

Primary Mathematics 2022 Edition Common Core State Standards Correlations - Grade K (Preview)

Key: Major ■, Supporting □, or Additional ○

Chapter 1 – Count and Show Numbers to 5

1A Count and Show.....	K.CC.A.1 ■, K.CC.B.4 ■, K.CC.B.4a ■, K.CC.B.4b ■, K.CC.B.5 ■
1B Count and Order.....	K.CC.A.1 ■, K.CC.A.2 ■, K.CC.B.4a ■, K.CC.B.4b ■, K.CC.B.5 ■

Chapter 2 - Write Numbers to 5

2A Count and Write.....	K.CC.A.1 ■, K.CC.A.3 ■, K.CC.B.4 ■, K.CC.B.4a ■, K.CC.B.4b ■, K.CC.B.5 ■, K.MD.B.3 □
2B How Many?.....	K.CC.A.1 ■, K.CC.A.3 ■, K.CC.B.4 ■, K.CC.B.4a ■, K.CC.B.4b ■, K.CC.B.5 ■

Chapter 3 - Numbers to 10

3A Numbers 6 to 10.....	K.CC.A.1 ■, K.CC.A.3 ■, K.CC.B.4 ■, K.CC.B.4a ■, K.CC.B.4b ■, K.CC.B.4c ■, K.CC.B.5 ■, K.MD.B.3 □
3B Order to 10.....	K.CC.A.1 ■, K.CC.A.2 ■, K.CC.B.4a ■, K.CC.B.4b ■, K.CC.B.4c ■, K.CC.B.5 ■

Chapter 4 - Shapes

4A Solid Shapes.....	K.G.A.1 ○, K.G.A.2 ○, K.G.A.3 ○, K.G.B.4 □, K.G.B.5 □, K.MD.B.3 □
4B Flat Shapes.....	K.G.A.1 ○, K.G.A.2 ○, K.G.A.3 ○, K.G.B.4 □, K.G.B.5 □, K.G.B.6 □, K.MD.B.3 □
4C Shape Patterns.....	K.G.A.2 ○, K.G.A.3 ○, K.G.B.4 □
4D Positions.....	K.G.A.1 ○

Chapter 5 – Compare Numbers to 10

- 5A More Than..... K.CC.C.6 ■, K.CC.C.7 ■
- 5B Fewer Than..... K.CC.C.6 ■, K.CC.C.7 ■
- 5C Same Number..... K.CC.C.6 ■, K.CC.C.7 ■
- 5D Greater Than, Less Than, and Equal To.....K.CC.C.6 ■, K.CC.C.7 ■
- 5E 1 More Than and 1 Less Than..... K.CC.B.4c ■, K.CC.C.6 ■, K.CC.C.7 ■

Chapter 6 – Ways to Make and Break Numbers to 10

- 6A Ways to Make and Break Numbers to 5.....K.OA.A.3 ■
- 6B Ways to Make and Break Numbers to 10.....K.OA.A.3 ■, K.OA.A.4 ■

Chapter 7 – Numbers to 20

- 7A Count and Write.....K.CC.A.3 ■, K.CC.B.4 ■, K.CC.B.4a ■, K.CC.B.4b ■, K.CC.B.4c ■,
K.CC.B.5 ■, K.NBT.A.1 ■
- 7B How Many?.....K.CC.A.1 ■, K.CC.A.3 ■, K.CC.B.4 ■, K.CC.B.4a ■, K.CC.B.4b ■,
K.CC.B.5 ■
- 7C Take Apart Numbers to.....K.NBT.A.1 ■
- 7D Count and Order.....K.CC.A.2 ■

Chapter 8 - Measurement

- 8A Length.....K.MD.A.1 ○, K.MD.A.2 ○
- 8B Height.....K.MD.A.1 ○, K.MD.A.2 ○
- 8C Weight.....K.MD.A.1 ○, K.MD.A.2 ○

Chapter 9 - Addition

- 9A Addition Stories.....K.OA.A.1 ■, K.OA.A.2 ■
- 9B Add Fluently Within 5.....K.OA.A.5 ■
- 9C Add Within 10.....K.OA.A.1 ■, K.OA.A.2 ■, K.OA.A.3 ■, K.OA.A.4 ■

