Kindergarten Mathematics Crosswalk (2021)

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
K.OA	Algebraic Reasoning: Operations	K.OA	Operations & Algebraic Thinking
K.OA.A	Understand addition and subtraction.	K.OA.A	Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
K.OA.A.1	Represent addition as putting together and adding to and subtraction as taking apart and taking from using objects, drawings, physical expressions, numbers or equations.	K.OA.A.1	Represent addition and subtraction with objects, fingers, mental images, drawings (drawings need not show details, but should show the mathematics in the problem), sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
K.OA.A.2	Add and subtract within 10. Model authentic contexts and solve problems that use addition and subtraction within 10.	K.OA.A.2	Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
K.OA.A.3	Using objects or drawings, and equations, decompose numbers less than or equal to 10 into pairs in more than one way.	K.OA.A.3	Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).
K.OA.A.4	By using objects, drawings, or equations, find the unknown number that makes 10 when added to a given number from 1 - 9.	K.OA.A.4	For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.
K.OA.A.5	Fluently add and subtract within 5 with accurate, efficient, and flexible strategies.	K.OA.A.5	Fluently add and subtract within 5.
K.NCC	Numeric Reasoning: Counting and Cardinality	K.CC	Counting & Cardinality
K.NCC.A	Know number names and the count sequence.	K.CC.A	Know number names and the count sequence.
K.NCC.A.1	Orally count to 100 by ones and by tens in sequential order.	K.CC.A.1	Count to 100 by ones and by tens.
K.NCC.A.2	Count forward beginning from a given number within 100 of a known sequence.	K.CC.A.2	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
K.NCC.A.3	Identify number names, write numbers, and the count sequence from 0-20. Represent a number of objects with a written number 0-20.	K.CC.A.3	Know number names and the count sequence. Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
K.NCC.B	Count to tell the number of objects.	K.CC.B	Count to tell the number of objects.
K.NCC.B.4	Understand the relationship between numbers and quantities; connect counting to cardinality.	K.CC.B.4	Understand the relationship between numbers and quantities; connect counting to cardinality. --(4.a) When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. --(4.b) Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. --(4.c) Understand that each successive number name refers to a quantity that is one larger.
K.NCC.B.5	Count to answer “how many?” questions using up to 20 objects arranged in a variety of configurations or as 10 objects in a scattered configuration. Given a number from 1-20, count out that many objects.	K.CC.B.5	Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.
K.NCC.C	Compare numbers.	K.CC.C	Compare numbers
K.NCC.C.6	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group.	K.CC.C.6	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. (Include groups with up to ten objects.)
K.NCC.C.7	Compare two numbers between 1 and 10 presented as written numerals.	K.CC.C.7	Compare two numbers between 1 and 10 presented as written numerals.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
K.NBT	Numeric Reasoning: Base Ten Arithmetic	K.NBT	Number & Operations in Base Ten
K.NBT.A	Work with numbers 11-19 to gain foundations for place value.	K.NBT.A	Work with numbers 11-19 to gain foundations for place value.
K.NBT.A.1	Compose and decompose from 11 to 19 into groups of ten ones and some further ones using objects, drawings, or equations.	K.NBT.A.1	Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (such as 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.
K.GM	Geometric Reasoning and Measurement	K.G	Geometry
K.GM.A	Identify and describe shapes.	K.G.A	Identify and describe shapes.
K.GM.A.1	Describe objects in the environment using names of shapes and describe the relative positions of these objects in their environment.	K.G.A.1	Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.
K.GM.A.2	Correctly name common two-dimensional and three-dimensional geometric shapes regardless of their orientations or overall size.	K.G.A.2	Correctly name shapes regardless of their orientations or overall size.
K.GM.A.3	Identify shapes as two-dimensional or three-dimensional.	K.G.A.3	Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).
K.GM.B	Analyze, compare, create, and compose shapes.	K.G.B	Analyze, compare, create, and compose shapes.
K.GM.B.4	Analyze and compare two and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts and attributes.	K.G.B.4	Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length).
K.GM.B.5	Represent shapes in the world by building shapes from components and drawing shapes.	K.G.B.5	Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.
K.GM.B.6	Compose common shapes to form larger shapes.	K.G.B.6	Compose simple shapes to form larger shapes. For example, "can you join these two triangles with full sides touching to make a rectangle?”

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
K.GM.C	Describe and compare measurable attributes.	K.MD.A	Describe and compare measurable attributes.
K.GM.C.7	Describe several measurable attributes of a single object using measurable terms, such as length or weight.	K.MD.A.1	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
K.GM.C.8	Directly compare two objects with a measurable attribute in common, and describe which object has “more” or “less” of the attribute.	K.MD.A.2	Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.
K.DR	Data Reasoning	K.MD	Measurement and Data
K.DR.A	Pose investigative questions and collect/consider data.		
K.DR.A.1	Generate questions to investigate situations within the classroom. Collect or consider data that can naturally answer questions by sorting and counting.		[new content]
K.DR.B	Analyze, represent, and interpret data.		
K.DR.B.2	Analyze data sets by counting the number of objects in each category and interpret results by classifying and sorting objects by count.	K.MD.B.3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (Limit category counts to be less than or equal to 10.)

1st Grade Mathematics Crosswalk (2021)

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
1.OA	Algebraic Reasoning: Operations	1.OA	Operations & Algebraic Thinking
1.OA.A	Represent and solve problems involving addition and subtraction.	1.OA.A	Represent and solve problems involving addition and subtraction.
1.OA.A.1	Use addition and subtraction within 20 to solve and represent problems in authentic contexts involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.	1.OA.A.1	Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
1.OA.A.2	Solve problems that call for addition of three whole numbers whose sum is less than or equal to 20 using objects, drawings or equations.	1.OA.A.2	Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
1.OA.B	Understand and apply properties of operations and the relationship between addition and subtraction.	1.OA.B	Understand and apply properties of operations and the relationship between addition and subtraction.
1.OA.B.3	Apply properties of operations as strategies to add and subtract.	1.OA.B.3	Apply properties of operations as strategies to add and subtract. Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.) (Students need not use formal terms for these properties.)
1.OA.B.4	Understand subtraction as an unknown-addend problem.	1.OA.B.4	Understand subtraction as an unknown-addend problem. For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.
1.OA.C	Add and subtract within 20.	1.OA.C	Add and subtract within 20.
1.OA.C.5	Relate counting to addition and subtraction.	1.OA.C.5	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
1.OA.C.6	Add and subtract within 20, demonstrating fluency for addition and subtraction within 10 with accurate, efficient, and flexible strategies.	1.OA.C.6	Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).
1.OA.D	Work with addition and subtraction equations.	1.OA.D	Work with addition and subtraction equations.
1.OA.D.7	Use the meaning of the equal sign to determine whether equations involving addition and subtraction are true or false.	1.OA.D.7	Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.
1.OA.D.8	Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.	1.OA.D.8	Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = __ – 3, 6 + 6 = __.
1.NBT	Numeric Reasoning: Base Ten Arithmetic	1.NBT	Number & Operations in Base Ten
1.NBT.A	Extend the counting sequence.	1.NBT.A	Extend the counting sequence.
1.NBT.A.1	Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.	1.NBT.A.1	Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
1.NBT.B	Understand place value.	1.NBT.B	Understand place value.
1.NBT.B.2	Understand 10 as a bundle of ten ones and that the two digits of a two-digit number represent amounts of tens and ones.	1.NBT.B.2	Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: -- a. 10 can be thought of as a bundle of ten ones — called a “ten.” -- b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. -- c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
1.NBT.B.3	Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	1.NBT.B.3	Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.
1.NBT.C	Use place value understanding and properties of operations to add and subtract.	1.NBT.C	Use place value understanding and properties of operations to add and subtract.
1.NBT.C.4	Add within 100 using concrete using concrete or visual representations and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Relate the strategy to a written method and explain why sometimes it is necessary to compose a ten.	1.NBT.C.4	Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.
1.NBT.C.5	Without having to count, mentally find 10 more or 10 less than a given two-digit number and explain the reasoning used.	1.NBT.C.5	Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.
1.NBT.C.6	Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 using concrete or visual representations and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Relate the strategy and model used to a written method and explain the reasoning used.	1.NBT.C.6	Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
1.GM	Geometric Reasoning and Measurement	1.G	Geometry
1.GM.A	Reason with shapes and their attributes.	1.G.A	Reason with shapes and their attributes.
1.GM.A.1	Distinguish between defining attributes versus non-defining attributes for a wide variety of shapes. Build and draw shapes to possess defining attributes.	1.G.A.1	Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); for a wide variety of shapes; build and draw shapes to possess defining attributes.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
1.GM.A.2	Compose common two-dimensional shapes or three-dimensional shapes to create a composite shape, and create additional new shapes from composite shapes.	1.G.A.2	Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. (Students do not need to learn formal names such as "right rectangular prism.")
1.GM.A.3	Partition circles and rectangles into two and four equal shares. Describe the equal shares and understand that partitioning into more equal shares creates smaller shares.	1.G.A.3	Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.
1.GM.B	Describe and compare measurable attributes.	1.MD.A	Describe and compare measurable attributes.
1.GM.B.4	Order three objects by length; compare the lengths of two objects indirectly by using a third object.	1.MD.A.1	Order three objects by length; compare the lengths of two objects indirectly by using a third object.
1.GM.B.5	Express the length of an object as a whole number of non-standard length units, by laying multiple copies of a shorter object (the length unit) end to end.	1.MD.A.2	Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.
1.GM.C	Tell and write time.	1.MD.B	Tell and write time.
1.GM.C.6	Tell and write time in hours and half-hours using analog and digital clocks.		Tell and write time in hours and half-hours using analog and digital clocks.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
1.DR	Data Reasoning	1.MD	Measurement and Data
1.DR.A	Pose investigative questions and collect/consider data.		
1.DR.A.1	Generate questions to investigate situations within the classroom. Collect or consider data that can naturally answer questions by representing data visually.		[new content]
1.DR.B	Analyze, represent, and interpret data.		
1.DR.B.2	Analyze data sets with up to three categories by representing data visually, such as with graphs and charts, and interpret information presented to answer investigative questions.	1.MD.C.3	(1.MD.C.4) Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

