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Simple Solutions Standards Mapping

South Carolina

College and Career-Ready Standards for Mathematics

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 South Carolina College and Career-Ready Standards for Mathematics Each grade document aligns the standards from the *Simple Solutions Standards-Based Mathematics* series to the standards approved by the South Carolina Department of Education, and highlights the standards and eligible content identified within the South Carolina College and Career-Ready Standards for Mathematics.

Simple Solutions Website:
https://simplesolutions.org/

South Carolina Department of Education:
https://www.ed.sc.gov/

South Carolina College and Career-Ready Standards for Mathematics:
https://ed.sc.gov/instruction/standards-learning/mathematics/standards/scccr-standards-for-mathematics-final-print-on-one-side/

Level K - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Number Sense / Counting and Cardinality (CC)			
K.NS.1	Count forward by ones and tens to 100.	**K.CC.1**	Count to 100 by ones and by tens.
K.NS.2	Count forward by ones beginning from any number less than 100.	**K.CC.2**	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
K.NS.3	Read numbers from 0 – 20 and represent a number of objects 0 – 20 with a written numeral.	**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.7	Compare two numbers between 1 and 10 presented as written numerals.
K.NS.4	Understand the relationship between number and quantity. Connect counting to cardinality by demonstrating an understanding that: *a. the last number said tells the number of objects in the set (cardinality);* *b. the number of objects is the same regardless of their arrangement or the order in which they are counted (conservation of number);* *c. each successive number name refers to a quantity that is one more and each previous number name refers to a quantity that is one less.*	**K.CC.4**	Understand the relationship between numbers and quantities; connect counting to cardinality.
K.NS.5	Count a given number of objects from 1 – 20 and connect this sequence in a one-to-one manner.	**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.
K.NS.6	Recognize a quantity of up to ten objects in an organized arrangement (subitizing).		
K.NS.7	Determine whether the number of up to ten objects in one group is more than, less than, or equal to the number of up to ten objects in another group 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.
K.NS.8	Compare two written numerals up to 10 using more than, less than or equal to.		
K.NS.9	Identify first through fifth and last positions in a line of objects.		
Number and Operations in Base Ten (NBT)			
K.NSBT.1	Compose and decompose numbers from 11 – 19 separating ten ones from the remaining ones using objects and drawings.	**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)			
K.ATO.1	Model situations that involve addition and subtraction within 10 using objects, fingers, mental images, drawings, acting out situations, verbal explanations, expressions, and equations.	**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.
K.ATO.2	Solve real-world/story problems using objects and drawings to find sums up to 10 and differences within 10.	**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.
K.ATO.3	Compose and decompose numbers up to 10 using objects, drawings, and equations.	**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).
K.ATO.4	Create a sum of 10 using objects and drawings when given one of two addends 1 – 9.	**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.
K.ATO.5	Add and subtract fluently within 5.	**K.OA.5**	Fluently add and subtract within 5.
K.ATO.6	Describe simple repeating patterns using AB, AAB, ABB, and ABC type patterns.		

Level K - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Geometry (G)			
K.G.1	Describe positions of objects by appropriately using terms, including *below* , *above* , *beside* , *between* , *inside* , *outside* , *in front of* , or *behind* .	**K.G.1**	Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above* , *below* , *beside* , *in front of* , *behind* , and *next to* .
K.G.2	Identify and describe a given shape and shapes of objects in everyday situations to include two-dimensional shapes (i.e., triangle, square, rectangle, hexagon, and circle) and three-dimensional shapes (i.e., cone, cube, cylinder, and sphere).	**K.G.2**	Correctly name shapes regardless of their orientations or overall size.
K.G.3	Classify shapes as two-dimensional/flat or three-dimensional/solid and explain the reasoning used.	**K.G.3**	Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").
K.G.4	Analyze and compare two- and three-dimensional shapes of different sizes and orientations using informal language.	**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).
K.G.5	Draw two-dimensional shapes (i.e., square, rectangle, triangle, hexagon, and circle) and create models of three-dimensional shapes (i.e., cone, cube, cylinder, and sphere).	**K.G.5**	Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.
		K.G.6	Compose simple shapes to form larger shapes.
Measurement and Data (MD)			
K.MDA.1	Identify measurable attributes (length, weight) of an object.	**K.MD.1**	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
K.MDA.2	Compare objects using words such as shorter/longer, shorter/taller, and lighter/heavier.	**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.MDA.3	Sort and classify data into 2 or 3 categories with data not to exceed 20 items in each category.	**K.MD.3**	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.
K.MDA.4	Represent data using object and picture graphs and draw conclusions from the graphs.	**1.MD.4**	Included in future level.

Level 1 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Number and Operations in Base Ten (NBT)			
1.NSBT.1	Extend the number sequence to: *a. count forward by ones to 120 starting at any number;* *b. count by fives and tens to 100, starting at any number;* *c. read, write and represent numbers to 100 using concrete models, standard form, and equations in expanded form;* *d. read and write in word form numbers zero through nineteen, and multiples of ten through ninety.*	**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.
1.NSBT.2	Understand place value through 99 by demonstrating that: *a. ten ones can be thought of as a bundle (group) called a "ten";* *b. the tens digit in a two-digit number represents the number of tens and the ones digit represents the number of ones;* *c. two-digit numbers can be decomposed in a variety of ways (e.g., 52 can be decomposed as 5 tens and 2 ones or 4 tens and 12 ones, etc.) and record the decomposition as an equation.*	**1.NBT.2**	Understand that the two digits of a two-digit number represent amounts of tens and ones.
1.NSBT.3	Compare two two-digit numbers based on the meanings of the tens and ones digits, using the words greater than, equal to, or less than.	**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 <.
1.NSBT.4	Add through 99 using concrete models, drawings, and strategies based on place value to: *a. add a two-digit number and a one-digit number, understanding that sometimes it is necessary to compose a ten (regroup);* *b. add 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.
1.NSBT.5	Determine the number that is 10 more or 10 less than a given number through 99 and explain the reasoning verbally and with multiple representations, including concrete models.	**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.NSBT.6	Subtract a multiple of 10 from a larger multiple of 10, both in the range 10 to 90, using concrete models, drawings, and strategies based on place value.	**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)			
1.ATO.1	Solve real-world/story problems using addition (as a joining action and as a part-part-whole action) and subtraction (as a separation action, finding parts of the whole, and as a comparison) through 20 with unknowns in all positions.	**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.
1.ATO.2	Solve real-world/story problems that include three whole number addends whose sum is less than or equal to 20.	**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.
1.ATO.3	Apply Commutative and Associative Properties of Addition to find the sum (through 20) of two or three addends.	**1.OA.3**	Apply properties of operations as strategies to add and subtract.
1.ATO.4	Understand subtraction as an unknown addend problem.	**1.OA.4**	Understand subtraction as an unknown-addend problem.
1.ATO.5	Recognize how counting relates to addition and subtraction.	**1.OA.5**	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
1.ATO.6	Demonstrate: *a. addition and subtraction through 20;* *b. fluency with addition and related subtraction facts through 10.*	**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).
1.ATO.7	Understand the meaning of the equal sign as a relationship between two quantities (sameness) and 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.
1.ATO.8	Determine the missing number in addition and subtraction equations within 20.	**1.OA.8**	Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.
1.ATO.9	Create, extend and explain using pictures and words for: *a. repeating patterns (e.g., AB, AAB, ABB, and ABC type patterns);* *b. growing patterns (between 2 and 4 terms/figures).*		

