NF.1 Add and subtract fractions and mixed numbers with unlike denominators by finding a common denominator and equivalent fractions to produce like denominators.	
4.0	**The student will be able to do the following:** • Solve word problems involving the addition and subtraction of three or more fractions with unlike denominators. **For example, when given that after a whole day of selling slices of pie all a baker has left is $\frac{1}{4}$ of one pie, $\frac{5}{12}$ of a second pie, and $\frac{2}{9}$ of a third, and when given that a customer comes in and orders half a pie, determine whether the baker still has enough pie to fill the order and, if he does, determine how much pie he will have left afterwards.**
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	**The student will be able to do the following:** • Add and subtract fractions and mixed numbers with unlike denominators, by finding a common denominator using LCM, a diagram, or model with at least 80 percent or higher accuracy.
2.5	No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content
2.0	**The student will be able to complete at least 50% of the following:** • Convert mixed numbers to improper fractions. • Use a number line to represent and compare fractions with unlike denominators. • Generate equivalent fractions by multiplying both the numerator and denominator of a given fraction by the same whole number. For example, when given the fraction $\frac{3}{4}$, multiply both the numerator and the denominator by 2 to generate the equivalent fraction $\frac{6}{8}$. • Explain that addition and subtraction of fractions with unlike denominators can be accomplished by converting them to equivalent fractions with a common denominator. • Identify the least common multiple of two whole numbers by counting multiples of the numbers until a common value is found. **For example, identify the least common multiple of 5 and 6 by counting in multiples of 5 until arriving at a number that is also a multiple of 6.**
1.5	Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content
1.0	The student will be able to **recognize or recall** the meaning of specific vocabulary, including: • Denominator, Numerator, Fraction • Equivalent Fraction, Multiple, Factor, Number line • Improper Fraction, Mixed Number, Whole Number • Sum, Difference

NF.4a. Apply and use understanding of multiplication to multiply a fraction or whole number by a fraction. Examples: ($\frac{a}{b}$ × q) as ($\frac{a}{b}$ × $\frac{q}{1}$) and ($\frac{a}{b}$ × $\frac{c}{d}$) as ($\frac{ac}{bd}$).	
4.0	**The student will be able to do the following:** • Find an unknown factor in a multiplication problem involving fractional factors. **For example, when given the multiplication problem $\frac{3}{4} \times \square = \frac{1}{3}$, recognize the problem as asking "what portion of $\frac{3}{4}$ of a whole is equal to $\frac{1}{3}$ of that same whole?"; draw a rectangle divided into 4 columns with 3 columns shaded red to represent a $\frac{3}{4}$ portion of a whole; further divide the same rectangle into 3 rows with 1 row shaded blue to represent $\frac{1}{3}$ of the whole; count the number of red cells and the number of blue cells; then ask the question "what size portion of the red cells would the blue cells be?" to determine that the missing factor is $\frac{4}{9}$.**
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	**The student will be able to do the following:** • Multiply fractions by fractions arithmetically with at least 80 percent or higher accuracy. **For example, evaluate $\frac{8}{3} \times \frac{1}{2}$, $\frac{4}{7} \times \frac{2}{3}$, and $5\frac{1}{6} \times \frac{13}{9}$ by multiplying the respective numerators and denominators of each pair of numbers).**
2.5	No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content
2.0	**The student will be able to complete at least 50% of the following:** • Multiply fractions by whole numbers or set the equation up for solving and finding the product. • Explain that $3 \times \frac{7}{9}$ is the same as $3 \times \left(7 \times \frac{1}{9}\right) = (3 \times 7) \times \frac{1}{9} = 21 \times \frac{1}{9} = \frac{21}{9}$. • Explain that the multiplication of a fraction by a fraction can be accomplished by multiplying the numerators and multiplying the denominators. For example, $\frac{3}{4} \times \frac{2}{3} = \frac{(3 \times 2)}{(4 \times 3)} = \frac{6}{12}$.
1.5	Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content
1.0	The student will be able to **recognize or recall** the meaning of specific vocabulary, including: • Associative, Commutative, or Distributive Property • Fraction, Mixed Number, Improper Fraction, Whole Number, Unit Fraction • Numerator, Denominator • Order of Operations, Multiply, Product