2nd Grade Mathematics Crosswalk (2021)

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
2.OA	Algebraic Reasoning: Operations	2.OA	Operations & Algebraic Thinking
2.OA.A	Represent and solve problems involving addition and subtraction.	2.OA.A	Represent and solve problems involving addition and subtraction.
2.OA.A.1	Use addition and subtraction within 100 to solve one- and two-step problems in authentic contexts by using drawings and equations with a symbol for the unknown.	2.OA.A.1	Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
2.OA.B	Add and subtract within 20.	2.OA.B	Add and subtract within 20.
2.OA.B.2	Fluently add and subtract within 20 using accurate, efficient, and flexible strategies and algorithms based on place value and properties of operations.	2.OA.B.2	Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.
2.OA.C	Work with equal groups of objects to gain foundations for multiplication.	2.OA.C	Work with equal groups of objects to gain foundations for multiplication.
2.OA.C.3	Determine whether a group up to 20 objects has an odd or even number by pairing objects or counting them by 2s; record using drawings and equations including expressing an even number as a sum of two equal addends.	2.OA.C.3	Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.
2.OA.C.4	Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.	2.OA.C.4	Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.
2.NBT	Numeric Reasoning: Base Ten Arithmetic	2.NBT	Number & Operations in Base Ten
2.NBT.A	Understand place value.	2.NBT.A	Understand place value.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
2.NBT.A.1	Understand 100 as a bundle of ten tens and that the three digits of a three-digit number represent amounts of hundreds, tens, and ones.	2.NBT.A.1	Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: --(1.a)100 can be thought of as a bundle of ten tens — called a “hundred.” --(1.b) The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).
2.NBT.A.2	Count within 1000; skip-count by 5's, 10's, and 100's.	2.NBT.A.2	Count within 1000; skip-count by 5s, 10s, and 100s.
2.NBT.A.3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	2.NBT.A.3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
2.NBT.A.4	Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.	2.NBT.A.4	Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.
2.NBT.B	Use place value understanding and properties of operations to add and subtract.	2.NBT.B	Use place value understanding and properties of operations to add and subtract.
2.NBT.B.5	Fluently add & subtract within 100 using accurate, efficient, & flexible strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	2.NBT.B.5	Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
2.NBT.B.6	Add up to four two-digit numbers using strategies based on place value and properties of operations and describe how two different strategies result in the same sum.	2.NBT.B.6	Add up to four two-digit numbers using strategies based on place value and properties of operations.
2.NBT.B.7	Add and subtract within 1000 using concrete or visual representations and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Relate the strategy to a written method and explain why sometimes it is necessary to compose or decompose tens or hundreds.	2.NBT.B.7	Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
2.NBT.B.8	Without having to count, mentally find 10 more or 10 less and 100 more or 100 less than a given three-digit number.	2.NBT.B.8	Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.
2.NBT.B.9	Explain why strategies to add and subtract work using properties of operations and the relationship between addition and subtraction.	2.NBT.B.9	Explain why addition and subtraction strategies work, using place value and the properties of operations. (Explanations may be supported by drawings or objects.)
2.GM	Geometric Reasoning and Measurement	2.G	Geometry
2.GM.A	Reason with shapes and their attributes.	2.G.A	Reason with shapes and their attributes.
2.GM.A.1	Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.	2.G.A.1	Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. (Sizes are compared directly or visually, not compared by measuring.)
2.GM.A.2	Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.	2.G.A.2	Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.
2.GM.A.3	Partition circles and rectangles into two, three, or four equal parts. Recognize that equal parts of identical wholes need not have the same shape.	2.G.A.3	Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.
2.GM.B	Measure and estimate lengths in standard units.	2.MD.A	Measure and estimate lengths in standard units.
2.GM.B.4	Measure the length of an object by selecting and using appropriate measurement tools.	2.MD.A.1	Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
2.GM.B.5	Measure the length of an object using two different length units and describe how the measurements relate to the size of the unit chosen.	2.MD.A.2	Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
2.GM.B.6	Estimate lengths using units of inches, feet, yards, centimeters, and meters.	2.MD.A.3	Estimate lengths using units of inches, feet, centimeters, and meters.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
2.GM.B.7	Measure two objects and determine the difference in their lengths in terms of a standard length unit.	2.MD.A.4	Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.
2.GM.C	Relate addition and subtraction to length.	2.MD.B	Relate addition and subtraction to length.
2.GM.C.8	Use addition and subtraction within 100 to solve problems in authentic contexts involving lengths that are given in the same units.	2.MD.B.5	Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.
2.GM.C.9	Represent whole number lengths on a number line diagram; use number lines to find sums and differences within 100.	2.MD.B.6	Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, … , and represent whole-number sums and differences within 100 on a number line diagram.
2.GM.D	Work with time and money.	2.MD.C	Work with time and money.
2.GM.D.10	Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	2.MD.C.7	Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
2.GM.D.11	Solve problems in authentic contexts involving dollar bills, quarters, dimes, nickels, and pennies, using $ (dollars) and c (cents) symbols appropriately.	2.MD.C.8	Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ (dollars) and ¢ (cents) symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?
2.DR	Data Reasoning	2.MD	Measurement and Data
2.DR.A	Pose investigative questions and collect/consider data.	2.MD.D	Represent and interpret data.
2.DR.A.1	Generate questions to investigate situations within the classroom. Collect or consider data that can naturally answer questions by using measurements with whole-number units.	2.MD.D.9	Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.
2.DR.B	Analyze, represent, and interpret data.	2.MD.D	Represent and interpret data.
2.DR.B.2	Analyze data with a single-unit scale and interpret information presented to answer investigative questions.	2.MD.D.10	Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

3rd Grade Mathematics Crosswalk (2021)

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
3.OA	Algebraic Reasoning: Operations	3.OA	Operations & Algebraic Thinking
3.OA.A	Represent and solve problems involving addition and subtraction.	3.OA.A	Represent and solve problems involving multiplication and division.
3.OA.A.1	Represent and interpret multiplication of two factors as repeated addition of equal groups.	3.OA.A.1	Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5 × 7.
3.OA.A.2	Represent and interpret whole-number quotients as dividing an amount into equal sized groups.	3.OA.A.2	Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.
3.OA.A.3	Use multiplication and division within 100 to solve problems in authentic contexts involving equal groups, arrays, and/or measurement quantities.	3.OA.A.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
3.OA.A.4	Determine the unknown number in a multiplication or division equation relating three whole numbers by applying the understanding of the inverse relationship of multiplication and division.	3.OA.A.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = __÷ 3, 6 × 6 = ?.
3.OA.B	Understand properties of multiplication and the relationship between multiplication and division.	3.OA.B	Understand properties of multiplication and the relationship between multiplication and division.
3.OA.B.5	Apply properties of operations as strategies to multiply and divide.	3.OA.B.5	Apply properties of operations as strategies to multiply and divide. Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15 then 15 × 2 = 30, or by 5 × 2 = 10 then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.) (Students need not use formal terms for these properties.)

