STATE OF SOUTH CAROLINA

DEPARTMENT OF EDUCATION

Mathematics Crosswalk
2023 to 2015

Office of Assessment and Standards

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Contents

Overview of Document

The purpose of the crosswalk document is to reveal alignment and differences between the 2023 SC CCR Mathematics Standards and the 2015 SCCCR Mathematics Standards as well as to guide curriculum development at the local school district level.

Background: In 2021, South Carolina began a process of reviewing the 2015 SC College- and Career-Ready Mathematics Standards. The review and revision processes involved classroom teachers, administrators, curriculum specialists, parents, and professors. In the 2023 version of the SC CCR Mathematics Standards, revisions were made to clarify the standards, ensure developmental appropriateness, and ensure clear skills progression across grade levels.

Overview: South Carolina's CCR Mathematics Standards are divided into four strands: Data, Probability, and Statistical Reasoning (DPSR); Measurement, Geometry, and Spatial Reasoning (MGSR); Numerical Reasoning (NR); and Patterns, Algebra, and Functional Reasoning (PAFR). Within each strand are grade-level standards for knowledge and capabilities that students should have upon the completion of the strand. Each standard contains indicators that have been vertically aligned from kindergarten to high school. These standards and indicators represent a balance of conceptual and procedural knowledge and specify the mathematics that students will master in each grade level and in each high school course. There are some places in the 2015 column where a strike-through is used to show words that have been omitted or do not fit with that indicator. When a 2015 indicator is mostly strike-through, the alignment might be minimal. In some instances, alignment between the 2023 indicators and the 2015 standards may occur at different grade levels due to shifts in content between the two versions. There may also be multiple standards from 2015 that align with one, or more than one, new 2023 indicator.

Kindergarten:

Data, Probability, and Statistical Reasoning

K.DPSR.1. Collect and analyze data and communicate through multiple representations.

2023 SC CCR Math Indicators	*2015 SCCR Math Standard Alignment*
K.DPSR.1.1 Sort pictures or objects into at least two categories. Count to determine how many are in each category. Limit to 20 pictures or objects.	**K.MDA.3** Sort and classify data into 2 or 3 categories with data not to exceed 20 items in each category.
K.DPSR.1.2 Answer questions about data organized in a t-chart, object graph, or picture graph.	**K.MDA.4** ~~Represent data~~ using object and picture graphs and draw conclusions from the graphs.

Measurement, Geometry, and Spatial Reasoning

K.MGSR.1. Describe and compare objects in real-world situations using units of length, weight, money, and time.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
K.MGSR.1.1 Identify a penny, nickel, dime, and quarter.	**1.MDA.6** Identify a penny, nickel, dime, and quarter ~~and write the coin values using a ¢ symbol.~~
K.MGSR.1.2 Directly compare two objects using words including *shorter*, *longer*, *taller*, *lighter*, and *heavier*.	**K.MDA.1** Identify measurable attributes (length, weight) of an object. **K.MDA.2** Compare objects using words such as shorter/longer, shorter/taller, and lighter/heavier.

K.MGSR.2. Analyze, describe, and manipulate shapes to make sense of their relationships in mathematical and real-world situations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
K.MGSR.2.1 Identify and describe the attributes of triangles, squares, rectangles, circles, cubes, and spheres to include everyday situations.	**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.MGSR.2.2 Describe relative positions of objects by appropriately using terms including *below*, *above*, *beside*, *between*, *inside*, *outside*, *in front of*, or *behind*.	**K.G.1** Describe positions of objects by appropriately using terms, including below, above, beside, between, inside, outside, in front of, or behind.

Numerical Reasoning

K.NR.1. Represent multi-digit numbers in a variety of ways to build the foundation for place value understanding.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
K.NR.1.1 Read, write, and represent the numerals 0 to 20 and represent the written numeral with concrete models.	**K.NS.3** Read numbers from 0 – 20 and represent a number of objects 0-20 with a written numeral.
K.NR.1.2 Compose and decompose numbers from 11 to 19 into tens and ones by using concrete objects, pictorial models, or drawings to demonstrate understanding that the teen numbers are composed of one set of ten ones and a few more ones.	**K.NSBT.1** Compose and decompose numbers from 11 – 19 separating ten ones from the remaining ones using objects and drawings.

K.NR.2. Demonstrate and explain the relationship between numbers and quantities.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
K.NR.2.1 Count forward by ones and tens to 100 and backward from 10 by ones.	**K.NS.1** Count forward by ones and tens to 100. **K.NS.2** Count forward by ones beginning from any number less than 100.
K.NR.2.2 Subitize a quantity of up to 10 objects in an organized arrangement without counting, explaining how one grouped the objects within the set to determine the total quantity.	**K.NS.6.** Recognize a quantity of up to ten objects in an organized arrangement (subitizing).
K.NR.2.3 Given a group of up to 20 objects, count the number of objects in that group and represent the number of objects with a written numeral. State the number of objects in a rearrangement of that group without recounting.	**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.NS.5** Count a given number of objects from 1 – 20 and connect this sequence in a one-to one manner.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
K.NR.2.4 Given a number from 0 to 20, count out that many objects.	**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.NR.3. Demonstrate the ability to compare quantities of objects and numerals representing quantities of objects.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
K.NR.3.1 Compare up to 10 objects in one set to another set of up to 10 objects using the phrases *more than, fewer than,* or *the same as.*	**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.

Patterns, Algebra, and Functional Reasoning

K.PAFR.1. Develop an understanding of the relationship between addition and subtraction to solve problems.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
K.PAFR.1.1 Add and subtract number combinations within 5.	**K.ATO.5** Add and subtract fluently within 5.
K.PAFR.1.2 Create a sum of 10 using objects and drawings when given one of two addends 0–9, to include real-world situations.	**K.ATO.4** Create a sum of 10 using objects and drawings when given one of two addends 1-9.
K.PAFR.1.3 Compose and decompose numbers up to 10 in different ways. Record using objects or drawings.	**K.ATO.3** Compose and decompose numbers up to 10 using objects, drawings, ~~and equations.~~

2023 SC CCR Math Indicators	2015 SCCCR Math Standard Alignment
K.PAFR.1.4 Solve add-to/joining, take-from/separating, part-part-whole (total unknown), part-part-whole (both addends unknown) real-world situations to find sums and differences within 10.	**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.ATO.2** Solve real-world/story problems using objects and drawings to find sums up to 10 and differences within 10.

K.PAFR.2. Recognize, describe, extend, and create patterns.

2023 SC CCR Math Indicators	2015 SCCCR Math Standard Alignment
K.PAFR.2.1 Describe, extend, and create (to the next term) simple repeating patterns in the form of AB, AAB, ABB, and ABC.	**K.ATO.6** Describe simple repeating patterns using AB, AAB, ABB, and ABC type patterns.

Grade 1:

Data, Probability, and Statistical Reasoning

1.DPSR.1. Create and answer survey questions, collect and analyze data, and communicate through multiple representations.

2023 SC CCR Math Indicators	2015 SCCR Math Standard Alignment
1.DPSR.1.1 Sort pictures or objects into at least three categories (not to exceed 10 items in each category).	**1.MDA.4** Collect, organize, ~~and represent~~ data with up to 3 categories ~~using object graphs, picture graphs, t-charts and tallies.~~
1.DPSR.1.2 Create a survey question and collect data with up to three categories. Create charts and graphs with a single unit scale to display the data. Use the graph to draw conclusions. Limit to one-step add-to, take-from, and part-part-whole questions.	**1.MDA.4** Collect, organize, and represent data with up to 3 categories using object graphs, picture graphs, t-charts and tallies. **1.MDA.5** Draw conclusions from given object graphs, picture graphs, t-charts, tallies, and bar graphs.

Measurement, Geometry, and Spatial Reasoning

1.MGSR.1. Describe, estimate, measure, and compare objects in real-world situations using units of length, weight, money, and time.

2023 SC CCR Math Indicators	2015 SCCCR Math Standard Alignment
1.MGSR.1.1 Order three objects by length from shortest to longest and longest to shortest using direct comparison.	**1.MDA.1** Order three objects by length using **indirect** comparison.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
1.MGSR.1.2 Use nonstandard physical objects to estimate and then measure the length of an item as the number of same size units of length with no gaps or overlaps.	**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.MGSR.1.3 Use analog and digital clocks to tell and record time to the hour and half hour.	**1.MDA.3** Use analog and digital clocks to tell and record time to the hour and half hour.
1.MGSR.1.4 Identify and write the values of a coin or a bill using a ¢ symbol for coin values or $ symbol for bills. Limit to penny, nickel, dime, quarter, one-dollar bill, five-dollar bill, and ten-dollar bill.	**1.MDA.6** Identify how different coins' values relate to each other.
1.MGSR.1.5 Count a collection of like coins to determine the total value of the set. Limit to pennies, nickels, and dimes with values not to exceed a dollar.	**This is a new indicator.**

1.MGSR.2. Analyze, describe, and manipulate shapes to make sense of their relationships in mathematical and real-world situations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
1.MGSR.2.1 Sort a mixed set of polygons and describe the reasoning used while sorting the polygons.	**This is a new indicator.**
1.MGSR.2.2 Identify and describe the attributes of two-dimensional shapes and three-dimensional shapes. Limit to triangle, square, rectangle, rhombus, hexagon, circle, cone, cube, cylinder, square pyramid, and sphere.	**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). **1.G.4** Identify and name two-dimensional shapes (i.e., square, rectangle, triangle, hexagon, rhombus~~, trapezoid~~, and circle).
1.MGSR.2.3 Identify and describe a given shape in everyday situations to include two-dimensional shapes and three-dimensional shapes. Limit to triangle, square, rectangle, rhombus, hexagon, circle, cone, cube, cylinder, square pyramid, and sphere.	**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). **1.G.4** Identify and name two-dimensional shapes (i.e., square, rectangle, triangle, hexagon, rhombus, ~~trapezoid~~, and circle).

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
1.MGSR.2.4 Classify shapes as two-dimensional/flat or three-dimensional/solid and explain the reasoning using formal mathematical language. Limit to triangle, square, rectangle, rhombus, hexagon, circle, cone, cube, cylinder, square pyramid, and sphere.	**K.G.3** Classify shapes as two-dimensional/flat or three-dimensional/ solid and explain the reasoning used.
1.MGSR.2.5 Analyze and compare a pair of two-dimensional shapes or a pair of three-dimensional shapes of assorted sizes and orientations using formal mathematical language. Limit to triangle, square, rectangle, rhombus, hexagon, circle, cone, cube, cylinder, square pyramid, and sphere.	**K.G.4** Analyze and compare two- and three-dimensional shapes of different sizes and orientations using informal language.

Numerical Reasoning

1.NR.1. Represent multi-digit numbers in a variety of ways to build place value understanding.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
1.NR.1.1 Read, write, and represent numbers to 100 using concrete models, drawings, standard form, base ten language, and equations in expanded form.	**1.NSBT.1** Extend the number sequence to: c. read, write and represent numbers to 100 using concrete models, standard form, and equations in expanded form.
1.NR.1.2 Represent and explain that whole numbers 1 through 99 are organized into groups of tens and ones, and a digit has a different value depending on its placement.	**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.
1.NR.1.3 Compose and decompose whole numbers from 1 through 99 in more than one way using tens and ones. Explain and demonstrate each composition or decomposition with the use of concrete models, drawings, and/or equations.	**1.NSBT.2** Understand place value through 99 by demonstrating that: 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.NR.1.4 Apply place value reasoning to identify the number that is one more and one less, ten more, and ten less than a given number with up to two digits.	**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.NR.2. Explain the relationship between numbers and quantities.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
1.NR.2.1 Count by ones forward or backward starting at any number up to 120 making accurate decade transitions.	**1.NSBT.1** Extend the number sequence to: a. count forward by ones to 120 starting at any number.
1.NR.2.2 Skip count by fives and tens from any multiple of five to 100, identifying place value patterns in the sequence.	**1.NSBT.1.** Extend the number sequence to: b. count by fives and tens to 100, starting at any number.

1.NR.3. Demonstrate the ability to compare quantities of objects and numerals representing quantities of objects.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
1.NR.3.1 Compare representations of two numbers up to 100 using the phrases *is greater than, is less than,* or *is equal to (the same value as)*.	**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.NR.4. Represent partitioned shapes in multiple ways using part-whole relationships.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
1.NR.4.1 Partition in multiple ways squares, rectangles, and circles into two or four equal-sized parts. Name the pieces as halves and fourths.	**1.G.3** Partition two-dimensional shapes (i.e., square, rectangle, circle) into two or four equal parts.

Patterns, Algebra, and Functional Reasoning

1.PAFR.1. Understand and apply properties of operations and the relationship between addition and subtraction to solve problems.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
1.PAFR.1.1 Determine and explain if an equation within 10 is true using a variety of equation formats.	**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.PAFR.1.2 Compose and decompose numbers less than or equal to 20 in more than one way. Record each composition or decomposition as an equation.	**This is a new indicator.**

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
1.PAFR.1.3 Solve add-to, take-from, and part-part-whole real-world situations to find sums and differences within 20. Situations include result or change unknown, both addends unknown, and total or one part unknown.	**1.ATO.1** Solve add-to, take-from, and part-part-whole real-world situations to find sums and differences within 20. Situations include result or change unknown, both addends unknown, and total or one part unknown.
1.PAFR.1.4 Add and subtract number combinations flexibly and accurately within 10.	**1.ATO.6** Demonstrate: b. fluency with addition and related subtraction facts through 10.
1.PAFR.1.5 Apply and explain the *Commutative Property of Addition* to find the sum (through 20) of two addends and explain that the value does not change when the order of the two numbers changes.	**1.ATO.3** Apply Commutative ~~and Associative Properties of Addition~~ to find the sum (through 20) of two ~~or three~~ addends.
1.PAFR.1.6 Determine an unknown number in addition and subtraction equations within 10.	**1.ATO.4** Understand subtraction as an unknown addend problem. **1.ATO.8** Determine the missing number in addition and subtraction equations within 20.
1.PAFR.1.7 Find the sum of a two-digit number and a one-digit number or a two-digit number and a multiple of 10 (1–99) using concrete models, drawings, and strategies that reflect place value understanding, the inverse relationship of addition and subtraction, and the properties of the operations to justify the sum.	**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.PAFR.1.8 Find the difference between two numbers that are multiples of 10, both in the range 10–90, and write the corresponding equation. 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.PAFR.2. Recognize, describe, extend, and create patterns.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
1.PAFR.2.1 Create, describe, and extend (to the next term) a growing shape pattern.	**1.ATO.9** Create, extend and explain using pictures and words for: b. growing patterns (between 2 and 4 terms/figures).
1.PAFR.2.2 Create, describe, and extend (to three terms within a sequence) repeating patterns using *AB, AAB, ABB,* and *ABC* type patterns.	**1.ATO.9** Create, extend and explain using pictures and words for: a. repeating patterns (e.g., AB, AAB, ABB, and ABC type patterns).

Grade 2:

Data, Probability, and Statistical Reasoning

2.DPSR.1. Create and answer survey questions, collect and analyze data, and communicate through multiple representations.

