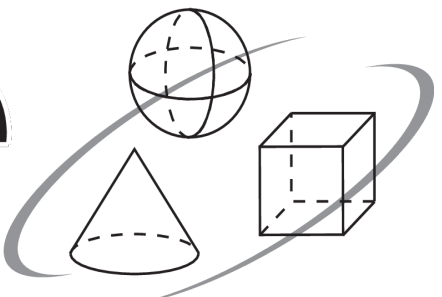


Simple Solutions.



Minutes a Day—Mastery for a Lifetime!

Simple Solutions Standards Mapping

*North Carolina
Standards for
Mathematical Practice*

Grades
K - 8

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Introduction

The purpose of this document is to demonstrate how *Simple Solutions Standards-Based Mathematics* aligns with the North Carolina Standards for Mathematical Practice. Each grade document aligns the standards from the *Simple Solutions Standards-Based Mathematics* series to the standards approved by the North Carolina Department of Public Instruction, and highlights the standards and eligible content identified within the North Carolina Standards for Mathematical Practice.

Simple Solutions Website:

<https://simplesolutions.org/>

North Carolina Department of Public Instruction:

<https://www.dpi.nc.gov/about-dpi/education-directory/departments-public-instruction>

North Carolina Standards for Mathematical Practice:

<https://files.nc.gov/dpi/documents/curriculum/mathematics/scos/0617-adopted-k-8-standards.pdf>

Level K - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Counting and Cardinality (CC)			
NC.K.CC.1	Know number names and recognize patterns in the counting sequence by: <ul style="list-style-type: none"> Counting to 100 by ones. Counting to 100 by tens. 	K.CC.1	Count to 100 by ones and by tens.
NC.K.CC.2	Count forward beginning from a given number within the known sequence, instead of having to begin at 1.	K.CC.2	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
NC.K.CC.3	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20, with 0 representing a count of no objects.	K.CC.3	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
NC.K.CC.4	Understand the relationship between numbers and quantities. <ul style="list-style-type: none"> When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object (one-to-one correspondence). Recognize that the last number named tells the number of objects counted regardless of their arrangement (cardinality). State the number of objects in a group, of up to 5 objects, without counting the objects (perceptual subitizing). 	K.CC.4	Understand the relationship between numbers and quantities; connect counting to cardinality.
NC.K.CC.5	Count to answer "How many?" in the following situations: <ul style="list-style-type: none"> Given a number from 1–20, count out that many objects. Given up to 20 objects, name the next successive number when an object is added, recognizing the quantity is one more/greater. Given 20 objects arranged in a line, a rectangular array, and a circle, identify how many. Given 10 objects in a scattered arrangement, identify how many. 	K.CC.5	Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.
NC.K.CC.6	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.	K.CC.6	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.
NC.K.CC.7	Compare two numbers, within 10, presented as written numerals.	K.CC.7	Compare two numbers between 1 and 10 presented as written numerals.
Number and Operations in Base Ten (NBT)			
NC.K.NBT.1	Compose and decompose numbers from 11 to 19 into ten ones and some further ones by: <ul style="list-style-type: none"> Using objects or drawings. Recording each composition or decomposition by a drawing or expression. Understanding that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones. 	K.NBT.1	Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (such as $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.
Operations and Algebraic Thinking (OA)			
NC.K.OA.1	Represent addition and subtraction, within 10: <ul style="list-style-type: none"> Use a variety of representations such as objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, or expressions. Demonstrate understanding of addition and subtraction by making connections among representations. 	K.OA.1	Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
NC.K.OA.2	Solve addition and subtraction word problems, within 10, using objects or drawings to represent the problem, when solving: <ul style="list-style-type: none"> Add to/Take From-Result Unknown Put Together/ Take Apart (Total Unknown and Two Addends Unknown) 	K.OA.2	Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
NC.K.OA.3	Decompose numbers less than or equal to 10 into pairs in more than one way using objects or drawings, and record each decomposition by a drawing or expression.	K.OA.3	Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation. (e.g., $5 = 2 + 3$ and $5 = 4 + 1$).
NC.K.OA.4	For any number from 0 to 10, find the number that makes 10 when added to the given number using objects or drawings, and record the answer with a drawing or expression.	K.OA.4	For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.
NC.K.OA.5	Demonstrate fluency with addition and subtraction within 5.	K.OA.5	Fluently add and subtract within 5.
NC.K.OA.6	Recognize and combine groups with totals up to 5 (conceptual subitizing).		

Level K - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Geometry (G)			
NC.K.G.1	Describe objects in the environment using names of shapes, and describe the relative positions of objects using positional terms.	K.G.1	Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as <i>above</i> , <i>below</i> , <i>beside</i> , <i>in front of</i> , <i>behind</i> , and <i>next to</i> .
NC.K.G.2	Correctly name squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres regardless of their orientations or overall size.	K.G.2	Correctly name shapes regardless of their orientations or overall size.
NC.K.G.3	Identify squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres as two-dimensional or three-dimensional.	K.G.3	Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").
NC.K.G.4	Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, attributes and other properties.	K.G.4	Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).
NC.K.G.5	Model shapes in the world by: • <i>Building and drawing triangles, rectangles, squares, hexagons, circles.</i> • <i>Building cubes, cones, spheres, and cylinders.</i>	K.G.5	Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.
NC.K.G.6	Compose larger shapes from simple shapes.	K.G.6	Compose simple shapes to form larger shapes.
Measurement and Data (MD)			
NC.K.MD.1	Describe measurable attributes of objects; and describe several different measurable attributes of a single object	K.MD.1	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
NC.K.MD.2	Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference.	K.MD.2	Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference.
NC.K.MD.3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.	K.MD.3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

