

Fifth Grade

Chapter 1: Whole Numbers	
1.1 - Numbers to 10,000,000	***Not covered in 5th grade standards, see 4th grade standard 4.NBT.2***
1.2 - Place Value	5.NBT.1 - Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left
1.3 - Comparing Numbers to 10,000,000	***Not covered in 5th grade standards, see 4th grade standard 4.NBT.2***
1.4 - Rounding and Estimating	***Not covered in 5th grade standards, see 4th grade standard 4.NBT.3***
Chapter 2: Whole Number Multiplication and Division	
2.1 -Using a Calculator	***Not covered in 5th grade standards***
2.2 - Multiplying by Tens, Hundreds, or Thousands	5.NBT.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.2 - Explain patterns in the number of zeros of the product when multiplying a number by powers of 10
2.3 - Multiplying by 2-Digit Numbers	5.NBT.5 - Fluently multiply multi-digit numbers using the standard algorithm
2.4 - Dividing by Tens, Hundreds, or Thousands	5.NBT.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
2.5 - Dividing by 2-Digit Numbers	5.NBT.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
2.6 - Order of Operations	***Does not cover all of 5.OA.1, see supplemental lessons 1 and 2***
2.7 - Real-World Problems: Multiplication and Division	5.NBT.5 - Fluently multiply multi-digit numbers using the standard algorithm 5.NBT.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

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Chapter 3: Fractions and Mixed Numbers	
3.1 - Adding Unlike Fractions	5.NF.1 - Add fractions with unlike denominators by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators (e.g., $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$; in general $\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}$.)
3.2 - Subtracting Unlike Fractions	5.NF.1 - Subtract fractions with unlike denominators by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators (e.g., $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$; in general $\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}$.)
3.3 - Fractions, Mixed Numbers, and Division Expressions	5.NF.3 - Interpret a fraction as division of the numerator by the denominator ($\frac{a}{b} = a \div b$); 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 (e.g., interpret $\frac{3}{4}$ as the result of dividing 3 by 4, noting the $\frac{3}{4}$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $\frac{3}{4}$; 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 number does your answer lie?)
3.4 - Expressing Fractions, Division Expressions, and Mixed Numbers as Decimals	***Not covered in 5th grade standards, but is an extension of 4th grade standard 4.NF.6 and is necessary for further understanding of fractions and decimals.***
3.5 - Adding Mixed Numbers	5.NF.1 - Add 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 (e.g., $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$; in general $\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}$.)
3.6 - Subtracting Mixed Numbers	5.NF.1 - 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 (e.g., $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$; in general $\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}$.)
3.7 - Real-World Problems: Fractions and Mixed Numbers	5.NF.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 numbers of fractions to estimate mentally and assess the reasonableness of answers (e.g., recognize an incorrect result $\frac{2}{5} + \frac{1}{2} = \frac{3}{7}$, by observing that $\frac{3}{7} < \frac{1}{2}$)

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Chapter 4: Multiplying and Dividing Fractions and Mixed Numbers	
4.1 - Multiplying Proper Fractions	5.NF.4.a - 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 $a \times q \div b$ (e.g., 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, $(a/b) \times (c/d) = ac/bd$)
4.2 - Real-World Problems: Multiplying with Proper Fractions	5.NF.6 - Solve real-world problems involving multiplication of fractions, e.g., by using visual fraction models or equations to represent the problem
4.3 - Multiplying Improper Fractions by Fractions	5.NF.4.a - 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 $a \times q \div b$ (e.g., 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, $(a/b) \times (c/d) = ac/bd$)
4.4 - Multiplying Mixed Numbers and Whole Numbers	5.NF.4.a - 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 $a \times q \div b$ (e.g., 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, $(a/b) \times (c/d) = ac/bd$)
4.5 - Real-World Problems: Multiplying with Mixed Numbers	5.NF.6 - Solve real-world problems involving multiplication of fractions, e.g., by using visual fraction models or equations to represent the problem
4.6 - Dividing a Fraction by a Whole Number	5.NF.7.a - Interpret division of a unit fraction by a non-zero whole number, and compute such quotients, e.g., 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 $(1/12) \times 4 = 1/3$
4.7 - Real-World Problems: Multiplying and Dividing with Fractions	5.NF.7.c - Solve real-world problems involving division of unit fractions by non-zero whole numbers, e.g., by using vision fraction models and equations to represent the problem (e.g., 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?)
Chapter 5: Algebra	
5.1 - Using Letters as Numbers	***Not covered in 5th grade standards, see 6th grade standard 6.EE.2.a and 6.EE.6***