Level 1 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Geometry (G)			
1.G.1	Distinguish between a two-dimensional shape's defining (e.g., number of sides) and non-defining attributes (e.g., color).	**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.
1.G.4	Identify and name two-dimensional shapes (i.e., square, rectangle, triangle, hexagon, rhombus, trapezoid, and circle).		
1.G.2	Combine two-dimensional shapes (i.e., square, rectangle, triangle, hexagon, rhombus, and trapezoid) or three-dimensional shapes (i.e., cube, rectangular prism, cone, and cylinder) in more than one way to form a composite 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.
1.G.3	Partition two-dimensional shapes (i.e., square, rectangle, circle) into two or four equal parts.	**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)			
1.MDA.1	Order three objects by length using indirect comparison.	**1.MD.1**	Order three objects by length; compare the lengths of two objects indirectly by using a third object.
1.MDA.2	Use nonstandard physical models to show the length of an object as the number of same size units of length 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.
1.MDA.3	Use analog and digital clocks to tell and record time to the hour and half hour.	**1.MD.3**	Tell and write time in hours and half-hours using analog and digital clocks.
1.MDA.4	Collect, organize, and represent data with up to 3 categories using object graphs, picture graphs, t-charts and tallies.	**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.
1.MDA.5	Draw conclusions from given object graphs, picture graphs, t-charts, tallies, and bar graphs.		
1.MDA.6	Identify a penny, nickel, dime and quarter and write the coin values using a ¢ symbol.	**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

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Number and Operations in Base Ten (NBT)			
2.NSBT.1	Understand place value through 999 by demonstrating that: *a. 100 can be thought of as a bundle (group) of 10 tens called a "hundred";* *b. the hundreds digit in a three-digit number represents the number of hundreds, the tens digit represents the number of tens, and the ones digit represents the number of ones;* *c. three-digit numbers can be decomposed in multiple ways (e.g., 524 can be decomposed as 5 hundreds, 2 tens and 4 ones or 4 hundreds, 12 tens, and 4 ones, etc.).*	**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.
2.NSBT.2	Count by tens and hundreds to 1,000 starting with any number.	**2.NBT.2**	Count within 1000; skip-count by 5s, 10s, and 100s.
2.NSBT.3	Read, write and represent numbers through 999 using concrete models, standard form, and equations in expanded form.	**2.NBT.3**	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
2.NSBT.4	Compare two numbers with up to three digits using words and symbols (i.e., >, =, or <).	**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.NSBT.5	Add and subtract fluently through 99 using knowledge of place value and properties of operations.	**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.NSBT.6	Add up to four two-digit numbers using strategies based on knowledge of 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.
2.NSBT.7	Add and subtract through 999 using concrete models, drawings, and symbols which convey strategies connected to place value understanding.	**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.
2.NSBT.8	Determine the number that is 10 or 100 more or less than a given number through 1,000 and explain the reasoning verbally and in writing.	**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)			
2.ATO.1	Solve one- and two-step real-world/story problems using addition (as a joining action and as a part-part-whole action) and subtraction (as a separation action, finding parts of the whole, and as a comparison) through 99 with unknowns in all positions.	**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.
2.ATO.2	Demonstrate fluency with addition and related subtraction facts through 20.	**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.
2.ATO.3	Determine whether a number through 20 is odd or even using pairings of objects, counting by twos, or finding two equal addends to represent the number (e.g., 3 + 3 = 6).	**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.
2.ATO.4	Use repeated addition to find the total number of objects arranged in a rectangular array 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

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Geometry (G)			
2.G.1	Identify triangles, quadrilaterals, hexagons, and cubes. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.	**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.
2.G.2	Partition a rectangle into rows and columns of same-size squares to form an array and count to find the total number of parts.	**2.G.2**	Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.
2.G.3	Partition squares, rectangles and circles into two or four equal parts, and describe the parts using the words *halves* , *fourths* , *a half of* , and *a fourth of* . Understand that when partitioning a square, rectangle or circle into two or four equal parts, the parts become smaller as the number of parts increases.	**2.G.3**	Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves* , *thirds* , *half of* , *a third of* , etc., and describe the whole as *two halves* , *three thirds* , *four fourths* . Recognize that equal shares of identical wholes need not have the same shape.
Measurement and Data (MD)			
2.MDA.1	Select and use appropriate tools (e.g., rulers, yardsticks, meter sticks, measuring tapes) to measure the length of an object.	**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.MDA.2	Measure the same object or distance using a standard unit of one length and then a standard unit of a different length and explain verbally and in writing how and why the measurements differ.	**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.MDA.3	Estimate and measure length/distance in customary units (i.e., inch, foot, yard) and metric units (i.e., centimeter, meter).	**2.MD.3**	Estimate lengths using units of inches, feet, centimeters, and meters.
2.MDA.4	Measure to determine how much longer one object is than another, using standard length units.	**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.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.
2.MDA.5	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 through 99 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.
2.MDA.6	Use analog and digital clocks to tell and record time to the nearest five-minute interval 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.
2.MDA.7	Solve real-world/story problems involving dollar bills using the $ symbol or involving quarters, dimes, nickels, and pennies using the ¢ symbol.	**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?
2.MDA.8	Generate data by measuring objects in whole unit lengths and organize the data in a line plot using a horizontal scale marked in whole number units.	**2.MD.9**	Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.
2.MDA.9	Collect, organize, and represent data with up to four categories using picture graphs and bar graphs with a single-unit scale.	**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.
2.MDA.10	Draw conclusions from t-charts, object graphs, picture graphs, and bar graphs.		