Chapter 10 - Subtraction

- 10A Subtraction Stories.....K.OA.A.1 ■, K.OA.A.2 ■
- 10B Subtract Fluently Within 5.....K.OA.A.5 ■
- 10C Subtract Within 10.....K.OA.A.1 ■, K.OA.A.2 ■, K.OA.A.4 ■

Chapter 11 – Addition and Subtraction

- 11A Add or Subtract.....K.OA.A.1 ■, K.OA.A.2 ■
- 11B Word Problems.....K.OA.A.1 ■, K.OA.A.2 ■

Chapter 12 – Numbers to 100

- 12A Count.....K.CC.A.1 ■, K.CC.A.2 ■, K.CC.B.4 ■, K.CC.B.4b ■, K.CC.B.4c ■
- 12B Number Patterns.....K.CC.A.1 ■, K.CC.A.2 ■

CCSS	CCSS Descriptor
K.CC.A.1 ■	Count to 100 by ones and by tens.
K.CC.A.2 ■	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
K.CC.A.3 ■	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
K.CC.B.4 ■	Understand the relationship between numbers and quantities; connect counting to cardinality.
K.CC.B.4a ■	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.
K.CC.B.4b ■	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.
K.CC.B.4c ■	Understand that each successive number name refers to a quantity that is one larger.
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.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.
K.CC.C.7 ■	Compare two numbers between 1 and 10 presented as written numerals.
K.OA.A.1 ■	Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
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 ■	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 ■	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.

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 (e.g., $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.
K.MD.A.1 ○	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
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. <i>For example, directly compare the heights of two children and describe one child as taller/shorter.</i>
K.MD.B.3 □	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.
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 <i>above, below, beside, in front of, behind, and next to</i> .
K.G.A.2 ○	Correctly name shapes regardless of their orientations or overall size.
K.G.A.3 ○	Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).
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.G.B.5 □	Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.
K.G.B.6 □	Compose simple shapes to form larger shapes. <i>For example, “Can you join these two triangles with full sides touching to make a rectangle?”</i>

Primary Mathematics 2022 Edition Common Core State Standards Correlations - Grade 1 (Preview)

Key: Major ■, Supporting □, or Additional ○
Foundational ▲

Chapter 1 - Numbers to 10

1A Count.....	1.NBT.A.1 ■
1B Compare Numbers.....	1.NBT.A.1 ▲
1C Number Bonds.....	1.NBT.A.1 ▲

Chapter 2 - Addition Within 10

2A Make Addition Stories.....	1.OA.A.1 ■, 1.OA.C.6 ■, 1.OA.D.8 ■
2B Ways to Add.....	1.OA.A.1 ■, 1.OA.B.3 ■, 1.OA.C.5 ■, 1.OA.C.6 ■, 1.OA.D.7 ■, 1.OA.D.8 ■

Chapter 3 - Subtraction Within 10

3A Make Subtraction Stories.....	1.OA.A.1 ■, 1.OA.C.6 ■, 1.OA.D.8 ■
3B Ways to Subtract.....	1.OA.A.1 ■, 1.OA.B.3 ■, 1.OA.B.4 ■, 1.OA.C.5 ■, 1.OA.C.6 ■, 1.OA.D.8 ■
3C Compare Numbers by Subtraction.....	1.OA.C.6 ▲

Chapter 4 - Numbers to 20

4A Count to 20.....	1.NBT.A.1 ■, 1.NBT.B.2 ■, 1.NBT.B.2a ■, 1.NBT.B.2b ■
4B Compare and Order Numbers.....	1.NBT.B.3 ■

Chapter 5 - Addition and Subtraction Within 20

5A Addition.....	1.OA.B.3 ■, 1.OA.C.5 ■, 1.OA.C.6 ■, 1.OA.D.8 ■, 1.NBT.B.2b ■
5B Subtraction.....	1.OA.B.3 ■, 1.OA.B.4 ■, 1.OA.C.5 ■, 1.OA.C.6 ■, 1.OA.D.8 ■, 1.NBT.B.2b ■

*Foundational work requires major work as the base knowledge.