NF.7a. Interpret division of a unit fraction by a non-zero whole number and compute such quotients. For example, create a story context for $\frac{1}{3}$ ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $\frac{1}{3}$ ÷ 4 = $\frac{1}{12}$ because $\frac{1}{12}$ × 4 = $\frac{1}{3}$.	
4.0	**The student will be able to do the following:** • Divide unit fractions by smaller unit fractions. **For example, evaluate $\frac{1}{3} \div \frac{1}{9}$ by using a number line to determine how many times a $\frac{1}{9}$ portion of a whole fits into a $\frac{1}{3}$ portion of the same whole.**
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	**The student will be able to do the following:** • Divide a unit fraction by a whole number with at least 80 percent or higher accuracy. **For example, evaluate $\frac{1}{3} \div 6$ and then verify the answer by using a number line to demonstrate that dividing $\frac{1}{3}$ into 6 equal portions produce smaller portions that are $\frac{1}{18}$ of an entire whole.**
2.5	No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content
2.0	**The student will be able to complete at least 50% of the following:** • Partition a given unit fraction into a given number of equal portions and identify the size of one of those smaller portions in relation to the entire whole. **For example, when given the unit fraction $\frac{1}{4}$ represented as one shaded portion of a whole that has been divided into 4 equal portions, further partition the unit fraction into 3 equal portions and reason that one of those smaller portions is equal to $\frac{1}{12}$ of the entire whole because 3 of them fit into the unit fraction and there are 4 unit fractions in the whole.** • Explain that dividing a unit fraction by a whole number will produce a smaller unit fraction. • Students understand that multiplying by the reciprocal with give them the solution needed.
1.5	Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content
1.0	The student will be able to **recognize or recall** the meaning of specific vocabulary, including: • Associative, Commutative, or Distributive Property • Fraction, Mixed Number, Improper Fraction, Whole Number, Unit Fraction • Numerator, Denominator • Dividend, Divisor, Number line

NF.7b. Interpret division of a whole number by a unit fraction and compute such quotients. For example, create a story context for 4 ÷ $\frac{1}{5}$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ $\frac{1}{5}$ = 20 because 20 × $\frac{1}{5}$ = 4.	
4.0	**The student will be able to do the following:** • Divide unit fractions by smaller unit fractions. **For example, evaluate $\frac{1}{3} \div \frac{1}{9}$ by using a number line to determine how many times a $\frac{1}{9}$ portion of a whole fits into a $\frac{1}{3}$ portion of the same whole.**
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	**The student will be able to do the following:** • Divide a whole number by a unit fraction with at least 80 percent or higher accuracy. **For example, evaluate $8 \div \frac{1}{5}$ and then verify the answer by using a number line to demonstrate that $\frac{1}{5}$ goes into 8 a total of 40 times.**
2.5	No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content
2.0	**The student will be able to complete at least 50% of the following:** • Explain that the number of times a given unit fraction can fit into a single whole is equal to the denominator of the unit fraction. **For example, $\frac{1}{5}$ can fit into 1 five times because $\frac{1}{5}$ represents one of the portions of a single whole that has been divided into 5 equal portions.** • Describe a division problem as asking the question "how many or how much of the divisor fits into the dividend?" For example, the division problem $5 \div \frac{1}{8}$ is equivalent to asking, "how many times does $\frac{1}{8}$ fit into 5?" • Explain that a whole number can be divided by a unit fraction by first determining how many times the unit fraction fits into 1 and then multiplying that number by the whole number. • Explain that dividing a whole number by a unit fraction will produce a larger whole number.
1.5	Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content
1.0	The student will be able to **recognize or recall** the meaning of specific vocabulary, including: • Associative, Commutative, or Distributive Property • Fraction, Mixed Number, Improper Fraction, Whole Number, Unit Fraction • Numerator, Denominator • Dividend, Divisor, Number line