2023 SC CCR Math Indicators	*2015 SCCR Math Standard Alignment*
2.DPSR.1.1 Create a survey question and collect data with up to four categories. Create tally charts, picture graphs, dot plots, and bar graphs with a single-unit scale to read the graph, answer questions, and draw conclusions. Limit to one-step add-to, take-from, part-part-whole, and comparison questions.	**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.MDA.9** Collect, organize, and represent data with up to four categories using picture graphs and bar graphs with a single-unit scale. **2.MDA.10** Draw conclusions from t-charts, object graphs, picture graphs, and bar graphs.

Measurement, Geometry, and Spatial Reasoning

2.MGSR.1. Describe, estimate, measure, and compare objects in real-world situations using units of length, weight, money, and time.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
2.MGSR.1.1 Select and use appropriate tools to estimate and measure length of an object or distance to the nearest customary unit. Limit to inches, feet, and yards.	**2.MDA.1** Select and use appropriate tools (e.g., rulers, yardsticks, meter sticks, measuring tapes) to measure the length of an object. **2.MDA.3** Estimate and measure length/distance in customary units (i.e., inch, foot, yard) ~~and metric units (i.e., centimeter, meter).~~
2.MGSR.1.2 Use analog and digital clocks to tell and record time in five-minute intervals, identifying AM and PM.	**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.MGSR.1.3 Determine the value of mixed sets of coins or bills in mathematical and real-world situations and record the value using a ¢ or $ symbol. Limit to pennies, nickels, dimes, and quarters up to a dollar; one-dollar bills, five-dollar bills, ten-dollar bills, and twenty-dollar bills up to $100, and add-to or take-from problem types.	**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.MGSR.2. Analyze, describe, and manipulate shapes to make sense of their relationships in mathematical and real-world situations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
2.MGSR.2.1 Identify and describe a given shape in everyday situations to include two-dimensional shapes and three-dimensional shapes. Limit to triangle, quadrilateral, pentagon, hexagon, octagon, circle, cone, cube, cylinder, rectangular prism, square pyramid, and sphere.	**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.MGSR.2.2 Classify shapes as polygons or non-polygons and defend that determination based on their attributes.	**This is a new indicator.**
2.MGSR.2.3 Classify two-dimensional shapes as triangles or quadrilaterals and justify each classification.	**This is a new indicator.**

Numerical Reasoning

2.NR.1. Represent multi-digit numbers in a variety of ways to build place value understanding.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
2.NR.1.1 Read, write, and represent numbers up to 999 using concrete models, drawings, standard form, base ten language, and equations in expanded form.	**2.NSBT.3** Read, write and represent numbers through 999 using concrete models, standard form, and equations in expanded form.
2.NR.1.2 Represent and explain that whole numbers 1 through 999 are organized into groups of hundreds, tens, and ones, and a digit has a different value depending on its placement.	**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.
2.NR.1.3 Compose and decompose whole numbers from 1 through 999 in more than one way using hundreds, tens, and ones. Explain and demonstrate each composition or decomposition with the use of concrete models, drawings, and equations.	**2.NSBT.1** Understand place value through 999 by demonstrating that: 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.NR.1.4 Apply place value reasoning to identify the number that is 10 more, 10 less, 100 more, and 100 less than a given three-digit number through 999.	**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.NR.2. Explain the relationship between numbers and quantities.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
2.NR.2.1 Count forward and backward by ones, tens, and hundreds from any number within 999 and identify patterns in the sequence.	**2.NSBT.2** Count by tens and hundreds to 1,000 starting with any number.

2.NR.3. Demonstrate the ability to compare quantities of objects and numerals representing quantities of objects.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
2.NR.3.1 Compare representations of whole numbers up to 999 and write a comparison statement using words and symbols. Limit to *is equal to (=), is less than (<),* and/or *is greater than (>).*	**2.NSBT.4** Compare two numbers with up to three digits using words and symbols (i.e., >, =, or <).
2.NR.3.2 When given a two-digit number, identify which multiple of 10 the number is closest to.	**This is a new indicator.**

2.NR.4. Represent and compare partitioned shapes in multiple ways using part-whole relationships.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
2.NR.4.1 Partition in multiple ways squares, rectangles, and circles into two or four equal sized parts, and describe the parts using the words halves, fourths, a half of, and a fourth of (not quarters).	**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.NR.4.2 Explain 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 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.

Patterns, Algebra, and Functional Reasoning

2.PAFR.1. Understand and apply properties of operations and the relationship between addition and subtraction to solve problems.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
2.PAFR.1.1 Use a strategy to accurately find sums and differences of two-digit numbers within 100 and justify the sum or difference.	**2.NSBT.5** Add and subtract fluently through 99 using knowledge of place value and properties of operations. **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.PAFR.1.2 Determine and explain if an equation (within 20) is true using a variety of equation formats.	**This is a new indicator.**
2.PAFR.1.3 Solve one-step add-to, take-from, part-part-whole, and additive comparison real-world situations through 99 with the unknown in any position.	**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.PAFR.1.4 For any number from 0 to 99, find the number that makes 100 when added to the given number.	**This is a new indicator.**
2.PAFR.1.5 Add and subtract number combinations flexibly and accurately within 20.	**2.ATO.2** Demonstrate fluency with addition and related subtraction facts through 20.
2.PAFR.1.6 Apply the Associative Property of Addition to find the sum (through 20) of three addends and explain that the value can be found using various grouping strategies.	**1.ATO.2** Solve real-world/story problems that include three whole number addends whose sum is less than or equal to 20.
2.PAFR.1.7 Determine the unknown number in addition and subtraction equations within 20, with the unknown in any position.	**This is a new indicator.**
2.PAFR.1.8 Sort a collection of 20 or fewer objects into two groups to determine if the number of objects is even or odd.	**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.PAFR.1.9 Find the total number of objects arranged in equal groups or in a rectangular array and write an addition equation to express the total as a sum (up to 25) of 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.PAFR.2. Recognize, describe, extend, and create patterns.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
2.PAFR.2.1 Describe, extend, and create a growing shape pattern with up to three terms within a sequence.	**This is a new indicator.**
2.PAFR.2.2 Create, describe, and extend an appropriate one-step rule for number patterns using addition and subtraction within 100.	**This is a new indicator.**

Grade 3:

Data, Probability, and Statistical Reasoning

3.DPSR.1. Collect and analyze data and communicate through multiple representations.

2023 SC CCR Math Indicators	*2015 SCCR Math Standard Alignment*
3.DPSR.1.1 Collect and organize categorical and numerical data based on observations, surveys, experiments, and investigations with whole number values using tables, scaled picture graphs, scaled bar graphs, or dot plots. Use titles and labels. Limit scales to 1, 2, 5, and 10.	**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.DPSR.1.2 Solve one-step, real-world situations using whole number data represented in tables, scaled picture graphs, scaled bar graphs, or dot plots. Limit scales to 1, 2, 5, and 10.	**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.DPSR.2. Represent the probability of simple events and determine possible outcomes.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
3.DPSR.2.1 Identify the possible outcomes of a simple event.	**7.DSP.6*** Investigate the relationship between theoretical and experimental probabilities for simple events. a. Determine approximate outcomes using theoretical probability.

Measurement, Geometry, and Spatial Reasoning

3.MGSR.1. Solve area and perimeter problems in real-world and mathematical situations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
3.MGSR.1.1 Determine the area of squares and rectangles presented in relevant problems by covering the space with square units and counting the total number of units needed.	**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;

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
3.MGSR.1.2 Determine the perimeter of regular and irregular triangles and quadrilaterals with known side lengths.	**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.MGSR.1.3 Determine if a real-world situation is an example of the need for finding the area or the perimeter of a figure.	**3.MDA.5** Understand the concept of area measurement. a. Recognize area as an attribute of plane figures. **5.MDA.4** Differentiate among perimeter, area and volume and identify which application is appropriate for a given situation.

3.MGSR.2. Estimate and measure using units of length, liquid volume, currency, and intervals of time.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
3.MGSR.2.1 Determine the value of any collection of coins, not to exceed $5. Write the amount in the form of dollars and cents using the decimal notation. Limit to penny, nickel, dime, and quarter.	**4.MDA.8** Determine the value of a collection of coins and ~~bills~~ greater than $1.00.
3.MGSR.2.2 Use analog and digital clocks to tell and record time to 1-minute intervals, identifying AM and PM.	**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.MGSR.2.3 Solve problems involving addition and subtraction of time intervals to determine elapsed time to the nearest half hour.	**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.MGSR.2.4 Estimate and measure length/distance to the nearest half inch and nearest whole centimeter.	**2.MDA.3** Estimate and measure length/distance in customary units (i.e., inch, foot, yard) and metric units (i.e., centimeter, meter). **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.MGSR.2.5 Determine which unit of liquid volume is most appropriate to measure in real-world situations. Limit to fluid ounces, cups, pints, quarts, gallons, milliliters, and liters.	**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.MGSR.3. Extend geometric reasoning to attributes of polygons and/or polyhedrons.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
3.MGSR.3.1 Describe and draw right, acute, obtuse, and straight angles. Identify these angle types in two-dimensional figures including triangles and quadrilaterals.	**3.G.3** Use a right angle as a benchmark to identify and sketch acute and obtuse angles. **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.
3.MGSR.3.2 Identify, describe, and draw points, lines, line segments, rays, intersecting lines, perpendicular lines, and parallel lines. Identify these in two-dimensional figures.	**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.

Numerical Reasoning

3.NR.1. Represent and compare numbers using relationships within the base ten number system.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
3.NR.1.1 Read, write, and represent whole numbers through the thousands period (0 to 999,999) on a number line and in standard, base ten language, word, and equations in expanded form.	**3.NSBT.4** Read and write numbers through 999,999 in standard form and equations in expanded form.
3.NR.1.2 Compose and decompose 4-digit whole numbers in multiple ways using thousands, hundreds, tens, and ones.	**This is a new indicator.**
3.NR.1.3 Compare two whole numbers up to 999,999 based on the place value of the digits using the symbols for *is equal to* (=), *is less than* (<), or *is greater than* (>).	**3.NSBT.5** Compare and order numbers through 999,999 and represent the comparison using the symbols >, =, or <.
3.NR.1.4 Round whole numbers from 0 to 1,000 to the nearest 10 or 100.	**3.NSBT.1** Use place value understanding to round whole numbers to the nearest 10 or 100. **4.NSBT.3** Use rounding as one form of estimation and round whole numbers to any given place value.

3.NR.2. Represent and compare fractions in multiple ways using part-whole relationships.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
3.NR.2.1 Identify unit fractions as the quantity formed by one part when a whole is partitioned into 2, 3, 4, 6, or 8 equal-sized parts. Express each part as a unit fraction of the whole.	**3.NSF.1** Develop an understanding of fractions (i.e., denominators 2, 3, 4, 6, 8, 10) as numbers. a. A fraction $\frac{1}{b}$ (called a unit fraction) is the quantity formed by one part when a whole is partitioned into b equal parts; b. A fraction $\frac{a}{b}$ is the quantity formed by a parts of size $\frac{1}{b}$; 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.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.NR.2.2 Represent fractions from 0 to 1 using concrete, set, area, and linear models, and write them in standard form and word form. Limit denominators to 2, 3, 4, 6, and 8.	**3.NSF.1.** Develop an understanding of fractions (i.e., denominators 2, 3, 4, 6, 8, 10) as numbers. 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.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.NR.2.3 Express whole numbers as fractions and identify fractions that are equivalent to whole numbers. Limit denominators to 1, 2, 3, 4, 6, and 8.	**3.NSF.2** Explain fraction equivalence (i.e., denominators 2, 3, 4, 6, 8, 10) by demonstrating an understanding that: c. whole numbers can be written as fractions (e.g., 4 = $\frac{4}{1}$ and 1 = $\frac{4}{4}$)

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
3.NR.2.4 Compose fractions between the whole numbers 0 and 5 using unit fractions. Record the composition as a mixed number or fraction greater than 1. Limit denominators to 2, 3, 4, 6, and 8.	**3.NSF.1** Develop an understanding of fractions (i.e., denominators 2, 3, 4, 6, 8, 10) as numbers. a. A fraction $\frac{1}{b}$ (called a unit fraction) is the quantity formed by one part when a whole is partitioned into b equal parts; b. A fraction $\frac{a}{b}$ is the quantity formed by a parts of size $\frac{1}{b}$ **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.NR.2.5 Recognize two fractions are equivalent based on the same size whole. Limit denominators to 2, 3, 4, 6, and 8, and fractions should be limited to fractions between 0 and 1.	**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 = $\frac{4}{1}$ and 1 = $\frac{4}{4}$) **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.NR.2.6 Compare two fractions with the same numerator or same denominator based on the same size whole by reasoning about their size. Use the symbols for *is equal to* (=), *is less than* (<), or *is greater than* (>). Limit denominators to 2, 3, 4, 6, and 8, and fractions should be limited to fractions between 0 and 1.	**3.NSF.2** Explain fraction equivalence (i.e., denominators 2, 3, 4, 6, 8, 10) by demonstrating an understanding that: d. fractions with the same numerator or same denominator can be compared by reasoning about their size based on the same whole.

Patterns, Algebra, and Functional Reasoning

3.PAFR.1. Use multiple representations to reason and solve problems involving operational properties of whole numbers.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
3.PAFR.1.1 Use a strategy to compute sums and differences up to 1,000.	**3.NSBT.2** Add and subtract whole numbers fluently to 1,000 using knowledge of place value and properties of operations.
3.PAFR.1.2 Multiply whole numbers (factors 0–10) and divide whole numbers (divisors 1–10) using a model and write a corresponding equation.	**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.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.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.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.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.ATO.6** Understand division as a missing factor problem.
3.PAFR.1.3 Multiply two whole numbers from 0 to 10 and divide using related facts flexibly and accurately.	**3.ATO.6** Understand division as a missing factor problem. **3.ATO.7** Demonstrate fluency with basic multiplication and related division facts of products and dividends through 100.

3.PAFR.2. Use reasoning to represent and solve algebraic and numerical situations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
3.PAFR.2.1 Determine the unknown whole number in a multiplication or division real-world situation relating three whole numbers when the unknown is a missing factor, product, dividend, divisor, or quotient.	**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.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.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.ATO.6** Understand division as a missing factor problem. **4.ATO.2** Solve real-world problems using multiplication (product unknown) and division (group size unknown, number of groups unknown).
3.PAFR.2.2 Solve one- and two-step real-world situations using addition and subtraction up to 1,000.	**3.NSBT.2** Add and subtract whole numbers fluently to 1,000 using knowledge of place value and properties of operations. **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.PAFR.2.3 Identify, create, and extend numerical patterns to determine the next three terms in an addition or subtraction sequence.	**3.ATO.9** Identify a rule for an arithmetic pattern (e.g., patterns in the addition table or multiplication table). **4.ATO.5** Generate a number or shape pattern that follows a given rule and determine a term that appears later in the sequence.
3.PAFR.2.4 Recognize that a whole number is a multiple of each of its factors 1–10.	**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.

Grade 4:

Data, Probability, and Statistical Reasoning

4.DPSR.1. Create questions, collect and analyze data, and communicate interpretations through multiple representations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
4.DPSR.1.1 Collect and organize numerical and categorical data based on observations, investigations, surveys, and experiments using tables, scaled bar graphs, or dot plots. Use titles and labels. Scales to include whole numbers, halves, and fourths.	**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.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. **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.DPSR.1.2 Solve one-step, real-world situations using whole number and fractional data represented in tables, scaled picture graphs, scaled bar graphs, or dot plots. Limit to like denominators of 2, 3, 4, 5, 6, 8, and 10.	**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.DPSR.2. Represent the probability of simple events and determine possible outcomes.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
4.DPSR.2.1 Determine the possible outcomes of a simple event and record the probability as certain, possible, or impossible.	**7.DSP.5** Investigate the concept of probability of chance events a. Determine probabilities of simple events.

