero as possible contexts).	Identifies representations of opposite numbers on number lines (e.g., Which number line(s) show a number and its opposite plotted?). Number lines may be vertical or horizontal. Determines the integer representing a given context related to positive and negative values (e.g., given 8 feet below the surface, determines that it corresponds to –8). Given a real-world context that involves positive and negative numbers, explains the meaning of 0 in terms of the context.	None.
6.NS.C.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.	See 6.NS.C.6a - 6.NS.C.6c.	See 6.NS.C.6a - 6.NS.C.6c.	See 6.NS.C.6a - 6.NS.C.6c.	See 6.NS.C.6a - 6.NS.C.6c.

6.NS.C.6a Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite.	Determines the opposite of an integer graphed on a vertical or horizontal number line. (e.g., Which number line(s) show a number and its opposite plotted?). Number lines may or may not be labeled See 4.NF for plotting fractions/decimals on a number line. See 6.NS.C.6c for plotting rational numbers on a number line.	Determines the opposite of a non-integral rational number graphed on a vertical or horizontal number line. Determines the opposite of the opposite of a rational number given the number plotted on a number line. Number lines may or may not be labeled.	Determines the opposite of a rational number without a number line given. Recognizes that the opposite of an opposite is the number itself. Identifies 0 as its own opposite.	Identifies and explains the opposite of the opposite of a number.
6.NS.C.6b Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.	Determines the quadrant of a point plotted on the coordinate plane with the coordinates given. Coordinates are integers. When presenting information to students, quadrants may be referred to as Quadrants I - IV or as first-fourth quadrant. Student responses in text entry items should give credit for student use of any of these forms: Quadrant I-IV, first-fourth Quadrant, or Quadrant 1-4. See 5.G.A.1 for plotting point in the first quadrant and determining coordinates with whole numbers. See 6.NS.C.6c and 6.NS.C.8 for plotting rational numbers in all quadrants and determining coordinates. See 6.NS.C.8 for solving problems using points on the coordinate plane and all four quadrants.	Determines the quadrant of a point given its coordinates without the graph given. Determines the coordinates and/or quadrant of the image of a given point that has been reflected across one axis given the pre-image of the point on the coordinate plane with coordinates of the pre-image given. Coordinates are integers. When presenting information to students, quadrants may be referred to as Quadrants I - IV or as first-fourth quadrant. Student responses in text entry items should give credit for student use of any of these forms: Quadrant I-IV, first-fourth Quadrant, or Quadrant 1-4.	Determines the coordinates and/or quadrant of the image of a given point that has been reflected across one axis given the coordinates of the pre-image without the graph given. Determines the coordinates and/or quadrant of the image of a given point that has been reflected across both axes given the pre-image of the point on the coordinate plane with coordinates of the pre-image given. Coordinates are integers. When presenting information to students, quadrants may be referred to as Quadrants I - IV or as first-fourth quadrant. Student responses in text entry items should give credit for student use of any of these forms: Quadrant I-IV, first-fourth Quadrant, or Quadrant 1-4.	Determines the coordinates and/or quadrant of the image of a given point that has been reflected across both axes when given the coordinates of the pre-image without the graph given. Explains the transformations given the coordinates of two points that have been reflected across one or both axes. Understanding of rotations in relation to two reflections is not required. Understanding of translations is not required. Coordinates are integers. When presenting information to students, quadrants may be referred to as Quadrants I - IV or as first-fourth quadrant. Student responses in text entry items should give credit for student use of any of these forms: Quadrant I-IV, first-fourth Quadrant, or Quadrant 1-4.
6.NS.C.6c Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.	Identifies negative integers given their graph on a number line. Identifies the location of negative integers on a number lines given the integers. Identifies negative non-integral rational numbers given their graph on a vertical or horizontal number line. Identifies the location of non-integral rational numbers on a vertical or horizontal number line given the number. Number lines may be vertical or horizontal. See 2.MD.B.6 for whole numbers on a number line. See 4.NF for plotting fractions/decimals on a number line. See 5.G.A.1 for plotting in the first quadrant and determining coordinates with whole numbers. See 6.NS.C.6a for opposites with and without number lines. See 6.NS.C.6b for opposites for coordinates if referring to reflections or quadrants.	Graphs negative integers on number lines. Writes negative integers represented on number lines. Graphs negative non-integral rational numbers on horizontal or vertical number lines. Writes negative non-integral rational numbers represented on horizontal or vertical number lines. Number lines may be vertical or horizontal. Identifies the graph of points plotted on the coordinate plane given integral coordinates. Must be in Quadrants II–IV. Identifies integral coordinates for points plotted on the coordinate plane. Must be in Quadrants II–IV. See 6.NSC.6a for opposites with and without number lines. See 6.NS.C.6b for opposites for coordinates if referring to reflections or quadrants.	Writes the coordinates of a point with integral or non-integral rational coordinates in Quadrants II - IV that is graphed on the coordinate plane, including the *x* - or *y* -axis with no scale breaks. (May include real-world objects as the point. See 6.NS.C.8 for using the points to solve real-world problems.) Graphs points in the coordinate plane with integral or non-integral rational coordinates in Quadrants II - IV of the coordinate plane, including the *x* - or *y* -axis with no scale breaks. (May include real-world objects as the point. See 6.NS.C.8 for using the points to solve real-world problems.) See 6.NS.C.6b for opposites for coordinates if referring to reflections or quadrants.	Writes the coordinates of a point with integral coordinates in Quadrants II - IV that is graphed on the coordinate plane, including the *x* - or *y* -axis with scale breaks. (May include real-world objects as the point. See 6.NS.C.8 for using the points to solve real-world problems.) Graphs points in the coordinate plane with integral coordinates in Quadrants II - IV of the coordinate plane, including the *x* - or *y* -axis with scale breaks. (May include real-world objects as the point. See 6.NS.8 for using the points to solve real-world problems.) Identifies and explains errors in the placement of points on a coordinate plane given an ordered pair. May include the *x* - or *y* -axis with scale breaks. See 6.NS.C.6b for opposites for coordinates if referring to reflections or quadrants.