Chapter 6 - Addition and Subtraction Word Problems

6A Part-Whole Problems.....	1.OA.A.1 ■, 1.OA.A.2 ■, 1.OA.B.3 ■, 1.OA.C.5 ■, 1.OA.C.6 ■, 1.OA.D.8 ■
6B Comparison Problems.....	1.OA.A.1 ■, 1.OA.A.2 ■, 1.OA.B.3 ■, 1.OA.B.4 ■, 1.OA.C.5 ■, 1.OA.C.6 ■, 1.OA.D.8 ■

Chapter 7 - Length

7A Compare Lengths.....	1.MD.A.1 ■
7B Measure Length.....	1.MD.A.2 ■

Chapter 8 - Numbers to 120

8A Count to 120.....	1.NBT.A.1 ■, 1.NBT.B.2 ■, 1.NBT.B.2a ■, 1.NBT.B.2b ■, 1.NBT.B.2c ■
8B Compare and Order Numbers.....	1.NBT.B.3 ■, 1.NBT.C.5 ■
8C Count Money.....	1.NBT.A.1 ▲, 1.NBT.B.2 ▲, 1.NBT.B.2a ▲, 1.NBT.B.2b ▲, 1.NBT.B.2c ▲

Chapter 9 - Addition and Subtraction Within 100

9A Addition.....	1.NBT.C.4 ■, 1.NBT.C.5 ■
9B Subtraction.....	1.NBT.C.6 ■

Chapter 10 - Data

10A Picture Graphs.....	1.MD.C.4 □
10B Tally Charts and Picture Graphs.....	1.MD.C.4 □

Chapter 11 - Shapes

- 11A 2-D Shapes.....1.G.A.1 ○
- 11B Compose 2-D Shapes.....1.G.A.2 ○
- 11C Compose 3-D Shapes.....1.G.A.2 ○
- 11D Partition 2-D Shapes.....1.G.A.3 ○

Chapter 12 - Time

- 12A Tell Time.....1.MD.B.3 ○

CCSS	CCSS Descriptor
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 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.3 ■	Apply properties of operations as strategies to add and subtract. <i>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.)</i>
1.OA.B.4 ■	Understand subtraction as an unknown-addend problem. <i>For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8.</i>
1.OA.C.5 ■	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
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.7 ■	Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. <i>For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.</i>
1.OA.D.8 ■	Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = \square - 3$, $6 + 6 = \square$.</i>
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.2 ■	Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:
1.NBT.B.2a ■	10 can be thought of as a bundle of ten ones — called a “ten.”
1.NBT.B.2b ■	The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.

1.NBT.B.2c ■	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).
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.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 ■	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 (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.MD.A.1 ■	Order three objects by length; compare the lengths of two objects indirectly by using a third object.
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. <i>Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.</i>
1.MD.B.3 ○	Tell and write time in hours and half-hours using analog and digital clocks.
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.
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); build and draw shapes to possess defining attributes
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.
1.G.A.3 ○	Partition circles and rectangles into two and four equal shares, describe the shares using the words <i>halves</i> , <i>fourths</i> , and <i>quarters</i> , and use the phrases <i>half of</i> , <i>fourth of</i> , and <i>quarter of</i> . Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

Primary Mathematics 2022 Edition Common Core State Standards Correlations - Grade 2 (Preview)

Key: Major ■, Supporting □, or Additional ○
Foundational ▲

Chapter 1 – Numbers to 1,000

1A Count To 1,000.....	2.NBT.A.1 ■, 2.NBT.A.1a ■, 2.NBT.A.1b ■, 2.NBT.A.2 ■, 2.NBT.A.3 ■
1B Number Patterns.....	2.NBT.A.4 ■
1C Compare and Order Numbers.....	2.NBT.A.4 ■
1D Number Lines.....	2.NBT.A.2 ▲
1E Count Money.....	2.MD.C.8 □

Chapter 2 – Addition Within 1,000

2A Add Fluently Within 20.....	2.OA.B.2 ■, 2.NBT.B.5 ■
2B Add Tens or Hundreds.....	2.NBT.B.8 ■
2C Add Without Renaming.....	2.NBT.B.7 ■
2D Add With Renaming.....	2.NBT.B.7 ■
2E Add Three or Four 2-Digit Numbers.....	2.NBT.B.6 ■

Chapter 3 – Subtraction Within 1,000

3A Subtract Fluently Within 20.....	2.OA.B.2 ■, 2.NBT.B.5 ■
3B Subtract Tens or Hundreds.....	2.NBT.B.8 ■
3C Subtract Without Renaming.....	2.NBT.B.7 ■
3D Subtract With Renaming.....	2.NBT.B.7 ■
3E Relate Addition and Subtraction.....	2.NBT.B.9 ■

*Foundational work requires major work as the base knowledge.

