Content analysis for SpringMath coverage of Common Core State Standards

How to use this summary:

Assessments are shown in orange and are numbered. Intervention coverage is shown in blue and is shared only if a specific assessment is not focused on a standard. For all assessments, all related prerequisite assessments are also relevant to the standard but are not listed in our summary.

For example, Addition with & without Regrouping, the prerequisite assessments of Addition with Regrouping with 2-digit (one measure) and 3-digit numbers (second measure) would apply, as would Addition without regrouping with 2-digit numbers (third measure) and 3-digit numbers (fourth measure) For all grade-level assessments pertaining to a grade-level standard, the diagnostic assessment process directed by SpringMath can and will take the child all the way back to the entry-level skill causing the grade-level misunderstanding and begin intervention there. The entry-level skill may be well below grade level. Efficiency of assessment is permitted by assessing slightly broader targets with rigorous expectations for skill proficiency such that if a child is not proficient, the child will be routed into diagnostic assessment and intervention. Once in intervention, the intervention protocols are aligned with Common Core State Standards such that skills not directly assessed are addressed within the intervention protocols.

Another example, at Grade 4, SpringMath assesses addition and subtraction with decimal values to the hundredths. If children are not proficient with this skill, the follow-up assessment would verify mastery of multi-digit addition and subtraction and build the intervention accordingly.

All assessments provided in orange below are entry level (screening assessments at the given grade level).

Kindergarten

Domain: Counting and Cardinality		
	Standards	**SpringMath skill coverage**
Concept Know number names and the count sequence.	CCSS.MATH.CONTENT.K.CC.A.1 Count to 100 by ones and tens.	1) Missing Number to 10 2) Missing Number to 20 3) Number Names to 10 4) Number Names to 20
	CCSS.MATH.CONTENT.K.CC.A.2 Count forward beginning from a given number within the known sequence.	1) Missing Number to 10 2) Missing Number to 20 3) Number Names to 10 4) Number Names to 20
	CCSS.MATH.CONTENT.K.CC.A.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)	1) Count & Circle Answer to 10 2) Count & Circle Answer to 20 3) Count & Write Number to 10 4) Count & Write Number to 20
Concept Count to tell the number of objects.	CCSS.MATH.CONTENT.K.CC.B.4 Understand the relationship between numbers and quantities; connect counting to cardinality.	1) Count Objects Aloud to 10 2) Count Objects Aloud to 20 3) Count & Circle Answer to 10 4) Count & Circle Answer to 20 5) Count & Write Number to 10 6) Count & Write Number to 20 7) Quantity Comparison with Dots to 10 8) Quantity Comparison with Dots to 20
	CCSS.MATH.CONTENT.K.CC.B.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.	1) Count & Circle Answer to 10 2) Count & Circle Answer to 20 3) Count & Write Number to 10 4) Count & Write Number to 20 5) Identify & Draw Circles to 10 6) Identify & Draw Circles to 20
	CCSS.MATH.CONTENT.K.CC.C.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.	1) Quantity Comparison with Dots to 10 2) Quantity Comparison with Dots to 20
	CCSS.MATH.CONTENT.K.CC.C.7 Compare two numbers between 1 and 10 presented as written numerals.	Intervention protocols include: Quantity comparison with numerals, dots, & manipulatives.
Domain: Operations & Algebraic Thinking		
Concept Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.	CCSS.MATH.CONTENT.K.OA.A.1 Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.	1) Change Quantity with Dots to 10 2) Add 0-5 for Kindergarten 3) Subtract 0-5 for Kindergarten
	CCSS.MATH.CONTENT.K.OA.A.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.	1) Change Quantity with Dots to 10 2) Add 0-5 for Kindergarten 3) Subtract 0-5 For Kindergarten

	CCSS.MATH.CONTENT.K.OA.A.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)	Intervention protocols include: find the doubles, making quantities to 5 and 10 using manipulatives and drawings. Using addition/subtraction expressions to make numbers 5 to 10.
	CCSS.MATH.CONTENT.K.OA.A.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.	1) Change Quantity with Dots to 10
	CCSS.MATH.CONTENT.K.OA.A.5 Fluently add and subtract within 5.	1) Add 0-5 for Kindergarten 2) Subtract 0-5 for Kindergarten
Domain: Number & Operations in Base Ten		
Concept Work with numbers 11-19 to gain foundations for place value.	CCSS.MATH.CONTENT.K.NBT.A.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.	Intervention protocols include: making quantities to 20 using manipulatives and drawings, making a quantity one less, making a quantity one more, making an equivalent quantity. Using addition/ subtraction expressions to make quantities to 20.

3/6 of domains covered.
Counting and Cardinality: 3/3 concepts covered. 7/7 individual standards covered.
Operations & Algebraic Thinking: 1/1 concept covered. 5/5 standards covered.
Number & Operations in Base Ten: 1/1 concept covered. 1/1 standards covered.
Measurement & Data: Not covered.
Geometry: Not covered.