NBT.3a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000).	
4.0	**The student will be able to do the following:** • Express decimal numbers using expanded notation. **For example, when given the number 67,457.**397 **the student can then show the number in expanded Notation e.g., (6 x** 10^4**) + (7 x** 10^3**) + (4 x** 10^2**) + (5 x** 10^1**) + (3 x 0.1) + (9 x 0.01) + (7 x 0.001).** • Compare numbers beyond millions by reasoning about place value **For example, when given the numbers** $24{,}000{,}000{,}000{,}000$ **and** $12{,}000{,}000{,}000$**, explain that the second number is** $2{,}000$ **times greater than the first number because** 24 **is twice as large as** 12 **and the digits** 24 **in the first number sit three places to the left of the digits** 12 **in the second number).**
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	**The student will be able to do the following:** • Read, write, or recognize decimals numbers using base ten numerals, number names, and expanded form with at least 80 percent or higher accuracy.
2.5	No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content
2.0	**The student will be able to complete at least 50% of the following:** • Explain that decimal place values represent fractions. For example, explain that the digit 5 in 1.56 represents $\frac{5}{10}$. • Express decimal values as fractions or mixed numbers. For example, express 1.34 as $1\frac{34}{100}$. • Express a decimal value in terms of a given decimal place. For example, express 1.05 as 105 hundredths or 10.5 tenths. • Write decimal values in expanded form. For example, write 47.36 as $4 \times 10 + 7 \times 1 + 3 \times \frac{1}{10} + 6 \times \frac{1}{100}$. • Explain that the expanded form of a number represents that number as the sum of the place values represented by each of its digits, in which each value is represented as a multiple of a power of 10. **For example, when given the number** 576**, explain that the digit** 5 **represents** 5 **hundreds (**5×100**), the digit** 7 **represents** 7 **tens (**7×10**), and the digit** 6 **represents** 6 **ones (**6×1**), and explain that the expanded form of the number** 576 **is** $(5 \times 100) + (7 \times 10) + (6 \times 1)$**.**
1.5	Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content
1.0	The student will be able to **recognize or recall** the meaning of the specific vocabulary, including: • Decimal Fraction, Decimal Place Value, Decimal Point, Decimal Value • Equivalent Fractions, Expanded form • Fraction, Mixed Number, Unit Fraction • Place Value, Whole Number

NBT.4 Use place value understanding to round decimals up to the hundredths place.

4.0	**The student will be able to do the following:** • Use mental computation and estimation strategies to assess the reasonableness of an answer at different stages of solving a problem **For example, when given that a boy has** 374 **more baseball cards than a friend who has** 221 **baseball cards, and when given that he then buys another** 186 **cards, use rounding to estimate that the number of baseball cards the boy started with should be close to** 600 **and the number of cards he ended up with should be close to** 800**.**
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	**The student will be able to do the following:** • Round or estimate any decimal number from the hundredth-place value to the millions place with at least 80 percent or higher accuracy.
2.5	No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content
2.0	**The student will be able to complete at least 50% of the following:** • Explain that "extra" zeros can be added to the end of a decimal value without changing its value. For example, the numbers 5.2, 5.20, and 5.200 all represent the same value. • Underline the number that is being rounding and realize it is the one that may or may not be changed. • Circle the number to the right of the number underlined and recognize the circled number as the "boss." • Recognize the place value of the number being rounded. • Recognize the value of the number being rounded. • Explain why the number being rounded may or may not change in value. • Explain that rounding a number to a given place estimates or approximates the value of the number to the nearest multiple of that place. **For example, rounding a number to the nearest 10 approximates the value of that number to the nearest multiple of 10.** • Identify situations in which rounding might be useful. **For example, explain that rounding two addends and quickly calculating their sum can be useful for assessing whether or not the calculated sum of the unrounded addends is accurate.**
1.5	Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content
1.0	The student will be able to **recognize or recall** the meaning of the specific vocabulary, including: • Round, Estimate • Place value, Place Value Chart • Digit, Number • Decimal, Whole Number