Chapter 4 – Addition and Subtraction Within 1,000 Using Bar Models

4A Sum and Difference.....	2.OA.A.1 ■
4B Part-Whole Model.....	2.OA.A.1 ■
4C Comparison Model.....	2.OA.A.1 ■
4D Word Problems.....	2.OA.A.1 ■

Chapter 5 – Length

5A Measure and Estimate Length in Metric Units.....	2.MD.A.1 ■, 2.MD.A.2 ■, 2.MD.A.3 ■, 2.MD.B.6 ■
5B Measure and Estimate Length in Customary Units.....	2.MD.A.1 ■, 2.MD.A.2 ■, 2.MD.A.3 ■, 2.MD.B.6 ■
5C Compare and Order Lengths.....	2.MD.A.4 ■
5D Word Problems.....	2.MD.B.5 ■

Chapter 6 – Multiplication

6A Add Equal Groups.....	2.OA.C.3 □
6B Even and Odd Numbers	2.OA.C.3 □
6C Skip Count by 2s, 5s, and 10s	2.OA.C.4 □
6D Multiplication	2.OA.B.2 ▲, 2.NBT.B.6 ▲

Chapter 7 – Time

7A Tell Time.....	2.MD.C.7 □
7B Hours and Minutes	

Chapter 8 – Data

8A Picture Graphs.....	2.MD.D.9 □
8B Bar Graphs.....	2.MD.D.9 □
8C Line Plots.....	2.MD.D.10 □

Chapter 9 – Shapes

9A 2-D and 3-D Shapes.....	2.G.A.1 ○
9B Partition 2-D Shapes.....	2.G.A.2 ○, 2.G.A.3 ○

CCSS	CCSS Descriptor
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.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.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.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:
2.NBT.A.1a ■	100 can be thought of as a bundle of ten tens — called a "hundred."
2.NBT.A.1b ■	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 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.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.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.
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.
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 addition and subtraction strategies work, using place value and the properties of operations.
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.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.MD.A.3 ■	Estimate lengths using units of inches, feet, centimeters, and meters.
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.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.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.MD.C.7 □	Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
2.MD.C.8 □	Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?
2.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.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.
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.
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.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.

Primary Mathematics 2022 Edition Common Core State Standards Correlations - Grade 3 (Preview)

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Foundational ▲

Chapter 1 - Numbers to 10,000

1A Place Value.....	3.NBT.A.1 ○
1B Compare and Order Numbers	
1C Number Patterns.....	3.NBT.A.2 ○
1D Rounding Numbers.....	3.NBT.A.1 ○

Chapter 2 - Addition and Subtraction Within 10,000

2A Addition and Subtraction Within 1,000.....	3.NBT.A.2 ○
2B Addition and Subtraction Within 10,000.....	3.OA.D.8 ▲
2C Other Addition and Subtraction Strategies.....	3.NBT.A.2 ○
2D Word Problems.....	3.OA.D.8 ■

Chapter 3 - Multiplication and Division

3A Multiplication.....	3.OA.A.1 ■
3B Multiply by 2.....	3.OA.C.7 ■, 3.OA.D.9 ■
3C Multiply by 5.....	3.OA.C.7 ■
3D Multiply by 10.....	3.OA.C.7 ■, 3.OA.D.9 ■
3E Multiply by 3.....	3.OA.B.5 ■, 3.OA.C.7 ■
3F Multiply by 4.....	3.OA.B.5 ■, 3.OA.C.7 ■
3G Word Problems.....	3.OA.A.3 ■
3H Division.....	3.OA.A.2 ■, 3.OA.B.6 ■
3I Divide by 2.....	3.OA.A.4 ■, 3.OA.B.6 ■, 3.OA.C.7 ■

*Foundational work requires major work as the base knowledge.