Level 3 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
Number and Operations in Base Ten (NBT)			
3.NSBT.1	Use place value understanding to round whole numbers to the nearest 10 or 100.	**3.NBT.1**	Use place value understanding to round whole numbers to the nearest 10 or 100.
3.NSBT.2	Add and subtract whole numbers fluently to 1,000 using knowledge of place value and properties of operations.	**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.NSBT.3	Multiply one-digit whole numbers by multiples of 10 in the range 10 – 90, using knowledge of 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.
3.NSBT.4	Read and write numbers through 999,999 in standard form and equations in expanded form.	**4.NBT.2**	Included in future level.
3.NSBT.5	Compare and order numbers through 999,999 and represent the comparison using the symbols >, =, or <.	**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. *(Introduced in previous level but included in this level as well.)*
Number and Operations - Fractions (NF)			
3.NSF.1	Develop an understanding of fractions (i.e., denominators 2, 3, 4, 6, 8, 10) as numbers. *a. A fraction 1/b (called a unit fraction) is the quantity formed by one part when a whole is partitioned into b equal parts;* *b. A fraction a/b is the quantity formed by a parts of size 1/b;* *c. A fraction is a number that can be represented on a number line based on counts of a unit fraction;* *d. A fraction can be represented using set, area, and linear 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 $1/b$.
3.NSF.2	Explain fraction equivalence (i.e., denominators 2, 3, 4, 6, 8, 10) by demonstrating an understanding that: *a. two fractions are equal if they are the same size, based on the same whole, or at the same point on a number line;* *b. fraction equivalence can be represented using set, area, and linear models; c. whole numbers can be written as fractions (e.g., 4= 4/1 and 1= 4/4);* *d. fractions with the same numerator or same denominator can be compared by reasoning about their size based on the same whole.*	**3.NF.2**	Understand a fraction as a number on the number line; represent fractions on a number line diagram.
3.NSF.3	Develop an understanding of mixed numbers (i.e., denominators 2, 3, 4, 6, 8, 10) as iterations of unit fractions on a number line.	**3.NF.3**	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

Level 3 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
Operations and Algebraic Thinking (OA)			
3.ATO.1	Use concrete objects, drawings and symbols to represent multiplication facts of two single-digit whole numbers and explain the relationship between the factors (i.e., 0 – 10) and the product.	**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.ATO.2	Use concrete objects, drawings and symbols to represent division without remainders and explain the relationship among the whole number quotient (i.e., 0 – 10), divisor (i.e., 0 – 10), and dividend.	**3.OA.2**	Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 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.
3.ATO.3	Solve real-world problems involving equal groups, area/array, and number line models using basic multiplication and related division facts. Represent the problem situation using an equation with a symbol for the unknown.	**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.ATO.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is a missing factor, product, dividend, divisor, or quotient.	**3.OA.4**	Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
3.ATO.5	Apply properties of operations (i.e., Commutative Property of Multiplication, Associative Property of Multiplication, Distributive Property) as strategies to multiply and divide and explain the reasoning.	**3.OA.5**	Apply properties of operations as strategies to multiply and divide.
3.ATO.6	Understand division as a missing factor problem.	**3.OA.6**	Understand division as an unknown-factor problem.
3.ATO.7	Demonstrate fluency with basic multiplication and related division facts of products and dividends through 100.	**3.OA.7**	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.
3.ATO.8	Solve two-step real-world problems using addition, subtraction, multiplication and division of whole numbers and having whole number answers. Represent these problems using equations with a letter for the unknown quantity.	**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.
3.ATO.9	Identify a rule for an arithmetic pattern (e.g., patterns in the addition table 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

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
	Geometry (G)		
3.G.1	Understand that shapes in different categories (e.g., rhombus, rectangle, square, and other 4-sided shapes) may share attributes (e.g., 4-sided figures) and the shared attributes can define a larger category (e.g., quadrilateral). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	**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.
3.G.2	Partition two-dimensional shapes into 2, 3, 4, 6, or 8 parts with equal areas and express the area of each part using the same unit fraction. Recognize that equal parts of identical wholes need not have the same shape.	**3.G.2**	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.
3.G.3	Use a right angle as a benchmark to identify and sketch acute and obtuse angles.	**4.G.1**	Included in future level.
3.G.4	Identify a three-dimensional shape (i.e., right rectangular prism, right triangular prism, pyramid) based on a given two-dimensional net and explain the relationship between the shape and the net.	**6.G.4**	Included in future level.
	Measurement and Data (MD)		
3.MDA.1	Use analog and digital clocks to determine and record time to the nearest minute, using a.m. and p.m.; measure time intervals in minutes; and solve problems involving addition and subtraction of time intervals within 60 minutes.	**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.
3.MDA.2	Estimate and measure liquid volumes (capacity) in customary units (i.e., c., pt., qt., gal.) and metric units (i.e., mL, L) to the nearest whole unit.	**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.MDA.3	Collect, organize, classify, and interpret data with multiple categories and draw a scaled picture graph and a scaled bar graph to represent the data.	**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.
3.MDA.4	Generate data by measuring length to the nearest inch, half-inch and quarter-inch and organize the data in a line plot using a horizontal scale marked off in appropriate units.	**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.
3.MDA.5	Understand the concept of area measurement. *a. Recognize area as an attribute of plane figures;* *b. Measure area by building arrays and counting standard unit squares;* *c. Determine the area of a rectilinear polygon and relate to multiplication and addition.*	**3.MD.5**	Recognize area as an attribute of plane figures and understand concepts of area measurement.
3.MDA.6	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.	**3.MD.6**	Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).
		3.MD.7	Relate area to the operations of multiplication and addition.
		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

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
Number and Operations in Base Ten (NBT)			
4.NSBT.1	Understand that, in a multi-digit whole number, a digit represents ten times what the same digit represents in the place to its right.	**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.
4.NSBT.2	Recognize math periods and number patterns within each period to read and write in standard form large numbers through 999,999,999.	**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.
4.NSBT.3	Use rounding as one form of estimation and round whole numbers to any given place value.	**4.NBT.3**	Use place value understanding to round multi-digit whole numbers to any place.
4.NSBT.4	Fluently add and subtract multi-digit whole numbers using strategies to include a standard algorithm.	**4.NBT.4**	Fluently add and subtract multi-digit whole numbers using the standard algorithm.
4.NSBT.5	Multiply up to a four-digit number by a one-digit number and multiply a two-digit number by a two-digit number using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using rectangular arrays, area models and/or equations.	**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.
4.NSBT.6	Divide up to a four-digit dividend by a one-digit divisor using strategies based on place value, the 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.

Level 4 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
	Number and Operations Fractions (NF)		
4.NSF.1	Explain why a fraction (i.e., denominators 2, 3, 4, 5, 6, 8, 10, 12, 25, 100), ab , 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.	**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.
4.NSF.2	Compare two given fractions (i.e., denominators 2, 3, 4, 5, 6, 8, 10, 12, 25, 100) by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2 and represent the comparison using the symbols >, =, or <.	**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 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.
4.NSF.3	Develop an understanding of addition and subtraction of fractions (i.e., denominators 2, 3, 4, 5, 6, 8, 10, 12, 25, 100) based on unit fractions. *a. Compose and decompose a fraction in more than one way, recording each composition and decomposition as an addition or subtraction equation;* *b. Add and subtract mixed numbers with like denominators;* *c. Solve real-world problems involving addition and subtraction of fractions referring to the same whole and having like denominators.*	**4.NF.3**	Understand a fraction a/b with a > 1 as a sum of fractions $1/b$.
4.NSF.4	Apply and extend an understanding of multiplication by multiplying a whole number and a fraction (i.e., denominators 2, 3, 4, 5, 6, 8, 10, 12, 25, 100). *a. Understand a fraction a/b as a multiple of 1/b;* *b. Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number;* *c. Solve real-world problems involving multiplication of a fraction by a whole number (i.e., use visual fraction models and equations to represent the problem).*	**4.NF.4**	Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
4.NSF.5	Express a fraction with a denominator of 10 as an equivalent fraction with a denominator of 100 and use this technique to add two fractions with respective denominators of 10 and 100.	**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.NSF.6	Write a fraction with a denominator of 10 or 100 using decimal notation, and read and write a decimal number as a fraction.	**4.NF.6**	Use decimal notation for fractions with denominators 10 or 100.
4.NSF.7	Compare and order decimal numbers to hundredths, and justify using concrete and visual models.	**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.