Level 1 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Number and Operations in Base Ten (NBT)			
NC.1.NBT.1	Count to 150, starting at any number less than 150.	1.NBT.1	Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
NC.1.NBT.7	Read and write numerals, and represent a number of objects with a written numeral, to 100.		
NC.1.NBT.2	Understand that the two digits of a two-digit number represent amounts of tens and ones. <ul style="list-style-type: none"> • Unitize by making a ten from a collection of ten ones. • Model the numbers from 11 to 19 as composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. • Demonstrate that the numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens, with 0 ones. 	1.NBT.2	Understand that the two digits of a two-digit number represent amounts of tens and ones.
NC.1.NBT.3	Compare two two-digit numbers based on the value of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$.	1.NBT.3	Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$.
NC.1.NBT.4	Using concrete models or drawings, strategies based on place value, properties of operations, and explaining the reasoning used, add, within 100, in the following situations: <ul style="list-style-type: none"> • A two-digit number and a one-digit number • A two-digit number and a multiple of 10 	1.NBT.4	Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, 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. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.
NC.1.NBT.5	Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.	1.NBT.5	Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.
NC.1.NBT.6	Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90, explaining the reasoning, using: <ul style="list-style-type: none"> • Concrete models and drawings • Number lines • Strategies based on place value • Properties of operations • The relationship between addition and subtraction 	1.NBT.6	Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), 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.
Operations and Algebraic Thinking (OA)			
NC.1.OA.1	Represent and solve addition and subtraction word problems, within 20, with unknowns, by using objects, drawings, and equations with a symbol for the unknown number to represent the problem, when solving: <ul style="list-style-type: none"> • Add to/Take from-Change Unknown • Put together/Take Apart-Addend Unknown • Compare-Difference Unknown 	1.OA.1	Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
NC.1.OA.2	Represent and solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, by using objects, drawings, and equations with a symbol for the unknown number.	1.OA.2	Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
NC.1.OA.3	Apply the commutative and associative properties as strategies for solving addition problems.	1.OA.3	Apply properties of operations as strategies to add and subtract.
NC.1.OA.4	Solve an unknown-addend problem, within 20, by using addition strategies and/or changing it to a subtraction problem.	1.OA.4	Understand subtraction as an unknown-addend problem.
NC.1.OA.6	Add and subtract, within 20, using strategies such as: <ul style="list-style-type: none"> • Counting on • Making ten • Decomposing a number leading to a ten • Using the relationship between addition and subtraction • Using a number line • Creating equivalent but simpler or known sums 	1.OA.6	Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).
NC.1.OA.9	Demonstrate fluency with addition and subtraction within 10.		
NC.1.OA.7	Apply understanding of the equal sign to determine if equations involving addition and subtraction are true.	1.OA.7	Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.
NC.1.OA.8	Determine the unknown whole number in an addition or subtraction equation involving three whole numbers.	1.OA.8	Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.

Level 1 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Geometry (G)			
NC.1.G.1	Distinguish between defining and non-defining attributes and create shapes with defining attributes by: <ul style="list-style-type: none"> • Building and drawing triangles, rectangles, squares, trapezoids, hexagons, circles. • Building cubes, right rectangular prisms, right circular cones, spheres, and right circular cylinders. 	1.G.1	Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
NC.1.G.2	Create composite shapes by: <ul style="list-style-type: none"> • Making a two-dimensional composite shape using rectangles, squares, trapezoids, triangles, and half-circles naming the components of the new shape. • Making a three-dimensional composite shape using cubes, rectangular prisms, cones, and cylinders, naming the components of the new shape. 	1.G.2	Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.
NC.1.G.3	Partition circles and rectangles into two and four equal shares. <ul style="list-style-type: none"> • Describe the shares as halves and fourths, as half of and fourth of. • Describe the whole as two of, or four of the shares. • Explain that decomposing into more equal shares creates smaller shares. 	1.G.3	Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.
Measurement and Data (MD)			
NC.1.MD.1	Order three objects by length; compare the lengths of two objects indirectly by using a third object.	1.MD.1	Order three objects by length; compare the lengths of two objects indirectly by using a third object.
NC.1.MD.2	Measure lengths with non-standard units. <ul style="list-style-type: none"> • Express the length of an object as a whole number of non-standard length units. • Measure by laying multiple copies of a shorter object (the length unit) end to end (iterating) with no gaps or overlaps. 	1.MD.2	Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.
NC.1.MD.3	Tell and write time in hours and half-hours using analog and digital clocks.	1.MD.3	Tell and write time in hours and half-hours using analog and digital clocks.
NC.1.MD.4	Organize, represent, and interpret data with up to three categories. <ul style="list-style-type: none"> • Ask and answer questions about the total number of data points. • Ask and answer questions about how many in each category. • Ask and answer questions about how many more or less are in one category than in another. 	1.MD.4	Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
NC.1.MD.5	Identify quarters, dimes, and nickels and relate their values to pennies.	2.MD.8 Prep	Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. (2.MD.8 Appears in Level 1 as "Prep")

Level 2 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Number and Operations in Base Ten (NBT)			
NC.2.NBT.1	Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones. <ul style="list-style-type: none"> • <i>Unitize by making a hundred from a collection of ten tens.</i> • <i>Demonstrate that the numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds, with 0 tens and 0 ones.</i> • <i>Compose and decompose numbers using various groupings of hundreds, tens, and ones.</i> 	2.NBT.1	Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones.
NC.2.NBT.2	Count within 1000; skip-count by 5s, 10s, and 100s.	2.NBT.2	Count within 1000; skip-count by 5s, 10s, and 100s.
NC.2.NBT.3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	2.NBT.3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
NC.2.NBT.4	Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons.	2.NBT.4	Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons.
NC.2.NBT.5	Demonstrate fluency with addition and subtraction, within 100, by: <ul style="list-style-type: none"> • <i>Flexibly using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</i> • <i>Comparing addition and subtraction strategies, and explaining why they work.</i> • <i>Selecting an appropriate strategy in order to efficiently compute sums and differences.</i> 	2.NBT.5	Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
		2.NBT.9	Explain why addition and subtraction strategies work, using place value and the properties of operations.
NC.2.NBT.6	Add up to four two-digit numbers using strategies based on place value and properties of operations.	2.NBT.6	Add up to four two-digit numbers using strategies based on place value and properties of operations.
NC.2.NBT.7	Add and subtract, within 1,000, relating the strategy to a written method, using: <ul style="list-style-type: none"> • <i>Concrete models or drawings</i> • <i>Strategies based on place value</i> • <i>Properties of operations</i> • <i>Relationship between addition and subtraction</i> 	2.NBT.7	Add and subtract within 1000, 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. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.
NC.2.NBT.8	Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.	2.NBT.8	Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.
Operations and Algebraic Thinking (OA)			
NC.2.OA.1	Represent and solve addition and subtraction word problems, within 100, with unknowns in all positions, by using representations and equations with a symbol for the unknown number to represent the problem, when solving: <ul style="list-style-type: none"> • <i>One-Step problems:</i> <ul style="list-style-type: none"> ◦ <i>Add to/Take from-Start Unknown</i> ◦ <i>Compare-Bigger Unknown</i> ◦ <i>Compare-Smaller Unknown</i> • <i>Two-Step problems involving single digits:</i> <ul style="list-style-type: none"> ◦ <i>Add to/Take from- Change Unknown</i> ◦ <i>Add to/Take From- Result Unknown</i> 	2.OA.1	Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
NC.2.OA.2	Demonstrate fluency with addition and subtraction, within 20, using mental strategies.	2.OA.2	Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.
NC.2.OA.3	Determine whether a group of objects, within 20, has an odd or even number of members by: <ul style="list-style-type: none"> • <i>Pairing objects, then counting them by 2s.</i> • <i>Determining whether objects can be placed into two equal groups.</i> • <i>Writing an equation to express an even number as a sum of two equal addends.</i> 	2.OA.3	Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.
NC.2.OA.4	Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.	2.OA.4	Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

