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Chapter 1: Place Value of Whole Numbers

1.1 - Numbers to 100,000	4.NBT.2 - Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form
1.2 - Comparing Numbers to 100,000	4.OA.5 - Generate a number pattern that follows a given rule; identify apparent features of the pattern that were not explicit in the rule itself 4.NBT.2 - Compare two multi-digit number based on meaning of the digit in each place, using >, =, and < symbols to record the results of comparisons

Chapter 2: Estimation and Number Theory

2.1 - Estimation	4.OA.3 - Assess the reasonableness of answer using mental computation and estimation strategies including rounding 4.NBT.3 - Use place value understanding to round multi-digit whole numbers to any place
2.2 - Factors	4.OA.4 - Find all factor pairs for a whole number in the range 1-100; determine whether a given whole number in the range 1-100 is prime or composite
2.3 - Multiples	4.OA.4 - Determine whether a given whole number in the range 1-100 is a multiple of a give one-digit number

Chapter 3: Whole Number Multiplication and Division

3.1 - Multiplying by a 1-Digit Number	4.NBT.5 - Multiply a whole number up to four digits by a one-digit number 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
3.2 - Multiplying by a 2-Digit Number	4.NBT.5 - 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
3.3 - Modeling Division With Regrouping	4.NBT.6 - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies base 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

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Chapter 3: Whole Number Multiplication and Division

3.4 - Dividing by a 1-Digit Number	4.NBT.6 - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies base 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
3.5 - Real-World Problems: Multiplication and Division	4.OA.2 - Multiply or divide to solve word problems involving multiplicative comparison (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison) 4.OA.3 - Solve multistep word problems posed with whole numbers and having whole number answers using the four operations, including problems in which remainders must be interpreted; represent these problems using equations with a letter standing for the unknown quality; assess the reasonableness of answers using mental computation and estimation strategies including rounding

Chapter 4: Tables and Line Graphs

4.1 - Making and Interpreting a Table	***Not covered in 4th grade standards***
4.2 - Using a Table	
4.3 - Line Graphs	

Chapter 5: Data and Probability

5.1 - Average	***Not covered in 4th grade standards, see 6th grade standard 6.SP.5.c***
5.2 - Median, Mode, and Range	***Not covered in 4th grade standards, see 6th grade standard 6.SP.5.c***
5.3 - Stem and Leaf Plots	***Not covered in 4th grade standards, see 6th grade standard 6.SP.4***
5.4 - Outcomes	***Not covered in 4th grade standards, see 7th grade standard 7.SP.7***
5.5 - Probability as a Fraction	***Not covered in 4th grade standards, see 7th grade standard 7.SP.5***

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Chapter 5: Data and Probability

5.6 - Real-World Problems: Data and Probability	***Not covered in 4th grade standards, see 6th and 7th grade SP standards***

Chapter 6: Fractions and Mixed Numbers

6.1 - Adding Fractions	4.NF.1 - Explain why a fraction *a/b* is equivalent to a fraction *(n x a)/(n x 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 (recognize and generate equivalent fractions) 4.NF.3.a - Understand addition of fractions as joining and separating parts referring to the same whole
6.2 - Subtracting Fractions	4.NF.1 - Explain why a fraction *a/b* is equivalent to a fraction *(n x a)/(n x 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 (recognize and generate equivalent fractions) 4.NF.3.a - Understand subtraction of fractions as joining and separating parts referring to the same whole
6.3 - Mixed Numbers	***Not covered in 4th grade standards, but needed for understanding of 4th grade NF standards***
6.4 - Improper Fractions	4.NF.4.a - Understand a fraction *a/b* as a multiple of *1/b* (e.g., use a visual fraction model to represent 5/4 as the product 5 x (1/4), recording the conclusion by the equation 5/4 = 5 x (1/4)
6.5 - Renaming Improper Fractions and Mixed Numbers	4.NF.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 decompositions (e.g., 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)
6.6 - Renaming Whole Numbers When Adding and Subtracting Fractions	4.NF.3.a - Understand addition of fractions as joining and separating parts referring to the same whole
6.7 - Fraction of a Set	4.NF.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 (e.g., use a visual fraction model to express 3 x (2/5) as 6 x (1/5), recognizing this product as 6/5; in general, *n* x *(a/b) = (n x a)/b)*

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Chapter 6: Fractions and Mixed Numbers

6.8 - Real-World Problems: Fractions	4.NF.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) 4.NF.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) (e.g., 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?)