Level 4 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
	Operations and Algebraic Thinking (OA)		
4.ATO.1	Interpret a multiplication equation as a comparison (e.g. interpret 35 = 5x7 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.1**	Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 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.ATO.2	Solve real-world problems using multiplication (product unknown) and division (group size unknown, number of groups unknown).	**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.ATO.3	Solve multi-step, real-world problems using the four operations. Represent the problem using an equation with a variable as the unknown quantity.	**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.ATO.4	Recognize that a whole number is a multiple of each of its factors. Find all factors for a whole number in the range 1 – 100 and determine whether the whole 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.
4.ATO.5	Generate a number or shape pattern that follows a given rule and determine a term that appears later in the sequence.	**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.
	Geometry (G)		
4.G.1	Draw points, lines, line segments, rays, angles (i.e., right, acute, obtuse), and parallel and perpendicular lines. Identify these in two-dimensional figures.	**4.G.1**	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
4.G.2	Classify quadrilaterals based on 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.
4.G.3	Recognize right triangles as a category, and identify right triangles.		
4.G.4	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.	**4.G.3**	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can befolded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

Level 4 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
Measurement and Data (MD)			
4.MDA.1	Convert measurements within a single system of measurement, customary (i.e., in., ft., yd., oz., lb., sec., min., hr.) or metric (i.e., cm, m, km, g, kg, mL, L) from a larger to a smaller unit.	**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.
4.MDA.2	Solve real-world problems involving distance/length, intervals of time within 12 hours, liquid volume, mass, and money using the four operations.	**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.
4.MDA.3	Apply the area and perimeter formulas for rectangles.	**4.MD.3**	Apply the area and perimeter formulas for rectangles in real world and mathematical problems.
4.MDA.4	Create a line plot to display a data set (i.e., generated by measuring length to the nearest quarter-inch and eighth-inch) and interpret the line plot.	**4.MD.4**	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots.
4.MDA.5	Understand the relationship of an angle measurement to a circle.	**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.MDA.6	Measure and draw angles in whole number degrees using a protractor.	**4.MD.6**	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
4.MDA.7	Solve addition and subtraction problems to find unknown angles in real-world and mathematical problems.	**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.
4.MDA.8	Determine the value of a collection of coins and bills greater than $1.00.	**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.

Level 5 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
Number and Operations in Base Ten (NBT)			
5.NSBT.1	Understand that, in a multi-digit whole number, a digit in one place represents 10 times what the same digit represents in the place to its right, and represents 1/10 times what the same digit represents in the place to its left.	**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.NSBT.2	Use whole number exponents to explain: *a. patterns in the number of zeroes of the product when multiplying a number by powers of 10;* *b. patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10.*	**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.
5.NSBT.3	Read and write decimals in standard and expanded form. Compare two decimal numbers to the thousandths using the symbols >, =, or <.	**5.NBT.3**	Read, write, and compare decimals to thousandths.
5.NSBT.4	Round decimals to any given place value within thousandths.	**5.NBT.4**	Use place value understanding to round decimals to any place.
5.NSBT.5	Fluently multiply multi-digit whole numbers using strategies to include a standard algorithm.	**5.NBT.5**	Fluently multiply multi-digit whole numbers using the standard algorithm.
5.NSBT.6	Divide up to a four-digit dividend by a two-digit divisor, using strategies based on place value, the properties of operations, and the relationship between multiplication and division.	**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.
5.NSBT.7	Add, subtract, multiply, and divide decimal numbers to hundredths using concrete area models and drawings.	**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.

Level 5 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
	Number and Operations Fractions (NF)		
5.NSF.1	Add and subtract fractions with unlike denominators (including mixed numbers) using a variety of models, including an area model and number line.	**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.NSF.2	Solve real-world problems involving addition and subtraction of fractions with unlike 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.
5.NSF.3	Understand the relationship between fractions and division of whole numbers by interpreting a fraction as the numerator divided by the denominator (i.e., a/b=a÷b).	**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.
5.NSF.4	Extend the concept of multiplication to multiply a fraction or whole number by a fraction. *a. Recognize the relationship between multiplying fractions and finding the areas of rectangles with fractional side lengths;* *b. Interpret multiplication of a fraction by a whole number and a whole number by a fraction and compute the product;* *c. Interpret multiplication in which both factors are fractions less than one and compute the product.*	**5.NF.4**	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
5.NSF.5	Justify the reasonableness of a product when multiplying with fractions. *a. Estimate the size of the product based on the size of the two factors;* *b. Explain why multiplying a given number by a number greater than 1 (e.g., improper fractions, mixed numbers, whole numbers) results in a product larger than the given number;* *c. Explain why multiplying a given number by a fraction less than 1 results in a product smaller than the given number;* *d. Explain why multiplying the numerator and denominator by the same number has the same effect as multiplying the fraction by 1.*	**5.NF.5**	Interpret multiplication as scaling (resizing).
5.NSF.6	Solve real-world problems involving multiplication of a fraction by a fraction, improper fraction and a mixed number.	**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.
5.NSF.7	Extend the concept of division to divide unit fractions and whole numbers by using visual fraction models and equations. *a. Interpret division of a unit fraction by a non-zero whole number and compute the quotient;* *b. Interpret division of a whole number by a unit fraction and compute the quotient.*	**5.NF.7**	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
5.NSF.8	Solve real-world problems involving division of unit fractions and whole numbers, using visual fraction models and equations.		

Level 5 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
	Operations and Algebraic Thinking (OA)		
5.ATO.1	Evaluate numerical expressions involving grouping symbols (i.e., parentheses, brackets, braces).	**5.OA.1**	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
5.ATO.2	Translate verbal phrases into numerical expressions and interpret numerical expressions as verbal phrases.	**5.OA.2**	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.
5.ATO.3	Investigate the relationship between two numerical patterns. *a. Generate two numerical patterns given two rules and organize in tables;* *b. Translate the two numerical patterns into two sets of ordered pairs;* *c. Graph the two sets of ordered pairs on the same coordinate plane;* *d. Identify the relationship between the two numerical patterns.*	**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)		
5.G.1	Define a coordinate system. *a. The x- and y- axes are perpendicular number lines that intersect at 0 (the origin);* *b. Any point on the coordinate plane can be represented by its coordinates;* *c. The first number in an ordered pair is the x-coordinate and represents the horizontal distance from the origin;* *d. The second number in an ordered pair is the y-coordinate and represents the vertical distance from the origin.*	**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	Plot and interpret points in the first quadrant of the coordinate plane to represent real-world and mathematical situations.	**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.
5.G.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.	**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 their attributes.	**5.G.4**	Classify two-dimensional figures in a hierarchy based on properties.