6.NS.C.7 Understand ordering and absolute value of rational numbers.	See 6.NS.C.7a - 6.NS.C.7d.	See 6.NS.C.7a - 6.NS.C.7d.	See 6.NS.C.7a - 6.NS.C.7d.	See 6.NS.C.7a - 6.NS.C.7d.

6.NS.C.7a Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right.	Uses symbols to represent comparisons of one negative and one positive integer given a number line. Orders three or more integers with only one value being negative given the number line. May or may not include using symbols. Includes using "least" and "greatest" terminology. Relates comparisons of one positive and one negative integer to their location on a number line given the number line. Number lines may be vertical or horizontal. See 6.NS.C.7b for comparisons within context. See 6.NS.C.7c for distance from 0 on the number line.	Uses symbols to represent comparisons of two negative integers given a number line. Uses symbols to represent comparisons of one negative and one positive integer without a number line given. Orders three or more integers with only one value being negative without the number line given. May or may not include using symbols. Includes using "least" and "greatest" terminology. Orders three or more integers with at least two values being negative given the number line. May or may not include using symbols. Includes using "least" and "greatest" terminology. Relates comparisons of one positive and one negative integer to their location on a number line without the number line given. Relates comparisons of two negative integers to their location on a number line given the number line. Number lines may be vertical or horizontal.	Uses symbols to represent comparisons of an integer and a non-integral rational number when one or both of the values are negative given a number line. Uses symbols to represent comparisons of two negative integers without a number line given. Orders three or more integers with at least two values being negative without the number line given. May or may not include using symbols. Includes using "least" and "greatest" terminology. Orders three or more rational numbers when at least one value is a non-integral rational number and at least two values are negative given the number line. May or may not include using symbols. Includes using "least" and "greatest" terminology. Relates comparisons of two negative integers to their location on a number line without the number line given. Number lines may be vertical or horizontal.	Uses symbols to represent comparisons of an integer and a non-integral rational number when one or both of the values are negative without a number line given. Orders three or more rational numbers when at least one value is a non-integral rational number and at least two values are negative without the number line given. May or may not include using symbols. Includes using "least" and "greatest" terminology.
6.NS.C.7b Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write –3°C > –7°C to express the fact that –3°C is warmer than –7°C.	Uses symbols to represent comparisons of two or more positive integers given a context that expresses the comparison. See 6.NS.C.7d for comparisons involving absolute value.	Uses symbols to represent comparisons of integers given a context that expresses the comparison. Must include at least one negative integer.	Uses symbols to represent comparisons of rational numbers given a context that expresses the comparison. At least one value should be a non-integral rational number and at least one value should be negative. They can be the same value (e.g., –3/4).	Determines a real-world context that expresses a given comparison of two rational numbers. At least one value should be a non-integral rational number and at least one value should be negative. They can be the same value (e.g., –2.1).
6.NS.C.7c Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars.	Represents the absolute value of an integer on a number line. Defines absolute value as the distance from 0 on the number line. Number lines may be vertical or horizontal.	Evaluates absolute value of rational numbers, including integers.	Evaluates the opposite of an absolute value of rational numbers, including integers (e.g., –|6| = –6). Writes or interprets an absolute value equation to represent magnitude for quantities in a context (e.g., write |–30| = 30 to describe the size of a $30 debt).	None.
6.NS.C.7d Distinguish comparisons of absolute value from statements about order. For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.	None.	Uses symbols to represent comparisons between an integer and the absolute value of an integer given a number line. May or may not be the same integer. Orders positive and negative integers where at least one value is an absolute value of a positive or negative integer given a number line. Number lines may be vertical or horizontal.	Uses symbols to represent comparisons between an integer and the absolute value of an integer without a number line given. May or may not be the same integer. Orders positive and negative integers where at least one value is an absolute value of a positive or negative integer without a number line given. Uses symbols to represent comparisons between a rational number and the absolute value of a rational number given a number line. May or may not be the same number. At least one value must be a non-integral rational number. Orders positive and negative rational numbers given a number line where at least one value is the absolute value of a positive or negative rational number and at least one number is a non-integral rational number. Interprets comparative statements involving absolute value for positive and negative integers in a real-world context. Number lines may be vertical or horizontal.	Determines numbers that have the same given absolute value. Interprets comparative statements involving absolute value for positive and negative rational numbers in a real-world context when at least one value is a non-integral rational number. Uses symbols to represent comparisons between a rational number and the absolute value of a rational number without a number line given. May or may not be the same number. At least one value must be a non-integral rational number. Orders positive and negative rational numbers without a number line given where at least one value is the absolute value of a positive or negative rational number and at least one number is a non-integral rational number.