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
3.OA.B.6	Understand division as an unknown-factor in a multiplication problem.	3.OA.B.6	Understand division as an unknown-factor problem. For example, divide 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.
3.OA.C	Multiply and divide within 100.	3.OA.C	Multiply and divide within 100.
3.OA.C.7	Fluently multiply and divide within 100 using accurate, efficient, and flexible strategies and algorithms based on place value and properties of operations.	3.OA.C.7	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of one-digit numbers.
3.OA.D	Solve problems involving the four operations, and identify and explain patterns in arithmetic.	3.OA.D	Solve problems involving the four operations, and identify and explain patterns in arithmetic.
3.OA.D.8	Solve two-step problems in authentic contexts that use addition, subtraction, multiplication, and division in equations with a letter standing for the unknown quantity.	3.OA.D.8	Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).)
3.OA.D.9	Identify and explain arithmetic patterns using properties of operations, including patterns in the addition table or multiplication table.	3.OA.D.9	Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.
3.NBT	Numeric Reasoning: Base Ten Arithmetic	3.NBT	Number & Operations in Base Ten
3.NBT.A	Use place value understanding and properties of operations to perform multi-digit arithmetic.	3.NBT.A	Use place value understanding and properties of operations to perform multi-digit arithmetic.[1]
3.NBT.A.1	Use place value understanding to round whole numbers within 1000 to the nearest 10 or 100.	3.NBT.A.1	Use place value understanding to round whole numbers to the nearest 10 or 100.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
3.NBT.A.2	Fluently add and subtract within 1000 using accurate, efficient, and flexible strategies and algorithms based on place value and properties of operations.	3.NBT.A.2	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. (A range of algorithms may be used.)
3.NBT.A.3	Find the product of one-digit whole numbers by multiples of 10 in the range 10-90, such as 9 x 80. Students use a range of strategies and algorithms based on place value and properties of operations.	3.NBT.A.3	Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations. (A range of algorithms may be used.)
3.NF	Numeric Reasoning: Fractions	3.NF	Number & Operations—Fractions
3.NF.A	Develop understanding of fractions as numbers.	3.NF.A	Develop understanding of fractions as numbers.
3.NF.A.1	Understand the concept of a unit fraction and explain how multiple copies of a unit fraction form a non-unit fraction.	3.NF.A.1	Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)
3.NF.A.2	Understand a fraction as a number on the number line; Represent fractions on a number line diagram.	3.NF.A.2	Understand a fraction as a number on the number line; represent fractions on a number line diagram. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.) --(2.a) Represent a fraction 1/b on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size 1/b and that the endpoint of the part based at 0 locates the number 1/b on the number line. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.) --(2.b) Represent a fraction a/b on a number line diagram by marking off a lengths 1/b from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
3.NF.A.3	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.	3.NF.A.3	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.) --(3.a) Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.) --(3.b) Recognize and generate simple equivalent fractions (e.g., 1/2 = 2/4, 4/6 = 2/3), Explain why the fractions are equivalent, e.g., by using a visual fraction model. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.) --(3.c) Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.) --(3.d) Compare two fractions with the same numerator or the same denominator, by reasoning about their size, Recognize that valid comparisons rely on the two fractions referring to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)
3.GM	Geometric Reasoning and Measurement	3.G	Geometry
3.GM.A	Reason with shapes and their attributes.	3.G.A	Reason with shapes and their attributes.
3.GM.A.1	Understand that shapes in different categories may share attributes and that shared attributes can define a larger category.	3.G.A.1	Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
3.GM.A.2	Partition shapes into parts with equal areas and express the area of each part as a unit fraction of the whole.	3.G.A.2	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part is 1/4 of the area of the shape.
3.GM.B	Solve problems involving measurement and estimation.	3.MD.A	Solve problems involving measurement and estimation.
3.GM.B.3	Tell, write, and measure time to the nearest minute. Solve problems in authentic contexts that involve addition and subtraction of time intervals in minutes.	3.MD.A.1	Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
3.GM.B.4	Measure, estimate and solve problems in authentic contexts that involve liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).	3.MD.A.2	Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). (Excludes compound units such as cm^3 and finding the geometric volume of a container.) Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (Excludes multiplicative comparison problems (problems involving notions of “times as much.”)
3.GM.C	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.	3.MD.C	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
3.GM.C.5	Recognize area as an attribute of plane figures and understand concepts of area measurement presented in authentic contexts by tiling and counting unit squares.	3.MD.C.5	Recognize area as an attribute of plane figures and understand concepts of area measurement. --(5.a) A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area. --(5.b) A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.
3.GM.C.6	Measure areas by counting standard and non-standard unit squares.	3.MD.C.6	Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
3.GM.C.7	Relate area to multiplication and addition. Use relevant representations to solve problems in authentic contexts.	3.MD.C.7	Relate area to the operations of multiplication and addition. --(7.a) Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. --(7.b) Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. --(7.c) Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b + c is the sum of a × b and a × c. Use area models to represent the distributive property in mathematical reasoning. --(7.d) Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.
3.GM.D	Geometric measurement: recognize perimeter.	3.MD.D	Geometric measurement: recognize perimeter.
3.GM.D.8	Solve problems involving authentic contexts for perimeters of polygons.	3.MD.D.8	Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different area or with the same area and different perimeter.
3.DR	Data Reasoning	3.MD	Measurement and Data
3.DR.A	Pose investigative questions and collect/consider data.		
3.DR.A.1	Generate questions to investigate situations within the classroom, school or community. Collect or consider measurement data that can naturally answer questions by using information presented in a scaled picture and/or bar graph.	3.MD.B.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.
3.DR.B	Analyze, represent, and interpret data.		
3.DR.B.2	Analyze measurement data with a scaled picture graph or a scaled bar graph to represent a data set with several categories. Interpret information presented to answer investigative questions.	3.MD.B.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets.

4th Grade Mathematics Crosswalk (2021)

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
4.OA	Algebraic Reasoning: Operations	4.OA	Operations & Algebraic Thinking
4.OA.A	Use the four operations with whole numbers to solve problems.	4.OA.A	Use the four operations with whole numbers to solve problems.
4.OA.A.1	Interpret a multiplication equation as comparing quantities. Represent verbal statements of multiplicative comparisons as equations.	4.OA.A.1	Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 x 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
4.OA.A.2	Multiply or divide to solve problems in authentic contexts involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison.	4.OA.A.2	Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.
4.OA.A.3	Solve multistep problems in authentic contexts using whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.	4.OA.A.3	Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
4.OA.B	Gain familiarity with factors and multiples.	4.OA.B	Gain familiarity with factors and multiples.
4.OA.B.4	Find all factor pairs for a whole number in the range 1-100. Determine whether a given whole number in the range of 1-100 is a multiple of a given one-digit number, and whether it is prime or composite.	4.OA.B.4	Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
4.OA.C	Generate and analyze patterns.	4.OA.C	Generate and analyze patterns.
4.OA.C.5	Analyze a number, visual, or contextual pattern that follows a given rule.	4.OA.C.5	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.
4.NBT	Numeric Reasoning: Base Ten Arithmetic	4.NBT	Number & Operations in Base Ten
4.NBT.A	Generalize place value understanding for multi-digit whole numbers.	4.NBT.A	Generalize place value understanding for multi-digit whole numbers.
4.NBT.A.1	Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.	4.NBT.A.1	Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.)
4.NBT.A.2	Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Use understandings of place value within these forms to compare two multi-digit numbers using >, =, and < symbols.	4.NBT.A.2	Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.)
4.NBT.A.3	Use place value understanding to round multi-digit whole numbers to any place.	4.NBT.A.3	Use place value understanding to round multi-digit whole numbers to any place. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.)
4.NBT.B	Use place value understanding and properties of operations to perform multi-digit arithmetic.	4.NBT.B	Use place value understanding and properties of operations to perform multi-digit arithmetic.
4.NBT.B.4	Fluently add and subtract multi-digit whole numbers using accurate, efficient, and flexible strategies and algorithms based on place value and properties of operations.	4.NBT.B.4	Fluently add and subtract multi-digit whole numbers using the standard algorithm. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000. A range of algorithms may be used.)

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
4.NBT.B.5	Use representations and strategies to multiply a whole number of up to four digits by a one-digit number, and a two-digit number by a two-digit number using strategies based on place value and the properties of operations.	4.NBT.B.5	Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000. A range of algorithms may be used.)
4.NBT.B.6	Use representations and strategies to find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division.	4.NBT.B.6	Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000. A range of algorithms may be used.)
4.NF	Numeric Reasoning: Fractions	4.NF	Number & Operations—Fractions
4.NF.A	Extend understanding of fraction equivalence and ordering.	4.NF.A	Extend understanding of fraction equivalence and ordering.
4.NF.A.1	Use visual fraction representations to recognize, generate, and explain relationships between equivalent fractions.	4.NF.A.1	Explain why a fraction a/b is equivalent to a fraction (n × a)/(n × b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)
4.NF.A.2	Compare two fractions with different numerators and/or different denominators, record the results with the symbols >, =, or <, and justify the conclusions.	4.NF.A.2	Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
4.NF.B	Build fractions from unit fractions.	4.NF.B	Build fractions from unit fractions.
4.NF.B.3	Understand a fraction (a/b) as the sum (a) of fractions of the same denominator (1/b). Solve problems in authentic contexts involving addition and subtraction of fractions referring to the same whole and having like denominators.	4.NF.B.3	Understand a fraction a/b with a > 1 as a sum of fractions 1/b. (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.) --(3.a) Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. --(3.b) Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify compositions, e.g., by using a visual fraction model. Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8. --(3.c) Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. --(3.d) Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
4.NF.B.4	Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. Represent and solve problems in authentic contexts involving multiplication of a fraction by a whole number.	4.NF.B.4	Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.) --(4.a) Understand a fraction a/b as a multiple of 1/b. For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4). --(4.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. For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.) --(4.c) Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?
4.NF.C	Understand decimal notation for fractions, and compare decimal fractions.	4.NF.C	Understand decimal notation for fractions, and compare decimal fractions.
4.NF.C.5	Demonstrate and explain the concept of equivalent fractions with denominators of 10 and 100, using concrete materials and visual models. Add two fractions with denominators of 10 and 100.	4.NF.C.5	Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. For example, express 3/10 as 30/100 and add 3/10 + 4/100 = 34/100. (Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.) (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
4.NF.C.6	Use and interpret decimal notation for fractions with denominators 10 or 100.	4.NF.C.6	Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as 62/100 ; describe a length as 0.62 meters; locate 0.62 on a number line diagram. (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)
4.NF.C.7	Use decimal notation for fractions with denominators 10 or 100. Compare two decimals to hundredths place by reasoning about their size, and record the comparison using the symbols >, =, or <.	4.NF.C.7	Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model. (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)
4.GM	Geometric Reasoning and Measurement	4.G	Geometry
4.GM.A	Draw and identify lines and angles, and classify shapes by properties of their lines and angles.	4.G.A	Draw and identify lines and angles, and classify shapes by properties of their lines and angles.
4.GM.A.1	Explore, investigate, and draw points, lines, line segments, rays, angles, and perpendicular and parallel lines. Identify these in two-dimensional figures.	4.G.A.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
4.GM.A.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size.	4.G.A.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.
4.GM.A.3	Recognize and draw a line of symmetry for a two dimensional figure.	4.G.A.3	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
4.GM.B	Solve problems involving measurement and conversion of measurements.	4.MD.A	Solve problems involving measurement and conversion of measurements.
4.GM.B.4	Know relative sizes of measurement units and express measurements in a larger unit in terms of a smaller unit.	4.MD.A.1	Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. For example: Know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ….
4.GM.B.5	Apply knowledge of the four operations and relative size of measurement units to solve problems in authentic contexts that include familiar fractions or decimals.	4.MD.A.2	Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
4.GM.B.6	Apply the area and perimeter formulas for rectangles in authentic contexts and mathematical problems.	4.MD.A.3	Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.
4.GM.C	Geometric measurement: understand concepts of angle and measure angles.	4.MD.C	Geometric measurement: understand concepts of angle and measure angles.
4.GM.C.7	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint. Understand and apply concepts of angle measurement.	4.MD.C.5	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: --(5.a) An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a “one-degree angle,” and can be used to measure angles. --(5.b) An angle that turns through n one-degree angles is said to have an angle measure of n degrees.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
4.GM.C.8	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	4.MD.C.6	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
4.GM.C.9	Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts.	4.MD.C.7	Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.
4.DR	Data Reasoning	4.MD	Measurement and Data
4.DR.A	Pose investigative questions and collect/consider data.		
4.DR.A.1	Generate questions to investigate situations within the classroom, school or community. Determine strategies for collecting or considering data involving addition and subtraction of fractions that can naturally answer questions by using information presented in line plots.		[new content]
4.DR.B	Analyze, represent, and interpret data.	4.MD.B	Represent and interpret data.
4.DR.B.2	Analyze line plots to display a distribution of numerical measurement data, which include displays of data sets of fractional measurements with the same denominator. Interpret information presented to answer investigative questions.	4.MD.B.4	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.