NBT.7 *Add and Subtract* decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between

addition and subtraction; relate the strategy to a written method and explain the reasoning used.	
4.0	**The student will be able to do the following:** • Explain why the standard algorithm for the addition and subtraction of whole numbers can be extended to the addition and subtraction of decimal values. **For example, reason about the uniformity of the base-ten place value system to explain why the addition and subtraction of decimal values follows the same rules as the addition and subtraction of whole numbers.**
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	**The student will be able to do the following:** • Add and subtract decimal values with at least 80 percent or higher accuracy. **For example: evaluate** $6.11 + 56.392$**,** $0.064 + 0.22$**,** $5.32 - 2.7$ **and 6.39 – 2.37.**
2.5	No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content
2.0	**The student will be able to complete at least 50% of the following:** • Explain that, just as whole numbers must be aligned properly when performing addition and subtraction using the standard algorithm, decimal values must also be arranged so that the same places are aligned with each other. For example, when calculating $81.52 + 4.2$, the values must be aligned so that the digit in the ones place of 81.52 is directly above or below the digit in the ones place of 4.2. • Explain that "extra" zeros can be added to the end of a decimal value without changing its value. For example, the numbers 5.2, 5.20, and 5.200 all represent the same value. • Add zeroes as needed to the end of a decimal value so that it contains the same number of decimal places as the number with which it is being added or subtracted. For example, when given the problem $83.2 - 9.585$, add two extra zeroes to 83.2 to produce the equivalent problem $83.200 - 9.585$. • Align the decimal point in a sum or difference of decimal values with the decimal points in the values being added or subtracted when adding or subtracting decimal values using the standard algorithm.
1.5	Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content
1.0	The student will be able to **recognize or recall** the meaning of specific vocabulary, including: • Decimal Place Value, Decimal Point, Decimal Value, Place Value • Add, Subtract • Evaluate, Solution, Sum, Total, All together • Difference, Less than, Take away, How many more

NBT.7 *Multiply* decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	
4.0	**The student will be able to do the following:**

	• Investigate patterns in the products and quotients of decimal values. **For example: use knowledge of fractions or reasoning about place value to explain why the number of decimal places in the product of two decimal values will be equal to the sum of the number of decimal places in each factor, or why dividing a number by a decimal value less than 1 will result in a quotient that is larger than the dividend.**
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	**The student will be able to do the following:** • Multiply decimal values with at least 80 percent or higher accuracy. **For example: evaluate 7×0.26, 1.5×14.6, and 0.94×4.01.**
2.5	No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content
2.0	**The student will be able to complete at least 50% percent of the following:** • Explain that multiplying a number by a fraction or decimal value is the same as taking several portions of that number. **For example, explain that 0.2×5 is the same as "two-tenths of five."** • Multiply decimal values using models or diagrams. • Explain that the multiplication of decimal values can be accomplished by multiplying each factor by 10 the number of times necessary to convert it to a whole number, multiplying the converted factors normally, and then dividing the product by 10 the same number of times both original factors were multiplied by 10. **For example, when given the problem 1.5×2.47, multiply both factors by powers of 10 to convert them to the whole numbers 15 and 247; multiply 15 and 247 using the standard algorithm to arrive at a product of $3{,}705$; count the total number of times the original factors were multiplied by 10 (3); and then divide $3{,}705$ by 10 three times to arrive at the final product of 3.705.** • Explain that the multiplication of decimal values can be accomplished by arranging the factors according to the standard algorithm for whole-number multiplication, ignoring the decimal points and multiplying the factors as if they were whole numbers, counting the total number of digits in both factors that sit to the right of their decimal points, and then placing the decimal point in the product to the left of that same number of digits. **For example, when given the problem 3.5×9.28, ignore the decimal points and multiply the factors according to the standard algorithm for whole numbers, count the total number of digits to the right of the decimal points in the factors (3), and then place a decimal point to the left of the three rightmost digits of the product to arrive at a final product of 32.480.**
1.5	Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content
1.0	The student will be able to **recognize and recall** the meaning of specific vocabulary, including: • Decimal Place Value, Decimal Point, Decimal Value, Place Value • Factor, Fraction, Mixed Number, Whole Number • Product, Standard Algorithm for Multiplication • Of, Group of, Copies of

NBT.7 *Divide* decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	
4.0	**The student will be able to do the following:** • Investigate patterns in the products and quotients of decimal values.