Level 5 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
Measurement and Data (MD)			
5.MDA.1	Convert measurements within a single system of measurement: customary (i.e., in., ft., yd., oz., lb., sec., min., hr.) or metric (i.e., mm, cm, m, km, g, kg, mL, L) from a larger to a smaller unit and a smaller to a larger unit.	**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.
5.MDA.2	Create a line plot consisting of unit fractions and use operations on fractions to solve problems related to the line plot.	**5.MD.2**	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots.
5.MDA.3	Understand the concept of volume measurement. *a. Recognize volume as an attribute of right rectangular prisms;* *b. Relate volume measurement to the operations of multiplication and addition by packing right rectangular prisms and then counting the layers of standard unit cubes;* *c. Determine the volume of right rectangular prisms using the formula derived from packing right rectangular prisms and counting the layers of standard unit cubes.*	**5.MD.3**	Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
5.MDA.4	Differentiate among perimeter, area and volume and identify which application is appropriate for a given situation.	**5.MD.4**	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
		5.MD.5	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

Level 6 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
	Ratios & Proportional Relationships (RP)		
6.RP.1	Interpret the concept of a ratio as the relationship between two quantities, including part to part and part to whole.	**6.RP.1**	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
6.RP.2	Investigate relationships between ratios and rates. *a. Translate between multiple representations of ratios (i.e., ab/a:b,a to b, visual models).* *b. Recognize that a rate is a type of ratio involving two different units.* *c. Convert from rates to unit rates.*	**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.
6.RP.3	Apply the concepts of ratios and rates to solve real-world and mathematical problems. *a. Create a table consisting of equivalent ratios and plot the results on the coordinate plane.* *b. Use multiple representations, including tape diagrams, tables, double number lines, and equations, to find missing values of equivalent ratios.* *c. Use two tables to compare related ratios.* *d. Apply concepts of unit rate to solve problems, including unit pricing and constant speed.* *e. Understand that a percentage is a rate per 100 and use this to solve problems involving wholes, parts, and percentages.* *f. Solve one-step problems involving ratios and unit rates (e.g., dimensional analysis).*	**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.
	The Number System (NS)		
6.NS.1	Compute and represent quotients of positive fractions using a variety of procedures (e.g., visual models, equations, and real-world situations).	**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.
6.NS.2	Fluently divide multi-digit whole numbers using a standard algorithmic approach.	**6.NS.2**	Fluently divide multi-digit numbers using the standard algorithm.
6.NS.3	Fluently add, subtract, multiply and divide multi-digit decimal numbers using a standard algorithmic approach.	**6.NS.3**	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
6.NS.4	Find common factors and multiples using two whole numbers. *a. Compute the greatest common factor (GCF) of two numbers both less than or equal to 100.* *b. Compute the least common multiple (LCM) of two numbers both less than or equal to 12.* *c. Express sums of two whole numbers, each less than or equal to 100, using the distributive property to factor out a common factor of the original addends.*	**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.
6.NS.5	Understand that the positive and negative representations of a number are opposites in direction and value. Use integers to represent quantities in real-world situations and explain the meaning of zero in each situation.	**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.
6.NS.6	Extend the understanding of the number line to include all rational numbers and apply this concept to the coordinate plane. *a. Understand the concept of opposite numbers, including zero, and their relative locations on the number line.* *b. Understand that the signs of the coordinates in ordered pairs indicate their location on an axis or in a quadrant on the coordinate plane.* *c. Recognize when ordered pairs are reflections of each other on the coordinate plane across one axis, both axes, or the origin.* *d. Plot rational numbers on number lines and ordered pairs on coordinate planes.*	**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.
6.NS.7	Understand and apply the concepts of comparing, ordering, and finding absolute value to rational numbers. *a. Interpret statements using equal to (=) and not equal to (≠).* *b. Interpret statements using less than (<), greater than (>), and equal to (=) as relative locations on the number line.* *c. Use concepts of equality and inequality to write and to explain real-world and mathematical situations.* *d. Understand that absolute value represents a number's distance from zero on the number line and use the absolute value of a rational number to represent real-world situations.* *e. Recognize the difference between comparing absolute values and ordering rational numbers. For negative rational numbers, understand that as the absolute value increases, the value of the negative number decreases.*	**6.NS.7**	Understand ordering and absolute value of rational numbers.
6.NS.9	Investigate and translate among multiple representations of rational numbers (fractions, decimal numbers, percentages). Fractions should be limited to those with denominators of 2, 3, 4, 5, 8, 10, and 100.		
6.NS.8	Extend knowledge of the coordinate plane to solve real-world and mathematical problems involving rational numbers. *a. Plot points in all four quadrants to represent the problem.* *b. Find the distance between two points when ordered pairs have the same x-coordinates or same y-coordinates.* *c. Relate finding the distance between two points in a coordinate plane to absolute value using a number line.*	**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.

Level 6 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
	Expressions and Equations (EE)		
6.EEI.1	Write and evaluate numerical expressions involving whole-number exponents and positive rational number bases using the Order of Operations.	**6.EE.1**	Write and evaluate numerical expressions involving whole-number exponents.
6.EEI.2	Extend the concepts of numerical expressions to algebraic expressions involving positive rational numbers. *a. Translate between algebraic expressions and verbal phrases that include variables.* *b. Investigate and identify parts of algebraic expressions using mathematical terminology, including term, coefficient, constant, and factor.* *c. Evaluate real-world and algebraic expressions for specific values using the Order of Operations. Grouping symbols should be limited to parentheses, braces, and brackets. Exponents should be limited to whole-numbers.*	**6.EE.2**	Write, read, and evaluate expressions in which letters stand for numbers.
6.EEI.3	Apply mathematical properties (e.g., commutative, associative, distributive) to generate equivalent expressions.	**6.EE.3**	Apply the properties of operations to generate equivalent expressions.
6.EEI.4	Apply mathematical properties (e.g., commutative, associative, distributive) to justify that two expressions are equivalent.	**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).
6.EEI.5	Understand that if any solutions exist, the solution set for an equation or inequality consists of values that make the equation or inequality 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.
6.EEI.6	Write expressions using variables to represent quantities in real-world and mathematical situations. Understand the meaning of the variable in the context of the situation.	**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.
6.EEI.7	Write and solve one-step linear equations in one variable involving nonnegative rational numbers for real-world and mathematical situations.	**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.
6.EEI.8	Extend knowledge of inequalities used to compare numerical expressions to include algebraic expressions in real-world and mathematical situations. *a. Write an inequality of the form x>c or z<c and graph the solution set on a number line.* *b. Recognize that inequalities have infinitely many solutions.*	**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.
6.EEI.9	Investigate multiple representations of relationships in real-world and mathematical situations. *a. Write an equation that models a relationship between independent and dependent variables.* *b. Analyze the relationship between independent and dependent variables using graphs and tables.* *c. Translate among graphs, tables, and equations.*	**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