6.NS.C.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	Determines the coordinate grid that could represent a real-world problem by identifying appropriate axis labels and scale(s) for the context. Must include more than Quadrant I. Determines vertical or horizontal distances between two points with the same integral x-coordinate or the same integral y-coordinate given their graph. See 2.MD.B.6 for whole numbers on a number line. See 4.NF for fractions/decimals on a number line. See 5.G.A.1 for plotting in the first quadrant and determining coordinates with whole numbers. See 6.NS.C.6 for opposites with number lines, reflections on coordinate grids, and plotting integers on number lines and coordinate grids. See 6.G.A.3 for polygons on the coordinate grid.	Identifies the graph of points plotted on the coordinate plane when the *x* - and/or *y* -coordinate is a non-integral rational number. Identifies coordinates for points plotted on the coordinate plane when the *x* - and/or *y* -coordinate is a non-integral rational number. Determines vertical or horizontal distances between two points with the same integral *x* -coordinate or the same integral *y* -coordinate without a graph provided. For rational numbers, the scale should match the denominator of the rational number or are limited to halfway between the given scale (e.g., if the scale is 1/2, then points can be fourths).	Writes the coordinates of a point with the *x* - and/or *y* -coordinate being a non-integral rational number graphed on the coordinate plane, including the *x*- or *y* -axis with no scale breaks. (May include real-world objects as the point.) Represents and solves real-world and mathematical problems by plotting points on the coordinate plane with no scale breaks. Points in Quadrant I include a non-integral rational number. If more than one point is in Quadrant I, only one point needs to be non-integral. Points in Quadrants II - IV may be any rational number. May include determining vertical or horizontal distances between two points with the same *x* - or *y* -coordinate for real-world problems. Within a real-world problem, interprets points on the coordinate plane with no scale breaks. Points in Quadrant I must include a non-integral rational. number. Points in Quadrants II–IV should be an integer. Determines integral coordinates for a point that is a given vertical or horizontal distance from another point with integral coordinates. For rational numbers, the scale should match the denominator of the rational number or are limited to	Represents and solves real-world and mathematical problems by plotting points on the coordinate plane with scale breaks. More than 1 non-integral point should be included in any quadrant. May include determining vertical or horizontal distances between two points with the same *x*- or *y* -coordinate for real-world problems.
Expressions and Equations (EE)				
6.EE.A Apply and extend previous understandings of arithmetic to algebraic expressions.				
6.EE.A.1 Write and evaluate numerical expressions involving whole-number exponents.	Writes equivalent forms of given exponential expressions. . (e.g. 3 x 3 x 3 x 5 x 5 = 3^3 x 5^2). Does not include representing a single term with a base and exponent. Should not be assessing prime factorization but equivalent forms. Bases are positive rational numbers. Evaluates a numerical expression that represents a whole number when the expression has one term with a whole-number exponent. Must not be a power of 10. Does not require knowledge of properties of exponents or operations on negative numbers. All exponents are single digit whole numbers. See 5.NBT.A.2 for powers of 10. See grade 7 for operations with negative numbers. See 8.EE.A.1 for properties of exponents. See 8.EE.A.2 for use of square root or cube root symbols or equations/expressions with a variable raised to a power.	Evaluates a numerical expression that represents a non-negative fraction when the expression has one term with a whole-number exponent. Must have numerators/denominators other than 10 (e.g., $(1/4)^2$ = (1/4) x (1/4) = 1/16. Represents a given whole number less than 100 as a single term in exponential form when: --given the base, determines the exponent, or --given the exponent, determines the base. Evaluates numerical expressions with more than one term with whole-number exponents that does not requires understanding of the order of operations. Bases are whole numbers. Does not require knowledge of properties of exponents or operations on negative numbers. All exponents are single-digit whole numbers.	Evaluates numerical expressions with more than one term with whole-number exponents that do not require understanding of the order of operations. Bases are non-negative fractions. Evaluates numerical expressions with more than one term with whole-number exponents that require understanding of the order of operations. Bases are whole numbers. Represents a given whole number less than 100 as a single term in exponential form (e.g., 32 = 2^5). Represents a given non-negative fraction with both the numerator and denominator less than 100 as a single term in exponential form when: —given the base, determines the exponent, or —given the exponent, determines the base. Represents a given whole number greater than 100 but not a power of 10 as a single term in exponential form when: —given the base, determines the exponent, or —given the exponent, determines the base. Does not require knowledge of properties of exponents or operations on negative numbers. All exponents are single-digit whole numbers.	Represents a given non-negative fraction with the numerator and/or denominator greater than 100 as a single term in exponential form when: --given the base, determines the exponent, or --given the exponent, determines the base Represents a given whole number greater than 100 as a single term in exponential form (e.g., 625 = 5^4). Analyzes exponential forms of whole numbers and numerical expressions using exponents. Includes changing expressions to represent a specific number based on order of operations and exponents. Compares values of whole numbers when presented in exponential form. Should not require evaluating the expression or rules of exponents but may require rewriting it in an equivalent form (e.g., 3^4 is equal to 3x3x3x3 and 9x9 so 3^4 is equal to 9^2). Does not require knowledge of properties of exponents or operations on negative numbers. All exponents are single-digit whole numbers.