Grade 1

Domain: Operations & Algebraic Thinking		
	Standards	**SpringMath skill coverage**
Concept Understand and apply properties of operations and the relationship between addition and subtraction.	CCSS.MATH.CONTENT.1.OA.A.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.	Included in intervention protocols: solving for unknowns with the unknowns in all positions with addition and subtraction problems, word problems for all fluency-building protocols, creating equivalent expressions with addition and subtraction, and use of manipulatives, drawings, and number lines to solve addition & subtraction.
	CCSS.MATH.CONTENT.1.OA.A.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.	Included in intervention protocols: word problems that require multi-step solutions and require child to reach conclusions about quantity with addition and subtraction, solving for unknowns, and creating equivalent expressions.
	CCSS.MATH.CONTENT.1.OA.B.3 Apply properties of operations as strategies to add and subtract. Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)	Assessed for proficiency at Grade 2. Included in intervention protocols: Using commutative and associative properties of addition to solve for sums using manipulatives, drawings, and numerical expressions.
	CCSS.MATH.CONTENT.1.OA.B.4 Understand subtraction as an unknown-addend problem. For example, subtract 10 - 8 by finding the number that makes 10 when added to 8.	1) Fact Families for Addition & Subtraction 0-5 2) Fact Families for Addition & Subtraction 0-9
Concept Add and subtract within 20.	CCSS.MATH.CONTENT.1.OA.C.5 Relate counting to addition and subtraction (e.g., by counting on 2 to add 2)	Included in intervention protocols: Addition & subtraction using number lines and manipulatives.
	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) Add 0-20 2) Subtraction 0-20 3) Fact Families for Addition & Subtraction 0-20 Included in intervention protocols: Creating equivalent quantities, Solving for unknowns, Counting on with a number line to add & find difference, Making and taking tens to add & subtract, and Applying Associative Property to solve sums.
Concept Work with addition and subtraction equations.	CCSS.MATH.CONTENT.1.OA.D.7 Understand the meaning of the equal sign and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 - 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.*	Included in intervention protocols: creating equivalent expressions, solving for unknowns to make an expression true.

	CCSS.MATH.CONTENT.1.OA.D.8 Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = _ - 3, 6 + 6 = _.	1) Fact Families for Addition and Subtraction 0-5 2) Fact Families for Addition & Subtraction 0-9
Domain: Number & Operations in Base Ten		
	Standards	**SpringMath skill coverage**
Concept Extend the counting sequence.	CCSS.MATH.CONTENT.1.NBT.A.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) Quantity Comparison 101-999 Included in intervention protocols: Adding & taking tens to quantities, Decomposing tens and ones to add quantities.
	CCSS.MATH.CONTENT.1.NBT.B.2 Understand that the two digits of a two-digit number represent amounts of tens and ones.	1) Quantity Comparison 20-99 Included in intervention protocols: Adding & taking tens to quantities, Decomposing tens and ones to add quantities.
Concept Understand place value.	CCSS.MATH.CONTENT.1.NBT.B.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) Quantity Comparison 20-99 Included in intervention protocols: Adding & taking tens to quantities, Decomposing tens and ones to add quantities.
Concept Use place value understanding and properties of operations to add and subtract.	CCSS.MATH.CONTENT.1.NBT.C.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) Add 0-20 Included in intervention protocols: Adding & taking tens to quantities, decomposing tens and ones to add quantities, creating equivalent expressions using tens and ones and counting with manipulatives to check, and composing tens to create equivalent expressions.
	CCSS.MATH.CONTENT.1.NBT.C.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.	Included in intervention protocols: Adding & taking tens to quantities up to 85.
	CCSS.MATH.CONTENT.1.NBT.C.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.	Included in intervention protocols: Adding & taking tens to quantities up to 85.

2/4 domains covered.
Operations and Algebraic Thinking: 4/4 concepts covered. 8/8 standards covered.
Number and Operations in Base Ten: 3/3 concepts covered. 6/6 standards covered.
Measurement and Data: Not covered.
Geometry: Not covered.

Grade 2

Domain: Operations & Algebraic Thinking		
	Standards	**SpringMath skill coverage**
Concept Represent and solve problems involving addition and subtraction.	CCSS.MATH.CONTENT.2.OA.A.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.	Included in intervention protocols: one- & two-step word problems to solve adding, taking, comparing, identifying patterns, and estimating quantity, creating equivalent expressions, solving for unknown quantities to make an expression true.
Concept Add and subtract within 20.	CCSS.MATH.CONTENT.2.OA.B.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.	1) Addition 0-20 2) Subtraction 0-20 3) Fact Families for Addition & Subtraction 0-20 4) Create Equivalent Addition and Subtraction Problems using Place Value Properties 5) Create Equivalent Problems using Associative, Commutative, and Near Easy Problems 6) Quantity comparison of Sums and Differences to 20
Concept Work with equal groups of objects to gain foundations for multiplication.	CCSS.MATH.CONTENT.2.OA.C.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.	Included in intervention protocols: Making equivalent sets with manipulatives and expressing as addition.
	CCSS.MATH.CONTENT.2.OA.C.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.	Included in intervention protocols: numerical quantities up to 50 taught on a number line as repeated addition of ones and tens, ten expressed as adding ten sets of 1, and hundred expressed as adding ten sets of 10.