	For example: use knowledge of fractions or reasoning about place value to explain why the number of decimal places in the product of two decimal values will be equal to the sum of the number of decimal places in each factor, or why dividing a number by a decimal value less than 1 will result in a quotient that is larger than the dividend.
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	**The student will be able to do the following:** • Divide decimal values with at least 80 percent or higher accuracy. **For example: evaluate $5 \div 0.25$, $3.6 \div 0.3$, and $1.38 \div 0.06$.**
2.5	No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content
2.0	**The student will be able to complete at least 50% pf the following:** • Divide decimal values using models or diagrams. **For example, when given the problem $1.6 \div 0.02$, represent the dividend (1.6) as 1 whole square divided into 100 equal portions with each portion shaded plus a second square divided into 100 equal portions with 60 portions shaded; identify the divisor (0.02) as representing 2 hundredths or two of the 100 equal portions; then count how many groups of 2 hundredths are represented in the diagram of the dividend to arrive at a quotient of 80.** • Explain that multiplying or dividing both the divided and divisor of a problem by the same number will produce a new dividend and divisor that have the same quotient as the original dividend and divisor. **For example, given that $120 \div 40 = 3$, explain that $(120 \times 100) \div (40 \times 100) = 3$ and $(120 \div 10) \div (40 \div 10) = 3$.** • Explain that a division of decimal values can be simplified by multiplying both the dividend and divisor by the same power of 10 until both values are whole numbers and then dividing normally. **For example, when given the problem $1.56 \div 0.12$, multiply both values by 100 to create the equivalent problem $156 \div 12$, then divide normally to arrive at a quotient of 13.**
1.5	Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content
1.0	The student will be able to **recognize and recall** the meaning of specific vocabulary, including: • Decimal Place Value, Decimal Point, Decimal Value, Place Value • Factor, Fraction, Mixed Number, Whole Number • Quotient, Divisor, Dividend, Remainder, Left over • Divided by, Each, Share Equally

OA.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	
4.0	**The student will be able to do the following:** • Develop a strategy to determine whether two expressions are equivalent **For example: when given the phrase "half of the quotient of sixty-four and eight," and the numerical expressions $(64 \div 8) \div \frac{1}{2}$, $[(40 + 24) \div 8] \div 2$, $(40 \div 8 + 24 \div 8) \div 2$,**

	$[64 \div (4 + 4)] \div 2$**, and** $(64 \div 4 + 64 \div 4) \div 2$**, determine which expressions evaluate to the same value described by the phrase and explain why they do or do not using the order and properties of operations).**
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	**The student will be able to do the following:** • Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols with at least 80 percent or higher accuracy. **For example: use the order of operations to solve example like the following expression 2 + (6 x 3) – 5.**
2.5	No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content
2.0	**The student will be able to complete at least 50% of the following:** • Explain that raising a base to the second power is also known as “squaring” the base. **For example,** 3^2 **is known as “three squared.”** • Explain that raising a base to the third power is also known as “cubing” the base. **For example,** 7^3 **is known as “seven cubed.”** • Apply the order of operations (parentheses, exponents, multiplication/division, addition/subtraction) to expressions involving exponents. • State the order of operations (parentheses, exponents, multiplication/division, addition/subtraction). • Explain that parentheses indicate that the operations inside the parentheses must be performed first. For example, the parentheses in the expression $(5 + 2) \times 7$ indicate that the sum of 5 and 2 must be evaluated before multiplying by 7, even though multiplication typically precedes addition in the order of operations. • Explain that a number written next to an expression in parentheses (typically written to the left of the expression) indicates multiplication of the expression by the number. For example, $2(1 + 5) = 2 \times (1 + 5)$. • Explain that expressions inside parentheses can themselves contain parentheses and that brackets are substituted for the outer pair of parentheses in such cases.
1.5	Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content
1.0	The student will be able to **recognize or recall** the meaning of specific vocabulary, including: • Exponent, Order of Operations, Power • Product, Square, Difference, Sum, Total • Divide, Power of Ten, Subtract • Parentheses, Division, Brackets, Braces, Evaluate • Commutative Property, Distributive Property, Associative Property

MD.2 Make a line plot to display a data set of measurements in fractions of a unit ($^1/_2$, $^1/_4$, $^1/_8$**).**	
4.0	**The student will be able to do the following:**