Measurement, Geometry, and Spatial Reasoning

4.MGSR.1. Solve area and perimeter problems in real-world and mathematical situations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
4.MGSR.1.1 Apply perimeter formulas for rectangles to solve real-world situations including finding the perimeter, given the side lengths, and finding an unknown side length.	**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.~~ **4.MDA.3** Apply the area and perimeter formulas for rectangles.
4.MGSR.1.2 Apply area formulas for rectangles to solve real-world situations. Use square units to label area measurements.	**3.MDA.5** Understand the concept of area measurement. a. Recognize area as an attribute of plane figures; c. Determine the area of a rectilinear polygon and relate to multiplication and addition. **4.MDA.3** Apply the area and perimeter formulas for rectangles.

4.MGSR.2. Estimate and measure using units of length, liquid volume, weight, currency, and intervals of time.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
4.MGSR.2.1 Calculate the value of a collection of coins and bills in real-world situations to determine whether there is enough money to make a purchase. Justify based on comparison of money amounts.	**4.MDA.8** Determine the value of a collection of coins and bills greater than $1.00.
4.MGSR.2.2 Solve real-world situations involving addition and subtraction of time intervals within 60 minutes to find elapsed time, start time, or end time.	**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. **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.~~

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
4.MGSR.2.3 Measure length to the nearest quarter inch.	**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. **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.MGSR.2.4 Measure weight in customary units and metric units to the nearest whole unit. Limit to ounces, pounds, grams, and kilograms	**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.MGSR.2.5 Convert customary units of length, weight, and liquid volume from a larger unit to a smaller unit, given direct comparisons of the two measurements and/or the unit equivalencies within a single system of measurement. Limit to inches, feet, yards, ounces, pounds, fluid ounces, cups, pints, quarts, and gallons when given unit equivalencies.	**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.MGSR.3. Extend geometric reasoning to attributes of polygons and/or polyhedrons.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
4.MGSR.3.1 Classify triangles according to side length (*isosceles, equilateral, scalene*) and angle measure (*acute, obtuse, right, equiangular*).	**4.G.3** Recognize right triangles as a category, and identify right triangles.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
4.MGSR.3.2 Classify quadrilaterals in a hierarchy based on their shared attributes.	**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. **4.G.2** Classify quadrilaterals based on the presence or absence of parallel or perpendicular lines. **5.G.3** Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. **5.G.4** Classify two-dimensional figures in a hierarchy based on their attributes.

Numerical Reasoning

4.NR.1. Represent and compare numbers using relationships within the base ten number system.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
4.NR.1.1 Read and write whole numbers through the millions period (0 to 999,999,999) in word, standard, and equations in expanded form.	**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.NR.1.2 Estimate sums, differences, products, and quotients of multi-digit whole numbers, using rounding and place value to determine the reasonableness of real-world problem solutions. Write an equation for the estimate.	**4.NSBT.3** Use rounding as one form of estimation and round whole numbers to any given place value.
4.NR.1.3 Order whole numbers within 999,999 (no more than 3) in ascending or descending order and record the comparison(s) using symbols for *is less than* (<) and/or *is greater than* (>).	**3.NSBT.5** Compare and order numbers through 999,999 and represent the comparison using the symbols >, =, or <.

4.NR.2. Represent and compare fractions in multiple ways using part-whole relationships.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
4.NR.2.1 Represent fractions with denominators of 10 and 100 in words, models, and decimal notations.	**3.NSF.1** Develop an understanding of fractions (i.e., denominators 2, 3, 4, 6, 8, 10) as numbers. d. A fraction can be represented using set, area, and linear models. **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.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.NR.2.2 Compare decimal numbers to the hundredths using the benchmarks 0, 0.5, and 1.0, concrete area, and linear models. Use the symbols for *is equal to* (=), *is less than* (<), and/or *is greater than* (>).	**4.NSF.7** Compare and order decimal numbers to hundredths, and justify using concrete and visual models.
4.NR.2.3 Generate equivalent fractions, including fractions greater than 1, using multiple representations. Limit fractions to denominators of 2, 3, 4, 5, 6, 8, 10, 12, 20, 25, 50, and 100.	**4.NSF.1** Explain why a fraction (i.e., denominators 2, 3, 4, 5, 6, 8, 10, 12, 25, 100), $\frac{a}{b}$, 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.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.NR.2.4 Represent the composition and decomposition of fractions with the same denominator, including mixed numbers and fractions greater than 1, using multiple representations. Limit fractions to denominators of 2, 3, 4, 5, 6, 8, 10, 12, 20, 25, 50, and 100.	**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.
4.NR.2.5 Explain and demonstrate how a mixed number is equivalent to a fraction greater than 1 and how a fraction greater than 1 is equivalent to a mixed number. Limit fractions to denominators of 2, 3, 4, 5, 6, 8, 10, 12, 20, 25, 50, and 100.	**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.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
4.NR.2.6 Compare fractions and mixed numbers with like and unlike denominators applying benchmark fractions such as 0, $\frac{1}{2}$, and 1 using the symbols for *is equal to* (=), *is less than* (<), or *is greater than* (>). Limit fractions to denominators of 2, 3, 4, 5, 6, 8, 10, 12, 20, 25, 50, and 100.	**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; d. fractions with the same numerator or same denominator can be compared by reasoning about their size based on the same whole. **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 <.

Patterns, Algebra, and Functional Reasoning

4.PAFR.1. Use multiple representations to reason and solve problems involving operational properties of whole numbers and decimals.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
4.PAFR.1.1 Use a strategy to accurately compute sums and differences of whole numbers up to 100,000 and justify the sum or difference.	**4.NSBT.4** Fluently add and subtract multi-digit whole numbers using strategies to include a standard algorithm.
4.PAFR.1.2 Compute the product of a one-digit whole number times a multiple of 10 (from 10 to 90) and 100 (from 100 to 900) based on place value and properties of operations.	**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.
4.PAFR.1.3 Decompose numbers by the value of each digit to multiply whole numbers up to four digits by a one-digit number and two 2-digit whole numbers.	**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.PAFR.1.4 Use a strategy to divide up to a four-digit dividend by a one-digit divisor, with and without remainders. Justify the calculation.	**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.ATO.2** Solve real-world problems ~~using multiplication (product unknown)~~ and division (group size unknown, number of groups unknown).

4.PAFR.2. Use multiple representations to reason and solve problems involving operational properties of fractions.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
4.PAFR.2.1 Use a strategy to accurately compute sums and differences of fractions with like denominators and justify the reasonableness of the answer. Limit denominators to 2, 3, 4, 5, 6, 8, 10, 12, 25, and 100.	**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.PAFR.2.2 Use fraction and decimal equivalencies to add and subtract tenths and hundredths, to include mixed numbers and fractions greater than 1.	**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.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.PAFR.2.3 Represent and compute the product of a whole number times a unit fraction. Limit denominators to 2, 3, 4, 5, 6, 8, 10, 12, 25, and 100.	**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.PAFR.2.4 Interpret a fraction as an equal sharing division situation, where a quantity (the numerator) is divided into equal parts (the denominator) to include real-world situations.	**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., $a\ b = a \div b$).

4.PAFR.3. Use reasoning to represent and solve algebraic and numerical situations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
4.PAFR.3.1 Find all factor pairs for a whole number in the range 1–50. Determine whether the whole number is prime or composite.	**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.PAFR.3.2 Describe and extend a numerical pattern that follows a rule using function tables and real-world situations.	**3.ATO.9** Identify a rule for an arithmetic pattern (e.g., patterns in the addition table or multiplication table). **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.PAFR.3.3 Solve real-world situations involving multiplicative comparison situations and write equations to represent the problem using a variable for the unknown.	**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.PAFR.3.4 Solve two-step, real-world situations using the four operations involving whole number answers. Represent the problem using an equation with a variable as the unknown in any position.	**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. **4.ATO.2** Solve real-world problems using multiplication (product unknown) and division (group size unknown, number of groups unknown). **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.

Grade 5:

Data, Probability, and Statistical Reasoning

5.DPSR.1. Create questions, collect and analyze data, and communicate through multiple representations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
5.DPSR.1.1 Describe data by determining the range and mode, including whole numbers, fractional data, and decimal data. Limit fractions to denominators of 2, 3, 4, 5, 6, 8, and 10, and limit decimals to decimals through the thousandths place.	**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.
5.DPSR.1.2 Solve two-step, real-world situations using whole number and fractional data represented in tables, line graphs, scaled bar graphs, or dot plots. Limit fractions to denominators of 2, 3, 4, 5, 6, 8, 10, 12, 20, 25, 50, and 100.	**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. **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.DPSR.1.3 Analyze categorical and numerical data in graphical displays to make predictions or draw conclusions. Limit displays to tables, bar graphs, dot plots, line graphs, and circle graphs with scales of whole numbers, halves, fourths, and eighths.	**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. **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.DPSR.2. Represent the probability of simple events and determine possible outcomes.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
5.DPSR.2.1 Represent the probability of a simple event as 0, a fraction, or 1. Limit fractions to denominators of 2, 3, 4, 5, 6, 8, 10, 20, and 25.	**7.DSP.5** Investigate the concept of probability of chance events. 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. f. Understand that a probability closer to 0 indicates an unlikely chance event.

Measurement, Geometry, and Spatial Reasoning

5.MGSR.1. Solve area, perimeter, and volume problems in real-world and mathematical situations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
5.MGSR.1.1 Solve problems involving area and perimeter of composite figures by decomposing with rectangles.	**3.MDA.5** Understand the concept of area measurement. c. Determine the area of a rectilinear polygon and relate to multiplication and addition. **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. **5.MDA.4** Differentiate among perimeter, area and ~~volume~~ and identify which application is appropriate for a given situation.
5.MGSR.1.2 Estimate and measure the volume of a right rectangular prism with whole-number side lengths by filling it with unit cubes.	**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.MGSR.2. Convert within a given measurement system and measure length.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
5.MGSR.2.1 Given the unit equivalencies, convert within a single system of measurement from larger units to smaller units and smaller units to larger units for length, weight, liquid volume, and time. Use these conversions in solving real-world situations. Limit units to inches, feet, yards, ounces, pounds, fluid ounces, cups, pints, quarts, gallons, seconds, minutes, hours, milli-, centi-, kilo-, and base units (grams, liters, meters).	**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. **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.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
5.MGSR.2.2 Estimate and measure lengths to the nearest eighth of an inch or nearest millimeter.	**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.~~

5.MGSR.3. Graph on the coordinate plane.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
5.MGSR.3.1 Identify the origin, *x*-axis, and *y*-axis in the coordinate system. Write, plot, and label ordered pairs, including values in a function table, in the first quadrant of the coordinate plane.	**5.ATO.3** Investigate the relationship between two numerical patterns. b. Translate the two numerical patterns into two sets of ordered pairs; **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.2** Plot and interpret points in the first quadrant of the coordinate plane to represent real-world \and mathematical situations.
5.MGSR.3.2 Represent mathematical and real-world situations by graphing, labeling, and interpreting points in the first quadrant of the coordinate plane.	**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.2** Plot and interpret points in the first quadrant of the coordinate plane to represent real-world \and mathematical situations.

Numerical Reasoning

5.NR.1. Represent and compare numbers using relationships within the base ten number system.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
5.NR.1.1 Read, write, and represent multi-digit numbers from 0 to 999 with decimals to the thousandths place. Use pictorial, word, standard, or expanded form with fraction or decimal notation.	**5.NSBT.3** Read and write decimals in standard and expanded form. ~~Compare two decimal numbers to the thousandths using the symbols >, =, or <.~~
5.NR.1.2 Explain how the value of a digit in a multi-digit number changes if the digit moves one or more places to the left or right in the base ten system. Include decimals to the thousandths place.	**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 **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.NR.1.3 Round decimal numbers up to 999 with decimals to the thousandths place to the nearest hundredth, tenth, or whole number.	**5.NSBT.4** Round decimals to any given place value within thousandths.
5.NR.1.4 Use patterns to explain the exponents when multiplying and dividing by powers of 10, not to exceed the thousandths place.	**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.NR.2. Represent and compare fractions in multiple ways.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
5.NR.2.1 Compare fractions and mixed numbers with like and unlike denominators of 2, 3, 4, 5, 6, 8, 10, 12, 20, 25, and 100 using equivalence to create a common denominator. Use the symbols for *is less than* (<), *is more than* (>), or *is equal to* (=) to record the comparison.	**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 <.

Patterns, Algebra, and Functional Reasoning

5.PAFR.1. Use multiple representations to reason and solve problems involving operational properties of whole numbers and decimals.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
5.PAFR.1.1 Use a strategy to compute the product of a two- or three-digit factor times a two-digit factor to include real-world situations.	**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.ATO.2** Solve real-world problems using multiplication (product unknown) and division (group size unknown, number of groups unknown). **5.NSBT.5** Fluently multiply multi-digit whole numbers using strategies to include a standard algorithm.
5.PAFR.1.2 Use a strategy to compute the quotient of a multi-digit whole number dividend divided by a two-digit whole number divisor, with and without remainders, to include real-world situations. Limit the dividend to four digits.	**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.PAFR.1.3 Use a strategy to compute sums and differences of decimal numbers to the hundredths.	**5.NSBT.7** Add, subtract, multiply, and divide decimal numbers to hundredths using concrete area models and drawings.
5.PAFR.1.4 Use a strategy to multiply a one-digit whole number by a decimal to the hundredths and divide a decimal to the hundredths (dividend) by a one-digit whole number (divisor). Justify the calculation.	**5.NSBT.7** ~~Add, subtract,~~ multiply, and divide decimal numbers to hundredths using concrete area models and drawings.

5.PAFR.2. Use multiple representations to reason and solve problems involving operational properties of fractions.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
5.PAFR.2.1 Use a strategy to compute sums and differences of fractions and mixed numbers with unlike denominators and justify the sum or difference to include real-world situations. Limit denominators to 2, 3, 4, 5, 6, 8, 10, 12, 20, 25, 50, and 100.	**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.NSF.2** Solve real-world problems involving addition and subtraction of fractions with unlike denominators.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
5.PAFR.2.2 Use a strategy to multiply a fraction by a fraction or a fraction by a whole to include real-world situations. Limit denominators to 2, 3, 4, 5, 6, 8, 10, and 12.	**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~~). 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). **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.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.NSF.6** Solve real-world problems involving multiplication of a fraction by a fraction, improper fraction and a mixed number.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
5.PAFR.2.3 Interpret and represent division of a whole number dividend by a unit fraction divisor and a unit fraction dividend by a whole number divisor and apply to real-world situations. Limit denominators to 2, 3, 4, 5, 6, 8, 10, and 12.	**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.NSF.8** Solve real-world problems involving division of unit fractions and whole numbers, using visual fraction models and equations.