Domain: Number & Operations in Base Ten		
	Standards	**SpringMath skill coverage**
Concept Understand place value.	CCSS.MATH.CONTENT.2.NBT.A.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.	1) Quantity Comparison 101-999 Included in intervention protocols: Solving 2-digit addition and subtraction problems via expanded notation, decomposing and composing tens to solve addition and subtraction, decomposing and composing tens & hundreds to solve addition and subtraction.
	CCSS.MATH.CONTENT.2.NBT.A.2 Count within 1000; skip-count by 5s, 10s, and 100s.	Included in intervention protocols: Taking and Adding Tens and Hundreds.
	CCSS.MATH.CONTENT.2.NBT.A.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	1) Quantity Comparison 1001-9999

	CCSS.MATH.CONTENT.2.NBT.A.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.	1) Quantity Comparison 101-999 Included in intervention protocols: Solving 2-digit addition and subtraction problems via expanded notation, decomposing and composing tens to solve addition and subtraction, decomposing and composing hundreds to solve addition and subtraction.
Concept Use place value understanding and properties of operations to add and subtract.	CCSS.MATH.CONTENT.2.NBT.B.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	1) Fact Families for Addition & Subtraction 0-20 2) Create Equivalent Addition and Subtraction Problems using Place Value Properties 3) Create Equivalent Problems using Associative, Commutative, and Near Easy Problems
	CCSS.MATH.CONTENT.2.NBT.B.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.	Included in intervention protocols: Creating equivalent expressions using multiple addends.
	CCSS.MATH.CONTENT.2.NBT.B.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.	1) 2-Digit Addition without Regrouping 2) 2-Digit Addition with Regrouping 3) 2-Digit Subtraction without Regrouping 4) 2-Digit Subtraction with Regrouping
	Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.	1) Create Equivalent Addition and Subtraction Problems using Place Value Properties 2) Create Equivalent Problems using Associative, Commutative, and Near Easy Problems Included in intervention protocols: Solving 2-digit addition and subtraction problems via expanded notation, decomposing and composing tens to solve addition and subtraction, decomposing and composing hundreds to solve addition and subtraction, and making and taking tens and hundreds.
	CCSS.MATH.CONTENT.2.NBT.B.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.	1) Fact Families for Addition & Subtraction 0-20 2) Create Equivalent Addition and Subtraction Problems using Place Value Properties 3) Create Equivalent Problems using Associative, Commutative, and Near Easy Problems

2/4 domains covered.
Operations & Algebraic Thinking: 3/3 concepts covered. 4/4 standards covered.
Number & Operations in Base Ten: 2/2 concepts covered. 9/9 standards covered.
Measurement & Data: Not covered.
Geometry: Not covered.

Grade 3

Domain: Operations & Algebraic Thinking		
	Standards	**SpringMath skill coverage**
Concept Represent and solve problems involving multiplication and division.	CCSS.MATH.CONTENT.3.OA.A.1 Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*	Included in intervention protocols: solving multiplication problems as repeated addition, using arrays, verbally describing quantities as sets, and solving word problems.
	CCSS.MATH.CONTENT.3.OA.A.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. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*	Included in intervention protocols: articulating division as finding an unknown factor, partitioning sets using graphics (visual representation), and solving word problems.
	CCSS.MATH.CONTENT.3.OA.A.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.	Included in intervention protocols: word problems requiring child to set up and solve for an unknown while articulating the relationship between multiplication and division.
	CCSS.MATH.CONTENT.3.OA.A.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = _ ÷ 3, 6 × 6 = ?.	1) Fact Families for Multiplication and Division 0-9
Concept Understand properties of multiplication and the relationship between multiplication and division.	CCSS.MATH.CONTENT.3.OA.B.5 Apply properties of operations as strategies to multiply and divide. 2 *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)*	Included in intervention protocols: commutative, associative, and distributive property is explicitly taught using representational-abstract sequencing, and child must demonstrate understanding in solving for unknowns, and creating equivalent expressions.
	CCSS.MATH.CONTENT.3.OA.B.6 Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.	1) Fact Families for Multiplication and Division 0-9

Concept Multiply and divide within 100.	CCSS.MATH.CONTENT.3.OA.C.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.	1) Multiplication 0-9 2) Division 0-9
Concept Solve problems involving the four operations, and identify and explain patterns in arithmetic.	CCSS.MATH.CONTENT.3.OA.D.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.	1) Fact Families for Addition & Subtraction 0-20 2) Fact Families for Multiplication & Division 0-9 Included in intervention protocols: word problems requiring solve for unknown set-up, converting more challenging problems to easier problems to solve operations via expanded notation, and all SpringMath protocols ask children to articulate patterns, estimate, think aloud, and justify answers using what they understand about related operations.
	CCSS.MATH.CONTENT.3.OA.D.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends*.	Included in intervention protocols: Beginning with missing number in kindergarten, patterns are explicitly taught, and children are asked to articulate counting, adding, and multiplying patterns, estimate, and justify answers.
Domain: Number & Operations in Base Ten		
	Standards	**SpringMath skill coverage**
Concept Use place value understanding and properties of operations to perform multi-digit arithmetic.	CCSS.MATH.CONTENT.3.NBT.A.1 Use place value understanding to round whole numbers to the nearest 10 or 100.	Included in intervention protocols: using expanded notation to add and subtract with 3-digit numbers and to compose and decompose tens and hundreds. Quantity comparison screening uses fractions with like denominators but if not proficient, follow-up assessments assess whole number quantity comparisons in subsequently finer slices to identify misunderstandings.
	CCSS.MATH.CONTENT.3.NBT.A.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.	2) Add 3-digit Numbers with and without regrouping 3) Subtract 3-digit numbers with and without regrouping Included in intervention protocols: solving for unknown with multi-digit addition and subtraction problems and using expanded notation to solve.
	CCSS.MATH.CONTENT.3.NBT.A.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.	1) Multiply 1-digit by 2-3 digits with and without regrouping