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
Geometry (G)			
6.GM.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.	**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.
6.GM.2	Use visual models (e.g., model by packing) to discover that the formulas for the volume of a right rectangular prism ($V=lwh$, $V=Bh$) are the same for whole or fractional edge lengths. Apply these formulas to solve 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 $V = l\,w\,h$ and $V = b\,h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
6.GM.3	Apply the concepts of polygons and the coordinate plane to real-world and mathematical situations. *a. Given coordinates of the vertices, draw a polygon in the coordinate plane.* *b. Find the length of an edge if the vertices have the same x-coordinates or same y-coordinates.*	**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.
6.GM.4	Unfold three-dimensional figures into two-dimensional rectangles and triangles (nets) to find the surface area and to solve 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)			
6.DS.1	Differentiate between statistical and non-statistical questions.	**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.DS.2	Use center (mean, median, mode), spread (range, interquartile range, mean absolute value), and shape (symmetrical, skewed left, skewed right) to describe the distribution of a set of data collected to answer a statistical question.	**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.DS.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.	**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.
6.DS.4	Select and create an appropriate display for numerical data, including dot plots, histograms, and box plots.	**6.SP.4**	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
6.DS.5	Describe numerical data sets in relation to their real-world context. *a. State the sample size.* *b. Describe the qualitative aspects of the data (e.g., how it was measured, units of measurement).* *c. Give measures of center (median, mean).* *d. Find measures of variability (interquartile range, mean absolute deviation) using a number line.* *e. Describe the overall pattern (shape) of the distribution.* *f. Justify the choices for measure of center and measure of variability based on the shape of the distribution.* *g. Describe the impact that inserting or deleting a data point has on the measures of center (median, mean) for a data set.*	**6.SP.5**	Summarize numerical data sets in relation to their context.

Level 7 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
Ratios & Proportional Relationships (RP)			
7.RP.1	Compute unit rates, including those involving complex fractions, with like or different units.	**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.
7.RP.2	Identify and model proportional relationships given multiple representations, including tables, graphs, equations, diagrams, verbal descriptions, and real-world situations. *a. Determine when two quantities are in a proportional relationship.* *b. Recognize or compute the constant of proportionality.* *c. Understand that the constant of proportionality is the unit rate.* *d. Use equations to model proportional relationships.* *e. Investigate the graph of a proportional relationship and explain the meaning of specific points (e.g., origin, unit rate) in the context of the situation.*	**7.RP.2**	Recognize and represent proportional relationships between quantities.
7.RP.3	Solve real-world and mathematical problems involving ratios and percentages using proportional reasoning (e.g., multi-step dimensional analysis, percent increase/decrease, tax).	**7.RP.3**	Use proportional relationships to solve multistep ratio and percent problems.
The Number System (NS)			
7.NS.1	Extend prior knowledge of operations with positive rational numbers to add and to subtract all rational numbers and represent the sum or difference on a number line. *a. Understand that the additive inverse of a number is its opposite and their sum is equal to zero.* *b. Understand that the sum of two rational numbers (p+q) represents a distance from p on the number line equal to |q| where the direction is indicated by the sign of q.* *c. Translate between the subtraction of rational numbers and addition using the additive inverse, p−q=p+(−q).* *d. Demonstrate that the distance between two rational numbers on the number line is the absolute value of their difference.* *e. Apply mathematical properties (e.g., commutative, associative, distributive, or the properties of identity and inverse elements) to add and subtract rational numbers.*	**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.
7.NS.2	Extend prior knowledge of operations with positive rational numbers to multiply and to divide all rational numbers. *a. Understand that the multiplicative inverse of a number is its reciprocal and their product is equal to one.* *b. Understand sign rules for multiplying rational numbers.* *c. Understand sign rules for dividing rational numbers and that a quotient of integers (with a non-zero divisor) is a rational number.* *d. Apply mathematical properties (e.g., commutative, associative, distributive, or the properties of identity and inverse elements) to multiply and divide rational numbers.* *e. Understand that some rational numbers can be written as integers and all rational numbers can be written as fractions or decimal numbers that terminate or repeat.*	**7.NS.2**	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
7.NS.4	Understand and apply the concepts of comparing and ordering to rational numbers. *a. Interpret statements using less than (<), greater than (>), less than or equal to (≤), greater than or equal to (≥), and equal to (=) as relative locations on the number line.* *b. Use concepts of equality and inequality to write and explain real-world and mathematical situations.*		
7.NS.3	Apply the concepts of all four operations with rational numbers to solve real-world and mathematical problems.	**7.NS.3**	Solve real-world and mathematical problems involving the four operations with rational numbers.
7.NS.5	Extend prior knowledge to translate among multiple representations of rational numbers (fractions, decimal numbers, percentages). Exclude the conversion of repeating decimal numbers to fractions.		

Level 7 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
Expressions and Equations (EE)			
7.EEI.1	Apply mathematical properties (e.g., commutative, associative, distributive) to simplify and to factor linear algebraic expressions with rational coefficients.	**7.EE.1**	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
7.EEI.2	Recognize that algebraic expressions may have a variety of equivalent forms and determine an appropriate form for a given real-world situation.	**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.
7.EEI.3	Extend previous understanding of Order of Operations to solve multi-step real-world and mathematical problems involving rational numbers. Include fraction bars as a grouping symbol.	**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.
7.EEI.4	Apply the concepts of linear equations and inequalities in one variable to real-world and mathematical situations. *a. Write and fluently solve linear equations of the form ax+b=c and a(x+b)=c where a, b, and c are rational numbers.* *b. Write and solve multi-step linear equations that include the use of the distributive property and combining like terms. Exclude equations that contain variables on both sides.* *c. Write and solve two-step linear inequalities. Graph the solution set on a number line and interpret its meaning.* *d. Identify and justify the steps for solving multi-step linear equations and two-step linear inequalities.*	**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.
7.EEI.5	Understand and apply the laws of exponents (i.e., product rule, quotient rule, power to a power, product to a power, quotient to a power, zero power property) to simplify numerical expressions that include whole-number exponents.		