5.PAFR.3. Use reasoning to represent and solve algebraic and numerical situations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
5.PAFR.3.1 Determine the least common multiple (LCM) to find a common denominator. Limit denominators to 2, 3, 4, 5, 6, 8, 10, 12, 20, 25, 50, and 100.	**6.NS.4** Find common factors and multiples using two whole numbers. b. Compute the least common multiple (LCM) of two numbers both less than or equal to 12.
5.PAFR.3.2 Determine the greatest common factor (GCF) of two numbers both less than or equal to 50 to simplify a fraction into its standard form.	**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.
5.PAFR.3.3 Identify a rule that can describe the pattern from the data of a function table and write it as an expression.	**5.ATO.3** Investigate the relationship between two numerical patterns. a. Generate two numerical patterns given two rules and organize in tables d. Identify the relationship between the two numerical patterns.
5.PAFR.3.4 Translate a two-step real-world situation into a numerical expression using parentheses as grouping symbols and evaluate the expression.	**5.ATO.1** Evaluate numerical expressions involving grouping symbols (i.e., parentheses, ~~brackets, braces~~). **5.ATO.2** Translate verbal phrases into numerical expressions and interpret numerical expressions as verbal phrases.

Grade 6:

Data, Probability, and Statistical Reasoning

6.DPSR.1. Analyze data sets to identify their statistical elements.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
6.DPSR.1.1 Identify the sample size for a numerical set of data in mathematical and real-world situations.	**6.DS.5** Describe numerical data sets in relation to their real-world context. a. State the sample size.
6.DPSR.1.2 Create box plots to represent numerical data sets in mathematical and real-world situations.	**6.DS.4** Select and create an appropriate display for numerical data, including dot plots, histograms, and box plots. **G.SPID.1*** Select and create an appropriate display, including dot plots, histograms, and box plots, for data that includes only real numbers.
6.DPSR.1.3 Use the shape of the graph to determine whether median or mode best describes the data set.	**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.DS.5** Describe numerical data sets in relation to their real-world context. f. Justify the choices for measure of center and measure of variability based on the shape of the distribution.
6.DPSR.1.4 Calculate and interpret the median, mode, range, interquartile range in mathematical and real-world situations.	**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.DS.5** Describe numerical data sets in relation to their real-world context. c. Give measures of center (median, ~~mean~~). d. Find measures of variability (interquartile range, ~~mean absolute deviation~~) using a number line.

6.DPSR.2. Calculate and interpret probability.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
6.DPSR.2.1 Given the probability of a random event, expressed as a number from 0 to 1, state the likelihood of the event occurring.	**7.DSP.5** Investigate the concept of probability of chance 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 ½ indicates that a chance event is neither likely nor unlikely. f. Understand that a probability closer to 0 indicates an unlikely chance event.
6.DPSR.2.2 Find the probability of simple events in mathematical and real-world situations. Fractions limited to denominators of 2, 4, 5, 8, 10, 25, 50, and 100.	**7.DSP.5** Investigate the concept of probability of chance events. a. Determine probabilities of simple events. **7.DSP.6*** Investigate the relationship between theoretical and experimental probabilities for simple events. a. Determine approximate outcomes using theoretical probability.
6.DPSR.2.3 Given the probability of an event, identify and calculate the complement of that event.	**This is a new indicator.**

Measurement, Geometry, and Spatial Reasoning

6.MGSR.1. Determine the measurements of geometric figures.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
6.MGSR.1.1 Find the area of a triangle, square, rectangle, parallelogram, and trapezoid.	**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.MGSR.1.2 Create nets to represent three-dimensional shapes.	**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.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
6.MGSR.1.3 Calculate the surface area of rectangular prisms, right triangular prisms, rectangular pyramids, and right triangular pyramids using two-dimensional nets.	**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.MGSR.1.4 Find the area of composite figures by decomposing them into triangles and rectangles to solve mathematical and real-world situations.	**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.MGSR.1.5 Calculate the volume of a right rectangular prism using the formula (V = Bh) in mathematical and real-world situations.	**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.MGSR.2. Determine angle and/or side relationships.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
6.MGSR.2.1 Determine if two angles are complementary or supplementary.	**7.GM.5** ~~Write equations to~~ solve problems involving the relationships between angles formed by two intersecting lines, including supplementary, complementary, ~~vertical, and adjacent~~.
6.MGSR.2.2 Determine the measure of angles using a protractor.	**4.MDA.6** Measure and draw angles in whole number degrees using a protractor.

6.MGSR.3. Graph on the coordinate plane.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
6.MGSR.3.1 Plot ordered pairs in all four quadrants and identify points on a graph by writing ordered pairs.	**6.NS.6** Extend the understanding of the number line to include all rational numbers and apply this concept to the coordinate plane. 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. d. Plot rational numbers on number lines and ordered pairs on coordinate planes. **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.
6.MGSR.3.2 Graph a polygon on a coordinate plane given the coordinates of the vertices.	**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.

Numerical Reasoning

6.NR.1. Translate among multiple representations of rational numbers.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
6.NR.1.1 Convert positive rational numbers into equivalent forms among terminating decimals, fractions (including mixed numbers), and percentages. Limit fractions to denominators of 2, 4, 5, 8, 10, 20, 25, 50, 100, and 200.	**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.NR.2. Utilize rational numbers in mathematical and real-world situations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
6.NR.2.1 Compare two positive rational numbers and write statements using the symbols for *is equal to* (=), *is not equal to* (≠), *is less than* (<), and/or *is greater than* (>) in mathematical and real-world situations. Limit fractions to denominators of 2, 4, 5, 8, 10, 20, 25, 50, 100, and 200.	**5.NSBT.3** Read and write decimals in standard ~~and expanded form~~. Compare two decimal numbers to the thousandths using the symbols >, =, or >. **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.
6.NR.2.2 Sort a set of positive rational numbers in ascending and/or descending order in mathematical and real-world situations. Limit sets to no more than 5 numbers. Limit fractions to denominators of 2, 4, 5, 8, 10, 20, 25, 50, 100, and 200.	**6.NS.7** Understand and apply the concepts of comparing, ordering, ~~and finding absolute value~~ to rational numbers.
6.NR.2.3 Represent quantities with integers in real-world situations and explain the meaning of zero.	**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.NR.2.4 Identify and compare the opposite value and absolute value of positive and negative rational numbers.	**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 location on the number line. **6.NS.7** Understand and apply the concepts of comparing, ordering, and finding absolute value to rational numbers. 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.

Patterns, Algebra, and Functional Reasoning

6.PAFR.1. Use tables, graphs, verbal descriptions, or equations to represent a function.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
6.PAFR.1.1 Use tables, graphs, verbal descriptions, and equations to represent the relationship between independent and dependent variables of functions.	**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. **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.
6.PAFR.1.2 Identify the independent and dependent variable of a function in mathematical and real-world situations.	**6.EEI.9** Investigate multiple representations of relationships in real-world and mathematical situations. b. Analyze the relationship between independent and dependent variables using graphs and tables. **8.F.1** Explore the concept of functions. b. Relate inputs (x-values or domain) and outputs (y-values or range) to independent and dependent variables.

6.PAFR.2. Write, simplify, and evaluate algebraic expressions; write and solve algebraic equations and inequalities.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
6.PAFR.2.1 Identify parts of an algebraic expression using the mathematical terms *sum*, *difference*, *term*, *variable*, *product*, *factor*, *quotient*, *coefficient*, and *constant*.	**6.EEI.2** Extend the concepts of numerical expressions to algebraic expressions involving positive rational numbers. b. Investigate and identify parts of algebraic expressions using mathematical terminology, including term, coefficient, constant, and factor.
6.PAFR.2.2 Write and evaluate numerical expressions containing powers. Limit to positive whole number bases and positive whole number exponents.	**6.EEI.1** Write and evaluate numerical expressions involving whole-number exponents and positive rational number bases using the Order of Operations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
6.PAFR.2.3 Evaluate numerical expressions with positive whole number bases and positive whole number exponents using the Order of Operations.	**5.ATO.1** Evaluate numerical expressions involving grouping symbols (i.e., parentheses, brackets, braces). **6.EEI.1** Write and evaluate numerical expressions involving whole-number exponents and positive rational number bases using the Order of Operations.
6.PAFR.2.4 Write and evaluate expressions using variables to represent quantities in mathematical and real-world situations.	**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. **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.PAFR.2.5 Write and solve one-step equations and inequalities with one variable involving positive rational numbers in mathematical and real-world situations.	**6.NS.7** Understand and apply the concepts of comparing, ordering, and finding absolute value to rational numbers. c. Use concepts of equality and inequality to write and to explain real-world and mathematical situations. **6.EEI.7** Write and solve one-step linear equations in one variable involving nonnegative rational numbers for real-world and mathematical situations. **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 $x<c$ and graph the solution set on a number line. b. Recognize that inequalities have infinitely many solutions.
6.PAFR.2.6 Interpret the concept of a ratio as the relationship between two quantities, including part-to-part and part-to-whole.	**6.RP.1** Interpret the concept of a ratio as the relationship between two quantities, including part to part and part to whole.
6.PAFR.2.7 Explain the relationship between ratios and rates, including unit rates.	**6.RP.2** Investigate relationships between ratios and rates. a. Translate between multiple representations of ratios (i.e., $\frac{a}{b}$, $a{:}b$, 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.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
6.PAFR.2.8 Solve ratio and rate problems in real-world situations.	**6.RP.3** Apply the concepts of ratios and rates to solve real-world and mathematical problems. 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.PAFR.2.9 Use one-step dimensional analysis to convert units within the metric or customary systems.	**6.RP.3** Apply the concepts of ratios and rates to solve real-world and mathematical problems. f. Solve one-step problems involving ratios and unit rates (e.g., dimensional analysis).

6.PAFR.3. Apply mathematical patterns, properties, and algorithms to the set of rational numbers to find sums, differences, products, and quotients and to write equivalent expressions.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
6.PAFR.3.1 Represent the solutions of inequalities on a number line and explain that the solution set may contain an infinite number of solutions. Limited to the symbols for *is less than* (<) and *is greater than* (>).	**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 $x<c$ and graph the solution set on a number line. b. Recognize that inequalities have infinitely many solutions.
6.PAFR.3.2 Identify the multiplicative inverse of a number and multiply multiplicative inverses to find their product is equal to 1.	**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.
6.PAFR.3.3 Identify the additive inverse of a number and add additive inverses to find their sum is equal to zero.	**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. c. Translate between the subtraction of rational numbers and addition using the additive inverse, $p - q = p + (-q)$.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
6.PAFR.3.4 Apply the properties of operations to create equivalent algebraic expressions and justify the properties used. Limit properties to the *Identity, Inverse, Commutative, Associative,* and *Distributive Properties*.	**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. **6.EEI.3** Apply mathematical properties (e.g., commutative, associative, distributive) to generate equivalent expressions. **6.EEI.4** Apply mathematical properties (e.g., commutative, associative, distributive) to justify that two expressions are equivalent. **7.EEI.1** Apply mathematical properties (e.g., commutative, associative, distributive) to simplify and to factor linear algebraic expressions with rational coefficients.
6.PAFR.3.5 Add, subtract, multiply, and divide integers in mathematical and real-world situations	**6.NS.2** Fluently divide multi-digit whole numbers using a standard algorithmic approach. **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. 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.2** Extend prior knowledge of operations with positive rational numbers to multiply and to divide all rational numbers. 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.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
6.PAFR.3.6 Add, subtract, multiply, and divide positive fractions, including mixed numbers in mathematical and real-world situations. Limit fractions to denominators of 2, 4, 5, 8, 10, 20, 25, 50, 100, and 200.	**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.NSF.4** Extend the concept of multiplication to multiply a fraction or whole number by a fraction. c. Interpret multiplication in which both factors are fractions less than one and compute the product. **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.PAFR.3.7 Add, subtract, multiply, and divide multi-digit positive decimals, up to the thousandths place, to solve problems in mathematical and real-world situations.	**6.NS.3** Fluently add, subtract, multiply, and divide multi-digit decimal numbers using a standard algorithmic approach.

Grade 7:

Data, Probability, and Statistical Reasoning

7.DPSR.1. Analyze data sets to identify their statistical elements.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
7.DPSR.1.1 Create stem-and-leaf plots to represent numerical data sets in mathematical and real-world situations.	**This is a new indicator.**
7.DPSR.1.2 Use the shape of the graph to select the measure of center (mean, median, or mode) that best describes the data set.	**6.DS.5** Describe numerical data sets in relation to their real-world context. 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.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
7.DPSR.1.3 Calculate and interpret the measures of center (*mean, median, mode*) and spread (*mean absolute deviation, interquartile range, range*) in mathematical and real-world situations.	**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.DS.5** Describe numerical data sets in relation to their real-world context. c. Give measures of center (median, mean). d. Find measures of variability (interquartile range, mean absolute deviation) using a number line. **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.DPSR.1.4 Create histograms to represent data sets and interpret histograms to answer questions or draw conclusions about data sets.	**6.DS.4** Select and create an appropriate display for numerical data, including dot plots, histograms, and box plots. **G.SPID.1*** ~~Select and~~ create ~~an appropriate display, including dot plots,~~ histograms, ~~and box plots~~, for data that includes only real numbers.

7.DPSR.2. Calculate and interpret probability.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
7.DPSR.2.1 Identify the sample space for a simple event.	**7.DSP.5** Investigate the concept of probability of chance events. a. Determine probabilities of simple events. **7.DSP.6*** Investigate the relationship between theoretical and experimental probabilities for simple events. a. Determine approximate outcomes using theoretical probability. **7.DSP.8*** Extend the concepts of simple events ~~to investigate compound events.~~ b. Identify the outcomes in a sample space using organized lists, tables, and tree diagrams.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
7.DPSR.2.2 Calculate and interpret the theoretical probability of a simple random event.	**7.DSP.5** Investigate the concept of probability of chance events. a. Determine probabilities of simple events. **7.DSP.6*** Investigate the relationship between theoretical and experimental probabilities for simple events. a. Determine approximate outcomes using theoretical probability.
7.DPSR.2.3 Calculate and interpret the experimental probability of a random event related to a simple experiment.	**7.DSP.6*** Investigate the relationship between theoretical and experimental probabilities for simple events. b. Perform experiments that model theoretical probability. **7.DSP.7*** Apply the concepts of theoretical and experimental probabilities for simple events. b. Develop both uniform ~~and non-uniform~~ probability models.
7.DPSR.2.4 Compare and contrast the experimental and theoretical probabilities for a simple experiment.	**7.DSP.6*** Investigate the relationship between theoretical and experimental probabilities for simple events. c. Compare theoretical and experimental probabilities. **7.DSP.7*** Apply the concepts of theoretical and experimental probabilities for simple events. a. Differentiate between uniform ~~and non-uniform~~ probability models (distributions). c. Perform experiments to test the validity of probability models.

Measurement, Geometry, and Spatial Reasoning

7.MGSR.1. Determine the measurements of geometric figures.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
7.MGSR.1.1 Identify the parts of a circle. Limit the parts to *center, radius, diameter,* and *chord*.	**This is a new indicator.**
7.MGSR.1.2 Describe the relationship between the *radius, diameter*, and *circumference* of a circle.	**7.GM.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.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
7.MGSR.1.3 Solve mathematical and real-world situations involving circumference or area of circles.	**7.GM.4** Investigate the concept of circles. d. Use the formulas for circumference and area of circles appropriately to solve real-world and mathematical problems.
7.MGSR.1.4 Determine if three given side lengths can form a triangle using the *Triangle Inequality Theorem.*	**7.GM.2** Construct triangles and special quadrilaterals using a variety of tools (e.g., freehand, ruler and protractor, technology). b. Decide if the measurements determine a unique triangle, more than one triangle, or no triangle.
7.MGSR.1.5 In mathematical and real-world situations, find the volume of right prisms and right pyramids having triangular or quadrilateral bases.	**7.GM.6** Apply the concepts of two- and three-dimensional figures to real-world and mathematical situations. 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.MGSR.1.6 In mathematical and real-world situations, find the surface area of right prisms and right pyramids having triangular or quadrilateral bases.	**7.GM.6** Apply the concepts of two- and three-dimensional figures to real-world and mathematical situations. 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.