5th Grade Mathematics Crosswalk (2021)

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
5.OA	Algebraic Reasoning: Operations	5.OA	Operations & Algebraic Thinking
5.OA.A	Write and interpret numerical expressions.	5.OA.A	Write and interpret numerical expressions.
5.OA.A.1	Write and evaluate numerical expressions that include parentheses.	5.OA.A.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
5.OA.A.2	Write expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.	5.OA.A.2	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation “add 8 and 7, then multiply by 2” as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.
5.OA.B	Analyze patterns and relationships.	5.OA.B	Analyze patterns and relationships.
5.OA.B.3	Generate two numerical patterns using two given rules. Identify and analyze relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns and graph them on a coordinate plane.	5.OA.B.3	Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.
5.NBT	Numeric Reasoning: Base Ten Arithmetic	5.NBT	Number & Operations in Base Ten
5.NBT.A	Understand the place value system.	5.NBT.A	Understand the place value system.
5.NBT.A.1	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.	5.NBT.A.1	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.
5.NBT.A.2	Use whole number exponents to denote powers of 10 and explain the patterns in placement of digits that occur when multiplying and/or dividing whole numbers and decimals by powers of 10.	5.NBT.A.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole number exponents to denote powers of 10.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
5.NBT.A.3	Read, write, and compare decimals to thousandths.	5.NBT.A.3	Read, write, and compare decimals to thousandths. --(3.a) Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000). --(3.b) Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
5.NBT.A.4	Use place value understanding to round decimals to any place.	5.NBT.A.4	Use place value understanding to round decimals to any place.
5.NBT.B	Perform operations with multi-digit whole numbers and with decimals to hundredths.	5.NBT.B	Perform operations with multi-digit whole numbers and with decimals to hundredths.
5.NBT.B.5	Fluently multiply multi-digit whole numbers using accurate, efficient, and flexible strategies and algorithms based on place value and properties of operations.	5.NBT.B.5	Fluently multiply multi-digit whole numbers using the standard algorithm.
5.NBT.B.6	Use a variety of representations and strategies to find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors.	5.NBT.B.6	Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
5.NBT.B.7	Use a variety of representations and strategies to add, subtract, multiply, and divide decimals to hundredths. Relate the strategy to a written method and explain the reasoning used.	5.NBT.B.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
5.NF	Numeric Reasoning: Fractions	5.NF	Number & Operations—Fractions
5.NF.A	Use equivalent fractions as a strategy to add and subtract fractions.	5.NF.A	Use equivalent fractions as a strategy to add and subtract fractions.
5.NF.A.1	Add and subtract fractions with unlike denominators, including common fractions larger than one and mixed numbers.	5.NF.A.1	Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd.)
5.NF.A.2	Solve problems in authentic contexts involving addition and subtraction of fractions with unlike denominators, including common fractions larger than one and mixed numbers.	5.NF.A.2	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result 2/5 + 1/2 = 3/7 by observing that 3/7 < 1/2.
5.NF.B	Apply and extend previous understandings of multiplication and division.	5.NF.B	Apply and extend previous understandings of multiplication and division.
5.NF.B.3	Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). Solve problems in authentic contexts involving division of whole numbers that result in answers that are common fractions or mixed numbers.	5.NF.B.3	Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3 and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
5.NF.B.4	Apply and extend previous understanding and strategies of multiplication to multiply a fraction or whole number by a fraction. Multiply fractional side lengths to find areas of rectangles, and represent fractional products as rectangular areas.	5.NF.B.4	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. --(4.a) Interpret the product (a/b) × q as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations a × q ÷ b. For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (c/d) = ac/bd.) --(4.b) Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
5.NF.B.5	Apply and extend previous understandings of multiplication and division to represent and calculate multiplication and division of fractions. Interpret multiplication as scaling (resizing) by comparing the size of products of two factors.	5.NF.B.5	Apply and extend previous understandings of multiplication and division to multiply and divide fractions. Interpret multiplication as scaling (resizing) by: --(5.a) Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. --(5.b) Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence a/b = (n × a)/(n × b) to the effect of multiplying a/b by 1.
5.NF.B.6	Solve problems in authentic contexts involving multiplication of common fractions and mixed numbers.	5.NF.B.6	Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
5.NF.B.7	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions, including solving problems in authentic contexts.	5.NF.B.7	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. (Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade.) --(7.a) Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for (1/3) ÷ 4 and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3. --(7.b) Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for 4 ÷ (1/5) and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4. --(7.c) Solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
5.GM	Geometric Reasoning and Measurement	5.G	Geometry
5.GM.A	Graph points on the coordinate plane to solve real-world and mathematical problems.	5.G.A	Graph points on the coordinate plane to solve real-world and mathematical problems.
5.GM.A.1	Graph and name coordinate points in the first quadrant using the standard (x, y) notation. Understand the coordinate points values represent the distance traveled along the horizontal x-axis and vertical y-axis.	5.G.A.1	Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).
5.GM.A.2	Represent authentic contexts and mathematical problems by graphing points in the first quadrant of the coordinate plane. Interpret the meaning of the coordinate values based on the context of a given situation.	5.G.A.2	Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.
5.GM.B	Classify two-dimensional figures into categories based on their properties.	5.G.B	Classify two-dimensional figures into categories based on their properties.
5.GM.B.3	- Measure the volume of a rectangular prism by counting unit cubes using standard and improvised units.	5.G.B.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.
5.GM.B.3	Classify two-dimensional figures within a hierarchy based on their geometrical properties, and explain the relationship across and within different categories of these figures.	5.G.B.4	Classify two-dimensional figures in a hierarchy based on properties.
5.GM.C	Convert like measurement units within a given measurement system.	5.MD.A	Convert like measurement units within a given measurement system.
5.GM.C.4	Convert between different-sized standard measurement units within a given measurement system. Use these conversions in solving multi-step problems in authentic contexts.	5.MD.A.1	Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step real world problems.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
5.GM.D	Geometric measurement: understand concepts of volume.	5.MD.C	Geometric measurement: understand concepts of volume.
5.GM.D.5	Recognize that volume is a measurable attribute of solid figures.	5.MD.C.3	Recognize volume as an attribute of solid figures and understand concepts of volume measurement. --(3.a) A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume. --(3.b) A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.
5.GM.D.6	Measure the volume of a rectangular prism by counting unit cubes using standard and nonstandard units.	5.MD.C.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
5.GM.D.7	Relate volume of rectangular prisms to the operations of multiplication and addition. Solve problems in authentic contexts involving volume using a variety of strategies.	5.MD.C.5	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. --(5.a) Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent three-fold whole-number products as volumes, e.g., to represent the associative property of multiplication. --(5.b) Apply the formulas V =(l)(w)(h) and V = (b)(h) for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems. --(5.c) Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
5.DR	Data Reasoning	5.MD	Measurement and Data
5.DR.A	Pose investigative questions and collect/consider data.		
5.DR.A.1	Generate questions to investigate situations within the classroom, school or community. Determine strategies for collecting or considering data involving operations with fractions for this grade that can naturally answer questions by using information presented in line plots.		[new content]
5.DR.B	Analyze, represent, and interpret data.	5.MD.B	Represent and interpret data.
5.DR.B.2	Analyze graphical representations and describe the distribution of the numerical data through line plots or categorical data through bar graphs. Interpret information presented to answer investigative questions.	5.MD.B.2	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.