Level 7 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
	Geometry (G)		
7.G.1	Determine the scale factor and translate between scale models and actual measurements (e.g., lengths, area) of real-world objects and geometric figures using proportional reasoning.	**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.
7.G.2	Construct triangles and special quadrilaterals using a variety of tools (e.g., freehand, ruler and protractor, technology). *a. Construct triangles given all measurements of either angles or sides.* *b. Decide if the measurements determine a unique triangle, more than one triangle, or no triangle.* *c. Construct special quadrilaterals (i.e., kite, trapezoid, isosceles trapezoid, rhombus, parallelogram, rectangle) given specific parameters about angles 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.
7.G.3	Describe two-dimensional cross-sections of three-dimensional figures, specifically right rectangular prisms and right rectangular pyramids.	**7.G.3**	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.
7.G.4	Investigate the concept of circles. *a. Demonstrate an understanding of the proportional relationships between diameter, radius, and circumference of a circle.* *b. Understand that the constant of proportionality between the circumference and diameter is equivalent to π.* *c. Explore the relationship between circumference and area using a visual model.* *d. Use the formulas for circumference and area of circles appropriately to solve real-world and mathematical 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.
7.G.5	Write equations to solve problems involving the relationships between angles formed by two intersecting lines, including supplementary, complementary, vertical, and adjacent.	**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.
7.G.6	Apply the concepts of two- and three-dimensional figures to real-world and mathematical situations. *a. Understand that the concept of area is applied to two-dimensional figures such as triangles, quadrilaterals, and polygons.* *b. Understand that the concepts of volume and surface area are applied to three-dimensional figures such as cubes, right rectangular prisms, and right triangular prisms.* *c. Decompose cubes, right rectangular prisms, and right triangular prisms into rectangles and triangles to derive the formulas for volume and surface area.* *d. Use the formulas for area, volume, and surface area appropriately.*	**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

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
	Statistics and Probability (SP)		
7.DSP.1	Investigate concepts of random sampling. *a. Understand that a sample is a subset of a population and both possess the same characteristics.* *b. Differentiate between random and non-random sampling.* *c. Understand that generalizations from a sample are valid only if the sample is representative of the population.* *d. Understand that random sampling is used to gather a representative sample and supports valid inferences about the population.*	**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.
7.DSP.2	Draw inferences about a population by collecting multiple random samples of the same size to investigate variability in estimates of the 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.
7.DSP.3	Visually compare the centers, spreads, and overlap of two displays of data (i.e., dot plots, histograms, box plots) that are graphed on the same scale and draw inferences about this data.	**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.
7.DSP.4	Compare the numerical measures of center (mean, median, mode) and variability (range, interquartile range, mean absolute deviation) from two random samples to draw inferences about the 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.
7.DSP.5	Investigate the concept of probability of chance events. *a. Determine probabilities of simple events.* *b. Understand that probability measures likelihood of a chance event occurring.* *c. Understand that the probability of a chance event is a number between 0 and 1.* *d. Understand that a probability closer to 1 indicates a likely chance event.* *e. Understand that a probability close to 1/2 indicates that a chance event is neither likely nor unlikely.* *f. Understand that a probability closer to 0 indicates an unlikely chance event.*	**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.
7.DSP.6	Investigate the relationship between theoretical and experimental probabilities for simple events. *a. Determine approximate outcomes using theoretical probability.* *b. Perform experiments that model theoretical probability.* *c. Compare theoretical and experimental probabilities.*	**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.
7.DSP.7	Apply the concepts of theoretical and experimental probabilities for simple events. *a. Differentiate between uniform and non-uniform probability models (distributions).* *b. Develop both uniform and non-uniform probability models.* *c. Perform experiments to test the validity of probability models.*	**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.
7.DSP.8	Extend the concepts of simple events to investigate compound events. *a. Understand that the probability of a compound event is between 0 and 1.* *b. Identify the outcomes in a sample space using organized lists, tables, and tree diagrams.* *c. Determine probabilities of compound events using organized lists, tables, and tree diagrams.* *d. Design and use simulations to collect data and determine probabilities.* *e. Compare theoretical and experimental probabilities for compound events.*	**7.SP.8**	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.

Level 8 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
	The Number System (NS)		
8.NS.1	Explore the real number system and its appropriate usage in real-world situations. *a. Recognize the differences between rational and irrational numbers.* *b. Understand that all real numbers have a decimal expansion.* *c. Model the hierarchy of the real number system, including natural, whole, integer, rational, and irrational numbers.*	**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.
8.NS.2	Estimate and compare the value of irrational numbers by plotting them on a number line.	**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.
8.NS.3	Extend prior knowledge to translate among multiple representations of rational numbers (fractions, decimal numbers, percentages). Include the conversion of repeating decimal numbers to fractions.		
	Expressions and Equations (EE)		
8.EEI.1	Understand and apply the laws of exponents (i.e., product rule, quotient rule, power to a power, product to a power, quotient to a power, zero power property, negative exponents) to simplify numerical expressions that include integer exponents.	**8.EE.1**	Know and apply the properties of integer exponents to generate equivalent numerical expressions.
8.EEI.2	Investigate concepts of square and cube roots. *a. Find the exact and approximate solutions to equations of the form $x^2=p$ and $x^3=p$ where p is a positive rational number.* *b. Evaluate square roots of perfect squares.* *c. Evaluate cube roots of perfect cubes.* *d. Recognize that square roots of non-perfect squares are irrational.*	**8.EE.2**	Use square root and cube root symbols to represent solutions to equations of the form $x2=p$ and $x3=p$, 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.
8.EEI.3	Explore the relationship between quantities in decimal and scientific notation. *a. Express very large and very small quantities in scientific notation in the form $a\times10b=p$ where $1\le a<10$ and b is an integer.* *b. Translate between decimal notation and scientific notation.* *c. Estimate and compare the relative size of two quantities in scientific notation.*	**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.
8.EEI.4	Apply the concepts of decimal and scientific notation to solve real-world and mathematical problems. *a. Multiply and divide numbers expressed in both decimal and scientific notation.* *b. Select appropriate units of measure when representing answers in scientific notation.* *c. Translate how different technological devices display numbers in scientific notation.*	**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.

Level 8 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
8.EEI.5	Apply concepts of proportional relationships to real-world and mathematical situations. *a. Graph proportional relationships.* *b. Interpret unit rate as the slope of the graph.* *c. Compare two different proportional relationships given multiple representations, including tables, graphs, equations, diagrams, and verbal descriptions.*	**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.EEI.6	Apply concepts of slope and y-intercept to graphs, equations, and proportional relationships. *a. Explain why the slope, m, is the same between any two distinct points on a non-vertical line using similar triangles.* *b. Derive the slope-intercept form (y=mx+b) for a non-vertical line.* *c. Relate equations for proportional relationships (y=kx) with the slope-intercept form (y=mx+b) where b=0.*	**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.
8.EEI.7	Extend concepts of linear equations and inequalities in one variable to more complex multi-step equations and inequalities in real-world and mathematical situations. *a. Solve linear equations and inequalities with rational number coefficients that include the use of the distributive property, combining like terms, and variables on both sides.* *b. Recognize the three types of solutions to linear equations: one solution (x=a), infinitely many solutions (a=a), or no solutions (a=b).* *c. Generate linear equations with the three types of solutions.* *d. Justify why linear equations have a specific type of solution.*	**8.EE.7**	Solve linear equations in one variable.
8.EEI.8	Investigate and solve real-world and mathematical problems involving systems of linear equations in two variables with integer coefficients and solutions. *a. Graph systems of linear equations and estimate their point of intersection.* *b. Understand and verify that a solution to a system of linear equations is represented on a graph as the point of intersection of the two lines.* *c. Solve systems of linear equations algebraically, including methods of substitution and elimination, or through inspection.* *d. Understand that systems of linear equations can have one solution, no solution, or infinitely many solutions.*	**8.EE.8**	Analyze and solve pairs of simultaneous linear equations.