7.MGSR.2. Determine angle and/or side relationships.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
7.MGSR.2.1 Determine the measure of the third angle given the measure of the other two angles of a triangle using the *Triangle Sum Theorem*.	**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.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
7.MGSR.2.2 Solve mathematical and real-world situations involving dimensions and areas of geometric figures including scale drawings and scale factors.	**7.GM.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.MGSR.2.3 Identify the relationships and measures among angles formed by two intersecting lines, given the measure of one angle. Relationships are limited to supplementary, complementary, vertical, and adjacent.	**4.MDA.7** Solve addition and subtraction problems to find unknown angles in real-world and mathematical problems. **7.GM.5** Write equations to solve problems involving the relationships between angles formed by two intersecting lines, including supplementary, complementary, vertical, and adjacent. **8.GM.5** Extend and apply previous knowledge of angles to properties of triangles, similar figures, and parallel lines cut by a transversal. c. Identify congruent and supplementary pairs of angles when two parallel lines are cut by a transversal.
7.MGSR.2.4 Write and solve equations to solve mathematical and real-world situations involving the relationships among angles formed by two intersecting lines. Relationships are limited to supplementary, complementary, vertical, and adjacent.	**4.MDA.7** Solve addition and subtraction problems to find unknown angles in real-world and mathematical problems. **7.GM.5** Write equations to solve problems involving the relationships between angles formed by two intersecting lines, including supplementary, complementary, vertical, and adjacent.

7.MGSR.3. Graph on the coordinate plane.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
7.MGSR.3.1 Find distances between ordered pairs on the coordinate plane, limited to the same *x*-coordinate or the same *y*-coordinate.	**6.NS.8** Extend knowledge of the coordinate plane to solve real-world and mathematical problems involving rational numbers. b. Find the distance between two points when ordered pairs have the same x-coordinates or same y-coordinates. **6.GM.3** Apply the concepts of polygons and the coordinate plane to real-world and mathematical situations. b. Find the length of an edge if the vertices have the same x-coordinates or same y-coordinates.

Numerical Reasoning

7.NR.1. Translate among multiple representations of rational numbers.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
7.NR.1.1 Convert rational numbers into equivalent forms among fractions (including mixed numbers), decimals, and percentages. Exclude the conversion of repeating decimals to fractions.	**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.

7.NR.2. Utilize rational numbers in mathematical and real-world situations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
7.NR.2.1 Compare two rational numbers and write statements using *is equal to* (=), *is not equal to* (≠), *is less than* (<), *is greater than* (>), *is greater than or equal to* (≥), and/or *is less than or equal to* (≤) in mathematical and real-world situations.	**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.

Patterns, Algebra, and Functional Reasoning

7.PAFR.1. Use tables, graphs, verbal descriptions, or equations to represent a function.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
7.PAFR.1.1 Apply proportional reasoning to solve problems in mathematical and real-world situations involving ratios and percentages.	**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).

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
7.PAFR.1.2 Create a model with functions that address a proportional relationship in real-world situations.	**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. c. Understand that the constant of proportionality is the unit rate. d. Use equations to model proportional relationships. **8.EEI.5** Apply concepts of proportional relationships to real-world and mathematical situations. a. Graph proportional relationships.
7.PAFR.1.3 Identify the constant of proportionality within proportional relationships.	**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.

7.PAFR.2. Write, simplify, and evaluate algebraic expressions; write and solve algebraic equations and inequalities.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
7.PAFR.2.1 Write and solve multi-step equations and inequalities in one variable involving rational numbers in mathematical and real-world situations.	**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.
7.PAFR.2.2 Write and evaluate expressions in one variable that model mathematical and real-world situations.	**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.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
7.PAFR.2.3 Compute unit rates, including those involving complex fractions with like or different units.	**7.RP.1** Compute unit rates, including those involving complex fractions, with like or different units.
7.PAFR.2.4 Use dimensional analysis to convert units between metric and customary systems.	**6.RP.3** Apply the concepts of ratios and rates to solve real-world and mathematical problems. f. Solve one-step problems involving ratios and unit rates (e.g., dimensional analysis).

7.PAFR.3. Apply mathematical patterns, properties, and algorithms to the set of rational numbers to find sums, differences, products, and quotients and to write equivalent expressions.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
7.PAFR.3.1 Simplify numerical expressions that include integer exponents using the laws of exponents: the *Product of Powers, Quotient of Powers, Power of a Power, Power of a Product, Power of a Quotient, Zero Power, and Negative Exponent.*	**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.
7.PAFR.3.2 Identify linear expressions that are equivalent.	**7.EEI.1** Apply mathematical properties (e.g., commutative, associative, distributive) to simplify and to factor linear algebraic expressions with rational coefficients. **7.EEI.4** Apply the concepts of linear equations and inequalities in one variable to real-world and mathematical situations. d. Identify and justify the steps for solving multi-step linear equations and two-step linear inequalities.
7.PAFR.3.3 Recognize that algebraic expressions may have a variety of equivalent forms and determine an appropriate form for a given real-world situation.	**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.PAFR.3.4 Factor linear expressions with integer coefficients using the greatest common factor (GCF).	**7.EEI.1** Apply mathematical properties (e.g., commutative, associative, distributive) to simplify and to factor linear algebraic expressions with rational coefficients.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
7.PAFR.3.5 Apply all operations with rational numbers to solve problems in mathematical and real-world situations.	**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. 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.2** Extend prior knowledge of operations with positive rational numbers to multiply and to divide all rational numbers. d. Apply mathematical properties (e.g., commutative, associative, distributive, or the properties of identity and inverse elements) to multiply and divide rational numbers. **7.NS.3** Apply the concepts of all four operations with rational numbers to solve real-world and mathematical problems. **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.

Grade 8:

Data, Probability, and Statistical Reasoning

8.DPSR.1. Analyze data sets to identify their statistical elements.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
8.DPSR.1.1 Create and analyze scatter plots to represent numerical data sets in mathematical and real-world situations.	**8.DSP.1** Investigate bivariate data. a. Collect bivariate data. b. Graph the bivariate data on a scatter plot.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
8.DPSR.1.2 Draw inferences about data sets from two populations using the shape of the distribution, measures of center, and measures of variability. Limit Measures to *mean, median, mode, range, mean absolute deviation, and interquartile range*.	**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.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. **G.SPID.2*** Use statistics appropriate to the shape of the data distribution to compare center and spread of two or more different data sets that include all real numbers.
8.DPSR.1.3 Describe how adding and deleting data throughout the data set can affect the mean, median, mode, and distribution of the data set.	**6.DS.5** Describe numerical data sets in relation to their real-world context. g. Describe the impact that inserting or deleting a data point has on the measures of center (median, mean) for a data set. **G.SPID.3*** Summarize and represent data from a single data set. Interpret differences in shape, center, and spread in the context of the data set, accounting for possible effects of extreme data points (outliers).
8.DPSR.1.4 For two data sets (numerical or graphical), compare and interpret the centers, spreads, and overlap of data to draw inferences about data in mathematical and real-world situations. Limit displays to double line graphs, back-to-back stem-and-leaf plots, and double box plots.	**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.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. **G.SPID.2*** Use statistics appropriate to the shape of the data distribution to compare center and spread of two or more different data sets that include all real numbers.

8.DPSR.2. Calculate and interpret probability.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
8.DPSR.2.1 Determine the sample space for a compound event.	**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.
8.DPSR.2.2 Calculate and interpret the probability of compound independent and dependent events.	**7.DSP.8*** Extend the concepts of simple events to investigate compound events. c. Determine probabilities of compound events using organized lists, tables, and tree diagrams. e. Compare theoretical and experimental probabilities for compound events.

Measurement, Geometry, and Spatial Reasoning

8.MGSR.1. Determine the measurements of geometric figures.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
8.MGSR.1.1 Given the geometric formulas, find the volume of cones, cylinders, and spheres in mathematical and real-world situations.	**8.GM.9** Solve real-world and mathematical problems involving volumes of cones, cylinders, and spheres ~~and the surface area of cylinders.~~
8.MGSR.1.2 Find the distance between any two points in the coordinate plane using the Pythagorean Theorem.	**8.GM.8** Find the distance between any two points in the coordinate plane using the Pythagorean Theorem.
8.MGSR.1.3 Given the *Pythagorean Theorem*, determine unknown side lengths in right triangles in mathematical and real-world situations.	**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.MGSR.1.4 Determine if a given set of sides forms a right triangle.	**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.MGSR.2. Determine angle and/or side relationships.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
8.MGSR.2.1 Determine missing angle measurements created when parallel lines are cut by a transversal.	**8.GM.5** Extend and apply previous knowledge of angles to properties of triangles, similar figures, and parallel lines cut by a transversal. c. Identify congruent and supplementary pairs of angles when two parallel lines are cut by a transversal.
8.MGSR.2.2 Determine if two-dimensional figures are congruent or similar.	**8.GM.2** Apply the properties of rigid transformations (rotations, reflections, translations). 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.GM.4** Apply the properties of transformations (rotations, reflections, translations, dilations). 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. **G.GSRT.2** Use the definition of similarity to decide if figures are similar and justify decision. Demonstrate that two figures are similar by identifying a combination of translations, rotations, reflections, and dilations in various representations that move one figure onto the other. **G.GSRT.5*** Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
8.MGSR.2.3 Identify the congruent corresponding angles of similar polygons.	**8.GM.5** Extend and apply previous knowledge of angles to properties of triangles, similar figures, and parallel lines cut by a transversal. d. Recognize that two similar figures have congruent corresponding angles. **G.GSRT.5*** Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
8.MGSR.2.4 Discover and apply the *Exterior Angle Theorem* of triangles to find a missing angle.	**8.GM.5** Extend and apply previous knowledge of angles to properties of triangles, similar figures, and parallel lines cut by a transversal. b. Discover and use the relationship between interior and exterior angles of a triangle.
8.MGSR.2.5 Apply proportional reasoning to find the missing side lengths of two similar figures.	**8.GM.4** Apply the properties of transformations (rotations, reflections, translations, dilations). d. Use proportional reasoning to find the missing side lengths of two similar figures. **G.GSRT.5*** Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

8.MGSR.3. Graph on a coordinate plane.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
8.MGSR.3.1 Identify the transformation as a rotation, reflection, and/or translation. Rotations should be limited to multiples of 90 degrees centered on the origin.	**8.GM.2** Apply the properties of rigid transformations (rotations, reflections, translations). e. Given two congruent figures, describe the series of rigid transformations that justifies this congruence.
8.MGSR.3.2 Identify congruent angles and congruent line segments of a preimage and its image.	**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.MGSR.3.3 Translate geometric figures vertically and/or horizontally.	**8.GM.2** Apply the properties of rigid transformations (rotations, reflections, translations). c. Translate geometric figures vertically and/or horizontally. **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.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
8.MGSR.3.4 Reflect geometric figures with respect to the *x*-axis and/or *y*-axis.	**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.GM.2** Apply the properties of rigid transformations (rotations, reflections, translations). b. Reflect geometric figures with respect to the x-axis and/or y-axis.
8.MGSR.3.5 Rotate geometric figures 90, 180, and 270 degrees, both clockwise and counterclockwise, about the origin in a coordinate plane.	**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.
8.MGSR.3.6 Create a dilation using a given scale factor and describe the effect of a dilation.	**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). b. Relate scale drawings to dilations of geometric figures. **8.GM.4** Apply the properties of transformations (rotations, reflections, translations, dilations). a. Dilate geometric figures using scale factors that are positive rational numbers.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
8.MGSR.3.7 Describe the effect of a series of transformations, including *dilations, translations, rotations, and reflections*, on two-dimensional figures using coordinates on the coordinate plane.	**8.GM.2** Apply the properties of rigid transformations (rotations, reflections, translations). 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. **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. **8.GM.4** Apply the properties of transformations (rotations, reflections, translations, dilations). 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. **G.GCO.2*** Represent translations, reflections, rotations, and dilations of objects in the plane by using paper folding, sketches, coordinates, function notation, and dynamic geometry software, and use various representations to help understand the effects of simple transformations and their compositions. **G.GCO.3*** Describe rotations and reflections that carry a regular polygon onto itself and identify types of symmetry of polygons, including line, point, rotational, and self-congruence, and use symmetry to analyze mathematical situations. **G.GSRT.2** Use the definition of similarity to decide if figures are similar and justify decision. Demonstrate that two figures are similar by identifying a combination of translations, rotations, reflections, and dilations in various representations that move one figure onto the other.

Numerical Reasoning

8.NR.1. Translate among multiple representations of rational numbers.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
8.NR.1.1 Convert any form of a rational number to any other form including fractions (mixed numbers), decimals, and percentages.	**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.

8.NR.2. Utilize real numbers in mathematical and real-world situations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
8.NR.2.1 Compare real numbers and write statements using *is equal to* (=), *is not equal to* (≠), *is less than* (<), *is greater than* (>), *is greater than or equal to* (≥), or is *less than or equal to* (≤).	**8.NS.2** Estimate and compare the value of irrational numbers by plotting them on a number line.
8.NR.2.2 Classify and order the subsets of real numbers in the number system including natural, whole, integer, rational, and irrational numbers.	**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. c. Model the hierarchy of the real number system, including natural, whole, integer, rational, and irrational numbers.

Patterns, Algebra, and Functional Reasoning

8.PAFR.1. Determine if a table, graph, verbal description, or equation represents a function and describe its characteristics.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
8.PAFR.1.1 Define an equation in slope-intercept form ($y = mx + b$) as being a linear function.	**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.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
8.PAFR.1.2 Identify and describe the constant rate of change and the *y*-intercept of a linear function	**8.F.3** Investigate the differences between linear and nonlinear functions using multiple representations (i.e., tables, graphs, equations, and verbal descriptions). b. Recognize that the graph of a linear function has a constant rate of change. **8.F.4** Apply the concepts of linear functions to real-world and mathematical situations. b. Determine the slope and the y-intercept of a linear function given multiple representations, including two points, tables, graphs, equations, and verbal descriptions. **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. c. Relate equations for proportional relationships (y=kx) with the slope-intercept form (y=mx+b) where b=0.
8.PAFR.1.3 Determine if a graph, table, mapping, or verbal description is a function (linear or nonlinear) or not a function.	**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. d. Determine if a relation is a function using multiple representations, including mappings, tables, graphs, equations, and verbal descriptions. **8.F.3** Investigate the differences between linear and nonlinear functions using multiple representations (i.e., tables, graphs, equations, and verbal descriptions). c. Provide examples of nonlinear functions.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
8.PAFR.1.4 Describe the key features of given functions, including *domain, range, intervals of increasing or decreasing, constant, discrete, continuous,* and *intercepts*.	**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). **A1.FIF.4*** Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. (Limit to linear; quadratic; exponential.)
8.PAFR.1.5 Use multiple representations including mappings, tables, graphs, verbal description, and equations (only when linear) of two functions to compare the functions and draw conclusions.	**8.F.2** Compare multiple representations of two functions, including mappings, tables, graphs, equations, and verbal descriptions, in order to draw conclusions. **8.EEI.5** Apply concepts of proportional relationships to real-world and mathematical situations. c. Compare two different proportional relationships given multiple representations, including tables, graphs, equations, diagrams, and verbal descriptions. **A2.FIF.9*** Compare properties of two functions given in different representations such as algebraic, graphical, tabular, or verbal.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
8.PAFR.1.6 Translate among the multiple representations, including mappings, tables, graphs, verbal description, and equations (only when linear) of a function.	**8.F.1** Explore the concept of functions. c. Translate among the multiple representations of a function, 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.4** Apply the concepts of linear functions to real-world and mathematical situations. 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. **8.F.5** Apply the concepts of linear and nonlinear functions to graphs in real-world and mathematical situations. 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.PAFR.2. Write, simplify, and evaluate algebraic expressions; write and solve algebraic equations and inequalities.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
8.PAFR.2.1 Solve multi-step one-variable equations and inequalities with variables on both sides with rational coefficients.	**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.
8.PAFR.2.2 Describe single-variable equations as having one solution, no solution, or an infinite number of solutions.	**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. b. Recognize the three types of solutions to linear equations: one solution (x=a), infinitely many solutions (a=a), or no solutions (a=b).