	• Use a ruler or line plot to calculate the difference in length between two objects with fractional measurements. **For example, when given an object measuring $4\frac{1}{4}$ inches and a second object measuring $7\frac{2}{4}$ inches, determine the difference in length between the two objects by counting the distance between $4\frac{1}{4}$ inches and $7\frac{2}{4}$ inches on a ruler or line plot.**
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	**The student will be able to do the following:** • Display data sets of fractional measurements using line plots with at least 80 percent or higher accuracy. **For example, when given a set of lengths measured to halves and quarters of an inch, represent the data set using a line plot.**
2.5	No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content
2.0	**The student will be able to complete at least 50% of the following:** • Use operations on fractions to solve problems involving information presented in line plots. **For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.** • Interpret a set of data and label a line plot. • Locate fractions on a number line. • Differentiate between different hash marks on a ruler. **For example, differentiate between hash marks indicating 1/2 of an inch and those indicating 1/4 of an inch.** • Represent data sets of whole-unit measurements using a line plot. • Represent fractions on a number line. • Identify simple equivalent fractions. **For example, explain that $\frac{1}{2}$ and $\frac{2}{4}$ represent the same point on the number line and are equivalent fractions.** • Design a line plot with attributes (range and scale) suitable for displaying a particular data set. **For example, when given the data set {3 1/4,3,4 1/4,3 3/4,3 1/2,3 3/4}, identify 3 and 4 1/4 as the least and greatest data points in the set, identify 1/4 as the smallest fractional increment in the set, and design a line plot ranging from 3 to 4 1/4 with a 1/4 unit scale.**
1.5	Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content
1.0	The student will be able to **recognize or recall** the meaning of specific vocabulary, including: • Denominator, Numerator, Mixed Number, Equivalent Fractions, Fraction • Half, Quarter, Eighth, Fourth, Unit, Whole Unit, Zero • Number line, Length, Whole Number

MD.5b Apply the formulas V = l × w × h and V = b × h for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.	
4.0	**The student will be able to do the following:**

	• Design various three-dimensional figures with different shapes and edge lengths, but with the same volume. **For example, when given a three-dimensional figure composed of three right rectangular prisms that have volumes of 8 inches cubed, 24 inches cubed, and 30 inches cubed respectively, design a second three-dimensional figure composed of three right rectangular prisms that have volumes of 16 inches cubed, 28 inches cubed, and 18 inches cubed respectively, then demonstrate that both figures have a volume of 62 inches cubed.**
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	**The student will be able to do the following:** • Calculate the volume of three-dimensional figures of a right rectangular prism using the volume formula with at least 80 percent or higher accuracy. **For example, when given a right rectangular prism with a length of 3 centimeters, a width of 7 centimeters, and a height of 10 centimeters, calculate the volume of the prism as the product of its edge lengths; when given a right rectangular prism with a height of 9 inches and whose base has an area of 24 inches squared, calculate the volume of the prism as the product of the area of its base and its height.**
2.5	No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content
2.0	**The student will be able to complete at least 50% of the following:** • Identify right rectangular prisms. • Identify the formula for the volume of a rectangular prism **(V=l×w×h).** • Represent volume in cubic units. • Calculate the volume of right rectangular prisms. • Identify three-dimensional figures composed of right rectangular prisms in real-world objects. For example, recognize a stack of bricks as being composed of right rectangular prisms. • Explain that a unit cube is a cube with a length, width, and height of 1 unit that has a volume of 1 cubic unit. • Explain that the edge lengths of a rectangular prism can be multiplied in any order to calculate its volume. For example, the volume of a rectangular prism with a length of 10 units, a width of 12 units, and a height of 8 units can be calculated as (10×12)×8 or 10×(12×8) and still result in a volume of 960 units cubed. • Identify the formula for the area of a rectangle **(A=l×w).** • Explain that the volume of a prism can be calculated as the product of the area of its base and its height **(V=b×h).**
1.5	Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content
1.0	The student will be able to **recognize or recall** the meaning of specific vocabulary, including: • Area, Base, Cubic Units, Unit, Volume • Edge Length, Face, Height, Length, Depth, Width • Right Rectangular Prism, Three-Dimensional

MD.5c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.	
4.0	**The student will be able to do the following:**