6th Grade Mathematics Crosswalk (2021)

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
6.AEE	Algebraic Reasoning: Expressions and Equations	6.EE	Expressions & Equations
6.AEE.A	Apply and extend previous understandings of arithmetic to algebraic expressions.	6.EE.A	Apply and extend previous understandings of arithmetic to algebraic expressions.
6.AEE.A.1	Write and evaluate numerical expressions involving whole-number bases and exponents.	6.EE.A.1	Write and evaluate numerical expressions involving whole-number exponents.
6.AEE.A.2	Write, read, and evaluate expressions in which letters stand for numbers. Apply knowledge of common mathematical terms to move between the verbal and mathematical forms of an expression including expressions that arise from authentic contexts.	6.EE.A.2	Write, read, and evaluate expressions in which letters stand for numbers. --(2.a) Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation “Subtract y from 5” as 5 – y. --(2.b) Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. For example, describe the expression 2(8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms. --(2.c) Evaluate expressions at specific values for their variables. Include expressions that arise from formulas in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas V = s^3 and A = 6 s^2 to find the volume and surface area of a cube with sides of length s = 1/2.
6.AEE.A.3	Apply the properties of operations to generate equivalent expressions and to determine when two expressions are equivalent.	6.EE.A.3	Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression 3(2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.
[n/a]	*Merge with 6.AEE.A.3*	*6.EE.A.4*	*Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for.*

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
6.AEE.B	Reason about and solve one-variable equations and inequalities.	6.EE.B	Reason about and solve one-variable equations and inequalities.
6.AEE.B.4	Understand solving an equation or inequality as a process of answering which values from a specified set, if any, make the equation or inequality true. Use substitution to determine which number(s) in a given set make an equation or inequality true.	6.EE.B.5	Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
6.AEE.B.5	Use variables to represent numbers and write expressions when solving problems in authentic contexts.	6.EE.B.6	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
6.AEE.B.6	Write and solve equations of the form x + p = q and px = q in problems that arise from authentic contexts for cases in which p, q and x are all nonnegative rational numbers.	6.EE.B.7	Solve real-world and mathematical problems by writing and solving equations of the form x + p = q and px = q for cases in which p, q and x are all nonnegative rational numbers.
6.AEE.B.7	Write inequalities of the form x > c and x < c to represent constraints or conditions to solve problems in authentic contexts. Describe and graph on a number line solutions of inequalities of the form x > c and x < c.	6.EE.B.8	Write an inequality of the form x > c or x < c to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form x > c or x < c have infinitely many solutions; represent solutions of such inequalities on number line diagrams.
6.AEE.C	Represent and analyze quantitative relationships between dependent and independent variables.	6.EE.C	Represent and analyze quantitative relationships between dependent and independent variables.
6.AEE.C.8	Use variables to represent and analyze two quantities to solve problems in authentic contexts. Including those that change in relationship to one another; write an equation to express one quantity in terms of the other quantity.	6.EE.C.9	Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
6.RP	Proportional Reasoning: Ratios and Proportions	6.RP	Ratios & Proportional Relationships
6.RP.A	Understand ratio concepts and use ratio reasoning to solve problems.	6.RP.A	Understand ratio concepts and use ratio reasoning to solve problems.
6.RP.A.1	Understand the concept of a ratio in authentic contexts, and use ratio language to describe a ratio relationship between two quantities.	6.RP.A.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, “The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly three votes.”
6.RP.A.2	Understand the concept of a unit rate in authentic contexts and use rate language in the context of a ratio relationship.	6.RP.A.2	Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0 (b not equal to zero), and use rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger." (Expectations for unit rates in this grade are limited to non-complex fractions.)
6.RP.A.3	Use ratio and rate reasoning to solve problems in authentic contexts that use equivalent ratios, unit rates, percents, and/or measurement units.	6.RP.A.3	Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. --(3.a) Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. --(3.b) Solve unit rate problems including those involving unit pricing and constant speed. For example, If it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed? --(3.c) Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole given a part and the percent. --(3.d) Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
6.NS	Numeric Reasoning: Number Systems	6.NS	The Number System
6.NS.A	Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	6.NS.A.1	Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
6.NS.A.1	Represent, interpret, and compute quotients of fractions to solve problems in authentic contexts involving division of fractions by fractions.	6.NS.A.1	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc.) How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?
6.NS.B	Compute fluently with multi-digit numbers and find common factors and multiples.	6.NS.B	Compute fluently with multi-digit numbers and find common factors and multiples.
6.NS.B.2	Fluently divide multi-digit numbers using accurate, efficient, and flexible strategies and algorithms based on place value and properties of operations.	6.NS.B.2	Fluently divide multi-digit numbers using the standard algorithm.
6.NS.B.3	Fluently add, subtract, multiply, and divide positive rational numbers using accurate, efficient, and flexible strategies and algorithms.	6.NS.B.3	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
6.NS.B.4	Determine greatest common factors and least common multiples using a variety of strategies. Apply the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.	6.NS.B.4	Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express 36 + 8 as 4 (9 + 2).
6.NS.C	Apply and extend previous understandings of numbers to the system of rational numbers.	6.NS.C	Apply and extend previous understandings of numbers to the system of rational numbers.
6.NS.C.5	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values. Use positive and negative numbers to represent quantities in authentic contexts, explaining the meaning of zero in each situation.	6.NS.C.5	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, debits/credits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
6.NS.C.6	Represent a rational number as a point on the number line. Extend number line diagrams and coordinate axes to represent points on the line and in the coordinate plane with negative number coordinates.	6.NS.C.6	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. --(6.a) Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite. --(6.b) Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. --(6.c) Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.
6.NS.C.7	Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. Write, interpret, and explain statements of order for rational numbers and absolute value in authentic applications.	6.NS.C.7	Understand ordering and absolute value of rational numbers. --(7.a) Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right. --(7.b) Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write –3°C > –7°C to express the fact that –3°C is warmer than –7°C. --(7.c) Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars. --(7.d) Distinguish comparisons of absolute value from statements about order. For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
6.NS.C.8	Graph points in all four quadrants of the coordinate plane to solve problems in authentic contexts. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	6.NS.C.8	Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.
6.GM	Geometric Reasoning and Measurement	6.G	Geometry
6.GM.A	Solve real-world and mathematical problems involving area, surface area, and volume.	6.G.A	Solve real-world and mathematical problems involving area, surface area, and volume.
6.GM.A.1	Find the area of triangles, quadrilaterals, and other polygons by composing into rectangles or decomposing into triangles and other shapes. Apply these techniques to solve problems in authentic contexts.	6.G.A.1	Find area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
6.GM.A.2	Find the volume of a right rectangular prism with fractional edge lengths by filling it with unit cubes of appropriate unit fraction edge lengths. Connect and apply to the formulas V = l w h and V = b h to find volumes of right rectangular prisms with fractional edge lengths to solve problems in authentic contexts.	6.G.A.2	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = b h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
6.GM.A.3	Draw polygons in the four quadrant coordinate plane given coordinates for the vertices and find the length of a side. Apply these techniques to solve problems in authentic contexts.	6.G.A.3	Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.
6.GM.A.4	Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures, including those from authentic contexts.	6.G.A.4	Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
6.DR	Data Reasoning	6.SP	Statistics and Probability
6.DR.A	Formulate Statistical Investigative Questions		Original CCSS
6.DR.A.1	Formulate and recognize statistical investigative questions as those that anticipate changes in descriptive data related to the question and account for it in the answers.	6.SP.A.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, “How old am I?” is not a statistical question, but “How old are the students in my school?” is a statistical question because one anticipates variability in students’ ages.
6.DR.B	Collect and Consider Data		Original CCSS
6.DR.B.2	Collect and record data with technology to identify and describe the characteristics of numerical data sets using quantitative measures of center and variability.	6.SP.A.2	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.
6.DR.C	Analyze, summarize, and describe data		Original CCSS
6.DR.C.3	Analyze data representations and describe measures of center and variability of quantitative data using appropriate displays.	6.SP.A.3 6.SP.B.4	(A.3) Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number. (B.4) Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
6.DR.D	Interpret data and answer investigative questions		Original CCSS
6.DR.D.4	Interpret quantitative measures of center to describe differences between groups from data collected to answer investigative questions.	6.SP.B.5	Summarize numerical data sets in relation to their context, such as by: --(5.a) Reporting the number of observations. --(5.b) Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. --(5.c) Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. --(5.d) Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered

7th Grade Mathematics Crosswalk (2021)