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
8.PAFR.2.3 Identify the rate of change for a linear function as the slope of the line.	**8.F.3** Investigate the differences between linear and nonlinear functions using multiple representations (i.e., tables, graphs, equations, and verbal descriptions). b. Recognize that the graph of a linear function has a constant rate of change. **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 $x = 0$. **8.EEI.5** Apply concepts of proportional relationships to real-world and mathematical situations. b. Interpret unit rate as the slope of the graph.
8.PAFR.2.4 Explain why the slope, *m*, is the same between any two distinct points on a linear graph.	**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.
8.PAFR.2.5 Given a table or a graph, identify the slope and the *y*-intercept of a line and write a linear equation to express that line.	**8.F.4** Apply the concepts of linear functions to real-world and mathematical situations. 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.EEI.6** Apply concepts of slope and y-intercept to graphs, equations, and proportional relationships. b. Derive the slope-intercept form ($y = mx + b$) for a non-vertical line.

8.PAFR.3. Apply mathematical patterns, properties, and algorithms to the set of rational numbers to find sums, differences, products, and quotients and to write equivalent expressions.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
8.PAFR.3.1 Analyze patterns of perfect squares and perfect cubes to evaluate square roots and cube roots. Limit to square roots less than or equal to 400 and cube roots less than or equal to 1,000.	**8.EEI.2** Investigate concepts of square and cube roots. b. Evaluate square roots of perfect squares. c. Evaluate cube roots of perfect cubes.
8.PAFR.3.2 Approximate non-perfect square roots and cube roots to nearest tenth. Limit to square roots less than or equal to 400 and cube roots less than or equal to 1,000.	**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.
8.PAFR.3.3 Apply laws of exponents to simplify algebraic expressions involving no more than three variables and integer exponents.	**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.

Geometry with Statistics:

Data, Probability, and Statistical Reasoning

GS.DPSR.1. Summarize, represent and interpret data on two categorical and quantitative variables.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
GS.DPSR.1.1 Represent data for two quantitative variables on a scatter plot and describe how the variables are related.	**A1.SPID.6*** Using technology, create scatterplots and analyze those plots to compare the fit of linear, quadratic, or exponential models to a given data set. Select the appropriate model, fit a function to the data set, and use the function to solve problems in the context of the data. **G.SPID.3*** Summarize and represent data from a single data set. Interpret differences in shape, center, and spread in the context of the data set, accounting for possible effects of extreme data points (outliers). **PS.SPID.6*** Using technology, create scatterplots and analyze those plots to compare the fit of linear, quadratic, or exponential models to a given data set. Select the appropriate model, fit a function to the data set, and use the function to solve problems in the context of the data.
GS.DPSR.1.2 Use two representative points from the data to find an approximate line of fit and compare it to the line of best fit.	**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.DSP.3** Apply concepts of an approximate line of best fit in real world situation. a. Find an approximate equation for the line of best fit using two appropriate data points. **A1. SPID.6** Using technology, create scatterplots and analyze those plots to compare the fit of linear, quadratic, or exponential models to a given data set. Select the appropriate model, fit a function to the data set, and use the function to solve problems in the context of the data. **PS.SPID.7*** Find linear models using median fit and regression methods to make predictions. Interpret the slope and intercept of a linear model in the context of the data.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
GS.DPSR.1.3 Conduct an investigation for a statistical question, interpret statistical significance in the context of a situation, and answer investigative questions appropriately.	**6.DS.1** Differentiate between statistical and non-statistical questions. **PS.SPMJ.3** Plan and conduct a survey to answer a statistical question. Recognize how the plan addresses sampling technique, randomization, measurement of experimental error and methods to reduce bias.

GS.DPSR.2. Analyze and interpret models for two quantitative variables.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
GS.DPSR.2.1 Distinguish between correlation and causation.	**PS.SPID.9** Differentiate between correlation and causation when describing the relationship between two variables. Identify potential lurking variables which may explain an association between two variables.

GS.DPSR.3. Solve problems involving the probability of compound events in real-world situations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
GS.DPSR.3.1 Describe categories of events as subsets of a sample space using unions, intersections, or complements of other events.	**PS.SPCR.1** Describe events as subsets of a sample space and a. Use Venn diagrams to represent intersections, unions, and complements. b. Relate intersections, unions, and complements to the words and, or, and not. c. Represent sample spaces for compound events using Venn diagrams.
GS.DPSR.3.2 Apply the *Addition Rule* to find the probability of both mutually exclusive and not mutually exclusive events and interpret the answers in context.	**PS.SPCR.7** Apply the Addition Rule and the Multiplication Rule to determine probabilities including conditional probabilities, and interpret the results in terms of the probability model.
GS.DPSR.3.3 Apply the *Multiplication Rule* to determine the probability of independent events and interpret the answers in context.	**PS.SPCR.2** Use the multiplication rule to calculate probabilities for independent and dependent events. Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent. **PS.SPCR.7** Apply the Addition Rule and the Multiplication Rule to determine probabilities including conditional probabilities, and interpret the results in terms of the probability model.

Measurement, Geometry, and Spatial Reasoning

GS.MGSR.1. Compute area and volume of figures by determining how the figure might be obtained from simpler figures by dissection and recombination.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
GS.MGSR.1.1 Apply area and volume formulas of two- and three-dimensional figures to solve real-world situations.	**G.GGMD.3** Apply surface area and volume formulas for prisms, cylinders, pyramids, cones, and spheres to solve problems and justify results. Include problems that involve algebraic expressions, composite figures, geometric probability, and real-world applications.
GS.MGSR.1.2 Identify the shape of a two-dimensional cross-section of a three-dimensional figure.	**7.GM.3** Describe two-dimensional cross-sections of three-dimensional figures, specifically right rectangular prisms and right rectangular pyramids. **G.GGMD.4** Describe the shapes of two-dimensional cross-sections of three-dimensional objects and use those cross-sections to solve mathematical and real-world problems.
GS.MGSR.1.3 Use cross-sections of three-dimensional figures to model and solve mathematical and real-world situations.	**G.GGMD.4** Describe the shapes of two-dimensional cross-sections of three-dimensional objects and use those cross-sections to solve mathematical and real-world problems.

GS.MGSR.2. Apply rigid geometric transformations to figures, describing their attributes and symmetries.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
GS.MGSR.2.1 Describe the results of transformations on a given figure using geometric terminology from the definitions of the transformations.	**G.GCO.2*** Represent translations, reflections, rotations, and dilations of objects in the plane by using paper folding, sketches, coordinates, function notation, and dynamic geometry software, and use various representations to help understand the effects of simple transformations and their compositions. **G.GCO.5** Predict and describe the results of transformations on a given figure using geometric terminology form the definitions of the transformations, and describe a sequence of transformations that maps a figure onto its image.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
GS.MGSR.2.2 Describe and apply a sequence of transformations that maps a preimage onto its image.	**8.GM.2** Apply the properties of rigid transformations (rotations, reflections, translations). 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. **G.GCO.3*** Describe rotations and reflections that carry a regular polygon onto itself and identify types of symmetry of polygons, including line, point, rotational, and self-congruence, and use symmetry to analyze mathematical situations.

GS.MGSR.3. Determine that two figures are congruent by demonstrating that a rigid motion or a sequence of rigid motions maps one figure onto the other.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
GS.MGSR.3.1 Identify types of symmetry of polygons, including line, point, rotational, and self-congruence, and use symmetry to analyze mathematical situations.	**G.GCO.3** Describe rotations and reflections that carry a regular polygon onto itself and identify types of symmetry of polygons, including line, point, rotational, and self-congruence, and use symmetry to analyze mathematical situations.
GS.MGSR.3.2 Demonstrate that triangles and quadrilaterals are congruent by a combination of translations, rotations, and reflections.	**G.GCO.6** Demonstrate that triangles and quadrilaterals are congruent by identifying a combination of translations, rotations, and reflections in various representations that move one figure onto the other.
GS.MGSR.3.3 Recognize the criteria for showing triangles are congruent using a sequence of rigid motions that map one triangle to another and justify that the two triangles are congruent by applying the *Side-Side-Side, Side-Angle-Side, Angle-Side-Angle, Angle-Angle-Side, and Hypotenuse-Leg* congruence conditions.	**G.GCO.7** Prove two triangles are congruent by applying the Side-Angle-Side, Angle-Side-Angle, Angle-Angle-Side, and Hypotenuse-Leg congruence conditions.

GS.MGSR.4. Determine that two figures are similar by demonstrating a similarity transformation or a sequence of similarity transformations that maps one figure onto the other.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
GS.MGSR.4.1 Demonstrate experimentally the properties of dilations given by a center and a scale factor.	**G.GSRT.1** Understand a dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged. Verify experimentally the properties of dilations given by a center and scale factor. Understand the dilation of a line segment is longer or shorter in the ratio given by the scale factor.
GS.MGSR.4.2 Justify experimentally that a dilation of a line segment is longer or shorter, given the ratio.	**G.GSRT.1** Understand a dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged. Verify experimentally the properties of dilations given by a center and scale factor. Understand the dilation of a line segment is longer or shorter in the ratio given by the scale factor.
GS.MGSR.4.3 Recognize that the criteria for showing triangles are similar using a similarity transformation that maps one figure to the other and justify the two triangles are similar by applying the *Angle-Angle, Side-Side-Side, and Side-Angle-Side* similarity conditions.	**G.GSRT.2** Use the definition of similarity to decide if figures are similar and justify decision. Demonstrate that two figures are similar by identifying a combination of translations, rotations, reflections, and dilations in various representations that move one figure onto the other. **G.GSRT.3*** Prove that two triangles are similar using the Angle-Angle criterion and apply the proportionality of corresponding sides to solve problems and justify results.

GS.MGSR.5. Demonstrate whether a conjecture or theorem is true or false using a variety of algebraic and geometric explanations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
GS.MGSR.5.1 Justify and apply the attributes of angle relationships/lines in mathematical and real-world situations.	**G.GCO.1*** Define angle, perpendicular line, parallel line, line segment, ray, circle, and skew in terms of the undefined notions of point, line, and plane. Use geometric figures to represent and describe real-world objects. **G.GCO.8*** Prove, and apply in mathematical and real-world contexts, theorems about lines and angles, including the following: a. vertical angles are congruent; b. when a transversal crosses parallel lines, alternate interior angles are congruent, alternate exterior angles are congruent, and consecutive interior angles are supplementary; c. any point on a perpendicular bisector of a line segment is equidistant from the endpoints of the segment; d. perpendicular lines form four right angles.
GS.MGSR.5.2 Apply the attributes of triangles in mathematical and real-world situations.	**G.GCO.9*** Prove, and apply in mathematical and real-world contexts, theorems about the relationships within and among triangles, including the following: a. measures of interior angles of a triangle sum to 180°; b. base angles of isosceles triangles are congruent; c. the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; d. the medians of a triangle meet at a point.
GS.MGSR.5.3 Apply the attributes of quadrilaterals, including diagonals, sides, and angles, to prove that a given quadrilateral is a parallelogram in mathematical and real-world situations.	**G.GCO.10*** Prove, and apply in mathematical and real-world contexts, theorems about parallelograms, including the following: a. opposite sides of a parallelogram are congruent; b. opposite angles of a parallelogram are congruent; c. diagonals of a parallelogram bisect each other; d. rectangles are parallelograms with congruent diagonals; e. a parallelogram is a rhombus if and only if the diagonals are perpendicular.

GS.MGSR.6. Discover and apply relationships in similar right triangles.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
GS.MGSR.6.1 Discover and apply the converse of the *Pythagorean Theorem*.	**8.GM.6** Use models to demonstrate 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. **G.GSRT.4*** Prove, and apply in mathematical and real-world contexts, theorems involving similarity about triangles, including the following: a. A line drawn parallel to one side of a triangle divides the other two sides into parts of equal proportion. b. If a line divides two sides of a triangle proportionally, then it is parallel to the third side. c. The square of the hypotenuse of a right triangle is equal to the sum of squares of the other two sides. **G.GSRT.8*** Solve right triangles in applied problems using trigonometric ratios and the Pythagorean Theorem.
GS.MGSR.6.2 Demonstrate that triangles and quadrilaterals are congruent by a combination of translations, rotations, and reflections.	**G.GSRT.5*** Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
GS.MGSR.6.3 Define the trigonometric ratios using the properties of similar right triangles.	**G.GSRT.6*** Understand how the properties of similar right triangles allow the trigonometric ratios to be defined and determine the sine, cosine, and tangent of an acute angle in a right triangle.
GS.MGSR.6.4 Determine the sine, cosine, and tangent of an acute angle in a right triangle in the context of mathematical and real-world situations.	**G.GSRT.6*** Understand how the properties of similar right triangles allow the trigonometric ratios to be defined and determine the sine, cosine, and tangent of an acute angle in a right triangle.
GS.MGSR.6.5 Apply trigonometric ratios (sine, cosine, tangent) and the *Pythagorean Theorem* to solve right triangle problems in real-life situations.	**G.GSRT.8*** Solve right triangles in applied problems using trigonometric ratios and the Pythagorean Theorem.

GS.MGSR.7. Investigate and apply relationships among segments and angles in circles.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
GS.MGSR.7.1 Use angle and segment relationships in circles to solve mathematical and real-world situations.	**G.GCI.2*** Identify and describe relationships among inscribed angles, radii, and chords; among inscribed angles, central angles, and circumscribed angles; and between radii and tangents to circles. Use those relationships to solve mathematical and real-world problems.
GS.MGSR.7.2 Investigate and apply relationships in circles, inscribed angles, radii, secants, and chords; among inscribed angles, central angles, and circumscribed angles; and between radii and tangents to circles.	**G.GCI.2*** Identify and describe relationships among inscribed angles, radii, and chords; among inscribed angles, central angles, and circumscribed angles; and between radii and tangents to circles. Use those relationships to solve mathematical and real-world problems.

Numerical Reasoning

GS.NR.1. Represent all points on the number line as irrational and rational numbers in the real number system.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
GS.NR.1.1 Rewrite numerical expressions of irrational and rational numbers involving radicals, including addition, subtraction, multiplication, and division, to recognize geometric patterns.	**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.