	• Design various three-dimensional figures with different shapes and edge lengths, but with the same volume. **For example, when given a three-dimensional figure composed of three right rectangular prisms that have volumes of 8 inches cubed, 24 inches cubed, and 30 inches cubed respectively, design a second three-dimensional figure composed of three right rectangular prisms that have volumes of 16 inches cubed, 28 inches cubed, and 18 inches cubed respectively, then demonstrate that both figures have a volume of 62 inches cubed.**
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	**The student will be able to do the following:** • Calculate the volume of three-dimensional figures composed of right rectangular prisms with at least 80 percent or higher accuracy. **For example, when given a three-dimensional figure composed of right rectangular prisms, calculate the volume of the figure as the sum of the volumes of its component prisms.**
2.5	No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content
2.0	**The student will be able to complete at least 50% of the following:** • Identify right rectangular prisms. • Calculate the volume of right rectangular prisms. • Explain that the volume of a three-dimensional figure is equal to the sum of the volumes of the smaller three-dimensional figures that make up the larger figure. • Decompose a three-dimensional figure composed of right rectangular prisms into its component prisms. • Identify the relevant measurements of the component prisms that make up a three-dimensional figure composed of right rectangular prisms. • **For example, when given a three-dimensional figure composed of right rectangular prisms, identify the measurements necessary to calculate the volume of each individual prism (height, length, width, and/or area of the base for each prism).** • Identify three-dimensional figures composed of right rectangular prisms in real-world objects. **For example, recognize a stack of bricks as being composed of right rectangular prisms.**
1.5	Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content
1.0	The student will be able to **recognize or recall** the meaning of specific vocabulary, including: • Area, Base, Cubic Units, Unit, Volume • Edge Length, Face, Height, Length, Depth, Width • Right Rectangular Prism, Three-Dimensional

G.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its

<table>
<tr><td colspan="2">coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).</td></tr>
<tr><td>4.0</td><td>The student will be able to do the following:
Investigate the effects of performing simple mathematical operations on x- and y-coordinates.
For example, when given the ordered pair $(1,2)$, identify the ordered pairs that would result if the coordinates were both multiplied by 2 or by 3, plot the results and draw a line to connect each set of points, then use the graph to predict what might happen if the coordinates were both multiplied by 7, 10, or 15.</td></tr>
<tr><td>3.5</td><td>In addition to score 3.0 performance, partial success at score 4.0 content</td></tr>
<tr><td>3.0</td><td>The student will be able to do the following:
Graph points on a coordinate plane with at least 80 percent or higher accuracy.
For example, when given a set of ordered pairs, graph the pairs as points on a coordinate plane.</td></tr>
<tr><td>2.5</td><td>No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content</td></tr>
<tr><td>2.0</td><td>The Student will be able to complete at least 50% of the following:
Explain that a quadrant coordinate plane is a graph that takes the shape of a two-dimensional grid defined by a horizontal number line known as the x-axis and a vertical number line known as the y-axis that meet at 0,0.
Explain that the location of a point on a coordinate plane can be specified by identifying the values on the x- and y-axes with which the point aligns.
Explain that the values on the x- and y-axes with which a given point aligns are known as the point's x- and y-coordinates and are typically notated as an ordered pair in which the x-coordinate is listed first and the y-coordinate is listed second.
Identify the x- and y-coordinates of a given point on a coordinate plane.
Explain that a point can be plotted on a coordinate plane by beginning at the origin and first counting along the x-axis until reaching the value that corresponds to the point's x-coordinate, then counting upward until reaching the location that aligns with the value on the y-axis that corresponds to the point's y-coordinate.</td></tr>
<tr><td>1.5</td><td>Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content</td></tr>
<tr><td>1.0</td><td>The student will be able to recognize or recall the meaning of specific vocabulary, including:
Axis, X-Axis, Y-Axis, X-Coordinate, Y-Coordinate
Two-Dimensional, Unit, Vertical, Point, Origin
Order Pair, Coordinates, Coordinate Plane</td></tr>
</table>

<table>
<tr><td colspan="2">G.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpret coordinate values of points in the context of the situation.</td></tr>
<tr><td>4.0</td><td>The student will be able to do the following:</td></tr>
</table>