Domain: Number & Operations Fractions		
	Standards	**SpringMath skill coverage**
Concept Develop understanding of fractions as numbers.	CCSS.MATH.CONTENT.3.NF.A.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.	1) Place Fractions on a Number Line with Denominators 2, 4, and 8 Intervention protocols include explicit instruction about the base unit, fraction quantity as repeated addition of the base unit fraction, extensive use of number lines and understanding fraction as a special case of division.
	CCSS.MATH.CONTENT.3.NF.A.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram.	1) Place Fractions on a Number Line with Denominators 2, 4, and 8
	CCSS.MATH.CONTENT.3.NF.A.3 Explain equivalence of fractions in special cases and compare fractions by reasoning about their size.	1) Quantity Comparison for Fractions with Like Denominators

3/5 domains covered.
Operations & Algebraic Thinking: 4/4 concepts covered. 9/9 standards covered.
Number & Operations in Base Ten: 1/1 concept covered. 3/3 standards covered.
Number & Operations Fractions: 1/1 concept covered. 3/3 standards covered.
Measurement & Data: Not covered.
Geometry: Not Covered.

Grade 4

Domain: Operations & Algebraic Thinking		
	Standards	**SpringMath skill coverage**
Concept Use the four operations with whole numbers to solve problems.	CCSS.MATH.CONTENT.4.OA.A.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.	Included in intervention protocols: solving multiplication problems as repeated addition, using arrays, verbally describing quantities as sets, articulating division as finding an unknown factor, partitioning sets using graphics (visual representation), solving word problems, estimating quantity, and justifying solutions.
	CCSS.MATH.CONTENT.4.OA.A.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.	Included in intervention protocols: solving word problems with a solve for unknown set-up, using understanding of multiplication and distributive property to make comparisons between estimated products and justify solutions.
	CCSS.MATH.CONTENT.4.OA.A.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.	1) Fact Families for Addition & Subtraction 0-20 2) Fact Families for Multiplication & Division 0-12 Included in intervention protocols: word problems requiring solving for unknown set-up, estimating quantity, and justifying and checking answers using the inverse operation and creating equivalent expressions using expanded notation and the four operations.
Concept Gain familiarity with factors and multiples.	CCSS.MATH.CONTENT.4.OA.B.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.	1) Fact Families for Multiplication & Division 0-12 2) Create Equivalent Multiplication Problems using Common Factor 3) Least Common Denominator
	CCSS.MATH.CONTENT.4.OA.C.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. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*	Included in intervention protocols: multiplication is taught as repeated addition and all SpringMath protocols ask children to articulate patterns, estimate, think aloud, and justify answers using what they understand about related operations.

Domain: Number & Operations in Base Ten		
	Standards	**Standards**
Concept Generalize place value understanding for multi-digit whole numbers.	CCSS.MATH.CONTENT.4.NBT.A.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. *For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division*.	Included in intervention protocols: creating equivalent expressions using repeated addition, multiplication, and division to reflect place value understanding.
	CCSS.MATH.CONTENT.4.NBT.A.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.	1) Quantity Comparison with Decimals to the 100ths 2) Quantity comparison with Whole Numbers, Fractions, and Decimals
	CCSS.MATH.CONTENT.4.NBT.A.3 Use place value understanding to round multi-digit whole numbers to any place.	Included in intervention protocols: expanded notation and use of mental math strategies to estimate solutions (and justify estimations) based on place value understanding with all four operations.
Concept Use place value understanding and properties of operations to perform multi-digit arithmetic.	CCSS.MATH.CONTENT.4.NBT.B.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.	1) Add and subtract decimals to the 100ths
	CCSS.MATH.CONTENT.4.NBT.B.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.	1) 1-digit Multiplied by 2-3 Digits with and without Regrouping 2) 2-digit Multiplied by 2-Digit with and without Regrouping
	CCSS.MATH.CONTENT.4.NBT.B.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.	1) Fact Families for Multiplication & Division 0-12 2) Divide 1-Digit Divisor into 1-2-Digit Dividend with Remainders 3) Divide 1-Digit Divisor into 2-3-Digit Dividend without Remainders