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
7.AEE	Algebraic Reasoning: Expressions and Equations	7.EE	Expressions & Equations
7.AEE.A	Use properties of operations to generate equivalent expressions.	7.EE.A	Use properties of operations to generate equivalent expressions.
7.AEE.A.1	Identify and write equivalent expressions with rational numbers by applying associative, commutative, and distributive properties.	7.EE.A.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
7.AEE.A.2	Understand that rewriting an expression in different forms in a contextual problem can show how quantities are related.	7.EE.A.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, a + 0.05a = 1.05a means that “increase by 5%” is the same as “multiply by 1.05.”
7.AEE.B	Solve mathematical problems in authentic contexts using numerical and algebraic expressions and equations.	7.EE.B	Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
7.AEE.B.3	Write and solve problems in authentic contexts using expressions and equations with positive and negative rational numbers in any form. Contexts can be limited to those that can be solved with one or two-step linear equations.	7.EE.B.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations as strategies to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
7.AEE.B.4	Use variables to represent quantities and construct one- and two-step linear inequalities with positive rational numbers to solve authentic problems by reasoning about the quantities.	7.EE.B.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. --(4.a) Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, The perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? --(4.b) Solve word problems leading to inequalities of the form px + q > r or px + q < r, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example, As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.
7.RP	Proportional Reasoning: Ratios and Proportions	7.RP	Ratios & Proportional Relationships
7.RP.A	Analyze proportional relationships and use them to solve mathematical problems in authentic contexts.	7.RP.A	Analyze proportional relationships and use them to solve real-world and mathematical problems.
7.RP.A.1	Solve problems in authentic contexts involving unit rates associated with ratios of fractions.	7.RP.A.1	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction (1/2)/(1/4) miles per hour, equivalently 2 miles per hour.
7.RP.A.2	Recognize and represent proportional relationships between quantities in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. Identify the constant of proportionality (unit rate) within various representations.	7.RP.A.2	Recognize and represent proportional relationships between quantities. --(2.a) Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. --(2.b) Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. --(2.c) Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn. --(2.d) Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
7.RP.A.3	Use proportional relationships to solve ratio and percent problems in authentic contexts.	7.RP.A.3	Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.
7.RP.B	Investigate chance processes and develop, use, and evaluate probability models.	7.SP.C	Investigate chance processes and develop, use, and evaluate probability models.
7.RP.B.4	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Represent probabilities as fractions, decimals, and percents.	7.SP.C.5	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
7.RP.B.5	Use experimental data and theoretical probability to make predictions. Understand the probability predictions may not be exact.	7.SP.C.6	Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.
7.RP.B.6	Develop a probability model and use it to find probabilities of events. Compare theoretical and experimental probabilities and explain possible sources of discrepancy if any exists.	7.SP.C.7	Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. --(7.a) Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected. --(7.b) Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
7.RP.B.7	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.	7.SP.C.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. --(8.a) Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. --(8.b) Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event. --(8.c) Design and use a simulation to generate frequencies for compound events. For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?
7.NS	Numeric Reasoning: Number Systems	7.NS	The Number System
7.NS.A	Apply and extend previous understandings of operations with fractions.	7.NS.A	Apply and extend previous understandings of operations with fractions.
7.NS.A.1	Apply and extend previous understandings of addition, subtraction and absolute value to add and subtract rational numbers in authentic contexts. Understand subtraction as adding the additive inverse, $p - q = p + (-q)$.	7.NS.A.1	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. --(1.a) Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged. --(1.b) Understand $p + q$ as the number located a distance $\|q\|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. --(1c) Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. --(1.d) Apply properties of operations as strategies to add and subtract rational numbers.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
7.NS.A.2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. Interpret operations of rational numbers solving problems in authentic contexts.	7.NS.A.2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. --(2.a) Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (–1)(–1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. --(2.b) Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers then –(p/q) = (–p)/q = p/(–q). Interpret quotients of rational numbers by describing real-world contexts. --(2.c) Apply properties of operations as strategies to multiply and divide rational numbers. --(2.d) Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
7.NS.A.3	Understand that equivalent rational numbers can be written as fractions, decimals and percents.	7.NS.A.3	Solve real-world and mathematical problems involving the four operations with rational numbers. (Computations with rational numbers extend the rules for manipulating fractions to complex fractions.)
7.GM	Geometric Reasoning and Measurement	7.G	Geometry
7.GM.A	Draw, construct, and describe geometrical figures and describe the relationships between them.	7.G.A	Draw construct, and describe geometrical figures and describe the relationships between them.
7.GM.A.1	Solve problems involving scale drawings of geometric figures. Reproduce a scale drawing at a different scale and compute actual lengths and areas from a scale drawing.	7.G.A.1	Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
7.GM.A.2	Draw triangles from three measures of angles or sides. Understand the possible side lengths and angle measures that determine a unique triangle, more than one triangle, or no triangle.	7.G.A.2	Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
[n/a]	*Merge with 7.GM.A.2*	*7.G.A.3*	*Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.*

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
7.GM.B	Solve mathematical problems in authentic contexts involving angle measure, area, surface area, and volume.	7.G.B	Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.
7.GM.B.3	Understand the relationship between area and circumference of circles. Choose and use the appropriate formula to solve problems with radius, diameter, circumference and area of circles.	7.G.B.4	Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
7.GM.B.4	Apply facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to determine an unknown angle in a figure.	7.G.B.5	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
7.GM.B.5	Solve problems in authentic contexts involving two- and three-dimensional figures. Given formulas, calculate area, volume and surface area.	7.G.B.6	Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.
7.DR	Data Reasoning	7.SP	Statistics and Probability
7.DR.A	Formulate Statistical Investigative Questions		Original CCSS
7.DR.A.1	Formulate summary, comparative investigative questions to gain information about a population and that a sample is valid only if the sample is representative of that population.	7.SP.A.1	Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.
7.DR.B	Collect and Consider Data		Original CCSS
7.DR.B.1	Collect or consider data from a random sample to compare and draw inferences about a population with an unknown characteristic of interest.	7.SP.A.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
7.DR.C	Analyze, summarize, and describe data		Original CCSS
7.DR.C.2	Analyze two data distributions visually to compare multiple measures of center and variability.	7.SP.B.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.
7.DR.D	Interpret data and answer investigative questions		Original CCSS
7.DR.D.4	Interpret measures of center and measures of variability for numerical data from random samples to compare between two populations, and to answer investigative questions.	7.SP.B.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.

8th Grade Mathematics Crosswalk (2021)

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
8.AEE	Algebraic Reasoning: Expressions and Equations	8.EE	Expressions & Equations
8.AEE.A	Expressions and Equations Work with radicals and integer exponents.	8.EE.A	Expressions and Equations Work with radicals and integer exponents.
8.AEE.A.1	Apply the properties of integer exponents using powers of 10 to generate equivalent numerical expressions.	8.EE.A.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, 3^2 × 3^(–5) = 3^(–3) = 1/(3^3) = 1/27.
8.AEE.A.2	Represent solutions to equations using square root and cube root symbols.	8.EE.A.2	Use square root and cube root symbols to represent solutions to equations of the form x^2 = p and x^3 = p, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational.
8.AEE.A.3	Estimate very large or very small quantities using scientific notation with a single digit times an integer power of ten.	8.EE.A.3	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as 3 × 10^8 and the population of the world as 7 × 10^9, and determine that the world population is more than 20 times larger.
8.AEE.A.4	Perform operations with numbers expressed in scientific notation.	8.EE.A.4	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.
8.AEE.B	Understand the connections between proportional relationships, lines, and linear equations.	8.EE.B	Understand the connections between proportional relationships, lines, and linear equations.
8.AEE.B.5	Graph proportional relationships in authentic contexts. Interpret the unit rate as the slope of the graph, and compare two different proportional relationships represented in different ways.	8.EE.B.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.
8.AEE.B.6	Write the equation for a line in slope intercept form y = mx + b, where m and b are rational numbers, and explain in context why the slope m is the same between any two distinct points.	8.EE.B.6	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y =mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
8.AEE.C	Analyze and solve linear equations and pairs of simultaneous linear equations.	8.EE.C	Analyze and solve linear equations and pairs of simultaneous linear equations.
8.AEE.C.7	Solve linear equations with one variable including equations with rational number coefficients, with the variable on both sides, or whose solutions require using the distributive property and/or combining like terms.	8.EE.C.7	Solve linear equations in one variable. --(7.a) Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers). --(7.b) Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
8.AEE.C.8	Find, analyze, and interpret solutions to pairs of simultaneous linear equations using graphs or tables.	8.EE.C.8	Analyze and solve pairs of simultaneous linear equations. --(8.a) Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. --(8.b) Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6. --(8.c) Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.
8.AFN	Algebraic Reasoning: Functions	8.F	Functions
8.AFN.A	Define, evaluate, and compare functions.	8.F.A	Define, evaluate, and compare functions.
8.AFN.A.1	Understand in authentic contexts, that the graph of a function is the set of ordered pairs consisting of an input and a corresponding output.	8.F.A.1	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required in Grade 8.)