6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers.	See 6.EE.A.2a - 6.EE.A.2c.	See 6.EE.A.2a - 6.EE.A.2c.	See 6.EE.A.2a - 6.EE.A.2c.	See 6.EE.A.2a - 6.EE.A.2c.

6.EE.A.2a Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation "Subtract y from 5" as 5 – y.	Identifies an algebraic expression that uses either addition or multiplication to represent a one-operation written description. For example, "the sum of 5 and *y* " can be expressed as either "5 + *y* " or "*y* + 5." Identifies parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient). Does not require understanding operations on negative numbers (e.g., 8 - 5 is ok. -5 + 8 or 8 + (-5) is not). See 5.OA.A.2 for writing expressions with only numbers. See 6.EE.A.2b for use of sum, term, product, factor, quotient, and coefficient. See 6.EE.B.6 for expressions related to real-world problems.	Identifies an algebraic expression with one operation that represents a written description where the verbal descriptions require students to make a determination about the order of the operands. For example, "*y* subtracted from 5" is "5 – *y* " and "5 less than *y* " is "*y* – 5." Recognizes that in the conventional order of operations, multiplication and division are of equal precedence and addition and subtraction are of equal precedence. Creates expressions without exponents with both positive rational numbers and one variable that represent given statements about one operation. Uses operation terminology (e.g., subtract/subtraction instead of difference). Identifies expressions without exponents with both positive rational numbers and two variables that represent given statements about more than one operation. Uses operation terminology (e.g., subtract/subtraction instead of difference). Does not require understanding operations on negative numbers (e.g., 8 – 5 is ok. –5 + 8 or 8 + (–5) is not).	Creates expressions without exponents with both positive rational numbers and two variables that represent given statements about more than one operation. Uses operation terminology (e.g., subtract/subtraction instead of difference). Identifies expressions with a single-digit whole number exponent with both positive rational numbers and one variable that represent given statements about operations. Does not require understanding of properties of exponents. Uses operation terminology (e.g., Multiplies the number 3 times itself). Does not require understanding operations on negative numbers (e.g., 8 – 5 is ok. –5 + 8 or 8 + (–5) is not).	Creates expressions with a single-digit whole number exponent with both positive rational numbers and one variable that represent given statements about operations. Does not require understanding of properties of exponents. Uses operation terminology (e.g., Multiplies the number 3 times itself). Does not require understanding operations on negative numbers (e.g., 8 – 5 is ok. –5 + 8 or 8 + (–5) is not).
6.EE.A.2b Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. For example, describe the expression 2(8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms.	Identifies expressions without exponents with positive rational numbers only or both positive rational numbers and one variable that represent given statements using "factor," "term," or "coefficient." Uses operational terminology (e.g., Given 3 + *x* , identifies that 3 and *x* are terms being added together.). Does not require understanding operations on negative numbers (e.g., 8 – 5 is ok. –5 + 8 or 8 + (–5) is not). See 6.EE.A.2a for operation terminology. See 6.EE.B.6 for expressions related to real-world problems.	Creates expressions without exponents with positive rational numbers only or both positive rational numbers and one variable that represent given statements using "factor," "term," or "coefficient." Uses operational terminology (e.g., Create an expression that includes a coefficient of 3 and a sum of 5.). Identifies expressions without exponents with positive rational numbers only or both positive rational numbers and one variable that represent given statements about one operation using the terminology for its outcome (e.g., sum instead of addition; includes difference, product, quotient). Does not require understanding operations on negative numbers (e.g., 8 – 5 is ok. –5 + 8 or 8 + (–5) is not).	Creates expressions without exponents with positive rational numbers only or both positive rational numbers and one variable that represent given statements about one operation using the terminology for its outcome (e.g., sum instead of addition; includes difference, product, quotient). Identifies expressions without exponents with positive rational numbers only or both positive rational numbers and one variable that represent given statements about more than one operation using the terminology for its outcome (e.g., sum instead of addition; includes difference, product, quotient). May also include factor, coefficient, and term. Does not require understanding operations on negative numbers (e.g., 8 – 5 is ok. –5 + 8 or 8 + (–5) is not).	Creates expressions without exponents with positive rational numbers only or both positive rational numbers and one variable that represent given statements about more than one operation using the terminology for its outcome (e.g., sum instead of addition; includes difference, product, quotient). May also include factor, coefficient, and term. Does not require understanding operations on negative numbers (e.g., 8 – 5 is ok. –5 + 8 or 8 + (–5) is not).