Level 2 - Mathematics

North Carolina Standards for Mathematical Practice		<i>Simple Solutions Standards</i>	
Geometry (G)			
NC.2.G.1	Recognize and draw triangles, quadrilaterals, pentagons, and hexagons, having specified attributes; recognize and describe attributes of rectangular prisms and cubes.	2.G.1	Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.1 Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
NC.2.G.3	Partition circles and rectangles into two, three, or four equal shares. <ul style="list-style-type: none"> • Describe the shares using the words <i>halves</i>, <i>thirds</i>, <i>half of</i>, <i>a third of</i>, <i>fourths</i>, <i>fourth of</i>, <i>quarter of</i>. • Describe the whole as two halves, three thirds, four fourths. • Explain that equal shares of identical wholes need not have the same shape. 	2.G.3	Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words <i>halves</i> , <i>thirds</i> , <i>half of</i> , <i>a third of</i> , etc., and describe the whole as <i>two halves</i> , <i>three thirds</i> , <i>four fourths</i> . Recognize that equal shares of identical wholes need not have the same shape.
Measurement and Data (MD)			
NC.2.MD.1	Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.	2.MD.1	Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
NC.2.MD.2	Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.	2.MD.2	Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
NC.2.MD.3	Estimate lengths using units of inches, feet, centimeters, and meters.	2.MD.3	Estimate lengths using units of inches, feet, centimeters, and meters.
NC.2.MD.4	Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.	2.MD.4	Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.
NC.2.MD.5	Use addition and subtraction, within 100, to solve word problems involving lengths that are given in the same units, using equations with a symbol for the unknown number to represent the problem.	2.MD.5	Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.
NC.2.MD.6	Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points and represent whole-number sums and differences, within 100, on a number line diagram.	2.MD.6	Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.
NC.2.MD.7	Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	2.MD.7	Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
NC.2.MD.8	Solve word problems involving: <ul style="list-style-type: none"> • Quarters, dimes, nickels, and pennies within 99¢, using ¢ symbols appropriately. • Whole dollar amounts, using the \$ symbol appropriately. 	2.MD.8	Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?
NC.2.MD.10	Organize, represent, and interpret data with up to four categories. <ul style="list-style-type: none"> • Draw a picture graph and a bar graph with a single-unit scale to represent a data set. • Solve simple put-together, take-apart, and compare problems using information presented in a picture and a bar graph. 	2.MD.10	Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

Level 3 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
Number and Operations in Base Ten (NBT)			
NC.3.NBT.2	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	3.NBT.1	Use place value understanding to round whole numbers to the nearest 10 or 100.
		3.NBT.2	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
NC.3.NBT.3	Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations.	3.NBT.3	Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations.
Number and Operations - Fractions (NF)			
NC.3.NF.1	Interpret unit fractions with denominators of 2, 3, 4, 6, and 8 as quantities formed when a whole is partitioned into equal parts; <ul style="list-style-type: none"> • Explain that a unit fraction is one of those parts. • Represent and identify unit fractions using area and length models. 	3.NF.1	Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.
NC.3.NF.2	Interpret fractions with denominators of 2, 3, 4, 6, and 8 using area and length models. <ul style="list-style-type: none"> • Using an area model, explain that the numerator of a fraction represents the number of equal parts of the unit fraction. • Using a number line, explain that the numerator of a fraction represents the number of lengths of the unit fraction from 0. 	3.NF.2	Understand a fraction as a number on the number line; represent fractions on a number line diagram.
NC.3.NF.3	Represent equivalent fractions with area and length models by: <ul style="list-style-type: none"> • Composing and decomposing fractions into equivalent fractions using related fractions: halves, fourths and eighths; thirds and sixths. • Explaining that a fraction with the same numerator and denominator equals one whole. • Expressing whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. 	3.NF.3	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
NC.3.NF.4	Compare two fractions with the same numerator or the same denominator by reasoning about their size, using area and length models, and using the $>$, $<$, and $=$ symbols. Recognize that comparisons are valid only when the two fractions refer to the same whole with denominators: halves, fourths and eighths; thirds and sixths.		

Level 3 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
Operations and Algebraic Thinking (OA)			
NC.3.OA.1	For products of whole numbers with two factors up to and including 10: • Interpret the factors as representing the number of equal groups and the number of objects in each group. • Illustrate and explain strategies including arrays, repeated addition, decomposing a factor, and applying the commutative and associative properties.	3.OA.1	Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each.
		3.OA.5	Apply properties of operations as strategies to multiply and divide.
NC.3.OA.2	For whole-number quotients of whole numbers with a one-digit divisor and a one-digit quotient: • Interpret the divisor and quotient in a division equation as representing the number of equal groups and the number of objects in each group. • Illustrate and explain strategies including arrays, repeated addition or subtraction, and decomposing a factor.	3.OA.2	Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.
NC.3.OA.3	Represent, interpret, and solve one-step problems involving multiplication and division. • Solve multiplication word problems with factors up to and including 10. Represent the problem using arrays, pictures, and/or equations with a symbol for the unknown number to represent the problem. • Solve division word problems with a divisor and quotient up to and including 10. Represent the problem using arrays, pictures, repeated subtraction and/or equations with a symbol for the unknown number to represent the problem.	3.OA.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
		3.OA.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
NC.3.OA.6	Solve an unknown-factor problem, by using division strategies and/or changing it to a multiplication problem.	3.OA.6	Understand division as an unknown-factor problem.
NC.3.OA.7	Demonstrate fluency with multiplication and division with factors, quotients and divisors up to and including 10. • Know from memory all products with factors up to and including 10. • Illustrate and explain using the relationship between multiplication and division. • Determine the unknown whole number in a multiplication or division equation relating three whole numbers.	3.OA.7	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.
NC.3.OA.8	Solve two-step word problems using addition, subtraction, and multiplication, representing problems using equations with a symbol for the unknown number.	3.OA.8	Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
NC.3.OA.9	Interpret patterns of multiplication on a hundreds board and/or multiplication table.	3.OA.9	Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.