3J Divide by 5.....	3.OA.A.4 ■, 3.OA.B.6 ■, 3.OA.C.7 ■
3K Divide by 10.....	3.OA.A.4 ■, 3.OA.B.6 ■, 3.OA.C.7 ■
3L Divide by 3.....	3.OA.A.4 ■, 3.OA.B.6 ■, 3.OA.C.7 ■
3M Divide by 4.....	3.OA.A.4 ■, 3.OA.B.6 ■, 3.OA.C.7 ■
3N Word Problems.....	3.OA.A.3 ■

Chapter 4 - Multiplication and Division of 6, 7, 8, and 9

4A Multiply and Divide by 6.....	3.OA.A.3 ■, 3.OA.A.4 ■, 3.OA.B.5 ■, 3.OA.B.6 ■, 3.OA.C.7 ■, 3.OA.D.9 ■
4B Multiply and Divide by 7.....	3.OA.A.3 ■, 3.OA.A.4 ■, 3.OA.B.5 ■, 3.OA.B.6 ■, 3.OA.C.7 ■, 3.OA.D.9 ■
4C Multiply and Divide by 8.....	3.OA.A.3 ■, 3.OA.A.4 ■, 3.OA.B.5 ■, 3.OA.B.6 ■, 3.OA.C.7 ■, 3.OA.D.9 ■
4D Multiply and Divide by 9.....	3.OA.A.3 ■, 3.OA.A.4 ■, 3.OA.B.5 ■, 3.OA.B.6 ■, 3.OA.C.7 ■, 3.OA.D.9 ■
4E Multiply by Tens.....	3.NBT.A.3 ○
4F Multiply a 2-Digit Number by a 1-Digit Number.....	3.OA.C.7 ▲
4G Word Problems.....	3.OA.D.8 ■

Chapter 5 - Time

5A Hours and Minutes.....	3.MD.A.1 ■
5B Word Problems.....	3.MD.A.1 ■

Chapter 6 – Area and Perimeter

6A Area.....	3.MD.C.5 ■, 3.MD.C.5a ■, 3.MD.C.5b ■, 3.MD.C.6 ■
6B Area of Squares and Rectangles.....	3.MD.C.7 ■, 3.MD.C.7a ■, 3.MD.C.7b ■, 3.MD.C.7c ■, 3.MD.C.7d ■
6C Perimeter.....	3.MD.D.8 ○
6D Composite Figures.....	3.MD.C.7b ■, 3.MD.C.7d ■

Chapter 7 - Fractions

7A Unit Fractions.....	3.NF.A.1 ■, 3.G.A.2 □
7B More Fractions.....	3.NF.A.1 ■
7C Fractions Greater Than 1.....	3.NF.A.1 ■
7D Compare and Order Fractions.....	3.NF.A.3d ■
7E Equivalent Fractions.....	3.NF.A.3 ■, 3.NF.A.3a ■, 3.NF.A.3b ■, 3.NF.A.3c ■
7F Fractions on a Number Line.....	3.NF.A.2 ■, 3.NF.A.2a ■, 3.NF.A.2b ■, 3.NF.A.3a ■
7G Fractions of a Set.....	3.NF.A.3 ▲

Chapter 8 - Mass and Liquid Volume

8A Measure Mass in Kilograms.....	3.MD.A.2 ■
8B Measure Mass in Grams.....	3.MD.A.2 ■
8C Measure Volume in Liters.....	3.MD.A.2 ■
8D Word Problems.....	3.MD.A.2 ■

Chapter 9 - Data

9A Picture Graphs With Scales.....	3.MD.B.3 □
9B Bar Graphs With Scales.....	3.MD.B.3 □
9C Line Plots.....	3.MD.B.4 □

Chapter 10 - Shapes

10A Angles and Shapes.....	3.G.A.1 □
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CCSS	CCSS Descriptor
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.
3.OA.A.2 ■	Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.
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 whole number in a multiplication or division equation relating three whole numbers.
3.OA.B.5 ■	Apply properties of operations as strategies to multiply and divide.
3.OA.B.6 ■	Understand division as an unknown-factor problem.
3.OA.C.7 ■	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.
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.
3.OA.D.9 ■	Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.
3.NBT.A.1 ○	Use place value understanding to round whole numbers to the nearest 10 or 100.
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.
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.
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 $1/b$.

3.NF.A.2 ■	Understand a fraction as a number on the number line; represent fractions on a number line diagram.
3.NF.A.2a ■	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.
3.NF.A.2b ■	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.
3.NF.A.3 ■	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
3.NF.A.3a ■	Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
3.NF.A.3b ■	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.
3.NF.A.3c ■	Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.
3.NF.A.3d ■	Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer 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.
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.MD.A.2 ■	Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.
3.MD.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.
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.MD.C.5 ■	Recognize area as an attribute of plane figures and understand concepts of area measurement.