6.EE.A.2c Evaluate expressions at specific values for their variables. Include expressions that arise from formulas in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas $V = s^3$ and $A = 6\ s^2$ to find the volume and surface area of a cube with sides of length s = 1/2.	Evaluates one-variable expressions with positive rational coefficients or one-variable expressions within a formula with positive rational coefficients at specific values for the variables. No exponents. The value of the variable must be a positive rational number. If dividing with fractions, limited to dividing unit fractions and whole numbers at this level. Evaluating expressions should not depend on operations with negative numbers when evaluating correctly (e.g., 8 – 5 is ok. –5 + 8 or 8 + (–5) is not). See 6.EE.A.4 for determining if two expressions are equivalent (may use substitution). See 6.EE.B.5 for evaluating expressions that are part of equations to determine if the equation is true.	Evaluates two-variable expressions with positive rational coefficients or two-variable expressions within a formula with positive rational coefficients at specific values for the variables. No exponents. The value of the variable must be a positive rational number. If dividing with fractions, limited to dividing unit fractions and whole numbers at this level. Evaluating expressions should not depend on operations with negative numbers when evaluating correctly (e.g., 8 – 5 is ok. –5 + 8 or 8 + (–5) is not).	Evaluates one-variable expressions with positive rational coefficients or one-variable expressions within a formula with positive rational coefficients at a specific value for the variable. Variable must have a whole-number single-digit exponent. The value of the variable must be a positive rational number. Should not require knowing properties of exponents. Evaluating expressions should not depend on operations with negative numbers when evaluating correctly (e.g., 8 – 5 is ok. –5 + 8 or 8 + (–5) is not).	Evaluates two-variable expressions with positive rational coefficients or two-variable expressions within a formula with positive rational coefficients at a specific value for the variable. At least one variable must have a whole-number single-digit exponent. The value of the variable must be a positive rational number. Analyzes/justifies the evaluation of one-variable expressions with positive rational coefficients or expressions within a formula with positive rational coefficients at specific values of the variable. Variables may or may not have a whole-number single-digit exponent. Should not require knowing properties of exponents. Evaluating expressions should not depend on operations with negative numbers when evaluating correctly (e.g., 8 – 5 is ok. –5 + 8 or 8 + (–5) is not).

6.EE.A.3 Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.	Identifies expressions equivalent to a given one-variable expression with positive rational coefficients based on only the commutative property, only the associative property, or only combining like terms. Expressions may contain whole-number exponents. Expressions do not require multiplying variables. Students do not need to know the terms commutative or associative property. Determining equivalent expressions should not depend on operations with negative numbers when applying the properties correctly (e.g., $8x - 5x = 3x$ is ok at Grade 6. $-5x + 8x$ is not. In the former, it is considered as positive 8 minus positive 5, so it meets the positive rational coefficient requirement). See 3.OA.B.5 and 1.OA.B.3 for applying commutative, associative properties, and distributive properties to numerical expressions. See 6.EE.A.2c for evaluating expressions at specific values. See 6.EE.B.5 for determining whether a given equation is true. See 7.NS.A.1 and 7.NS.A.2 for operations with negative rational numbers. See 7.EE.A.1 for operations on linear expressions.	Identifies expressions equivalent to a given one-variable expression with positive rational coefficients based on the distributive property. Identifies expressions equivalent to a given expression with positive rational coefficients based on a combination of the commutative or associative properties or combining like terms. May include more than one variable. Creates expressions equivalent to a given one-variable expression with positive rational coefficients based on only the commutative property, only the associative property, or only combining like terms. Expressions may contain whole-number exponents. Expressions do not require multiplying variables. Students do not need to know the terms commutative or associative property. Determining equivalent expressions should not depend on operations with negative numbers when applying the properties correctly.	Creates expressions equivalent to a given one-variable expression with positive rational coefficients based on the distributive property. Creates expressions equivalent to a given expression with positive rational coefficients based on a combination of the commutative or associative properties or combining like terms. May include more than one variable. Identifies expressions equivalent to a given expression with positive rational coefficients based on a combination of the distributive property and the commutative or associative properties or combining like terms. May include more than one variable. Must include the distributive property. Expressions may contain whole-number exponents. Expressions do not require multiplying variables. Students do not need to know the terms commutative or associative property. Determining equivalent expressions should not depend on operations with negative numbers when applying the properties correctly.	Creates expressions equivalent to a given expression with positive rational coefficients based on a combination of the distributive property and the commutative or associative properties or combining like terms. May include more than one variable. Must include the distributive property. Ex: Complete the expression so that is equivalent to $6(3x+2y)$. $\_\_y + \_\_\ \_\_ \dashrightarrow 12y+18x$ Explains why two or more given expressions with positive rational coefficients are equivalent. Expressions may contain whole-number exponents. Expressions do not require multiplying variables. Students do not need to know the terms commutative or associative property. Determining equivalent expressions should not depend on operations with negative numbers when applying the properties correctly.
6.EE.A.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). For example, the expressions $y + y + y$ and $3y$ are equivalent because they name the same number regardless of which number y stands for.	See 6.EE.A.3.	See 6.EE.A.3.	See 6.EE.A.3.	See 6.EE.A.3.
6.EE.B Reason about and solve one-variable equations and inequalities.				
6.EE.B.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	Determines whether a given inequality comparing an isolated variable and a positive rational number is true for a given positive rational number (e.g., Is $x > 2/3$ true for $x = 2$?). Includes strict and nonstrict inequalities. See 6.EE.A.2c to determine the value of an expression given the variable when not part of an equation.	Determines whether a given one-step equation with positive rational numbers and coefficients with one variable on one side of an equation is true for given positive rational numbers (e.g., Which value of x make the equation $x + 6 = 10$ true, given $x = 2, 4, 6$, or 8?). Determines whether a given inequality comparing an isolated variable and a positive rational number is true for a given negative integer (e.g., Is $x > 1/2$ true for $x = -3$?). Includes strict and nonstrict inequalities. Does not require understanding operations on negative numbers.	Determines whether a given two-step equation with positive rational numbers and coefficients with one variable on one side of an equation is true for given positive rational numbers (e.g., Which value of x make the equation $(1/2)x + 6 = 10$ true, given $x = 2, 4, 6$, or 8?). Determines whether a given inequality comparing an isolated variable and a positive rational number is true for a given negative non-integral rational number (e.g., Is $x > 2$ true for $x = -3.5$?). Includes strict and nonstrict inequalities. Does not require understanding operations on negative numbers.	Identifies the values from a given set of numbers that make an equation or inequality true. Equations and inequalities are written so that the variable appears in more than one term.