Patterns, Algebra, and Functional Reasoning

GS.PAFR.1. Analyze the structure of an equation or inequality to determine an efficient strategy to find a solution, if one exists, then justify the solution.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
GS.PAFR.1.1 Discover and apply the formulas for the length of an arc and the area of a sector in a circle to develop mathematical models and solve mathematical and real-world situations.	**G.GCI.5*** Derive the formulas for the length of an arc and the area of a sector in a circle and apply these formulas to solve mathematical and real-world problems.
GS.PAFR.1.2 Analyze and apply the derivations of the formulas for the circumference of a circle, area of a circle, and volume of a cylinder, pyramid, and cone to model real phenomena and solve mathematical and real-world situations.	**G.GGMD.1*** Explain the derivations of the formulas for the circumference of a circle, area of a circle, and volume of a cylinder, pyramid, and cone. Apply these formulas to solve mathematical and real-world problems. **G.GGMD.2** Explain the derivation of the formulas for the volume of a sphere and other solid figures using Cavalieri's principle

GS.PAFR.2. Interpret the structure of expressions, equations, and inequalities to analyze and make predictions in different contexts.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
GS.PAFR.2.1 Apply surface area and volume formulas for prisms, cylinders, pyramids, cones, spheres, and/or compositions of figures to solve problems and justify results.	**8.GM.9** Solve real-world and mathematical problems involving volumes of cones, cylinders, and spheres and the surface area of cylinders. **G.GGMD.3*** Apply surface area and volume formulas for prisms, cylinders, pyramids, cones, and spheres to solve problems and justify results. Include problems that involve algebraic expressions, composite figures, geometric probability, and real-world applications.
GS.PAFR.2.2 Analyze slopes of lines to determine whether lines are parallel, perpendicular, or neither.	**G.GGPE.5*** Analyze slopes of lines to determine whether lines are parallel, perpendicular, or neither. Write the equation of a line passing through a given point that is parallel or perpendicular to a given line. Solve geometric and real-world problems involving lines and slope.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
GS.PAFR.2.3 Determine the equation of a line passing through a given point that is parallel or perpendicular to a given line.	**G.GGPE.5*** Analyze slopes of lines to determine whether lines are parallel, perpendicular, or neither. Write the equation of a line passing through a given point that is parallel or perpendicular to a given line. Solve geometric and real-world problems involving lines and slope.

GS.PAFR.3. Determine the exact or approximate solutions of equations and inequalities using graphs on the coordinate plane.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
GS.PAFR.3.1 Use coordinates to prove simple geometric theorems algebraically.	**G.GGPE.4*** Use coordinates to prove simple geometric theorems algebraically.
GS.PAFR.3.2 Determine distance and midpoint of segments in a coordinate plane to find areas of triangles and quadrilaterals, when given coordinates.	**G.GGPE.7*** Use the distance and midpoint formulas to determine distance and midpoint in a coordinate plane, as well as areas of triangles and rectangles, when given coordinates.

Algebra 1:

Data, Probability, and Statistical Reasoning

A1.DPSR.1. Use statistical reasoning to summarize, represent, and interpret data on two categorical and quantitative variables.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A1.DPSR.1.1 Summarize categorical data in two-way frequency tables, interpret relative frequencies in real-world situations, and informally determine possible associations and trends in the data.	**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. **PS.SPID.5*** Analyze bivariate categorical data using two-way tables and identify possible associations between the two categories using marginal, joint, and conditional frequencies.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A1.DPSR.1.2 Summarize quantitative data in a table and on a scatter plot and describe how the variables are associated. Limit to linear data.	**8.DSP.1** Investigate bivariate data. a. Collect bivariate data. b. Graph the bivariate data on a scatter plot. **A1.SPID.6*** Using technology, create scatterplots and analyze those plots to compare the fit of linear, quadratic, or exponential models to a given data set. Select the appropriate model, fit a function to the data set, and use the function to solve problems in the context of the data.
A1.DPSR.1.3 Find a linear function for a scatter plot that suggests a linear 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. **A1.SPID.6*** Using technology, create scatterplots and analyze those plots to compare the fit of linear, quadratic, or exponential models to a given data set. Select the appropriate model, fit a function to the data set, and use the function to solve problems in the context of the data. **A1.SPID.7*** Create a linear function to graphically model data from a real-world problem and interpret the meaning of the slope and intercept(s) in the context of the given problem.
A1.DPSR.1.4 For linear associations, use technology to determine the correlation coefficient, evaluate the strength of the association, and find the line of best fit.	**A1.SPID.6*** Using technology, create scatterplots and analyze those plots to compare the fit of linear, quadratic, or exponential models to a given data set. Select the appropriate model, fit a function to the data set, and use the function to solve problems in the context of the data. **A1.SPID.8*** Using technology, compute and interpret the correlation coefficient of a linear fit.

A1.DPSR.2. Analyze and interpret models for two categorical and quantitative variables.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A1.DPSR.2.1 Use two-way frequency tables to make inferences and interpret the data in terms of real-world or mathematical situations.	**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. **PS.SPCR.4** Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities.
A1.DPSR.2.2 Interpret the slope and the intercept of a linear model in the context of the data.	**8.DSP.3** Apply concepts of an approximate line of best fit in real-world situations. b. Interpret the slope and intercept. **A1.SPID.7*** Create a linear function to graphically model data from a real-world problem and interpret the meaning of the slope and intercept(s) in the context of the given problem.
A1.DPSR.2.3 Use a linear model to interpolate and extrapolate unknown values close to the data set.	**8.DSP.3** Apply concepts of an approximate line of best fit in real-world situations. c. Solve problems using the equation. **A1.SPID.6*** Using technology, create scatterplots and analyze those plots to compare the fit of linear, quadratic, or exponential models to a given data set. Select the appropriate model, fit a function to the data set, and use the function to solve problems in the context of the data.

Measurement, Geometry, and Spatial Reasoning

A1.MGSR.1. Use geometric concepts and measurement opportunities to model mathematical and real-world situations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A1.MGSR.1.1 Identify any limitations specific to a real-world situation.	**A1.FLQE.5*** Interpret the parameters in a linear or exponential function in terms of the context. (Limit to linear.) **A1.NQ.1*** Use units of measurement to guide the solution of multi-step tasks. Choose and interpret appropriate labels, units, and scales when constructing graphs and other data displays. **A1.NQ.3*** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities in context. **G.GM.2** Use geometry concepts and methods to model real-world situations and solve problems using a model.

Numerical Reasoning

A1.NR.1. Represent all points on the number line as irrational and rational numbers in the real number system.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A1.NR.1.1 Rewrite numerical and algebraic expressions of irrational and rational numbers involving radicals, including addition, subtraction, multiplication, and division. Limit to square and cube roots.	**A1.NRNS.1*** Rewrite expressions involving simple radicals and rational exponents in different forms.

A1.NR.2. Represent exponents and radical expressions in different ways.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A1.NR.2.1 Translate between rational exponents and radical expressions of irrational and rational numbers. Use properties of addition, subtraction, multiplication, and division to simplify radical and rational expressions. Limit to square and cube roots.	**A1.NRNS.1*** Rewrite expressions involving simple radicals and rational exponents in different forms. **A1.NRNS.2*** Use the definition of the meaning of rational exponents to translate between rational exponent and radical forms.

Patterns, Algebra, and Functional Reasoning

A1.PAFR.1. Transform and/or solve equations and expressions in one variable that model real-world and mathematical situations, interpret the solutions, and determine whether they are reasonable.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A1.PAFR.1.1 Transform an equation in one variable to create new equations that have the same solution as the original and justify the steps taken.	**A1.AREI.1*** Understand and justify that the steps taken when solving simple equations in one variable create new equations that have the same solution as the original. **A1.AREI.4*** Solve mathematical and real-world problems involving quadratic equations in one variable. a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x-h)^2=k$ that has the same solutions. Derive the quadratic formula from this form.
A1.PAFR.1.2 Solve literal equations and formulas for a specified variable including equations and formulas that arise in a variety of disciplines.	**A1.ACE.4*** Solve literal equations and formulas for a specified variable including equations and formulas that arise in a variety of disciplines. **A2.ACE.4*** Solve literal equations and formulas for a specified variable including equations and formulas that arise in a variety of disciplines.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A1.PAFR.1.3 Solve mathematical and real-world situations using linear, quadratic, exponential (same bases), and linear absolute value equations in one variable.	**A1.ACE.1*** Create and solve equations and inequalities in one variable that model real-world problems involving linear, quadratic, simple rational, and exponential relationships. Interpret the solutions and determine whether they are reasonable. (Limit to linear; quadratic; exponential with integer exponents.) **A1.AREI.3*** Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. **A1.AREI.4*** Solve mathematical and real-world problems involving quadratic equations in one variable. a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x-h)^2=k$ that has the same solutions. Derive the quadratic formula from this form. b. Solve quadratic equations by inspection, taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a+bi$ for real numbers a and b. (Limit to non-complex roots.)
A1.PAFR.1.4 Add, subtract, and multiply polynomials with initial terms up to a degree of 2.	**A1.AAPR.1*** Add, subtract, and multiply polynomials and understand that polynomials are closed under these operations. (Limit to linear; quadratic.) **A2.AAPR.1*** Add, subtract, and multiply polynomials and understand that polynomials are closed under these operations.

A1.PAFR.2. Create, solve, and transform equations and inequalities in two or more variables to represent relationships between quantities and graph the equations on coordinate axes using appropriate labels, units, and scales.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A1.PAFR.2.1 Transform linear, quadratic, exponential, and linear absolute value functions to equivalent forms to identify slope and *y*-intercept for linear, vertex, and roots (if any) for quadratic and linear absolute value, and *y*-intercept for exponential.	**A1.ASE.2*** Analyze the structure of binomials, trinomials, and other polynomials in order to rewrite equivalent expressions. **A1.ASE.3*** Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. a. Find the zeros of a quadratic function by rewriting it in equivalent factored form and explain the connection between the zeros of the function, its linear factors, the x-intercepts of its graph, and the solutions to the corresponding quadratic equation. **A1.FIF.7*** Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases. (Limit to linear; quadratic; exponential only in the form $y=a^x+k$.) **A1.FIF.8*** Translate between different but equivalent forms of a function equation to reveal and explain different properties of the function. (Limit to linear; quadratic; exponential.) a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context. **A2.ACE.1*** Create and solve equations and inequalities in one variable that model real-world problems involving linear, quadratic, simple rational, and exponential relationships. Interpret the solutions and determine whether they are reasonable. **A2.FIF.8*** Translate between different but equivalent forms of a function equation to reveal and explain different properties of the function. (Note: A2.FIF.8b is not a Graduation Standard.) b. Interpret expressions for exponential functions by using the properties of exponents.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A1.PAFR.2.2 Solve quadratic equations by completing the square, factoring, and the quadratic formula, explaining the connection between the zeros of the function derived from the equation, its linear factors (if it factors), the *x*-intercepts of its graph (if they exist), and the solutions (if any) to the corresponding quadratic equation.	**A1.ASE.3*** Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. a. Find the zeros of a quadratic function by rewriting it in equivalent factored form and explain the connection between the zeros of the function, its linear factors, the x-intercepts of its graph, and the solutions to the corresponding quadratic equation. **A1.FIF.8*** Translate between different but equivalent forms of a function equation to reveal and explain different properties of the function. (Limit to linear; quadratic; exponential.) a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context. **A1.AREI.4*** Solve mathematical and real-world problems involving quadratic equations in one variable. a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x-h)^2=k$ that has the same solutions. Derive the quadratic formula from this form. b. Solve quadratic equations by inspection, taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a+bi$ for real numbers a and b. (Limit to non-complex roots.) **A2.AREI.4*** Solve mathematical and real-world problems involving quadratic equations in one variable. b. Solve quadratic equations by inspection, taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a+bi$ for real numbers a and b. (Note: A2.AREI.4b is not a Graduation Standard.)

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A1.PAFR.2.3 Solve and graph linear, quadratic, exponential, and linear absolute value equations given in tabular, symbolic, and/or verbal forms using intercepts, domain and range, intervals of increasing and decreasing, vertex (maximum and minimum), end-behavior, and symmetry, and interpret these in terms of mathematical and real-world situations.	**A1.FIF.4*** Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. (Limit to linear; quadratic; exponential.) **A1.FIF.7*** Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases. (Limit to linear; quadratic; exponential only in the form $y=a^x+k$.) **A1.ACE.2*** Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales. (Limit to linear; quadratic; exponential with integer exponents; direct and indirect variation.) **A1.FLQE.5*** Interpret the parameters in a linear or exponential function in terms of the context. (Limit to linear.)
A1.PAFR.2.4 Create, solve, and graph linear inequalities in two variables.	**A1.AREI.12*** Graph the solutions to a linear inequality in two variables. **A2.ACE.1*** Create and solve equations and inequalities in one variable that model real-world problems involving linear, quadratic, simple rational, and exponential relationships. Interpret the solutions and determine whether they are reasonable. **A2.ACE.2*** Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A1.PAFR.2.5 Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.	**A1.FLQE.2*** Create symbolic representations of linear and exponential functions, including arithmetic and geometric sequences, given graphs, verbal descriptions, and tables. (Limit to linear; exponential.) **A2.FBF.2*** Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.
A1.PAFR.2.6 Create symbolic representations of linear and exponential functions, including arithmetic and geometric sequences, given graphs, verbal descriptions, and tables.	**A1.ACE.2*** Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales. (Limit to linear; quadratic; exponential with integer exponents; direct and indirect variation.) **A1.FLQE.2*** Create symbolic representations of linear and exponential functions, including arithmetic and geometric sequences, given graphs, verbal descriptions, and tables. (Limit to linear; exponential.) **A2.FLQE.2*** Create symbolic representations of linear and exponential functions, including arithmetic and geometric sequences, given graphs, verbal descriptions, and tables.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A1.PAFR.2.7 Use graphs to obtain exact and/or approximate solutions of equations, inequalities, and systems of linear equations in two variables (given or obtained by using technology).	**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. **A1.ACE.2*** Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales. (Limit to linear; quadratic; exponential with integer exponents; direct and indirect variation.) **A1.AREI.6*** Solve systems of linear equations algebraically and graphically focusing on pairs of linear equations in two variables. a. Solve systems of linear equations using the substitution method. b. Solve systems of linear equations using linear combination.
A1.PAFR.2.8 Solve an equation of the form $f(x) = g(x)$ graphically by identifying the x-coordinate(s) of the point(s) of intersection of the graphs of $y = f(x)$ and $y = g(x)$.	**A1.AREI.11*** Solve an equation of the form $f(x)=g(x)$ graphically by identifying the x-coordinate(s) of the point(s) of intersection of the graphs of $y=f(x)$ and $y=g(x)$. (Limit to linear; quadratic; exponential.)

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A1.PAFR.2.9 Solve systems of linear equations algebraically and graphically.	**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. **A1.AREI.6*** Solve systems of linear equations algebraically and graphically focusing on pairs of linear equations in two variables. a. Solve systems of linear equations using the substitution method. b. Solve systems of linear equations using linear combination.
A1.PAFR.2.10 Analyze the growth/decay rate between linear and exponential functions specifically between consecutive integers.	**A1.FIF.1*** Extend previous knowledge of a function to apply to general behavior and features of a function. a. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. **A1.FLQE.1*** Distinguish between situations that can be modeled with linear functions or exponential functions by recognizing situations in which one quantity changes at a constant rate per unit interval as opposed to those in which a quantity changes by a constant percent rate per unit interval. (Note: A1.FLQE.1a is not a Graduation Standard.) a. Prove that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals. **A1.FLQE.3*** Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or more generally as a polynomial function.