Domain: Number & Operations-Fractions		
	Standards	**Standards**
Concept Extend understanding of fraction equivalence and ordering.	CCSS.MATH.CONTENT.4.NF.A.1 Explain why a fraction a/b is equivalent to a fraction (n × a)/(n × 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.	1) Quantity Comparison with Fractions with Unlike Denominators 2) Place Fractions on Number Line with Denominators 1, 2, 3, 4, 5, 6, 8 10. (Number line extends beyond 1)
	CCSS.MATH.CONTENT.4.NF.A.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.	1) Quantity Comparison with Fractions with Unlike Denominators
Concept Build fractions from unit fractions.	CCSS.MATH.CONTENT.4.NF.B.3 Understand a fraction a/b with a > 1 as a sum of fractions 1/b.	1) Add & Subtract Mixed Numbers with Like Denominators with Regrouping
	CCSS.MATH.CONTENT.4.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.	Intervention protocols include understanding of mixed number and fraction quantities, creating equivalent quantities with fractions using addition of fraction units and multiplication of fraction units.
Concept Understand decimal notation for fractions, and compare decimal fractions.	CCSS.MATH.CONTENT.4.NF.C.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. 2 *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.*	1) Convert Fractions to Decimals 2) Convert Decimals to Fractions Intervention protocols use number line placement, demonstrate fraction equivalence in simplified form, require child to estimate and make quantity comparisons, and explicit instruction for using understand of fraction quantities to convert decimal quantities to make a given problem solution easier and vice versa.
	CCSS.MATH.CONTENT.4.NF.C.6 Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.	1) Convert Fractions to Decimals 2) Convert Decimals to Fractions Intervention protocols use number line placement, demonstrate fraction equivalence in simplified form, and require child to estimate, make quantity comparisons, and solve related word problems.

	CCSS.MATH.CONTENT.4.NF.C.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.	1) Quantity Comparison with Decimals to the Hundredths 2) Quantity Comparison with Fractions, Whole Numbers, and Decimals

3/5 domains covered.
Operations & Algebraic Thinking: 3/3 concepts covered. 5/5 individual standards covered.
Number & Operations in Base Ten: 2/2 concepts covered. 6/6 individual standards covered.
Number & Operations with Fractions: 3/3 concepts covered. 7/7 individual standards covered.
Measurement & Data: Not covered.
Geometry: Not covered.

Grade 5

Domain: Operations & Algebraic Thinking		
	Standards	**SpringMath skill coverage**
Concept Analyze patterns and relationships.	CCSS.MATH.CONTENT.5.OA.A.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	Intervention protocols include: using understanding of associative property and distributive property to create equivalent expressions with addition (associative) and multiplication (associative & distributive)
	CCSS.MATH.CONTENT.5.OA.A.2 Write simple expressions that record calculations with numbers and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7) Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product*.	Intervention protocols include determining quantity using understanding of operations without conducting actual operations.
	CCSS.MATH.CONTENT.5.OA.B.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. For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.	Intervention protocols include using understanding of numerical patterns and operations to create equivalent expressions with various number representations, but coordinate pairs are not introduced.
Domain: Number & Operations in Base Ten		
	Standards	**SpringMath skill coverage**
Concept Understand the place value system.	CCSS.MATH.CONTENT.5.NBT.A.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.	1) Quantity Comparisons Fractions, Whole Numbers, and Decimals Included in intervention protocols: creating equivalent expressions using repeated addition, multiplication, and division to reflect place value understanding.
	CCSS.MATH.CONTENT.5.NBT.A.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.	Included in intervention protocols: creating equivalent expressions using repeated addition, multiplication, and division to reflect place value understanding, but exponents are not introduced.
	CCSS.MATH.CONTENT.5.NBT.A.3 Read, write, and compare decimals to thousandths.	1) Quantity Comparisons Fractions, Whole Numbers, and Decimals

	CCSS.MATH.CONTENT.5.NBT.A.4 Use place value understanding to round decimals to any place.	Included in intervention protocols: creating equivalent expressions using repeated addition, multiplication, and division to reflect place value understanding, and mental math strategies to compare quantities and to estimate problem solutions with decimals.
Concept Perform operations with multi-digit whole numbers and with decimals to the hundredths.	CCSS.MATH.CONTENT.5.NBT.B.5 Fluently multiply multi-digit whole numbers using the standard algorithm.	1) Multiply 2-Digit by 2-Digit with and without Regrouping
	CCSS.MATH.CONTENT.5.NBT.B.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.	1) Fact Families Multiplication & Division 0-12 2) Simplify Fractions 3) Divide 2-Digit Divisor into 3-4 Digit Dividend with Remainders
	CCSS.MATH.CONTENT.5.NBT.B.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.	1) Add & Subtract with Decimals to the Hundredths 2) Multiply & Divide with Decimals to the Hundredths Intervention protocol includes explicit proofing of the algorithm using fraction quantities to illustrate problem solution (after verifying understanding of conversion of decimals to fractions and vice versa), and understanding of addition, subtraction, multiplication, & division to estimate then verify decimal quantities following related operations.
Domain: Number & Operations-Fractions		
	Standards	**SpringMath skill coverage**
Concept Use equivalent fractions as a strategy to add and subtract fractions.	CCSS.MATH.CONTENT.5.NF.A.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. For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd.)	1) Find Least Common Denominator 2) Add & Subtract Fractions with Unlike Denominators 3) Simplify Fractions
	CCSS.MATH.CONTENT.5.NF.A.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. For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.	1) Find Least Common Denominator 2) Add & Subtract Fractions with Unlike Denominators 3) Quantity Comparison with Fractions, Whole Numbers, and Decimals 4) Quantity Comparison with Fractions, Whole Numbers, Decimals, and Percentages Intervention protocols include: All proportion skill interventions include explicit proofing of proportion quantity and conversion between proportions to make problems easier to solve.