6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	Determines the meaning of a variable in a given expression that represents a mathematical or real-world problem. See 6.EE.A.2a and 2b for writing expressions based on a description of the operations or terms. See 6.EE.B.7 for representing a real-world or mathematical problem with an equation.	Identifies an expression in one variable with positive rational numbers and coefficients to represent information in a mathematical or real-world problem. Does not require understanding operations on negative numbers. If dividing with fractions, limited to dividing unit fractions and whole numbers at this level.	Creates an expression in one variable with positive rational numbers and coefficients to represent information in a mathematical or real-world problem. Does not require understanding operations on negative numbers.	Identifies expressions in two variables with positive rational numbers and coefficients to represent information in mathematical or real-world problems. Does not require understanding operations on negative numbers.

6.EE.B.7 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.	Solves equations in the form $x + p = q$ and $px = q$ where p, q, and x are all positive rational numbers. Does not require understanding operations on negative numbers. If dividing with fractions, limited to dividing unit fractions and whole numbers at this level. See 6.EE.B.6 for representing real-world and mathematical problems with expressions.	Solves equations in the form x - p = q and $x/p = q$ where p, q, and x are all positive rational numbers. Solves real-world and mathematical problems that can be solved with equations of the form $x + p = q$ and px = q where p, q, and x are all positive rational numbers. Does not require understanding operations on negative numbers. If dividing with fractions, limited to dividing unit fractions and whole numbers at this level.	Solves real-world and mathematical problems that can be solved with equations in the form $x - p = q$ and $x/p = q$ where p, q, and x are all positive rational numbers. Does not require understanding operations on negative numbers. If dividing with fractions, limited to dividing unit fractions and whole numbers at this level.	Determines an equation of the form $x - p = q$ and $x/p = q$ where p, q, and x are all positive rational numbers that models a real-world or mathematical problem. May include defining the variable. Does not require understanding operations on negative numbers.
6.EE.B.8 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	Translates between inequalities of the form $x > c$, $x < c$, $x \geq$ c, or $x \leq c$ and the graphs of their solutions on a number line when c is a positive rational number.	Translates between inequalities of the form $x > c$, $x < c$, $x \geq c$, or $x \leq c$ and the graphs of their solutions on a number line when c is a negative integer. Writes an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a mathematical or real-world problem. (e.g., Use the inequality $x > 15$ to represent the ages of persons with a driver's license.) Identifies inequalities of the form $x > c$, $x < c$, $x \geq c$, or $x \leq c$ to represent a constraint or condition in a mathematical or real-world problem.	Translates between inequalities of the form $x > c$, $x < c$, $x \geq c$, or $x \leq c$ and the graphs of their solutions on a number line when c is a negative non-integral rational number. Writes an inequality of the form $x \geq c$ or $x \leq c$ to represent a constraint or condition in a mathematical or real-world problem.	Analyze the meaning of the solutions on a number line within a real-world problem.
6.EE.C Represent and analyze quantitative relationships between dependent and independent variables.				
6.EE.C.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time.	Identifies the independent and dependent variable based on a given context and/or set of positive rational values representing two quantities that change in relation to one another. May be more than one correct answer depending on how the variables are defined. Identifies simple equations of the form $y = x + a$ or $y = ax$ to represent a given real-world scenario when a is a whole number. Quantities may be provided in tables, lists, and points plotted in the first quadrant where one set of values changes in relation to the other in a basic context. Does not require understanding operations on negative numbers. Relationships must be proportional and limited to a positive slope.	Defines variables and/or expressions for each set of quantities in a given context and/or set representing two quantities (positive rational numbers) that change in relation to one another. May have more than one correct answer depending on how the variables are defined [e.g., defines one set of quantities as distance (d) and the other set of quantities as speed times time ($65t$)]. Quantities may be provided in tables, lists, and points plotted in the first quadrant where one set of values changes in relation to the other in a basic context. Does not require understanding operations on negative numbers. Expressions may include subtraction of positive rational numbers provided students do not need to determine negative values. Relationships must be proportional and limited to a positive slope.	Determines a two-variable linear equation with positive rational numbers and coefficients to represent the relationship between a dependent and independent variable. May include defining which variable is dependent and which is independent. May be more than one correct answer depending on how the variables are defined. Quantities may be provided in tables, lists, and points plotted in the first quadrant where one set of values changes in relation to the other in a basic context. Does not require understanding operations on negative numbers Relationships must be proportional and limited to a positive slope.	Analyzes a linear equation in two variables with positive rational coefficients and numbers in relation to the quantities it represents. Quantities may be provided in tables, lists, and points plotted in the first quadrant where one set of values changes in relation to the other in a basic context. Does not require understanding operations on negative numbers Relationships must be proportional and limited to a positive slope.
Geometry (G)				
6.G.A Solve real-world and mathematical problems involving area, surface area, and volume.				