A1.PAFR.3. Represent and interpret functions symbolically and graphically.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A1.PAFR.3.1 Recognize that $f(x)$ denotes the output of function f that corresponds to the input x, and this corresponds to the set of all the ordered pairs (*x, y*) that satisfy the equation *y = f(x)* both tabularly and graphically.	**A1.AREI.10*** Explain that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane. **A1.FIF.1*** Extend previous knowledge of a function to apply to general behavior and features of a function. b. Represent a function using function notation and explain that $f(x)$ denotes the output of function f that corresponds to the input x. c. Understand that the graph of a function labeled as f is the set of all ordered pairs (x, y) that satisfy the equation $y=f(x)$.
A1.PAFR.3.2 Use the definition of a function to analyze the domain and range of a function in relation to its graph, mapping, table, verbal, and/or symbolic description and, where applicable, using interval and set notation.	**A1.FIF.1*** Extend previous knowledge of a function to apply to general behavior and features of a function. a. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. b. Represent a function using function notation and explain that $f(x)$ denotes the output of function f that corresponds to the input x. c. Understand that the graph of a function labeled as f is the set of all ordered pairs (x, y) that satisfy the equation $y=f(x)$. **A1.FIF.5*** Relate the domain and range of a function to its graph and, where applicable, to the quantitative relationship it describes. (Limit to linear; quadratic; exponential.) **A2.FIF.5*** Relate the domain and range of a function to its graph and, where applicable, to the quantitative relationship it describes.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A1.PAFR.3.3 Translate among graphical, tabular, verbal, and symbolic representations in function notation, to identify intercepts, intervals where the function is increasing, decreasing, constant, maximums and minimums, and symmetries and explain their meanings in real-world and mathematical situations.	**A1.ASE.2*** Analyze the structure of binomials, trinomials, and other polynomials in order to rewrite equivalent expressions. **A1.FIF.4*** Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. (Limit to linear; quadratic; exponential.) **A1.FIF.8*** Translate between different but equivalent forms of a function equation to reveal and explain different properties of the function. (Limit to linear; quadratic; exponential.) a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.
A1.PAFR.3.4 Interpret how lead coefficients impact the shape of a function's graph.	**A1.FBF.3*** Describe the effect of the transformations $kf(x)$, $f(x)+k$, $f(x+k)$, and combinations of such transformations on the graph of $y=f(x)$ for any real number k. Find the value of k given the graphs and write the equation of a transformed parent function given its graph. (Limit to linear; quadratic; exponential with integer exponents; vertical shift and vertical stretch.)

A1.PAFR.4. Reason with parent functions in varying representations to find families of functions that all have similar distinguishing attributes common to the family and use common characteristics to aid in rewriting and identifying linear, linear absolute value, quadratic, and exponential functions.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A1.PAFR.4.1 Describe the effect of the transformations $kf(x)$, $f(x)+k$, $f(x+k)$, $f(x)-k, f(x-k)$, and combinations of such transformations on the graph of parent function $y = f(x)$ for any real number k; find the value of k given the graphs; and write the equation of a transformed parent function given its graph.	**A1.FBF.3*** Describe the effect of the transformations $kf(x)$, $f(x)+k$, $f(x+k)$, and combinations of such transformations on the graph of $y=f(x)$ for any real number k. Find the value of k given the graphs and write the equation of a transformed parent function given its graph. (Limit to linear; quadratic; exponential with integer exponents; vertical shift and vertical stretch.) **A2.FBF.3*** Describe the effect of the transformations $kf(x)$, $f(x) + k$, $f(x+k)$, and combinations of such transformations on the graph of $y=f(x)$ for any real number k. Find the value of k given the graphs and write the equation of a transformed parent function given its graph.
A1.PAFR.4.2 Given a real-world or mathematical situation, determine the parent graph that best models the situation.	**A1.FLQE.1*** Distinguish between situations that can be modeled with linear functions or exponential functions by recognizing situations in which one quantity changes at a constant rate per unit interval as opposed to those in which a quantity changes by a constant percent rate per unit interval. a. Prove that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A1.PAFR.4.3 Given different representations of two different functions, compare key features including intercepts, domain and range, intervals of increasing and decreasing, constant, average rate of change, and maximum and minimum values.	**A1.FIF.6*** Given a function in graphical, symbolic, or tabular form, determine the average rate of change of the function over a specified interval. Interpret the meaning of the average rate of change in a given context. (Limit to linear; quadratic; exponential.) **A1.FIF.9*** Compare properties of two functions given in different representations such as algebraic, graphical, tabular, or verbal. (Limit to linear; quadratic; exponential.) **A2.FIF.4*** Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity.

Algebra 2 with Probability:

Data, Probability, and Statistical Reasoning

A2P.DPSR.1. Understand independence and conditional probability and use them to interpret data.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A2P.DPSR.1.1 Describe events as subsets of a sample space using characteristics or categories of the outcomes, or as unions, intersections, or complements of other events.	**PS.SPCR.1** Describe events as subsets of a sample space and a. Use Venn diagrams to represent intersections, unions, and complements. b. Relate intersections, unions, and complements to the words and, or, and not. c. Represent sample spaces for compound events using Venn diagrams.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A2P.DPSR.1.2 Explain whether two events, A and B, are independent if and only if the probability of A and B occurring together is the product of their probabilities and use this characterization to determine if they are independent.	**PS.SPCR.2** Use the multiplication rule to calculate probabilities for independent and dependent events. Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.
A2P.DPSR.1.3 Determine whether the conditional probability of A given B as P(A and B)/P(B) and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B in mathematical and real-world situations**.**	**PS.SPCR.3** Understand the conditional probability of A given B as P(A and B)/P(B), and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.
A2P.DPSR.1.4 Recognize and explain the concepts of conditional probability and independence.	**PS.SPCR.5** Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.

A2P.DPSR.2. Use the rules of probability to compute probabilities of compound events in a uniform probability model.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A2P.DPSR.2.1 Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A and interpret the answer in terms of the model.	**PS.SPCR.6** Calculate the conditional probability of an event A given event B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.
A2P.DPSR.2.2 Apply the Addition Rule, P(A or B) = P(A) + P(B) − P(A and B) and interpret the answer in terms of the model.	**PS.SPCR.7** Apply the Addition Rule and the Multiplication Rule to determine probabilities, including conditional probabilities, and interpret the results in terms of the probability model.
A2P.DPSR.2.3 Apply the general Multiplication Rule in a uniform probability model, P(A and B) = P(A)·P(B|A) = P(B)·P(A|B) and interpret the answer in terms of the model.	**PS.SPCR.7** Apply the Addition Rule and the Multiplication Rule to determine probabilities, including conditional probabilities, and interpret the results in terms of the probability model.
A2P.DPSR.2.4 Use permutations and combinations to determine the number of possible outcomes in a sample space.	**PS.SPCR.8** Use permutations and combinations to solve mathematical and real-world problems, including determining probabilities of compound events. Justify the results.

Measurement, Geometry, and Spatial Reasoning

A2P.MGSR.1. Explore and analyze sine and cosine functions using the unit circle, right triangle definitions, and models of periodic phenomena.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A2P.MGSR.1.1 Build the unit circle for sine and cosine functions using right triangle definitions.	**PC.FT.1** Understand that the radian measure of an angle is the length of the arc on the unit circle subtended by the angle. **PC.FT.2** Define sine and cosine as functions of the radian measure of an angle in terms of the x- and y-coordinates of the point on the unit circle corresponding to that angle and explain how these definitions are extensions of the right triangle definitions.
A2P.MGSR.1.2 Use models of periodic phenomena to evaluate and analyze the graph of sine and cosine functions.	**PC.FT.4** Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions. **PC.FT.5** Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.

Numerical Reasoning

A2P.NR.1. Recognize that the complex number system extends the real number system to allow for solution to all polynomial equations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A2P.NR.1.1 Understand that there is an imaginary unit *i* such that $i^2 = -1$ and explain the structure of a complex number as $a + bi$, where a and b are real.	**A2.NCNS.1*** Know there is a complex number i such that $i^2=-1$, and every complex number has the form $a+bi$ with a and b real. **PC.NCNS.2** Use the relation $i^2=-1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.
A2P.NR.1.2 Add, subtract, and multiply complex numbers.	**PC.NCNS.2** Use the relation $i^2=-1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.

A2P.NR.2. Represent and manipulate data using matrices.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A2P.NR.2.1 Perform operations with matrices including addition, subtraction, and scalar multiplication.	**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 $m \times n$ matrix has m rows and n columns. c. Add and subtract matrices of the same size. d. Multiply a matrix by a scalar. **PC.NVMQ.7** Perform operations with matrices of appropriate dimensions including addition, subtraction, and scalar multiplication.

Patterns, Algebra, and Functional Reasoning

A2P.PAFR.1. Explore and analyze quadratic and polynomial functions and inequalities and use them to model real-world situations.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A2P.PAFR.1.1 Graph, identify roots, and analyze quadratic functions in mathematical and real-world situations.	**A2.NCNS.7*** Solve quadratic equations in one variable that have complex solutions. **A2.AREI.7** Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. Understand that such systems may have zero, one, two, or infinitely many solutions. (Limit to linear equations and quadratic functions).
A2P.PAFR.1.2 Solve quadratic inequalities that model mathematical and real-world situations.	**A1.ACE.1*** Create and solve equations and inequalities in one variable that model real-world problems involving linear, quadratic, simple rational, and exponential relationships. Interpret the solutions and determine whether they are reasonable. (Limit to linear; quadratic; exponential with integer exponents.)

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A2P.PAFR.1.3 Graph and analyze polynomial functions in mathematical and real-world situations.	**A2.AAPR.3** Graph polynomials identifying zeros when suitable factorizations are available and indicating end behavior. Write a polynomial function of least degree corresponding to a given graph. (Limit to polynomials with degrees 3 or less.) **A2.ASE.2*** Analyze the structure of binomials, trinomials, and other polynomials in order to rewrite equivalent expressions. **A2.FIF.4*** Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity**.** **A2.FIF.5*** Relate the domain and range of a function to its graph and, where applicable, to the quantitative relationship it describes. **A2.FIF.7*** Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases. **PC.AAPR.3** Graph polynomials identifying zeros when suitable factorizations are available and indicating end behavior. Write a polynomial function of least degree corresponding to a given graph
A2P.PAFR.1.4 Solve polynomial inequalities that model mathematical and real-world situations.	**PC.AAPR.4** Prove polynomial identities and use them to describe numerical relationships.
A2P.PAFR.1.5 Recognize perfect squares and perfect cubes and use them to describe the structure of polynomials.	**A1.ASE.2*** Analyze the structure of binomials, trinomials, and other polynomials in order to rewrite equivalent expressions. **A2.ASE.2*** Analyze the structure of binomials, trinomials, and other polynomials in order to rewrite equivalent expressions.

A2.PAFR.2. Explore and analyze rational and radical functions and use them to model real-world phenomena.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A2P.PAFR.2.1 Graph rational and radical functions and describe their key features. Limit to square roots and cube roots only.	**PC.FIF.7** Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases. a. Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior. b. Graph radical functions over their domain show end behavior.
A2P.PAFR.2.2 Perform arithmetic operations on rational expressions, including problems in context, and express rational expressions in irreducible form.	**A2.FBF.2*** Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.
A2P.PAFR.2.3 Create and solve rational and radical equations in one variable, including those that model real-life situations, and verify solutions to identify extraneous solutions if they appear.	**A2.ACE.1*** Create and solve equations and inequalities in one variable that model real-world problems involving linear, quadratic, simple rational, and exponential relationships. Interpret the solutions and determine whether they are reasonable. **A2.AREI.2*** Solve simple rational and radical equations in one variable and understand how extraneous solutions may arise.

A2P.PAFR.3. Explore and analyze exponential functions and use them to model real-world phenomena.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A2P.PAFR.3.1 Create, solve, and graph exponential functions, including those that model real-life situations.	**A1.FLQE.2*** Create symbolic representations of linear and exponential functions, including arithmetic and geometric sequences, given graphs, verbal descriptions, and tables. (Limit to linear; exponential.)
A2P.PAFR.3.2 Find the sum of the terms of arithmetic and geometric sequences.	**PC.ASE.4** Derive the formula for the sum of a finite geometric series (when the common ratio is not 1) and use the formula to solve problems including applications to finance.

A2P.PAFR.4. Reason with parent functions to find families of functions that all have similar distinguishing attributes common to the family and use common characteristics to aid in rewriting and identifying functions.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A2P.PAFR.4.1 Identify the effect on the graph of replacing $f(x)$ by $kf(x)$, $f(x)+k$, $f(x+k)$, $f(kx)$ for any real number *k* including multiple transformations; write an equation of a transformed parent function given its graph. Extend to equations involving rational, polynomial, radical, exponential, and piecewise.	**A1.FBF.3*** Describe the effect of the transformations $kf(x)$, $f(x)+k$, $f(x+k)$, and combinations of such transformations on the graph of $y=f(x)$ for any real number k. Find the value of k given the graphs and write the equation of a transformed parent function given its graph. (Limit to linear; quadratic; exponential with integer exponents; vertical shift and vertical stretch.)

A2P.PAFR.5. Explore and analyze piecewise functions and linear absolute value inequalities and use them to model real-world phenomena.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A2P.PAFR.5.1 Graph piecewise functions and describe their key features.	**A2.FIF.7*** Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases.
A2P.PAFR.5.2 Solve linear absolute value inequalities.	**A1.ACE.1*** Create and solve equations and inequalities in one variable that model real-world problems involving linear, quadratic, simple rational, and exponential relationships. Interpret the solutions and determine whether they are reasonable. (Limit to linear; quadratic; exponential with integer exponents.)

A2P.PAFR.6. Represent and interpret functions symbolically and graphically.

2023 SC CCR Math Indicators	*2015 SCCCR Math Standard Alignment*
A2P.PAFR.6.1 Find the inverse of functions and verify graphically.	**PC.FBF.4** Understand that an inverse function can be obtained by expressing the dependent variable of one function as the independent variable of another, as f and g are inverse functions if and only if f(x)=y and g(y)=x, for all values of x in the domain of f and all values of y in the domain of g, and find inverse functions for one-to-one function or by restricting the domain. a. Use composition to verify one function is an inverse of another. b. If a function has an inverse, find values of the inverse function from a graph or table.
A2P.PAFR.6.2 Calculate and interpret the average rate of change of the function over a specified interval, given a function in graphical, symbolic, or numerical form.	**A2.FIF.6*** Given a function in graphical, symbolic, or tabular form, determine the average rate of change of the function over a specified interval. Interpret the meaning of the average rate of change in a given context. **PC.FIF.6** Given a function in graphical, symbolic, or tabular form, determine the average rate of change of the function over a specified interval. Interpret the meaning of the average rate of change in a given context.
A2P.PAFR.6.3 Use linear programming to solve systems of equations and inequalities by addressing the constraints that arise in real-world situations.	**A2.ACE.3** Use systems of equations and inequalities to represent constraints arising in real-world situations. Solve such systems using graphical and analytical methods, including linear programing. Interpret the solution within the context of the situation. (Limit to linear programming.)