Level 8 - Mathematics

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
	Functions (F)		
8.F.1	Explore the concept of functions. *a. Understand that a function assigns to each input exactly one output.* *b. Relate inputs (x-values or domain) and outputs (y-values or range) to independent and dependent variables.* *c. Translate among the multiple representations of a function, including mappings, tables, graphs, equations, and verbal descriptions.* *d. Determine if a relation is a function using multiple representations, including mappings, tables, graphs, equations, and verbal descriptions.* *e. Graph a function from a table of values. Understand that the graph and table both represent a set of ordered pairs of that function.*	**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.
8.F.2	Compare multiple representations of two functions, including mappings, tables, graphs, equations, and verbal descriptions, in order to draw conclusions.	**8.F.2**	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
8.F.3	Investigate the differences between linear and nonlinear functions using multiple representations (i.e., tables, graphs, equations, and verbal descriptions). *a. Define an equation in slope-intercept form (y=mx+b) as being a linear function.* *b. Recognize that the graph of a linear function has a constant rate of change.* *c. Provide examples of nonlinear functions.*	**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.
8.F.4	Apply the concepts of linear functions to real-world and mathematical situations. *a. Understand that the slope is the constant rate of change and the y-intercept is the point where x = 0.* *b. Determine the slope and the y-intercept of a linear function given multiple representations, including two points, tables, graphs, equations, and verbal descriptions.* *c. Construct a function in slope-intercept form that models a linear relationship between two quantities.* *d. Interpret the meaning of the slope and the y-intercept of a linear function in the context of the situation.* *e. Explore the relationship between linear functions and arithmetic sequences.*	**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.F.5	Apply the concepts of linear and nonlinear functions to graphs in real-world and mathematical situations. *a. Analyze and describe attributes of graphs of functions (e.g., constant, increasing/decreasing, linear/nonlinear, maximum/minimum, discrete/continuous).* *b. Sketch the graph of a function from a verbal description.* *c. Write a verbal description from the graph of a function with and without scales.*	**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

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
	Geometry (G)		
8.GM.1	Investigate the properties of rigid transformations (rotations, reflections, translations) using a variety of tools (e.g., grid paper, reflective devices, graphing paper, technology). *a. Verify that lines are mapped to lines, including parallel lines.* *b. Verify that corresponding angles are congruent.* *c. Verify that corresponding line segments are congruent.*	**8.G.1**	Verify experimentally the properties of rotations, reflections, and translations.
8.GM.2	Apply the properties of rigid transformations (rotations, reflections, translations). *a. Rotate geometric figures 90, 180, and 270 degrees, both clockwise and counterclockwise, about the origin.* *b. Reflect geometric figures with respect to the x-axis and/or y-axis.* *c. Translate geometric figures vertically and/or horizontally.* *d. Recognize that two-dimensional figures are only congruent if a series of rigid transformations can be performed to map the pre-image to the image.* *e. Given two congruent figures, describe the series of rigid transformations that justifies this congruence.*	**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.
8.GM.3	Investigate the properties of transformations (rotations, reflections, translations, dilations) using a variety of tools (e.g., grid paper, reflective devices, graphing paper, dynamic software). *a. Use coordinate geometry to describe the effect of transformations on two-dimensional figures.* *b. Relate scale drawings to dilations of geometric figures.*	**8.G.3**	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
8.GM.4	Apply the properties of transformations (rotations, reflections, translations, dilations). *a. Dilate geometric figures using scale factors that are positive rational numbers.* *b. Recognize that two-dimensional figures are only similar if a series of transformations can be performed to map the pre-image to the image.* *c. Given two similar figures, describe the series of transformations that justifies this similarity.* *d. Use proportional reasoning to find the missing side lengths of two similar figures.*	**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.
8.GM.5	Extend and apply previous knowledge of angles to properties of triangles, similar figures, and parallel lines cut by a transversal. *a. Discover that the sum of the three angles in a triangle is 180 degrees.* *b. Discover and use the relationship between interior and exterior angles of a triangle.* *c. Identify congruent and supplementary pairs of angles when two parallel lines are cut by a transversal.* *d. Recognize that two similar figures have congruent corresponding angles.*	**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.
8.GM.6	Use models to demonstrate a proof of the Pythagorean Theorem and its converse.	**8.G.6**	Explain a proof of the Pythagorean Theorem and its converse.
8.GM.7	Apply the Pythagorean Theorem to model and solve real-world and mathematical problems in two and three dimensions involving right triangles.	**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.
8.GM.8	Find the distance between any two points in the coordinate plane using the Pythagorean Theorem.	**8.G.8**	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
8.GM.9	Solve real-world and mathematical problems involving volumes of cones, cylinders, and spheres and the surface area of cylinders.	**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

South Carolina Standards for Mathematics		*Simple Solutions* Standards	
Standard	***Description***	***Standard***	***Description***
Statistics and Probability (SP)			
8.DSP.1	Investigate bivariate data. *a. Collect bivariate data.* *b. Graph the bivariate data on a scatter plot.* *c. Describe patterns observed on a scatter plot, including clustering, outliers, and association (positive, negative, no correlation, linear, nonlinear).*	**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.
8.DSP.2	Draw an approximate line of best fit on a scatter plot that appears to have a linear association and informally assess the fit of the line to the data points.	**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.
8.DSP.3	Apply concepts of an approximate line of best fit in real-world situations. *a. Find an approximate equation for the line of best fit using two appropriate data points.* *b. Interpret the slope and intercept.* *c. Solve problems using the equation.*	**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.
8.DSP.4	Investigate bivariate categorical data in two-way tables. *a. Organize bivariate categorical data in a two-way table.* *b. Interpret data in two-way tables using relative frequencies.* *c. Explore patterns of possible association between the two categorical variables.*	**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.
8.DSP.5	Organize data in matrices with rational numbers and apply to real-world and mathematical situations. *a. Understand that a matrix is a way to organize data.* *b. Recognize that a m×n matrix has m rows and n columns.* *c. Add and subtract matrices of the same size.* *d. Multiply a matrix by a scalar.*		