6.G.A.1 Find area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems within cultural contexts, including those of Montana American Indians. (e.g., Use Montana American Indian designs to decompose shapes and find the area.)	Applies the area formula to determine the area of right triangles to solve mathematical and real-world problems including those with Montana American Indian cultural context. Does not require composition or decomposition. Edge lengths are positive rational numbers. Formulas for area of a rectangle and area of triangle must be on the reference sheet. See 4.MD.A.3 for area of rectangles.	Determines the areas of triangles and parallelograms to solve mathematical and real-world problems including those with Montana American Indian cultural context. Excludes right triangles, squares, rectangles, and trapezoids that are not parallelograms. Determines an unknown height or base length of right triangles. Dimensions and information given must support composition or decomposition into triangles and rectangles. (e.g., Instead of only edge lengths given for a parallelogram, information must be provided so students can determine the length of a base of the right triangle formed when decomposing the parallelogram into two triangles and a rectangle, as well as its height.) Edge lengths are positive rational numbers.	Determines the area of quadrilaterals other than parallelograms to solve mathematical and real-world problems including those with Montana American Indian cultural context. Includes trapezoids that are not parallelograms. Determines an unknown height or base length of triangles and parallelograms. Excludes right triangles, squares, rectangles, and trapezoids that are not parallelograms. Dimensions and information given must support composition or decomposition into triangles and rectangles. (e.g., Instead of only edge lengths given for a parallelogram, information must be provided so students can determine the length of a base of the right triangle formed when decomposing the parallelogram into two triangles and a rectangle, as well as its height.) Edge lengths are positive rational numbers.	Determines an unknown height or base of trapezoids that are not parallelograms to solve mathematical and real-world problems including those with Montana American Indian cultural context. Determines the area of polygons with 5 or more sides to solve mathematical and real-world problems. Dimensions and information given must support composition or decomposition into triangles and rectangles. (e.g., Instead of only edge lengths given for a parallelogram, information must be provided so students can determine the length of a base of the right triangle formed when decomposing the parallelogram into two triangles and a rectangle, as well as its height.) Edge lengths are positive rational numbers.
6.G.A.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = l\,w\,h$ and $V = b\,h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	Determines a diagram of a packed right rectangular prism using appropriate unit-fraction cubes given the volume as length x width x height or as Area of the base x height. (more than one correct answer) Represents the volume of a right rectangular prism as length x width x height or as Area of the base x height given the diagram and appropriate unit-fraction cubes drawn. Side lengths must include at least one decimal, fraction, or mixed number. Uses appropriate units. See 5.MD.C.5 for volume of a right rectangular prism with whole number side lengths.	Determines right rectangular prisms that have the same volume based on the associative property (e.g., identifies (3 m x 4 m) x 1/2 m as having the same volume as 3 m x (4 m x 1/2 m). Can be represented in a diagram or with multiplication. Does not need to know the term associative property. Applies the volume formula(s) to determine the volume of a right rectangular prism in real-world and mathematical problems when the length, width, and height are given. Determines a missing side length of a right rectangular prism in real-world and mathematical problems when given the other two side lengths or the area of a base and a diagram. Side lengths must include at least one decimal, fraction, or mixed number. Uses appropriate units.	Determines a missing side length of a right rectangular prism in real-world and mathematical problems when given the other two side lengths or the area of a base without a diagram. Side lengths must include at least one decimal, fraction, or mixed number. Uses appropriate units.	Analyzes how changing one or more dimensions affects the volume of right rectangular prisms in real-world and mathematical problems. Analyzes solutions to real-world problems involving volume in terms of the context. Side lengths must include at least one decimal, fraction, or mixed number. Uses appropriate units.
6.G.A.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.	Determines the name of the polygon drawn in the coordinate plane when provided the coordinates and graph. Determines the length of a horizontal or vertical side of a polygon graphed in the coordinate plane. Determines the coordinates for one vertex to complete the drawing of a polygon in the coordinate plane to solve mathematical or real-world problems when provided the graph. Adjoining points must have the same first or second coordinate. All coordinates are integers. At least one point must be in Quadrants II–IV. May include applying formulas from the reference sheet. See 5.G.A.2 for solving mathematical and real-world problems in Quadrant I only. See 6.NS.C.8 for solving problems other than polygons on the coordinate plane.	Determines the name of the polygon in the coordinate plane when provided coordinates but not the graph. Determines the length of a side of a polygon with endpoint having the same first coordinate or the same second coordinate to solve real-world or mathematical problems provided the coordinates but not the graph. All coordinates are integers. At least one point must be in Quadrants II–IV. May include applying formulas from the reference sheet.	Determines the coordinates for one vertex to complete the drawing of a polygon in the coordinate plane to solve real-world and mathematical problems without a graph provided. Adjoining points must have the same first or second coordinate. Determines the coordinates for two or more vertices to complete the drawing of a polygon in the coordinate plane to solve real-world and mathematical problems with the graph provided. Adjoining points must have the same first or second coordinate. All coordinates are integers. At least one point must be in Quadrants II–IV. May include applying formulas from the reference sheet.	Determines the coordinates for two or more vertices to complete the drawing of a polygon in the coordinate plane to solve real-world and mathematical problems without a graph provided. Adjoining points must have the same first or second coordinate. All coordinates are integers. At least one point must be in Quadrants II–IV. May include applying formulas from the reference sheet.