	• Predict ways in which a graph of the relationship between two numerical patterns might change if the relationship were altered in a given way.
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	**The student will be able to do the following:** • Use the coordinate plane to solve problems with at least 80 percent or higher accuracy. **For example, when given a coordinate plane in which the *x*-axis represents the numbered avenues of a city and the *y*-axis represents numbered streets, and when given that a person at the corner of 2^{nd} Avenue and 4^{th} Street walks 4 blocks north, 3 blocks east, and 1 block south, identify the person's final location and then determine the shortest possible route they could have taken.**
2.5	No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content
2.0	**The student will be able to complete at least 50% of the following:** • Draw lines to connect points on a coordinate plane. • Explain that the horizontal or vertical distance between two points on a coordinate plane can be determined by counting the units between the points. **For example, when given a graph of the points (4,6) and (4,10), the distance between the points can be determined by counting how many units (4) it takes to move from one point to the other.** • Describe the movements necessary to move between points on a coordinate plane. **For example, when given the starting point (3,5) and the ending point (4,1), explain that moving to the right 1 unit and down 4 units from the starting point is one possible way to reach the end point.** • Perform movements on a coordinate plane. **For example, when given the starting point $(2,1)$ and the directions "move up 4 units, right 5 units, and down 3 units," perform the movements and identify the point $(7,2)$ as the resulting location.** • Explain that coordinate planes are used to represent data that contains two values. **For example, a coordinate plane would not be used to represent the number of students at a school, but a coordinate plane could be used to represent the number of students in each grade of the school.** • Interpret points on a coordinate plane in terms of their mathematical or real-world context. **For example, when given a coordinate plane that represents horizontal and vertical coordinates on a map, interpret the *x*- and *y*-coordinates of a given point as a location on the map**.
1.5	Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content
1.0	The student will be able to **recognize or recall** the meaning of specific vocabulary, including: • Axis, X-Axis, Y-Axis, X-Coordinate, Y-Coordinate • Two-Dimensional, Unit, Vertical, Point, Origin Order Pair, Coordinates, Coordinate Plane

G.4 Classify two-dimensional figures in a hierarchy based on properties (polygons, triangles, and quadrilaterals).	
4.0	**The student will be able to do the following:**

	• Investigate the properties of the categories of two-dimensional figures. For example, give an informal explanation for why the opposite angles of a parallelogram will always be congruent.
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
3.0	**The student will be able to do the following:** • Classify two-dimensional figures based on their properties with at least 80 percent or higher accuracy. For example, when given a two-dimensional figure, identify the categories to which the figure belongs and explain which properties place it within those categories.
2.5	No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content
2.0	**The student will be able to complete at least 50% of the following:** • Explain that two-dimensional figures can be classified based on their properties, including whether the figure is open or closed, whether it is concave or convex, whether or not the sides are curved, the number of sides, the lengths of the sides, the number of angles, the measures of the angles, and the number of parallel sides. • Explain that polygons are closed two-dimensional figures with all straight sides. • Explain that regular polygons are polygons in which all sides are congruent, and all angles have the same measure. • Explain that irregular polygons are polygons in which all sides are not congruent, and all angles do not have the same measure. • Explain that the classification of two-dimensional figures is hierarchical, and that the properties belonging to a particular category also belong to all subcategories of that category. **For example, rectangles are a subcategory of parallelograms, therefore all rectangles have two pairs of congruent, parallel sides.** • List subcategories of quadrilaterals (trapezoids, parallelograms, rhombuses, rectangles, squares) and their properties. **For example, explain that rhombuses are a subcategory of parallelograms that have all congruent sides.** • Explain that a figure may belong to more than one category. For example, a square is also a rectangle and a rhombus.
1.5	Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content
1.0	The student will be able to **recognize or recall** the meaning of specific vocabulary, including: • Acute, Obtuse, Right, Angle, Concave, Convex • Decagon, Heptagon, Irregular, Nonagon, Octagon • Open, Closed, Parallel, Parallelogram, Pentagon, Perpendicular, Polygon • Quadrilateral, Rectangle, Regular, Rhombus, Right Angle, Side, Square • Trapezoid, Triangle, Two Dimensional