Level 3 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
Geometry (G)			
NC.3.G.1	Reason with two-dimensional shapes and their attributes. <ul style="list-style-type: none"> Investigate, describe, and reason about composing triangles and quadrilaterals and decomposing quadrilaterals. Recognize and draw examples and non-examples of types of quadrilaterals including rhombuses, rectangles, squares, parallelograms, and trapezoids. 	3.G.1	Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
NC.3.NF.3	Represent equivalent fractions with area and length models by: <ul style="list-style-type: none"> Composing and decomposing fractions into equivalent fractions using related fractions: halves, fourths and eighths; thirds and sixths. Explaining that a fraction with the same numerator and denominator equals one whole. Expressing whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. 	3.G.2	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.
Measurement and Data (MD)			
NC.3.MD.1	Tell and write time to the nearest minute. Solve word problems involving addition and subtraction of time intervals within the same hour.	3.MD.1	Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
NC.3.MD.2	Solve problems involving customary measurement. <ul style="list-style-type: none"> Estimate and measure lengths in customary units to the quarter-inch and half-inch, and feet and yards to the whole unit. Estimate and measure capacity and weight in customary units to a whole number: cups, pints, quarts, gallons, ounces, and pounds. Add, subtract, multiply, or divide to solve one-step word problems involving whole number measurements of length, weight, and capacity in the same customary units. 	3.MD.2	Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).1 Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.
		3.MD.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.
NC.3.MD.3	Represent and interpret scaled picture and bar graphs: <ul style="list-style-type: none"> Collect data by asking a question that yields data in up to four categories. Make a representation of data and interpret data in a frequency table, scaled picture graph, and/or scaled bar graph with axes provided. Solve one and two-step "how many more" and "how many less" problems using information from these graphs 	3.MD.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.
NC.3.MD.5	Find the area of a rectangle with whole-number side lengths by tiling without gaps or overlaps and counting unit squares.	3.MD.5	Recognize area as an attribute of plane figures and understand concepts of area measurement.
		3.MD.6	Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).
NC.3.MD.7	Relate area to the operations of multiplication and addition. <ul style="list-style-type: none"> Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving problems, and represent whole-number products as rectangular areas in mathematical reasoning. Use tiles and/or arrays to illustrate and explain that the area of a rectangle can be found by partitioning it into two smaller rectangles, and that the area of the large rectangle is the sum of the two smaller rectangles. 	3.MD.7	Relate area to the operations of multiplication and addition.
NC.3.MD.8	Solve problems involving perimeters of polygons, including finding the perimeter given the side lengths, and finding an unknown side length.	3.MD.8	Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

Level 4 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
Number and Operations in Base Ten (NBT)			
NC.4.NBT.1	Explain that in a multi-digit whole number, a digit in one place represents 10 times as much as it represents in the place to its right, up to 100,000.	4.NBT.1	Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.
NC.4.NBT.2	Read and write multi-digit whole numbers up to and including 100,000 using numerals, number names, and expanded form.	4.NBT.2	Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.
NC.4.NBT.7	Compare two multi-digit numbers up to and including 100,000 based on the values of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.		
NC.4.NBT.4	Add and subtract multi-digit whole numbers up to and including 100,000 using the standard algorithm with place value understanding.	4.NBT.4	Fluently add and subtract multi-digit whole numbers using the standard algorithm.
NC.4.NBT.5	Multiply a whole number of up to three digits by a one-digit whole number, and multiply up to two two-digit numbers with place value understanding using area models, partial products, and the properties of operations. Use models to make connections and develop the algorithm.	4.NBT.5	Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
NC.4.NBT.6	Find whole-number quotients and remainders with up to three-digit dividends and one-digit divisors with place value understanding using rectangular arrays, area models, repeated subtraction, partial quotients, properties of operations, and/or the relationship between multiplication and division.	4.NBT.6	Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
Number and Operations Fractions (NF)			
NC.4.NF.1	Explain why a fraction is equivalent to another fraction by using area and length fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size.	4.NF.1	Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
NC.4.NF.2	Compare two fractions with different numerators and different denominators, using the denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions by: <ul style="list-style-type: none"> • Reasoning about their size and using area and length models. • Using benchmark fractions 0, $\frac{1}{2}$, and a whole. • Comparing common numerator or common denominators. 	4.NF.2	Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

Level 4 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
NC.4.NF.3	Understand and justify decompositions of fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100. <ul style="list-style-type: none"> • Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. • Decompose a fraction into a sum of unit fractions and a sum of fractions with the same denominator in more than one way using area models, length models, and equations. • Add and subtract fractions, including mixed numbers with like denominators, by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. • Solve word problems involving addition and subtraction of fractions, including mixed numbers by writing equations from a visual representation of the problem. 	4.NF.3	Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.
NC.4.NF.4	Apply and extend previous understandings of multiplication to: <ul style="list-style-type: none"> • Model and explain how fractions can be represented by multiplying a whole number by a unit fraction, using this understanding to multiply a whole number by any fraction less than one. • Solve word problems involving multiplication of a fraction by a whole number. 	4.NF.4	Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
NC.4.NF.6	Use decimal notation to represent fractions. <ul style="list-style-type: none"> • Express, model and explain the equivalence between fractions with denominators of 10 and 100. • Use equivalent fractions to add two fractions with denominators of 10 or 100. • Represent tenths and hundredths with models, making connections between fractions and decimals. 	4.NF.5	Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.
		4.NF.6	Use decimal notation for fractions with denominators 10 or 100.
NC.4.NF.7	Compare two decimals to hundredths by reasoning about their size using area and length models, and recording the results of comparisons with the symbols $>$, $=$, or $<$. Recognize that comparisons are valid only when the two decimals refer to the same whole.	4.NF.7	Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.
Operations and Algebraic Thinking (OA)			
NC.4.OA.1	Interpret a multiplication equation as a comparison. Multiply or divide to solve word problems involving multiplicative comparisons using models and equations with a symbol for the unknown number. Distinguish multiplicative comparison from additive comparison.	4.OA.1	Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
		4.OA.2	Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.
NC.4.OA.3	Solve two-step word problems involving the four operations with whole numbers. <ul style="list-style-type: none"> • Use estimation strategies to assess reasonableness of answers. • Interpret remainders in word problems. • Represent problems using equations with a letter standing for the unknown quantity. 	4.OA.2	Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.
		4.OA.3	Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
		4.NBT.3	Use place value understanding to round multi-digit whole numbers to any place.
NC.4.OA.4	Find all factor pairs for whole numbers up to and including 50 to: <ul style="list-style-type: none"> • Recognize that a whole number is a multiple of each of its factors. • Determine whether a given whole number is a multiple of a given one-digit number. • Determine if the number is prime or composite. 	4.OA.4	Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.
NC.4.OA.5	Generate and analyze a number or shape pattern that follows a given rule.	4.OA.5	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.

Level 4 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
Geometry (G)			
NC.4.G.1	Draw and identify points, lines, line segments, rays, angles, and perpendicular and parallel lines.	4.G.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
NC.4.G.2	Classify quadrilaterals and triangles based on angle measure, side lengths, and the presence or absence of parallel or perpendicular lines.	4.G.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.
NC.4.G.3	Recognize symmetry in a two-dimensional figure, and identify and draw lines of symmetry	4.G.3	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.
Measurement and Data (MD)			
NC.4.MD.1	Know relative sizes of measurement units. Solve problems involving metric measurement. <i>• Measure to solve problems involving metric units; centimeter, meter, gram, kilogram, Liter, milliliter.</i> <i>• Add, subtract, multiply, and divide to solve one-step word problems involving whole-number measurements of length, mass, and capacity that are given in metric units.</i>	4.MD.1	Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.
NC.4.MD.2	Use multiplicative reasoning to convert metric measurements from a larger unit to a smaller unit using place value understanding, two-column tables, and length models.	4.MD.2	Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
NC.4.MD.8	Solve word problems involving addition and subtraction of time intervals that cross the hour.		
NC.4.MD.3	Solve problems with area and perimeter. <i>• Find areas of rectilinear figures with known side lengths.</i> <i>• Solve problems involving a fixed area and varying perimeters and a fixed perimeter and varying areas.</i> <i>• Apply the area and perimeter formulas for rectangles in real world and mathematical problems.</i>	4.MD.3	Apply the area and perimeter formulas for rectangles in real world and mathematical problems.
NC.4.MD.4	Represent and interpret data using whole numbers. <i>• Collect data by asking a question that yields numerical data.</i> <i>• Make a representation of data and interpret data in a frequency table, scaled bar graph, and/or line plot.</i> <i>• Determine whether a survey question will yield categorical or numerical data.</i>	4.MD.4	Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots.
NC.4.MD.6	Develop an understanding of angles and angle measurement. <i>• Understand angles as geometric shapes that are formed wherever two rays share a common endpoint, and are measured in degrees.</i> <i>• Measure and sketch angles in whole-number degrees using a protractor.</i> <i>• Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems.</i>	4.MD.5	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.
		4.MD.6	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
		4.MD.7	Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