Concept Apply and extend previous understandings of multiplication and division.	CCSS.MATH.CONTENT.5.NF.B.3 Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ 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. For example, interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?	1) Convert Improper Fractions to Mixed Numbers 2) Add & Subtract Fractions with Unlike Denominators 2) Multiply & Divide Proper & Improper Fractions 3) Quantity Comparison with Fractions, Whole Numbers, and Decimals 4) Quantity Comparison with Fractions, Whole Numbers, Decimals, and Percentages Intervention protocols (and drill-down assessment) examines proportion quantity understanding sampling back to placing fraction quantities on a number line and understanding fractions as a special case of division (finding an unknown factor) as the basis for generating equivalent fractions with common denominators.
	CCSS.MATH.CONTENT.5.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.	1) Multiply Proper and Improper Fractions
	CCSS.MATH.CONTENT.5.NF.B.5 Interpret multiplication as scaling (resizing)	1) Convert Proper to Improper Fractions 2) Simplify Fractions 3) Find Least Common Denominator Intervention protocols include word problems requiring a child to understand multiplication of fraction quantities and their meaning as scaling by a factor.
	CCSS.MATH.CONTENT.5.NF.B.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.	1) Multiply Proper and Improper Fractions Intervention protocols include: using multiplying and dividing with fractions to solve word problems, using understanding of multiplication and division of fractions to create equivalent expressions.
	CCSS.MATH.CONTENT.5.NF.B.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.	1) Multiply Proper and Improper Fractions

3/5 Domains covered.
Operations & Algebraic Thinking: 2/2 concepts covered. 3/3 individual standards covered.
Number & Operations in Base Ten: 2/2 concepts covered. 7/7 individual standards covered, but exponents & coordinate pairs are not introduced.
Number & Operations- Fractions: 2/2 concepts covered. 7/7 individual standards covered.
Measurement & Data: Not covered.
Geometry: Not covered.

Grade 6

Domain: The Number System		
	Standards	**SpringMath skill coverage**
Concept Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	CCSS.MATH.CONTENT.6.NS.A.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc.) How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?	1) Multiply and Divide Mixed Numbers 2) Mixed Fraction Operations Intervention protocols include explicit instruction to create equivalent quantities, solve for unknowns, and word problems that require multiplying and dividing by fractions.
Concept Compute fluently with multi-digit numbers and find common factors and multiples.	CCSS.MATH.CONTENT.6.NS.B.2 Fluently divide multi-digit numbers using the standard algorithm.	1) Mixed Operations 2) Multiply 2-Digit by 2-Digit with Decimals
	CCSS.MATH.CONTENT.6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	1) Add, Subtract, Multiply, and Divide with Decimals
	CCSS.MATH.CONTENT.6.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express 36 + 8 as 4 (9 + 2)	1) Find Least Common Denominator 2) Simplify fractions 3) Distributive Property of Expression. Creating Equivalent Multiplication Problems using Common Factors appears at Grade 4
	CCSS.MATH.CONTENT.6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	1) Collect Like Terms (requires adding to consolidate variables and numbers and subtracting to consolidate like variables in an expression) Positive and negative number quantities are assessed at Grade 7 Fall Screening with Add, Subtract, Multiply, & Divide with Integers of Varied Sign. Intervention protocols include explicit instruction about positive and negative quantities and the meaning of zero in multiple real-world situations.

Concept Apply and extend understandings of numbers to the system of rational numbers.	CCSS.MATH.CONTENT.6.NS.C.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.	Positive and negative number quantities are assessed at Grade 7 Fall Screening with Add, Subtract, Multiply, & Divide with Integers of Varied Sign. Intervention protocols at Grade 7 include explicit instruction about positive and negative quantities and the meaning of zero in multiple real-world situations. Graph on coordinate plane with positive and negative numbers is assessed and targeted for intervention at Grade 8 Winter if children are not proficient with Solve for Slope and Intercept Using Linear Function y=mx+b.
Domain: Expressions & Equations		
	Standards	**SpringMath skill coverage**
Concept Apply and extend understandings of arithmetic to algebraic expressions.	CCSS.MATH.CONTENT.6.EE.A.1 Write and evaluate numerical expressions involving whole-number exponents.	Operations with exponents are assessed at Grade 8. Intervention protocols at Grade 8 include: explicit proofing of exponent quantity, using understanding of operations with expanded notation and fractions to understand how to solve exponent operations.
	CCSS.MATH.CONTENT.6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers.	1) Substitute Whole Numbers to Solve Equations 2) Order of Operations 3) Distributive Property of Expression 4) Collect Like Terms
	CCSS.MATH.CONTENT.6.EE.A.3 Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent Expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.	1) Distributive Property of Expression Intervention protocols include: guided practice to use distribution and factoring to create equivalent expressions with variables.
	CCSS.MATH.CONTENT.6.EE.A.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them) *For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for.*	1) Collect Like Terms
Concept Reason about and solve one-variable equations and inequalities.	CCSS.MATH.CONTENT.6.EE.B.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	

	CCSS.MATH.CONTENT.6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	1) Substitute Whole Numbers to Solve Equations 2) Distributive Property of Expression 3) Collect Like Terms
	CCSS.MATH.CONTENT.6.EE.B.7 Solve real-world and mathematical problems by writing and solving equations of the form x + p = q and px = q for cases in which p, q and x are all nonnegative rational numbers.	1) Substitute Whole Numbers to Solve Equations Intervention protocols include: word problems that require using inverse operations of addition/subtraction and multiplication/division to solve, and guided practice to use inverse operations to create equivalent expressions.
	CCSS.MATH.CONTENT.6.EE.B.8 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	Intervention protocols include: determining that one expression is greater than or less than another expression and changing expressions to make equivalent.
Concept Represent and analyze quantitative relationships between dependent and independent variables.	CCSS.MATH.CONTENT.6.EE.C.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time.	1) Substitute Whole Numbers to Solve Equations Intervention protocols include: word problems to solve for a variable in an equation.