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
8.AFN.A.2	Compare the properties of two functions represented algebraically, graphically, numerically in tables, or verbally by description.	8.F.A.2	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.
8.AFN.A.3	Understand and identify linear functions, whose graph is a straight line, and identify examples of functions that are not linear.	8.F.A.3	Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function A = s^2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.
8.AFN.B	Use functions to model relationships between quantities.	8.F.B	Use functions to model relationships between quantities.
8.AFN.B.4	Construct a function to model a linear relationship in authentic contexts between two quantities.	8.F.B.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
8.AFN.B.5	Describe qualitatively the functional relationship between two quantities in authentic contexts by analyzing a graph.	8.F.B.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.
8.NS	Numeric Reasoning: Number Systems	8.NS	DOMAIN: The Number System
8.NS.A	Know that there are numbers that are not rational, and approximate them by rational numbers.	8.NS.A	Know that there are numbers that are not rational, and approximate them by rational numbers.
8.NS.A.1	Know that real numbers that are not rational are called irrational.	8.NS.A.1	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
8.NS.A.2	Use rational approximations of irrational numbers to compare size and locate on a number line.	8.NS.A.2	Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). For example, by truncating the decimal expansion of √2 (square root of 2), show that √2 is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.
8.GM	Geometric Reasoning and Measurement	8.G	Geometry
8.GM.A	Understand congruence and similarity using physical models, transparencies, or geometry software.	8.G.A	Understand congruence and similarity using physical models, transparencies, or geometry software.
8.GM.A.1	Verify experimentally the properties of rotations, reflections, and translations.	8.G.A.1	Verify experimentally the properties of rotations, reflections, and translations: --(1.a) Lines are taken to lines, and line segments to line segments of the same length. --(1.b) Angles are taken to angles of the same measure. --(1.c) Parallel lines are taken to parallel lines.
8.GM.A.2	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations.	8.G.A.2	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
8.GM.A.3	Describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates.	8.G.A.3	Describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates.
8.GM.A.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and/or dilations.	8.G.A.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
8.GM.A.5	Use informal arguments to establish facts about interior and exterior angles of triangles and angles formed by parallel lines cut with a transversal.	8.G.A.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the three angles appear to form a line, and give an argument in terms of transversals why this is so.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
8.GM.B	Understand and apply the Pythagorean Theorem.	8.G.B	Understand and apply the Pythagorean Theorem.
8.GM.B.6	Distinguish between applications of the Pythagorean Theorem and its Converse in authentic contexts.	8.G.B.6	Explain a proof of the Pythagorean Theorem and its converse.
8.GM.B.7	Apply the Pythagorean Theorem in authentic contexts to determine unknown side lengths in right triangles.	8.G.B.7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
8.GM.B.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	8.G.B.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
8.GM.C	Solve mathematical problems in authentic contexts involving volume of cylinders, cones, and spheres.	8.G.C	Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.
8.GM.C.9	Choose and use the appropriate formula for the volume of cones, cylinders, and spheres to solve problems in authentic contexts.	8.G.C.9	Know the formulas for the volume of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.
8.DR	Data Reasoning	8.SP	Statistics and Probability
8.DR.A	Formulate Statistical Investigative Questions		Original CCSS
8.DR.A.1	Formulate statistical investigative questions to articulate research topics and uncover patterns of association seen in bivariate categorical data.	8.SP.A.4	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?
8.DR.B	Collect and Consider Data		Original CCSS
8.DR.B.2	Collect or consider data using surveys and measurements to capture patterns of association, and critically analyze data collection methods.	8.SP.A.2	Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
8.DR.C	Analyze, summarize, and describe data		Original CCSS
8.DR.C.3	Analyze patterns of association between two quantitative or categorical variables and reason about distributions to compare groups.	8.SP.A.1	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
8.DR.D	Interpret data and answer investigative questions		Original CCSS
8.DR.D.4	Interpret scatter plots for bivariate quantitative data to investigate patterns of association between two quantities to answer investigative questions.	8.SP.A.3	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.

High School Algebra Crosswalk (2021)

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
HS.AEE	Algebraic Reasoning: Expressions and Equations	HSA	High School Algebra
HS.AEE.A	Use algebraic reasoning to rewrite expressions in equivalent forms.	[n/a]	[new cluster]
HS.AEE.A.1	Interpret an expression which models a quantity by viewing one or more of its parts as a single entity. Reason about how changes in parts of the expression impact the whole, and vice versa.	HSA.SSE.A.1	Interpret expressions that represent a quantity in terms of its context.* ---HSA.SSE.A.1.A Interpret parts of an expression, such as terms, factors, and coefficients. - ---HSA.SSE.A.1.B Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret P(1+r)n as the product of P and a factor not depending on P.
HS.AEE.A.2	Create and recognize an equivalent form of an expression to understand the quantity represented in an authentic context.	HSA.SSE.B.3	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.* --HSA.SSE.B.3.A Factor a quadratic expression to reveal the zeros of the function it defines. --HSA.SSE.B.3.B Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. --HSA.SSE.B.3.C Use the properties of exponents to transform expressions for exponential functions. For example the expression 1.15t can be rewritten as (1.151/12)12t ≈ 1.01212t to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.
HS.AEE.A.3	Rearrange formulas and equations to highlight a specific quantity.	HSA.CED.A.4 HSF.IF.C.8	(A.4) Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law V = IR to highlight resistance R. (C.8) Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.
HS.AEE.B	Use algebraic reasoning to find solutions to an equation, inequality, and systems of equations or inequalities.	[n/a]	[new cluster]
HS.AEE.B.4	Define variables and create equations with two or more variables to represent relationships between quantities in order to solve problems in authentic contexts.	HSA.CED.A.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
HS.AEE.B.5	Define variables and create inequalities with one or more variables and use them to solve problems in authentic contexts.	HSA.CED.A.1	Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.
HS.AEE.B.6	Solve systems of linear equations and systems of linear inequalities in authentic contexts through reasoning, algebraic means, or strategically using technology.	HSA.REI.C.6	Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.
HS.AEE.C	Analyze the structure of an equation or inequality to determine an efficient strategy to find and justify a solution.	[n/a]	[new cluster]
HS.AEE.C.7	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities; interpret solutions as viable or nonviable options in authentic contexts.	HSA.CED.A.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.
HS.AEE.C.8	Construct a viable argument to justify a method for solving equations or inequalities.	HSA.REI.C.1	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.
HS.AEE.D	Make predictions in different applications using expressions, equations, and inequalities to analyze authentic contexts.	[n/a]	[new cluster]
HS.AEE.D.9	Understand that the solution to an equation in two variables is a set of points in the coordinate plane that form a curve, which could be a line.	HSA.REI.D.10	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).
HS.AEE.D.10	Recognize and explain why the point(s) of intersection of the graphs of f(x) and g(x) are solutions to the equation f(x)=g(x). Interpret the meaning of the coordinates of these points in authentic contexts.	HSA.REI.D.11	Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.*

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
HS.AEE.D.11	Graph and explain why the points in a half plane are solutions to a linear inequality and the solutions to a system of inequalities are the points in the intersection of corresponding half planes. Interpret the meaning of the coordinates of these points in authentic contexts.	HSA.REI.D.12 HSA.REI.B.3	(D.12) Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes. (B.3) Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
HS.AFN	Algebraic Reasoning: Functions	HSF	High School Functions
HS.AFN.A	Describe functions by using both symbolic and graphical representations.	[n/a]	[new cluster]
HS.AFN.A.1	Understand a function as a rule that assigns a unique output for every input and that functions model situations where one quantity determines another.	HSF.IF.A.1	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. If f is a function and x is an element of its domain, then f(x) denotes the output of f corresponding to the input x. The graph of f is the graph of the equation y = f(x).
HS.AFN.A.2	Use function notation and interpret statements that use function notation in terms of the context and the relationship it describes.	HSF.IF.A.2 HSF.BF.A.1	(A.2) Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context. (A.1) Write a function that describes a relationship between two quantities.*
HS.AFN.A.3	Calculate and interpret the average rate of change of a function over a specified interval.	HSF.IF.B.6	Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.*
HS.AFN.B	Compare and relate functions using common attributes.	[n/a]	[new cluster]
HS.AFN.B.4	Compare properties of two functions using multiple representations. Distinguish functions as members of the same family using common attributes.	HSF.IF.C.9	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.
HS.AFN.B.5	Relate the domain of a function to its graph and to its context.	HSF.IF.B.5	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.*

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
HS.AFN.C	Represent functions graphically and interpret key features in terms of the equivalent symbolic representation.	[n/a]	[new cluster]
HS.AFN.C.6	Interpret key features of functions, from multiple representations, and conversely predict features of functions from knowledge of context.	HSF.IF.B.4	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.*
HS.AFN.C.7	Graph functions using technology to show key features.	HSF.IF.C.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* --HSF.IF.C.7.A Graph linear and quadratic functions and show intercepts, maxima, and minima. --HSF.IF.C.7.B Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. --HSF.IF.C.7.C Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior. --HSF.IF.C.7.D (+) Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior. --HSF.IF.C.7.E Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude
HS.AFN.D	Model a wide variety of authentic situations using functions through the process of making and changing assumptions, assigning variables, and finding solutions to contextual problems.	[n/a]	[new cluster]
HS.AFN.D.8	Model situations involving arithmetic patterns. Use a variety of representations such as pictures, graphs, or an explicit formula to describe the pattern.	HSF.BF.A.2	Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.*
HS.AFN.D.9	Identify and interpret the effect on the graph of a function when the equation has been transformed.	HSF.BF.B.3	Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
HS.AFN.D.10	Explain why a situation can be modeled with a linear function, an exponential function, or neither. In a given model, explain the meaning of coefficients and features of functions used, such as slope for a linear model.	HSF.LE.A.1	Distinguish between situations that can be modeled with linear functions and with exponential functions. --HSF.LE.A.1.A Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. --HSF.LE.A.1.B Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. --HSF.LE.A.1.C Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.
HS.NQ	Numeric Reasoning: Number and Quantity	HSN	High School Number
HS.NQ.A	Understand and apply the real number system.	[n/a]	[new cluster]
HS.NQ.A.1	Use reasoning to establish properties of positive integer exponents. Extend the definition of exponentiation to include negative and rational exponents so as to be consistent with these properties. Utilize exponentiation to model authentic contexts.	HSN.RN.A.1	Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. For example, we define 51/3 to be the cube root of 5 because we want (51/3)3 = 5(1/3)3 to hold, so (51/3)3 must equal 5.
HS.NQ.A.2	Compare real numbers presented through different representations, including both rational and irrational numbers. Apply comparisons in authentic contexts.	[n/a]	[new content]
HS.NQ.B	Attend to units of measurement needed to solve problems through quantitative reasoning and mathematical modeling.	[n/a]	[new cluster]
HS.NQ.B.3	Use reasoning to choose and interpret measurement units consistently in formulas, graphs, and data displays, as a way to understand problems and to guide the solution of multi-step problems.	HSN.Q.A.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
HS.NQ.B.4	Define, manipulate, and interpret appropriate quantities using rational and irrational numbers to authentically model situations and use reasoning to justify these choices.	HSN.Q.A.2	Define appropriate quantities for the purpose of descriptive modeling.
HS.NQ.B.5	Use reasoning to choose a level of accuracy appropriate to limitations on measurement when reporting quantities in modeling situations.	HSN.Q.A.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