3.MD.C.5a ■	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.
3.MD.C.5b ■	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.MD.C.6 ■	Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).
3.MD.C.7 ■	Relate area to the operations of multiplication and addition.
3.MD.C.7a ■	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.
3.MD.C.7b ■	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.
3.MD.C.7c ■	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 $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.
3.MD.C.7d ■	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.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 areas or with the same area and different perimeters.
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.
3.G.A.2 □	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.

Primary Mathematics Edition 2022 Common Core State Standards Correlations - Grade 4 (Preview)

Key: Major ■, Supporting □, or Additional ○
Foundational ▲

Chapter 1 - Multi-Digit Whole Numbers

1A Numbers to 1,000,000.....	4.NBT.A.1 ■, 4.NBT.A.2 ■
1B Compare and Order Numbers.....	4.NBT.A.2 ■
1C Number and Shape Patterns.....	4.OA.C.5 ○
1D Rounding Numbers.....	4.NBT.A.3 ■

Chapter 2 - Addition and Subtraction

2A Add Multi-Digit Whole Numbers.....	4.NBT.B.4 ■
2B Subtract Multi-Digit Whole Numbers.....	4.NBT.B.4 ■
2C Word Problems.....	4.OA.A.3 ■

Chapter 3 - Multiplication and Division

3A Multiplicative Comparisons.....	4.OA.A.1 ■
3B Word Problems.....	4.OA.A.2 ■
3C Factors, Multiples, and Prime Numbers.....	4.OA.B.4 □
3D Multiply by Tens, Hundreds, and Thousands.....	4.NBT.B.5 ■
3E Multiply a 2-Digit Number by a 1-Digit Number.....	4.NBT.B.5 ■
3F Multiply by a 3-Digit or a 4-Digit Number by a 1-Digit Number.....	4.NBT.B.5 ■
3G Word Problems.....	4.NBT.B.5 ■, 4.OA.A.3 ■
3H Multiply a 2-Digit Number by a 2-Digit Number	4.NBT.B.5 ■

*Foundational work requires major work as the base knowledge.

3I Quotient and Remainder.....	4.NBT.B.6 ■
3J Divide a 2-Digit Number by a 1-Digit Number.....	4.NBT.B.6 ■
3K Divide a 3-Digit or a 4-Digit Number by a 1-Digit Number.....	4.NBT.B.6 ■
3L Estimate Quotients.....	4.NBT.B.6 ■, 4.OA.A.3 ■
3M Word Problems.....	4.OA.A.3 ■

Chapter 4 - The Four Operations Using Bar Models

4A Word Problems.....	4.OA.A.2 ■, 4.OA.A.3 ■
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Chapter 5 - Fractions

5A Equivalent Fractions.....	4.NF.A.1 ■
5B Compare and Order Fractions.....	4.NF.A.2 ■
5C Add and Subtract Like Fractions.....	4.NF.B.3 ■, 4.NF.B.3a ■, 4.NF.B.3b ■
5D Word Problems.....	4.NF.B.3d ■

Chapter 6 - Mixed Numbers, Improper Fractions, and Operations on Fractions

6A Mixed Numbers and Improper Fractions.....	4.NF.B.3 ▲, 4.NF.B.3b ▲
6B Add and Subtract Mixed Numbers.....	4.NF.B.3 ■, 4.NF.B.3a ■, 4.NF.B.3b ■, 4.NF.B.3c ■
6C Word Problems.....	4.NF.B.3d ■
6D Multiply a Fraction and a Whole Number.....	4.NF.B.4 ■, 4.NF.B.4a ■, 4.NF.B.4b ■, 4.NF.B.4c ■
6E Line Plots.....	4.MD.B.4 □

Chapter 7 - Decimals

7A Tenths.....	4.NF.C.5 ■, 4.NF.C.6 ■, 4.NF.C.7 ■
7B Hundredths.....	4.NF.C.5 ■, 4.NF.C.6 ■, 4.NF.C.7 ■
7C Number Patterns	4.OA.C.5 ○