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Chapter 5: Algebra

5.2 - Simplifying Algebraic Expressions	***Not covered in 5th grade standards, see 6th grade standard 6.EE.3***
5.3 - Inequalities and Equations	***Not covered in 5th grade standards, see 6th grade standard 6.EE.5 and 6.EE.8***
5.4 - Real-World Problems: Algebra	***Not covered in 5th grade standards, see 6th grade standard 6.EE.7***

Chapter 6: Area of a Triangle

6.1 - Base and Height of a Triangle	***Not covered in 5th grade standards, see 6th grade standard 6.G.1***
6.2 - Finding the Area of a Triangle	

Chapter 7: Ratio

7.1 - Finding Ratio	***Not covered in 5th grade standards, see 6th grade standard 6.RP.1***
7.2 - Equivalent Ratios	***Not covered in 5th grade standards, see 6th grade standard 6.RP.3.a***
7.3 - Real-World Problems: Ratios	***Not covered in 5th grade standards, see 6th grade standard 6.RP.3.***
7.4 - Ratio in Fraction Form	***Not covered in 5th grade standards, see 6th grade standard 6.RP.2***
7.5 - Comparing Three Quantities	***Not covered in 5th grade standards, see 6th grade standard 6.RP.1***
7.6 - Real-World Problems: More Ratios	***Not covered in 5th grade standards, see 6th grade standard 6.RP.3.***

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Chapter 8: Decimals

8.1 - Understanding Thousandths	5.NBT.3.a - Read and write decimals to the thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$
8.2 - Comparing and Rounding Decimals	5.NBT.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.4 - Use place value understanding to round decimals to any place
8.3 - Rewriting Decimals as Fractions and Mixed Numbers	***Not covered in 5th grade standards, but is an extension of 4th grade standard 4.NF.6 and is necessary for further understanding of fractions and decimals.***

Chapter 9: Multiplying and Dividing Decimals

9.1 - Multiplying Decimals	5.NBT.7 - Multiply 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
9.2 - Multiplying by Tens, Hundreds, and Thousands	5.NBT.2 - Explain patterns in the placement of the decimal point when a decimal is multiplied by a power of 10
9.3 - Dividing Decimals	5.NBT.7 - 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
9.4 - Dividing by Tens, Hundred, and Thousands	5.NBT.2 - Explain patterns in the placement of the decimal point when a decimal is divided by a power of 10
9.5 - Estimating Decimals	5.NBT.4 - Use place value understanding to round decimals to any place
9.6 - Real-World Problems: Decimals	5.NBT.7 - 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

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Chapter 10: Percent

10.1 - Percent	***Not covered in 5th grade standards, see 6th grade standard 6.RP.3.c***
10.2 - Expressing Fractions as Percents	
10.3 - Percent of a Number	
10.4 - Real-World Problems: Percent	

Chapter 11: Graphs and Probability

11.1 - Making and Interpreting Double Bar Graphs	***Not covered in 5th grade standards, see 3rd grade standard 3.MD.3***
11.2 - Graphing an Equation	<p>5.G.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 coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate)</p> <p>5.G.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</p>
11.3 - Combinations	***Not covered in 5th grade standards, see 7th grade standard 7.SP.8***
11.4 - Theoretical Probability and Experimental Probability	***Not covered in 5th grade standards, see 7th grade standard 7.SP.7***

Chapter 12: Angles

12.1 - Angles on a Line	***Not covered in 5th grade standards, see 4th grade standard 4.MD.7***
12.2 - Angles at a Point	