6.G.A.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems within cultural contexts, including those of Montana American Indians.	Identifies rectangular prisms (including cubes), rectangular pyramids (including square pyramids), triangular prisms, and triangular pyramids from given figures or descriptions. Determines the three-dimensional figure when given the net of the figure made up of rectangles and triangles.	Determines the nets of rectangular prisms, including cubes, triangular prisms, and rectangular, square, or triangular pyramids. May include using specific measurements for edges.	Solves real-world and mathematical problems including those with Montana American Indian cultural context involving the surface area of rectangular prisms, including cubes, triangular prisms, and rectangular, square, or triangular pyramids.	Analyzes solutions to problems involving surface area in terms of the context. Explains why a specific net does or does not represent a given right rectangular prism, right triangular 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).
Statistics and Probability (SP)				
6.SP.A Develop understanding of statistical variability.				
6.SP.A.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.	Identifies a statistical question from a list of questions posed in familiar contexts.	Recognizes that questions that lead to variable responses are statistical questions and vice versa. Relates the concept of varying responses to the notion of a range of possible responses. Demonstrates an understanding that the responses to a statistical question will have a representative center and a given set of numerical data. Identifies a reasonable measure of central tendency with respect to a familiar context.	Determines a statistical question for a specific purpose in a real-world situation. Demonstrates an understanding that a measure of center summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number. Identifies a reasonable center and spread with respect to a context.	Explains/justifies whether a question is a statistical question. Changes a non-statistical question into a statistical question. Justifies the reasonableness of an identified center and spread with respect to an unfamiliar context. Creates or completes a data set with given measures (e.g., mean, median, mode, interquartile range).
6.SP.A. 2 Understand that a set of data collected (including Montana American Indian demographic data) to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.	None.	Makes a general statement about measures of center of data (mean, median or mode) presented in a line plot or dot plot. Does not require calculating measures of center (e.g., based on the given line plot, determine that the median is greater than the mode).	Makes a general statement about measures of center of data (mean, median or mode) presented in a histogram or center of data (median or mode) presented in a box plot. Does not require calculating measures of center (e.g., based on the given histogram, determine that the median must be greater than the mean / the data is skewed to the left, so the median is farther to the right within the range). Makes a general statement about the spread and/or shape of data presented in a line plot, histogram, or box plot (e.g., the data is skewed to the left).	Explains/justifies a general statement about measures of center of data (mean, median, or mode) presented in a line plot, histogram, or box plot. Does not require calculating measures of center. Explains/justifies a general statement about the spread and/or shape of data presented in a line plot, histogram, or box plot.
6.SP.A.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.	Distinguishes between measures of center (mean, median) and measures of variation (range, interquartile range). Determines the range of a given data set. Data sets are made up of positive rational numbers.	Determines the mean or median of a given data set. Data sets are made up of positive rational numbers.	Determines the interquartile range of a given data set. Data sets are made up of positive rational numbers.	Determines the missing value(s) in an incomplete data set when given the mean or median. Data sets are made up of positive rational numbers.
6.SP.B Summarize and describe distributions.				
6.SP.B.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	Represents data on a dot plot that is measured to something other than the nearest whole number, 1/2, 1/4, or 1/8. Includes answering questions about steps in creating the line plot. See 4.MD.B.4 for creating dot plots to the nearest whole number, 1/2, 1/4, or 1/8. See 5.MD.A.2 for solving problems involving dot plots and fractions.	Identifies histograms or box plots based on given data. Box plot may be with or without whiskers. Data sets are made up of positive rational numbers.	Creates histograms or box plots to represent data. Includes answering questions about creating the histogram or box plot, other than calculating median or interquartile range (see 6.SP.A.3). Box plots may be with or without whiskers. Data sets are made up of positive rational numbers.	Compares different representations of the same set of data and draws conclusions about the data based on those representations. Comparisons must be appropriate for Grade 6 and be about data displays. Data sets are made up of positive rational numbers.

6.SP.B.5 Summarize numerical data sets in relation to their context, such as by:	Determines the total number of observations from a dot plot. Data sets are made up of positive rational numbers. See 6.SP.A.3 for calculating measures of center and variability when not in context.	Describes deviations (outliers) in data sets based on the context. Students are not expected to calculate outliers using interquartile range requirement. The focus is on data points that may skew the data. Determines which attributes/measures can be determined from the given data display for the context and how it can be measured. Determines the total number of observations from a histogram. Data sets are made up of positive rational numbers.	Determines the measures of center and variability from a data display in relation to the context (mean, median, range, interquartile range). Describes the overall pattern of the data using measures of center in terms of the context. Recommends and justifies the best measure of center and variability to use within a real world context. Data sets are made up of positive rational numbers.	Explain the effect of changing a data point of measures of center or spread. Explain how measures of center relate to one another. Data sets are made up of positive rational numbers.
6.SP.B.5a Reporting the number of observations.	See 6.SP.B.5.	See 6.SP.B.5.	See 6.SP.B.5.	See 6.SP.B.5.
6.SP.B.5b Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.	See 6.SP.B.5.	See 6.SP.B.5.	See 6.SP.B.5.	See 6.SP.B.5.
6.SP.B.5c Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data was gathered.	See 6.SP.B.5.	See 6.SP.B.5.	See 6.SP.B.5.	See 6.SP.B.5.
6.SP.B.5d Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data was gathered.	See 6.SP.B.5.	See 6.SP.B.5.	See 6.SP.B.5.	See 6.SP.B.5.