2/5 domains covered.
The Number System: 3/3 concepts covered. 7/8 individual standards covered (operations with positive & negative numbers not introduced until Fall of Grade 7)
Ratios & Proportional Relationships: Not covered. Ratios are addressed in the context of linear functions, solving for slope with representation and abstract sequencing. Linear functions are taught using real-world problems to make predictions and to set up and solve for unknown variables using ratio, rate, and proportion.
Expressions & Equations: 3/3 concepts covered. 8/9 standards covered (exponents are not assessed for proficiency until Grade 8)
Geometry: Not covered.
Statistics & Probability: Not covered.

Grade 7

Domain: Ratios & Proportional Relationships		
	Standards	**SpringMath skill coverage**
Concept Analyze proportional relationships and use them to solve real-world and mathematical problems.	CCSS.MATH.CONTENT.7.RP.A.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction 1/2/1/4 miles per hour, equivalently 2 miles per hour.	1) Solve Algebraic Proportions Intervention protocols include: word problems to solve for an unknown with the unknown value in all four positions in a ratio of two fractions.
	CCSS.MATH.CONTENT.7.RP.A.2 Recognize and represent proportional relationships between quantities.	1) Solve Algebraic Proportions
	CCSS.MATH.CONTENT.7.RP.A.3 Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.	1) Translate Verbal Expressions to Mathematical Equations 2) Solve for Missing Value with a Percentage Problem
Domain: Number System		
	Standards	**SpringMath skill coverage**
Concept Apply and extend previous understandings of operations with fractions.	CCSS.MATH.CONTENT.7.NS.A.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.	1) Add, Subtract, Multiply, & Divide with Integers of Varied Sign 2) Inverse Operations with Addition & Subtraction (includes positive and negative numbers) Intervention protocols include: specific proofing of positive and negative quantities on a number line, conceptual meaning of adding and subtracting with positive and negative values.
	CCSS.MATH.CONTENT.7.NS.A.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.	1) Add, Subtract, Multiply, & Divide with Integers of Varied Sign 2) Inverse Operations with Multiplication & Division (includes positive and negative numbers) Intervention protocols include: specific proofing of positive and negative quantities on a number line, conceptual meaning of multiplying and dividing with positive and negative values.

	CCSS.MATH.CONTENT.7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers.	1) Add, Subtract, Multiply, & Divide with Integers of Varied Sign 2) Inverse Operations with Addition & Subtraction (includes positive and negative numbers) 3) Inverse Operations with Multiplication & Division (includes positive and negative numbers) 4) Solve Two-Step Equations 5) Solve Two-Step Equations with Fractions Intervention protocols include: creating equivalent quantities, solving for unknown quantities, and word problems that require operations with rational numbers to solve.
Domain: Expressions & Equations		
	Standards	**SpringMath skill coverage**
Concept Use properties of operations to generate equivalent expressions.	CCSS.MATH.CONTENT.7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	1) Order of Operations 2) Inverse Operations for Addition & Subtraction 3) Inverse Operations for Multiplication & Division 4) Solve Two-Step Equations 5) Solve Two-Step Equations with Fractions Intervention protocols include factoring and expanding to create equivalent expressions.
	CCSS.MATH.CONTENT.7.EE.A.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. For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05."	1) Translate Verbal Expressions into Mathematical Equations Intervention protocols include: guided practice to turn numerical expressions into word problems reflecting a real-world problem to be solved.
Concept Solve real-life and mathematical problems using numerical and algebraic expressions and equations.	CCSS.MATH.CONTENT.7.EE.B.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.	1) Translate Verbal Expressions into Mathematical Equations 2) Order of Operations 3) Solve Algebraic Proportions 4) Solve Two-Step Equations 5) Solve Two-Step Equations with Fractions Intervention protocols include: creating equivalent quantities, solving for unknown quantities, and word problems that require operations with rational numbers to solve.

	CCSS.MATH.CONTENT.7.EE.B.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.	1) Order of Operations 2) Translate Verbal Expressions into Mathematical Equations 3) Solve Two-Step Equations Intervention protocols include: creating equivalent quantities, solving for unknown quantities, and word problems that require operations with rational numbers to solve.

3/5 domains covered.
Ratios & Proportional Relationships: 1/1 concept covered. 3/3 individual standards covered.
The Number System: 1/1 concept covered. 3/3 standards covered.
Expressions & Equations: 2/2 concepts covered. 4/4 standards covered.
Geometry: Not covered.
Statistics & Probability: Not covered.