Chapter 7: Decimals

7.1 - Understanding Tenths	4.NF.6 - Use decimal notation for fractions with denominators 10 or 100 (e.g., rewrite 0.62 as 62/100, describe a length as 0.62 meters, locate 0.62 on a number line diagram)
7.2 - Understanding Hundredths	4.NF.6 - Use decimal notation for fractions with denominators 10 or 100 (e.g., rewrite 0.62 as 62/100, describe a length as 0.62 meters, locate 0.62 on a number line diagram)
7.3 - Comparing Decimals	4.NF.7 - Compare two decimals to hundredths by reasoning about their size; recognize that comparisons are valid only when the two decimals refer to the same whole; record the results of comparisons with the symbols >, =, or <, and justify the conclusions by using a number line or another visual model
7.4 - Rounding Decimals	***Not covered in 4th grade standards, see 5th grade standard 5.NBT.4***
7.5 - Fractions and Decimals	4.NF.6 - Use decimal notation for fractions with denominators 10 or 100 (e.g., rewrite 0.62 as 62/100, describe a length as 0.62 meters, locate 0.62 on a number line diagram)

Chapter 8: Adding and Subtracting Decimals

8.1 - Adding Decimals	***Not covered in 4th grade standards, but needed for 4th grade standard 4.MD.2***
8.2 - Subtracting Decimals	***Not covered in 4th grade standards, but needed for 4th grade standard 4.MD.2***
8.3 - Real-World Problems: Decimals	4.MD.2 - Use the four operations to solve word problems involving distances, **intervals of time**, liquid volumes, masses of objects, and money, including problems involving simple decimals (

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Chapter 9: Angles

9.1 - Understanding and Measuring Angles	4.MD.5.a - Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: An angle is measured with reference to a circle with its center at the common endpoints 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 4.MD.6 - Measure angles in whole-number degrees using a protractor; sketch angles of specified measure
9.2 - Drawing Angles to 180°	4.G.1 - Draw rays and angles (right, acute, obtuse)
9.3 - Turns and Right Angles	4.MD.5.b - Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: An angle that turns through n one-degree angles is said to have an angle measure of n degrees

Chapter 10: Perpendicular and Parallel Line Segments

10.1 - Drawing Perpendicular Line Segments	4.G.1 - Draw perpendicular lines; identify these in two-dimensional figures
10.2 - Drawing Parallel Line Segments	4.G.1 - Draw parallel lines; identify these in two-dimensional figures
10.3 - Horizontal and Vertical Lines	***Not covered in 4th grade standards***

Chapter 11: Squares and Rectangles

11.1 - Squares and Rectangles	4.G.2 - Classify two-dimensional figures based on the presences or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size
11.2 - Properties of Squares and Rectangles	4.MD.7 - Recognize angle measure as additive; when an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts; solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems

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Chapter 12: Area and Perimeter

12.1 - Area of a Rectangle	4.MD.3 - Apply the area and perimeter formulas for rectangles in real-world and mathematical problems (e.g., find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equations with an unknown factor)
12.2 - Rectangles and Squares	4.MD.3 - Apply the area and perimeter formulas for rectangles in real-world and mathematical problems (e.g., find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equations with an unknown factor)
12.3 - Composite Figures	4.MD.3 - Apply the area and perimeter formulas for rectangles in real-world and mathematical problems (e.g., find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equations with an unknown factor)
12.4 - Using Formulas for Area and Perimeter	4.MD.3 - Apply the area and perimeter formulas for rectangles in real-world and mathematical problems (e.g., find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equations with an unknown factor)