Level 5 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
Number and Operations in Base Ten (NBT)			
NC.5.NBT.1	Explain the patterns in the place value system from one million to the thousandths place. <i>• Explain that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.</i> <i>• Explain patterns in products and quotients when numbers are multiplied by 1,000, 100, 10, 0.1, and 0.01 and/or divided by 10 and 100.</i>	5.NBT.1	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.
		5.NBT.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
NC.5.NBT.3	Read, write, and compare decimals to thousandths. <i>• Write decimals using base-ten numerals, number names, and expanded form.</i> <i>• Compare two decimals to thousandths based on the value of the digits in each place, using >, =, and < symbols to record the results of comparisons.</i>	5.NBT.3	Read, write, and compare decimals to thousandths.
NC.5.NBT.5	Demonstrate fluency with the multiplication of two whole numbers up to a three-digit number by a two-digit number using the standard algorithm.	5.NBT.5	Fluently multiply multi-digit whole numbers using the standard algorithm.
NC.5.NBT.6	Find quotients with remainders when dividing whole numbers with up to four-digit dividends and two-digit divisors using rectangular arrays, area models, repeated subtraction, partial quotients, and/or the relationship between multiplication and division. Use models to make connections and develop the algorithm.	5.NBT.6	Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
NC.5.NBT.7	Compute and solve real-world problems with multi-digit whole numbers and decimal numbers. <i>• Add and subtract decimals to thousandths using models, drawings or strategies based on place value.</i> <i>• Multiply decimals with a product to thousandths using models, drawings, or strategies based on place value.</i> <i>• Divide a whole number by a decimal and divide a decimal by a whole number, using repeated subtraction or area models. Decimals should be limited to hundredths.</i> <i>• Use estimation strategies to assess reasonableness of answers.</i>	5.NBT.7	Add, subtract, multiply, and 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.
		5.NBT.4	Use place value understanding to round decimals to any place.

Level 5 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
Number and Operations Fractions (NF)			
NC.5.NF.1	Add and subtract fractions, including mixed numbers, with unlike denominators using related fractions: halves, fourths and eighths; thirds, sixths, and twelfths; fifths, tenths, and hundredths. <i>• Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.</i> <i>• Solve one- and two-step word problems in context using area and length models to develop the algorithm. Represent the word problem in an equation.</i>	5.NF.1	Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.
		5.NF.2	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.
NC.5.NF.3	Use fractions to model and solve division problems. <i>• Interpret a fraction as an equal sharing context, where a quantity is divided into equal parts.</i> <i>• Model and interpret a fraction as the division of the numerator by the denominator.</i> <i>• Solve one-step word problems involving division of whole numbers leading to answers in the form of fractions and mixed numbers, with denominators of 2, 3, 4, 5, 6, 8, 10, and 12, using area, length, and set models or equations.</i>	5.NF.3	Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
NC.5.NF.4	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction, including mixed numbers. <i>• Use area and length models to multiply two fractions, with the denominators 2, 3, 4.</i> <i>• Explain why multiplying a given number by a fraction greater than 1 results in a product greater than the given number and when multiplying a given number by a fraction less than 1 results in a product smaller than the given number.</i> <i>• Solve one-step word problems involving multiplication of fractions using models to develop the algorithm.</i>	5.NF.4	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
		5.NF.5	Interpret multiplication as scaling (resizing).
		5.NF.6	Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
NC.5.NF.7	Solve one-step word problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions using area and length models, and equations to represent the problem.	5.NF.7	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.

Level 5 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
Operations and Algebraic Thinking (OA)			
NC.5.OA.2	Write, explain, and evaluate numerical expressions involving the four operations to solve up to two-step problems. Include expressions involving: <ul style="list-style-type: none"> • Parentheses, using the order of operations • Commutative, associative and distributive properties 	5.OA.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
		5.OA.2	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.
NC.5.OA.3	Generate two numerical patterns using two given rules. • Identify apparent relationships between corresponding terms. <ul style="list-style-type: none"> • Form ordered pairs consisting of corresponding terms from the two patterns. • Graph the ordered pairs on a coordinate plane. 	5.OA.3	Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.
Geometry (G)			
NC.5.G.1	Graph points in the first quadrant of a coordinate plane, and identify and interpret the x and y coordinates to solve problems.	5.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 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).
		5.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.
NC.5.G.3	Classify quadrilaterals into categories based on their properties. <ul style="list-style-type: none"> • Explain that attributes belonging to a category of quadrilaterals also belong to all subcategories of that category. • Classify quadrilaterals in a hierarchy based on properties. 	5.G.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.
		5.G.4	Classify two-dimensional figures in a hierarchy based on properties.

Level 5 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
Measurement and Data (MD)			
NC.5.MD.1	Given a conversion chart, use multiplicative reasoning to solve one-step conversion problems within a given measurement system.	5.MD.1	Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.
NC.5.MD.2	Represent and interpret data. <ul style="list-style-type: none"> • Collect data by asking a question that yields data that changes over time. • Make and interpret a representation of data using a line graph. • Determine whether a survey question will yield categorical or numerical data, or data that changes over time. 	5.MD.2	Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots.
NC.5.MD.4	Recognize volume as an attribute of solid figures and measure volume by counting unit cubes, using cubic centimeters, cubic inches, cubic feet, and improvised units.	5.MD.3	Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
		5.MD.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
NC.5.MD.5	Relate volume to the operations of multiplication and addition. <ul style="list-style-type: none"> • Find the volume of a rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths. • Build understanding of the volume formula for rectangular prisms with whole-number edge lengths in the context of solving problems. • Find volume of solid figures with one-digit dimensions composed of two non-overlapping rectangular prisms. 	5.MD.5	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