Grade 8

Domain: The Number System		
	Standards	**SpringMath skill coverage**
Concept Know that there are numbers that are not rational, and approximate them by rational numbers.	CCSS.MATH.CONTENT.8.NS.A.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.	Convert Fractions to Decimals (Grade 6) Solve Two-Step Equations with Fractions (Grade 7) Intervention protocols with decimal operations include quantity estimation via rounding to specific place values.
	CCSS.MATH.CONTENT.8.NS.A.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 (e.g., π^2) *For example, by truncating the decimal expansion of √2, show that √2 is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations*.	Irrational number quantities are not taught.

Domain: Expressions & Equations		
	Standards	**SpringMath skill coverage**
Concept Expressions and Equations Work with radicals and integer exponents.	CCSS.MATH.CONTENT.8.EE.A.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $32 \times 3^{-5} = 3^{-3} = 1/33 = 1/27$.	1) Add, Subtract, Multiply, & Divide with Exponents Intervention protocols include: conversion of positive and negative exponents to equivalent numerical expressions and proofing of operations with positive and negative exponents.
	CCSS.MATH.CONTENT.8.EE.A.2 Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational.	Square and cube roots as the inverse operation of exponent values of 2 and 3 are not taught.
	CCSS.MATH.CONTENT.8.EE.A.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. *For example, estimate the population of the United States as 3 times 10^8 and the population of the world as 7 times 10^9 and determine that the world population is more than 20 times larger*.	1) Add, Subtract, Multiply, & Divide with Exponents Intervention protocols include explicit proofing of exponent quantity, comparing exponent quantities, and using operations to create equivalent quantities with exponents.
	CCSS.MATH.CONTENT.8.EE.A.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.	1) Add, Subtract, Multiply, & Divide with Exponents Intervention protocols use scientific notation with exponents to create equivalent quantities, to make quantity comparisons, and to make quantity statements true.

Concept Understand the connections between proportional relationships, lines, and linear equations.	CCSS.MATH.CONTENT.8.EE.B.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.	1) Solve for Slope and Intercept using linear function y = mx + b Intervention protocols include specific assessment and intervention for: Graph in a Coordinate Plane and Solve Slope Given Two Coordinate Pairs.
	CCSS.MATH.CONTENT.8.EE.B.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.	1) Solve for Slope and Intercept using linear function y = mx + b Intervention protocols include specific assessment and intervention for: Substitute Slope and Coordinates into Linear Function to Solve for y-intercept.
Concept Analyze and solve linear equations and pairs of simultaneous linear equations.	CCSS.MATH.CONTENT.8.EE.C.7 Solve linear equations in one variable.	1) Simplify Expressions 2) Distributive Property to Simplify Expressions 3) Collect Like Terms to Simplify Expressions Intervention protocols include making quantity comparisons with variables using exponents and integers when certain conditions about the variable are true (e.g., y >0 but <1), creating equivalent quantities with variables using exponents and integers, and real-world problems to solve for a variable.
	CCSS.MATH.CONTENT.8.EE.C.8 Analyze and solve pairs of simultaneous linear equations.	1) Linear Combinations to Solve Equations 2) Substitute Equation to Solve Linear Equation 3) Use Comparison Method to Solve Systems of Linear Equations Intervention protocols include: word problems that require solving system of linear equations to identify variable quantities, to identify the rate of change or slope, the value of the y-variable when x = 0, identifying points of convergence of functions using tables and graphed functions, manipulating quantity using multiplication or division to make variable solutions easier.
Domain: Functions		
	Standards	**SpringMath skill coverage**
Concept Define, evaluate, and compare functions.	CCSS.MATH.CONTENT.8.F.A.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.	1) Solve for Slope and Intercept using linear function y = mx + b Intervention protocols include specific assessment and intervention for: Graph in a Coordinate Plane and Solve for Slope Given Two Coordinate Pairs.

CCSS.MATH.CONTENT.8.F.A.2		
	CCSS.MATH.CONTENT.8.F.A.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions) For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.	1) Solve for Slope and Intercept using linear function y = mx + b Intervention protocols include specific assessment and intervention for: Graph in a Coordinate Plane and Solve for Slope Given Two Coordinate Pairs.
	CCSS.MATH.CONTENT.8.F.A.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. For example, the function A = s2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.	1) Solve for Slope and Intercept using linear function y = mx + b Intervention protocols include specific assessment and intervention for: Graph in a Coordinate Plane and Solve for Slope Given Two Coordinate Pairs.
Concept Use functions to model relationships between quantities.	CCSS.MATH.CONTENT.8.F.B.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.	1) Solve for Slope and Intercept using linear function y = mx + b Intervention protocols include specific assessment and intervention for: Graph in a Coordinate Plane and Solve for Slope Given Two Coordinate Pairs.
	CCSS.MATH.CONTENT.8.F.B.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.	1) Solve for Slope and Intercept using linear function y = mx + b Intervention protocols include specific assessment and intervention for: Graph in a Coordinate Plane and Solve for Slope Given Two Coordinate Pairs.

3/5 domains covered.
The Number System: 1/1 concept covered. 1/2 standards covered. Irrational number quantities are not taught.
Expressions & Equations: 3/3 concepts covered. 7/8 standards covered. Square and Cube Roots are not taught as the inverse operation for exponent values of 2 and 3.
Functions: 2/2 concepts covered. 5/5 standards covered.
Geometry: Not covered.
Statistics & Probability: Not covered.