Chapter 13: Symmetry

13.1 - Identifying Lines of Symmetry	4.G.3 - Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts; identify line-symmetric figures and draw lines of symmetry
13. 2 - Rotational Symmetry	***Not covered in 4th grade standards***
13.3 - Making Symmetric Shapes and Patterns	4.G.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

Chapter 14: Tessellations

14.1 - Identifying Tessellations	***Not covered in 4th grade standards***
14.2 - More Tessellations	

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4th grade standards NOT covered in 4th grade Math in Focus:

4.OA.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 sentences *(See supplemental lesson 1, add to 4th grade Math in Focus chapter 3.)*

4.OA.4 - 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, e.g., 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 *(See supplemental lessons 13 and 14; these can be added in at any point during the year as a stand-alone unit.)*

4.NBT.1 - Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right (e.g., recognize that 700 ÷ 70 = 10 by applying concepts of place value and division) *(See supplemental lesson 16, add to 4th grade Math in Focus lesson 1.1.)*

4.NBT.4 - Fluently add and subtract multi-digit whole numbers using the standard algorithm *(See supplemental lessons 20 and 21, add to 4th grade Math in Focus chapter 1. This standard is also covered in 3rd grade Math in Focus chapters 3 and 4.)*

4.NF.2 - Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2; recognize that comparisons are valid only when the two fractions refer to the same whole; record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model *(See supplemental lessons 52 and 53, add to 4th grade Math in Focus chapter 6. This standard is also covered in 3rd grade Math in Focus lesson 14.4.)*

4.NF.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) *(See supplemental lessons 58 and 59, add to 4th grade Math in Focus lesson 6.3. This standard is also covered in 5th grade Math in Focus lessons 3.5 and 3.6.)*

4.NF.5 - Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100 (e.g., express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100) *(See supplemental lesson 71, add to 4th grade Math in Focus lesson 7.5.)*

4.MD.1 - Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec; within a single system of measurements, express measurements in a larger unit in terms of a smaller unit; record measurement equivalents in a two-column table, e.g., 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),… *(See supplemental lessons 77, 78, 80, 81, or 82 [complete at least ONE, but you can do more], and 83 [must complete], add to 4th grade Math in Focus chapter 6.)*

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4.MD.2 - Use the four operations to solve word problems involving distances, **intervals of time**, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and **problems that require expressing measurements give 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** *(The **bolded** portions are not covered in 4th grade Math in Focus. See supplemental lessons 85 and 86, add to 4th grade Math in Focus lesson 8.3.)*

4.MD.4 - Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8); solve problems involving addition and sub ration of fractions by using information presented in line plots, e.g., from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection *(See supplemental lesson 92, add to 4th grade Math in Focus chapter 6.)*

4.MD.7 - Recognize angle measure as additive; when an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sums 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 *(This standard is partially addressed in 4th grade Math in Focus. See supplemental lessons 96 and 97, add to 4th grade Math in Focus lesson 9.1. This standard is also covered in 5th grade Math in Focus chapter 12.)*

4.G.1 - Draw **points, lines, line segments,** rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures *(The **bolded** portions are not covered in 4 grade Math in Focus. See supplemental lesson 98, add to 4th grade Math in Focus lesson 9.1. This standard is also covered in 3rd grade Math in Focus lesson 17.1.)*

4.G.2 - Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size; **recognize right triangles as a category, and identify right triangles; two-dimensional shapes should include special triangles (e.g., equilateral isosceles, scalene) and special quadrilaterals (e.g., rhombus, square, rectangle, parallelogram, trapezoid)** *(The **bolded** portions are not covered in 4th grade Math in Focus. See supplemental lessons 100 and 101, add to 4th grade Math in Focus chapter 11. This standard is also covered in 5th grade Math in Focus lessons 13.1-13.5.)*