Chapter 8 - Area and Perimeter

8A Rectangles and Squares.....4.MD.A.3

8B Composite Figures.....4.MD.A.3

Chapter 9 - Geometry

9A Points, Lines, Line Segments, Rays, and Angles.....4.G.A.1

9B Acute Angles, Right Angles, and Obtuse Angles.....4.G.A.1

9C Measure Angles.....4.MD.C.5 , 4.MD.C.5a , 4.MD.C.5b , 4.MD.C.6 , 4.MD.C.7

9D Perpendicular and Parallel Line Segments.....4.G.A.1

9E Line of Symmetry.....4.G.A.3

Chapter 10 - Measurement, Time, and Conversion

10A Metric Units of Measurement and Conversion.....4.MD.A.1

10B Customary Units of Measurement and Conversion.....4.MD.A.1

10C Time and Conversion.....4.MD.A.1

10D Word Problems.....4.MD.A.2

CCSS	CCSS Descriptor
4.OA.A.1 ■	Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
4.OA.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 multi-step 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.4 □	Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.
4.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.
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.2 ■	Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.
4.NBT.A.3 ■	Use place value understanding to round multi-digit whole numbers to any place.
4.NBT.B.4 ■	Fluently add and subtract multi-digit whole numbers using the standard algorithm.
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.
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.

4.NF.A.1 ■	Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
4.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.
4.NF.B.3 ■	Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.
4.NF.B.3a ■	Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
4.NF.B.3b ■	Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model.
4.NF.B.3c ■	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.
4.NF.B.3d ■	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.
4.NF.B.4 ■	Apply and extend previous understandings of multiplication to multiply a fraction by a whole number
4.NF.B.4a ■	Understand a fraction a/b as a multiple of $1/b$.
4.NF.B.4b ■	Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number.
4.NF.B.4c ■	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.
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.
4.NF.C.6 ■	Use decimal notation for fractions with denominators 10 or 100.
4.NF.C.7 ■	Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.

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.
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.MD.A.3 □	Apply the area and perimeter formulas for rectangles in real world and mathematical problems.
4.MD.B.4 □	Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}, \frac{1}{4}, \frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots.
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.
4.MD.C.5a ○	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 $\frac{1}{360}$ of a circle is called a "one-degree angle," and can be used to measure angles.
4.MD.C.5b ○	An angle that turns through n one-degree angles is said to have an angle measure of n degrees.
4.MD.C.6 ○	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
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.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.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.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.

Primary Mathematics 2022 Edition Common Core State Standards Correlations - Grade 5 (Preview)

Key: Major ■, Supporting □, or Additional ○
Foundational ▲

Chapter 1 - Multi-Digit Whole Numbers

- 1A Numbers to 10 Million.....5.NBT.A.1 ■
- 1B Multiply by Tens, Hundreds, and Thousands.....5.NBT.A.2 ■
- 1C Divide by Tens, Hundreds, and Thousands.....5.NBT.A.2 ■

Chapter 2 - The Four Operations with Whole Numbers

- 2A Order of Operations.....5.OA.A.1 ○, 5.OA.A.2 ○
- 2B Multiply by a 2-Digit Number Fluently.....5.NBT.B.5 ■
- 2C Word Problems: Multiplying by a 2-Digit Number.....5.NBT.B.5 ■
- 2D Divide by Tens.....5.NBT.B.6 ■
- 2E Divide by a 2-Digit Number.....5.NBT.B.6 ■
- 2F Word Problems: Dividing by a 2-Digit Number.....5.NBT.B.6 ■
- 2G Word Problems.....5.NBT.B.5 ■, 5.NBT.B.6 ■

Chapter 3 - Addition and Subtraction of Fractions

- 3A Add and Subtract Unlike Fractions5.NF.A.1 ■
- 3B Add and Subtract Mixed Numbers5.NF.A.1 ■
- 3C Word Problems.....5.NF.A.2 ■

*Foundational work requires major work as the base knowledge.