High School Geometry Crosswalk (2021)

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
HS.GM	Geometric Reasoning and Measurement	HSG	High School Geometry
HS.GM.A	Apply geometric transformations to figures through analysis of graphs and understanding of functions.	[n/a]	[new cluster]
HS.GM.A.1	Apply definitions of rotations, reflections, and translations to transform a figure and map between two congruent figures in authentic contexts.	HSG.CO.A.2 HSG.CO.A.4 HSG.CO.A.5	(A.2) Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch). (A.4) Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments. (A.5) Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.
HS.GM.A.2	Verify experimentally the properties of a dilation given a center and a scale factor. Solve problems in authentic contexts involving similar triangles or dilations.	HSG.SRT.B.5 HSG.SRT.A.1 HSG.SRT.A.2 HSG.SRT.A.3	(B.5) Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures. (A.1) Verify experimentally the properties of dilations given by a center and a scale factor: HSG.SRT.A.1a 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. HSG.SRT.A.1b The dilation of a line segment is longer or shorter in the ratio given by the scale factor. (A.2) Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides. (A.3) Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
HS.GM.A.3	Use the slopes of segments and the coordinates of the vertices of triangles, parallelograms, and trapezoids to solve problems in authentic contexts.	HSG.GPE.B.5	Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).
HS.GM.A.4	Use definitions of transformations and symmetry relationships to justify the solutions of problems in authentic contexts.	HSG.CO.A.1	Use definitions of geometric figures and geometric relationships to justify the solutions of problems.
HS.GM.B	Construct and communicate geometric arguments through use of proofs, logical reasoning, and geometric technology.	[n/a]	[new cluster]
HS.GM.B.5	Apply and justify triangle congruence and similarity theorems in authentic contexts.	HSG.CO.B.7 HSG.CO.B.8	(B.7) Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent. (B.8) Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.
HS.GM.B.6	Justify theorems of line relationships, angles, triangles, and parallelograms; and use them to solve problems in authentic contexts.	HSG.CO.C.9 HSG.CO.C.10	(C.9) Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints. (C.10) Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180 degrees; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.
HS.GM.B.7	Perform geometric constructions with a variety of tools and methods.	HSG.CO.D.12	Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
HS.GM.C	Solve problems and interpret solutions of area and volume of shapes by applying concepts of congruence, similarity, symmetry in authentic contexts.	[n/a]	[new cluster]
HS.GM.C.8	Solve authentic modeling problems using area formulas for triangles, parallelograms, trapezoids, regular polygons, and circles.	HSG.GMD.A.1	Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments.
HS.GM.C.9	Use volume and surface area formulas for prisms, cylinders, pyramids, cones, and spheres to solve problems and apply to authentic contexts.	HSG.GMD.A.3	Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.*
HS.GM.C.10	Use geometric shapes, their measures, and their properties to describe real world objects, and solve related authentic modeling and design problems.	HSG.MG.A.1 HSG.MG.A.3	(A.1) Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).* (A.3) Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*
HS.GM.C.11	Apply concepts of density based on area and volume in authentic modeling situations.	HSG.MG.A.2	Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).*
HS.GM.D	Apply concepts of right triangle trigonometry in authentic contexts to solve problems and interpret solutions.	[n/a]	[new cluster]
HS.GM.D.12	Apply sine, cosine, and tangent ratios, and the Pythagorean Theorem, to solve problems in authentic contexts.	HSG.SRT.C.8 HSG.SRT.C.6 HSG.SRT.C.7	(C.8) Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.* (C.6) Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles. (C.7) Explain and use the relationship between the sine and cosine of complementary angles.
HS.GM.D.13	Apply the Pythagorean Theorem in authentic contexts, and develop the standard form for the equation of a circle.	HSG.GPE.A.1	Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.
HS.GM.D.14	Use the coordinate plane to determine parallel and perpendicular relationships, and the distance between points.	HSG.GPE.B.4	Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point (1, √3) lies on the circle centered at the origin and containing the point (0, 2).

High School Data Reasoning and Probability Crosswalk (2021)

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
HS.DR	**Data Reasoning and Probability**	HSS	High School Statistics and Probability
HS.DR.A	Formulate Statistical Investigative Questions	[n/a]	[new cluster]
HS.DR.A.1	Formulate multivariable statistical investigative questions and determine how data from samples can be collected and analyzed to provide an answer.	HSS.IC.A.1	Understand the process of statistical reasoning, formulate questions, collect, analyze, and interpret data to answer statistical investigative questions.
HS.DR.A.2	Formulate summative, comparative, and associative statistical investigative questions for surveys, observational studies, and experiments using primary or secondary data.	HSS.IC.B.3	Recognize the difference between sample surveys, experiments and observational studies and understand the role of randomization in each.
HS.DR.A.3	Formulate inferential statistical investigative questions regarding causality and prediction from correlation.	HSS.ID.C.9	Distinguish between correlation and causation.
HS.DR.A.4	Use mathematical and statistical reasoning to formulate questions about data to evaluate conclusions and assess risks.	HSS.IC.B.6	Evaluate reports based on data.
HS.DR.B	Collect and Consider Data	[n/a]	[new cluster]
HS.DR.B.5	Articulate what constitutes good practice in designing a sample survey, an experiment, and an observational study. Understand issues of bias and confounding variables in a study and their implications for interpretation.	[n/a]	[new content]
HS.DR.B.6	Distinguish and choose between surveys, observational studies, and experiments to design an appropriate data collection that answers an investigative question of interest.	HSS.IC.B.4	Use data from a sample survey to estimate a population parameter.
HS.DR.B.7	Apply an appropriate data collection plan when collecting primary data or selecting secondary data for the statistical investigative question of interest.	HSS.ID.B.5	Analyze the association between two categorical variables by using two-way tables and comparative bar graphs.

OR INDEX (2021)	Standards Statement (2021)	CCSS INDEX (2010)	Previous Standards Statement (CCSS, 2010)
HS.DR.C	Analyze, summarize, and describe data	[n/a]	[new cluster]
HS.DR.C.8	Identify appropriate ways to summarize and then represent the distribution of univariate and bivariate data multiple ways with graphs and/or tables. Use technology to present data that supports interpretation of tabular and graphical representations.	HSS.ID.A.1 HSS.ID.B.6	(A.1) Represent the distribution of data multiple ways with plots on the real number line. (B.6) Represent data on two quantitative variables on a scatter plot and describe how the variables are related.
HS.DR.C.9	Use statistics appropriate to the shape of the data distribution to compare the center and spread of two or more different data sets.	HSS.ID.A.2 HSS.ID.A.4	(A.2) Use statistics appropriate to the shape of the data distribution to compare center and spread of two or more different data sets. (A.4)Use the mean and standard deviation of an approximately normally distributed data set to estimate population percentages.
HS.DR.C.10	Use data to compare two groups, describe sample variability, and decide if differences between parameters are significant based on the statistics.	HSS.ID.A.3 HSS.IC.B.5	(ID.A.3) Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers). (IC.B.5)Use data from a randomized experiment to compare two treatments to decide if differences between parameters are significant based on the statistics.
HS.DR.D	Interpret data and answer investigative questions	[n/a]	[new cluster]
HS.DR.D.11	Use statistical evidence from analyses to answer statistical investigative questions, and communicate the findings in a variety of formats (verbal, written, visual) to support informed data-based decisions.	HSS.ID.C.7	Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.
HS.DR.D.12	Articulate what it means for an outcome or an estimate of a population characteristic to be plausible or not plausible compared to chance variation.	HSS.ID.C.8	Compute, using technology, and interpret the correlation coefficient of a linear fit.
HS.DR.D.13	Use multivariate thinking to articulate how variables impact one another, and measure the strength of association using correlation coefficients for regression curves.	HSS.ID.C.9	Distinguish between correlation and causation.
HS.DR.E	Understand independence and conditional probability and use them to interpret data	[n/a]	[new cluster]
HS.DR.E.14	Describe the possible outcomes for a situation as subsets of a sample space.	HSS.CP.A.1	Describe the possible outcomes for a situation as subsets of a sample space.
HS.DR.E.15	Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.	HSS.CP.A.5	Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.