Level 6 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
Ratios & Proportional Relationships (RP)			
NC.6.RP.1	Understand the concept of a ratio and use ratio language to: <ul style="list-style-type: none"> • Describe a ratio as a multiplicative relationship between two quantities. • Model a ratio relationship using a variety of representations. 	6.RP.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
NC.6.RP.2	Understand that ratios can be expressed as equivalent unit ratios by finding and interpreting both unit ratios in context.	6.RP.2	Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship.
NC.6.RP.3	Use ratio reasoning with equivalent whole-number ratios to solve real-world and mathematical problems by: <ul style="list-style-type: none"> • Creating and using a table to compare ratios. • Finding missing values in the tables. • Using a unit ratio. • Converting and manipulating measurements using given ratios. • Plotting the pairs of values on the coordinate plane. 	6.RP.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.
NC.6.RP.4	Use ratio reasoning to solve real-world and mathematical problems with percents by: <ul style="list-style-type: none"> • Understanding and finding a percent of a quantity as a ratio per 100. • Using equivalent ratios, such as benchmark percents (50%, 25%, 10%, 5%, 1%), to determine a part of any given quantity. • Finding the whole, given a part and the percent. 		
The Number System (NS)			
NC.6.NS.1	Use visual models and common denominators to: <ul style="list-style-type: none"> • Interpret and compute quotients of fractions. • Solve real-world and mathematical problems involving division of fractions. 	6.NS.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.
NC.6.NS.2	Fluently divide using long division with a minimum of a four-digit dividend and interpret the quotient and remainder in context.	6.NS.2	Fluently divide multi-digit numbers using the standard algorithm.
NC.6.NS.3	Apply and extend previous understandings of decimals to develop and fluently use the standard algorithms for addition, subtraction, multiplication and division of decimals.	6.NS.3	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
NC.6.NS.4	Understand and use prime factorization and the relationships between factors to: <ul style="list-style-type: none"> • Find the unique prime factorization for a whole number. • Find the greatest common factor of two whole numbers less than or equal to 100. • Use the greatest common factor and the distributive property to rewrite the sum of two whole numbers, each less than or equal to 100. • Find the least common multiple of two whole numbers less than or equal to 12 to add and subtract fractions with unlike denominators. 	6.NS.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.
NC.6.NS.5	Understand and use rational numbers to: <ul style="list-style-type: none"> • Describe quantities having opposite directions or values. • Represent quantities in real-world contexts, explaining the meaning of 0 in each situation. • Understand the absolute value of a rational number as its distance from 0 on the number line to: <ul style="list-style-type: none"> ◦ Interpret absolute value as magnitude for a positive or negative quantity in a real-world context. ◦ Distinguish comparisons of absolute value from statements about order. 	6.NS.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.
NC.6.NS.6	Understand rational numbers as points on the number line and as ordered pairs on a coordinate plane. <p>a. On a number line:</p> <ul style="list-style-type: none"> ◦ Recognize opposite signs of numbers as indicating locations on opposite sides of 0 and that the opposite of the opposite of a number is the number itself. ◦ Find and position rational numbers on a horizontal or vertical number line. <p>b. On a coordinate plane:</p> <ul style="list-style-type: none"> ◦ Understand signs of numbers in ordered pairs as indicating locations in quadrants. ◦ Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. ◦ Find and position pairs of rational numbers on a coordinate plane. 	6.NS.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.
NC.6.NS.7	Understand ordering of rational numbers. <p>a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.</p> <p>b. Write, interpret, and explain statements of order for rational numbers in real-world contexts.</p>	6.NS.7	Understand ordering and absolute value of rational numbers.
NC.6.NS.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.	6.NS.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.
NC.6.NS.9	Apply and extend previous understandings of addition and subtraction. <ul style="list-style-type: none"> • Describe situations in which opposite quantities combine to make 0. • Understand $p+q$ as the number located a distance q from p, in the positive or negative direction depending on the sign of q. Show that a number and its additive inverse create a zero pair. • Understand subtraction of integers as adding the additive inverse, $p-q=p+(-q)$. Show that the distance between two integers on the number line is the absolute value of their difference. • Use models to add and subtract integers from -20 to 20 and describe real-world contexts using sums and differences. 	7.NS.1	Appears in <i>Simple Solutions Standards-Based Math Level 7</i> .

Level 6 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
Expressions and Equations (EE)			
NC.6.EE.1	Write and evaluate numerical expressions, with and without grouping symbols, involving whole-number exponents.	6.EE.1	Write and evaluate numerical expressions involving whole-number exponents.
NC.6.EE.2	Write, read, and evaluate algebraic expressions. <ul style="list-style-type: none"> • Write expressions that record operations with numbers and with letters standing for numbers. • Identify parts of an expression using mathematical terms and view one or more of those parts as a single entity. • Evaluate expressions at specific values of their variables using expressions that arise from formulas used in real-world problems. 	6.EE.2	Write, read, and evaluate expressions in which letters stand for numbers.
NC.6.EE.3	Apply the properties of operations to generate equivalent expressions without exponents.	6.EE.3	Apply the properties of operations to generate equivalent expressions.
NC.6.EE.4	Identify when two expressions are equivalent and justify with mathematical reasoning.	6.EE.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).
NC.6.EE.5	Use substitution to determine whether a given number in a specified set makes an equation true.	6.EE.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.
NC.6.EE.6	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem.	6.EE.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.
NC.6.EE.7	Solve real-world and mathematical problems by writing and solving equations of the form: <ul style="list-style-type: none"> • $x + p = q$ in which p, q and x are all nonnegative rational numbers; and, • $px = q$ for cases in which p, q and x are all nonnegative rational numbers. 	6.EE.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.
NC.6.EE.8	Reason about inequalities by: <ul style="list-style-type: none"> • Using substitution to determine whether a given number in a specified set makes an inequality true. • Writing an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. • Recognizing that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions. • Representing solutions of inequalities on number line diagrams. 	6.EE.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.
NC.6.EE.9	Represent and analyze quantitative relationships by: <ul style="list-style-type: none"> • Using variables to represent two quantities in a real-world or mathematical context that change in relationship to one another. • Analyze the relationship between quantities in different representations (context, equations, tables, and graphs). 	6.EE.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.

Level 6 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
Geometry (G)			
NC.6.G.1	Create geometric models to solve real-world and mathematical problems to: • Find the area of triangles by composing into rectangles and decomposing into right triangles. • Find the area of special quadrilaterals and polygons by decomposing into triangles or rectangles.	6.G.1	Find the 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.
NC.6.G.2	Apply and extend previous understandings of the volume of a right rectangular prism to find the volume of right rectangular prisms with fractional edge lengths. Apply this understanding to the context of solving real-world and mathematical problems.	6.G.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 $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
NC.6.G.3	Use the coordinate plane to solve real-world and mathematical problems by: • Drawing polygons in the coordinate plane given coordinates for the vertices. • Using coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate.	6.G.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.
NC.6.G.4	Represent right prisms and right pyramids 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.	6.G.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.
Statistics and Probability (SP)			
NC.6.SP.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.	6.SP.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.
NC.6.SP.2	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.	6.SP.2	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.
NC.6.SP.3	Understand that both a measure of center and a description of variability should be considered when describing a numerical data set. a. Determine the measure of center of a data set and understand that it is a single number that summarizes all the values of that data set. o Understand that a mean is a measure of center that represents a balance point or fair share of a data set and can be influenced by the presence of extreme values within the data set. o Understand the median as a measure of center that is the numerical middle of an ordered data set. b. Understand that describing the variability of a data set is needed to distinguish between data sets in the same scale, by comparing graphical representations of different data sets in the same scale that have similar measures of center, but different spreads.	6.SP.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.
NC.6.SP.4	Display numerical data in plots on a number line. • Use dot plots, histograms, and box plots to represent data. • Compare the attributes of different representations of the same data.	6.SP.4	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
NC.6.SP.5	Summarize numerical data sets in relation to their context. a. Describe the collected data by: o Reporting the number of observations in dot plots and histograms. o Communicating the nature of the attribute under investigation, how it was measured, and the units of measurement. b. Analyze center and variability by: o Giving quantitative measures of center, describing variability, and any overall pattern, and noting any striking deviations. o Justifying the appropriate choice of measures of center using the shape of the data distribution.	6.SP.5	Summarize numerical data sets in relation to their context.