Chapter 4 - Multiplication and Division of Fractions

- 4A Product of Fractions and Whole Numbers.....5.NF.B.4 ■, 5.NF.B.4a ■, 5.NF.B.5 ■, 5.NF.B.5a ■, 5.NF.B.5b ■, 5.NF.B.6 ■
- 4B Product of Fractions.....5.NF.B.4 ■, 5.NF.B.4a ■, 5.NF.B.4b ■, 5.NF.B.6 ■
- 4C Product of Mixed Numbers.....5.NF.B.4 ■
- 4D Fraction as Division.....5.NF.B.3 ■
- 4E Divide a Fraction by a Whole Number.....5.NF.B.7 ■, 5.NF.B.7a ■, 5.NF.B.7b ■, 5.NF.B.7c ■
- 4F Divide a Whole Number by a Unit Fraction.....5.NF.B.7 ■, 5.NF.B.7b ■, 5.NF.B.7c ■

Chapter 5 - Word Problems: The Four Operations of Fractions

- 5A Word Problems.....5.NF.B.6 ■, 5.NF.B.7c ■

Chapter 6 - Decimals

- 6A Thousandths.....5.NBT.A.3 ■, 5.NBT.A.3a ■, 5.NBT.A.3b ■
- 6B Rounding Decimals.....5.NBT.A.4 ■

Chapter 7 - The Four Operations of Decimals

- 7A Addition and Subtraction of Decimals.....5.NBT.B.7 ■
- 7B Multiplication of Decimals.....5.NBT.B.7 ■
- 7C Division of Decimals.....5.NBT.B.7 ■
- 7D Conversion of Measurement Units.....5.MD.A.1 □

Chapter 8 - Word Problems: The Four Operations of Decimals

- 8A Word Problems.....5.NBT.B.7 ■, 5.MD.A.1 □

Chapter 9 - Volume

9A Measure and Compare Volumes.....	5.MD.C.3 ■, 5.MD.C.3a ■, 5.MD.C.3b ■, 5.MD.C.4 ■
9B Volume of Rectangular Prisms.....	5.MD.C.5 ■, 5.MD.C.5a ■, 5.MD.C.5b ■
9C Volume of Composite Solids.....	5.MD.C.5c ■
9D Word Problems: Volume of Solids.....	5.MD.C.5b ■, 5.MD.C.5c ■

Chapter 10 - Properties and Classification of Two-Dimensional Shapes

10A Properties and Classification of Triangles.....	5.G.B.3 ○, 5.G.B.4 ○
10B Properties and Classification of Quadrilaterals.....	5.G.B.3 ○, 5.G.B.4 ○

Chapter 11 - Line Plots and the Coordinate Plane

11A Line Plots.....	5.MD.B.2 □
11B The Coordinate Plane.....	5.G.A.1 ○
11C Line Graphs.....	5.G.A.2 ○

Chapter 12 - Patterns and Relationships

12A Number Patterns and Relationships.....	5.OA.B.3 ○, 5.G.A.2 ○
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CCSS	CCSS Descriptor
5.OA.A.1 ○	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
5.OA.A.2 ○	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. <i>For example, express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.</i>
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. <i>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.</i>
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 ■	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
5.NBT.A.3 ■	Read, write, and compare decimals to thousandths.
5.NBT.A.3a ■	Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.
5.NBT.A.3b ■	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.B.5 ■	Fluently multiply multi-digit whole numbers using the standard algorithm.
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 ■	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

5.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. <i>For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)</i>
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. <i>For example, recognize an incorrect result $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$.</i>
5.NF.B.3 ■	Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. <i>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?</i>
5.NF.B.4 ■	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
5.NF.B.4a ■	Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. <i>For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = (ac)/(bd)$.</i>
5.NF.B.4b ■	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 ■	Interpret multiplication as scaling (resizing), by:
5.NF.B.5a ■	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.NF.B.5b ■	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 $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.
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.
5.NF.B.7 ■	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
5.NF.B.7a ■	Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. <i>For example, create a story context for $(1/3) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$.</i>

5.NF.B.7b ■	Interpret division of a whole number by a unit fraction, and compute such quotients. <i>For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.</i>
5.NF.B.7c ■	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. <i>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?</i>
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.
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. <i>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.</i>
5.MD.C.3 ■	Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
5.MD.C.3a ■	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.
5.MD.C.3b ■	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.MD.C.4 ■	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
5.MD.C.5 ■	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
5.MD.C.5a ■	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 threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
5.MD.C.5b ■	Apply the formulas $V = l \times w \times h$ and $V = b \times h$ 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.MD.C.5c ■	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.
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.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.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.G.B.4 ○	Classify two-dimensional figures in a hierarchy based on properties.