Level 7 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
Ratios & Proportional Relationships (RP)			
NC.7.RP.1	Compute unit rates associated with ratios of fractions to solve real-world and mathematical problems.	7.RP.1	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.
NC.7.RP.2	Recognize and represent proportional relationships between quantities. <i>a. Understand that a proportion is a relationship of equality between ratios.</i> <i>o Represent proportional relationships using tables and graphs.</i> <i>o Recognize whether ratios are in a proportional relationship using tables and graphs.</i> <i>o Compare two different proportional relationships using tables, graphs, equations, and verbal descriptions.</i> <i>b. Identify the unit rate (constant of proportionality) within two quantities in a proportional relationship using tables, graphs, equations, and verbal descriptions.</i> <i>c. Create equations and graphs to represent proportional relationships.</i> <i>d. Use a graphical representation of a proportional relationship in context to:</i> <i>o Explain the meaning of any point (x,y).</i> <i>o Explain the meaning of (0, 0) and why it is included.</i> <i>o Understand that the y-coordinate of the ordered pair (1,r) corresponds to the unit rate and explain its meaning.</i>	7.RP.2	Recognize and represent proportional relationships between quantities.
NC.7.RP.3	Use scale factors and unit rates in proportional relationships to solve ratio and percent problems.	7.RP.3	Use proportional relationships to solve multistep ratio and percent problems.
The Number System (NS)			
NC.7.NS.1	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers, using the properties of operations, and describing real-world contexts using sums and differences.	7.NS.1	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
NC.7.NS.2	Apply and extend previous understandings of multiplication and division. <i>a. Understand that a rational number is any number that can be written as a quotient of integers with a non-zero divisor.</i> <i>b. Apply properties of operations as strategies, including the standard algorithms, to multiply and divide rational numbers and describe the product and quotient in real-world contexts.</i> <i>c. Use division and previous understandings of fractions and decimals.</i> <i>o Convert a fraction to a decimal using long division.</i> <i>o Understand that the decimal form of a rational number terminates in 0s or eventually repeats.</i>	7.NS.2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
NC.7.NS.3	Solve real-world and mathematical problems involving numerical expressions with rational numbers using the four operations.	7.NS.3	Solve real-world and mathematical problems involving the four operations with rational numbers.

Level 7 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
Expressions and Equations (EE)			
NC.7.EE.1	Apply properties of operations as strategies to: <ul style="list-style-type: none"> • Add, subtract, and expand linear expressions with rational coefficients. • Factor linear expression with an integer GCF. 	7.EE.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
NC.7.EE.2	Understand that equivalent expressions can reveal real-world and mathematical relationships. Interpret the meaning of the parts of each expression in context.	7.EE.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.
NC.7.EE.3	Solve multi-step real-world and mathematical problems posed with rational numbers in algebraic expressions. <ul style="list-style-type: none"> • Apply properties of operations to calculate with positive and negative numbers in any form. • Convert between different forms of a number and equivalent forms of the expression as appropriate. 	7.EE.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
NC.7.EE.4	Use variables to represent quantities to solve real-world or mathematical problems. <i>a. Construct equations to solve problems by reasoning about the quantities.</i> <ul style="list-style-type: none"> o Fluently solve multistep equations with the variable on one side, including those generated by word problems. o Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. o Interpret the solution in context. <i>b. Construct inequalities to solve problems by reasoning about the quantities.</i> <ul style="list-style-type: none"> o Fluently solve multi-step inequalities with the variable on one side, including those generated by word problems. o Compare an algebraic solution process for equations and an algebraic solution process for inequalities. o Graph the solution set of the inequality and interpret in context. 	7.EE.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
Geometry (G)			
NC.7.G.1	Solve problems involving scale drawings of geometric figures by: <ul style="list-style-type: none"> • Building an understanding that angle measures remain the same and side lengths are proportional. • Using a scale factor to compute actual lengths and areas from a scale drawing. • Creating a scale drawing. 	7.G.1	Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
NC.7.G.2	Understand the characteristics of angles and side lengths that create a unique triangle, more than one triangle or no triangle. Build triangles from three measures of angles and/or sides.	7.G.2	Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
NC.7.G.4	Understand area and circumference of a circle. <ul style="list-style-type: none"> • Understand the relationships between the radius, diameter, circumference, and area. • Apply the formulas for area and circumference of a circle to solve problems. 	7.G.4	Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
NC.7.G.5	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve equations for an unknown angle in a figure.	7.G.5	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
NC.7.G.6	Solve real-world and mathematical problems involving: <ul style="list-style-type: none"> • Area and perimeter of two-dimensional objects composed of triangles, quadrilaterals, and polygons. • Volume and surface area of pyramids, prisms, or three-dimensional objects composed of cubes, pyramids, and right prisms. 	7.G.6	Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

Level 7 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
Statistics and Probability (SP)			
NC.7.SP.1	Understand that statistics can be used to gain information about a population by: <ul style="list-style-type: none"> • Recognizing that generalizations about a population from a sample are valid only if the sample is representative of that population. • Using random sampling to produce representative samples to support valid inferences. 	7.SP.1	Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.
NC.7.SP.2	Generate multiple random samples (or simulated samples) of the same size to gauge the variation in estimates or predictions, and use this data to draw inferences about a population with an unknown characteristic of interest.	7.SP.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.
NC.7.SP.3	Recognize the role of variability when comparing two populations. <ul style="list-style-type: none"> a. Calculate the measure of variability of a data set and understand that it describes how the values of the data set vary with a single number. <ul style="list-style-type: none"> o Understand the mean absolute deviation of a data set is a measure of variability that describes the average distance that points within a data set are from the mean of the data set. o Understand that the range describes the spread of the entire data set. o Understand that the interquartile range describes the spread of the middle 50% of the data. b. Informally assess the difference between two data sets by examining the overlap and separation between the graphical representations of two data sets. 	7.SP.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.
NC.7.SP.4	Use measures of center and measures of variability for numerical data from random samples to draw comparative inferences about two populations.	7.SP.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.
NC.7.SP.5	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring.	7.SP.5	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
NC.7.SP.6	Collect data to calculate the experimental probability of a chance event, observing its long-run relative frequency. Use this experimental probability to predict the approximate relative frequency.	7.SP.6	Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.
NC.7.SP.7	Develop a probability model and use it to find probabilities of simple events. <ul style="list-style-type: none"> a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. b. Develop a probability model (which may not be uniform) by repeatedly performing a chance process and observing frequencies in the data generated. c. Compare theoretical and experimental probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. 	7.SP.7	Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.
NC.7.SP.8	Determine probabilities of compound events using organized lists, tables, tree diagrams, and simulation. <ul style="list-style-type: none"> a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. b. For an event described in everyday language, identify the outcomes in the sample space which compose the event, when the sample space is represented using organized lists, tables, and tree diagrams. c. Design and use a simulation to generate frequencies for compound events. 	7.SP.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.

Level 8 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
The Number System (NS)			
NC.8.NS.1	Understand that every number has a decimal expansion. Building upon the definition of a rational number, know that an irrational number is defined as a non-repeating, non-terminating decimal.	8.NS.1	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.
NC.8.NS.2	Use rational approximations of irrational numbers to compare the size of irrational numbers and locate them approximately on a number line. Estimate the value of expressions involving: <ul style="list-style-type: none"> • Square roots and cube roots to the tenths. • π to the hundredths. 	8.NS.2	Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions.
Expressions and Equations (EE)			
NC.8.EE.1	Develop and apply the properties of integer exponents to generate equivalent numerical expressions.	8.EE.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions.
NC.8.EE.2	Use square root and cube root symbols to: <ul style="list-style-type: none"> • Represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. • Evaluate square roots of perfect squares and cube roots of perfect cubes for positive numbers less than or equal to 400. 	8.EE.2	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.
NC.8.EE.3	Use numbers expressed in scientific notation to estimate very large or very small quantities and to express how many times as much one is than the other.	8.EE.3	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.
NC.8.EE.4	Perform multiplication and division with numbers expressed in scientific notation to solve real-world problems, including problems where both decimal and scientific notation are used.	8.EE.4	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.
NC.8.EE.7	Solve real-world and mathematical problems by writing and solving equations and inequalities in one variable. <ul style="list-style-type: none"> • Recognize linear equations in one variable as having one solution, infinitely many solutions, or no solutions. • Solve linear equations and inequalities including multi-step equations and inequalities with the same variable on both sides. 	8.EE.7	Solve linear equations in one variable.
NC.8.EE.8	Analyze and solve a system of two linear equations in two variables in slope-intercept form. <ul style="list-style-type: none"> • Understand that solutions to a system of two linear equations correspond to the points of intersection of their graphs because the point of intersection satisfies both equations simultaneously. • Solve real-world and mathematical problems leading to systems of linear equations by graphing the equations. Solve simple cases by inspection. 	8.EE.8	Analyze and solve pairs of simultaneous linear equations.

Level 8 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
Functions (F)			
NC.8.F.1	Understand that a function is a rule that assigns to each input exactly one output. <ul style="list-style-type: none"> • Recognize functions when graphed as the set of ordered pairs consisting of an input and exactly one corresponding output. • Recognize functions given a table of values or a set of ordered pairs. 	8.F.1	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.
NC.8.F.2	Compare properties of two linear functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	8.F.2	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
NC.8.F.3	Identify linear functions from tables, equations, and graphs.	8.F.3	Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.
NC.8.F.4	Analyze functions that model linear relationships. <ul style="list-style-type: none"> • Understand that a linear relationship can be generalized by $y=mx+b$. • Write an equation in slope-intercept form to model a linear relationship by determining the rate of change and the initial value, given at least two (x, y) values or a graph. • Construct a graph of a linear relationship given an equation in slope-intercept form. • Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of the slope and y-intercept of its graph or a table of values. 	8.F.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
		8.EE.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.
		8.EE.6	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b .
NC.8.F.5	Qualitatively analyze the functional relationship between two quantities. <ul style="list-style-type: none"> • Analyze a graph determining where the function is increasing or decreasing; linear or non-linear. • Sketch a graph that exhibits the qualitative features of a real-world function. 	8.F.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

Level 8 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
Geometry (G)			
NC.8.G.2	Use transformations to define congruence. <ul style="list-style-type: none"> • <i>Verify experimentally the properties of rotations, reflections, and translations that create congruent figures.</i> • <i>Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations.</i> • <i>Given two congruent figures, describe a sequence that exhibits the congruence between them.</i> 	8.G.1	Verify experimentally the properties of rotations, reflections, and translations.
		8.G.2	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
NC.8.G.3	Describe the effect of dilations about the origin, translations, rotations about the origin in 90 degree increments, and reflections across the x-axis and y-axis on two-dimensional figures using coordinates.	8.G.3	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
NC.8.G.4	Use transformations to define similarity. <ul style="list-style-type: none"> • <i>Verify experimentally the properties of dilations that create similar figures.</i> • <i>Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations.</i> • <i>Given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.</i> 	8.G.1	Verify experimentally the properties of rotations, reflections, and translations.
		8.G.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
NC.8.G.5	Use informal arguments to analyze angle relationships. <ul style="list-style-type: none"> • <i>Recognize relationships between interior and exterior angles of a triangle.</i> • <i>Recognize the relationships between the angles created when parallel lines are cut by a transversal.</i> • <i>Recognize the angle-angle criterion for similarity of triangles.</i> • <i>Solve real-world and mathematical problems involving angles.</i> 	8.G.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.
NC.8.G.6	Explain the Pythagorean Theorem and its converse.	8.G.6	Explain a proof of the Pythagorean Theorem and its converse.
NC.8.G.7	Apply the Pythagorean Theorem and its converse to solve real-world and mathematical problems.	8.G.7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
NC.8.G.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	8.G.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
NC.8.G.9	Understand how the formulas for the volumes of cones, cylinders, and spheres are related and use the relationship to solve real-world and mathematical problems.	8.G.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Level 8 - Mathematics

North Carolina Standards for Mathematical Practice		Simple Solutions Standards	
Standard	Description	Standard	Description
Statistics and Probability (SP)			
NC.8.SP.1	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Investigate and describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	8.SP.1	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
NC.8.SP.2	Model the relationship between bivariate quantitative data to: <ul style="list-style-type: none"> • <i>Informally fit a straight line for a scatter plot that suggests a linear association.</i> • <i>Informally assess the model fit by judging the closeness of the data points to the line.</i> 	8.SP.2	Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.
NC.8.SP.3	Use the equation of a linear model to solve problems in the context of bivariate quantitative data, interpreting the slope and y-intercept.	8.SP.3	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.
NC.8.SP.4	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. <ul style="list-style-type: none"> • <i>Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects.</i> • <i>Use relative frequencies calculated for rows or columns to describe possible association between the two variables.</i> 	8.SP.4	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.