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Chapter 12: Angles

12.3 - Vertical Angles	***Not covered in 5th grade standards, see 7th grade standard 7.G.5***
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Chapter 13: Properties of Triangles and Four-Sided Figures

13.1 - Classifying Triangles	5.G.3 - Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category, e.g., all rectangles have four right angles and squares are rectangles, so all squares have four right angles
13.2 - Measures of Angles of a Triangle	***Not covered in 5th grade standards, see 8th grade standard 8.G.5***
13.3 - Right, Isosceles, and Equilateral Triangles	***Not covered in 5th grade standards, see 4th grade standard 4.G.2***
13.4 - Triangle Inequalities	***Not covered in 5th grade standards, see High School Geometry standard SRT.2***
13.5 - Parallelogram, Rhombus, and Trapezoid	5.G.3 - Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category, e.g., all rectangles have four right angles and squares are rectangles, so all squares have four right angles

Chapter 14: Three-Dimensional Shapes

14.1 - Prisms and Pyramids	***Needed for 5.MD.3.a and 5.MD.3.b***
14.2 - Cylinder, Sphere, and Cone	***Needed for 5.MD.3.a and 5.MD.3.b***

Chapter 15: Surface Area and Volume

15.1 - Building Solids Using Unit Cubes	5.MD.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 5.MD.3.b - A solid figure which can be packed without gaps or overlap using n unit cubes is said to have a volume of n cubic units 5.MD.4 - Measure volumes by counting unit cubes
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Chapter 15: Surface Area and Volume	
15.2 - Drawing Cubes and Rectangular Prisms	***Not covered in 5th grade standards***
15.3 - Nets and Surface Area	***Not covered in 5th grade standards, see 6th grade standard 6.G.4***
15.4 - Understanding and Measuring Volume	5.MD.4 - Measure volumes by using cubic cm, cubic in, cubic ft, and improvised units 5.MD.5.a - Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes 5.MD.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
15.5 - Volume of a Rectangular Prism and Liquid	5.MD.5.a - Find the volume of a right rectangular prism 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 associate property of multiplication 5.MD.5.b - 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

5th grade standards NOT covered in 5th grade Math in Focus:

5.OA.1 - Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols (See *supplemental lessons 1 and 2, add to the beginning of 5th grade Math in Focus chapter 2.*)

5.OA.2 - Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them, e.g., 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 (See *supplemental lesson 3, add to the beginning of 5th grade Math in Focus chapter 2.*)

5.OA.2.1 - Express a whole number in the range 2-50 as a product of its prime factors, e.g., find the prime factors of 24 and express as $2 \times 2 \times 2 \times 3$ (See *supplemental lesson 5.OA.2.1, add to 5th grade Math in Focus chapter 2. This standard is also covered in 6th grade Math in Focus lesson 1.2.*)

5.OA.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, e.g., given

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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 (*See supplemental lessons 4 and 6, add to 5th grade Math in Focus chapter 11.*)

5.NBT.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 (*The **bolded** portions are not covered in 5th grade Math in Focus. See supplemental lessons 30, 31, and 37, add to 5th grade Math in Focus chapter 8. They are also covered in 4th grade Math in Focus lessons 8.1, 8.2, and 8.3.*)

5.NF.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 (*See supplemental lessons 68 and 69, add lesson 68 after 5th grade Math in Focus lesson 4.1, add lesson 69 after 5th grade Math in Focus lesson 4.4.*)

5.NF.5.a - Interpret multiplication as scaling (resizing), by: 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 (*Use LearnZillion lessons LZ2666 and LZ2626, in that order [enter code in any LearnZillion search field for video], add to 5th grade Math in Focus chapter 4.*)

5.NF.5.b - Interpret multiplication as scaling (resizing), by: 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 great than one 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 (*Use LearnZillion lessons LZ3401, LZ3405, and LZ3409, in that order [enter code in any LearnZillion search field for video] and supplemental lesson 70, add to 5th grade Math in Focus chapter 4.*)

****If you have a LearnZillion account (it's free!), go to <https://learnzillion.com/lessonsets/537-interpret-multiplication-as-scaling-and-predict-the-outcome-of-multiplying-by-fractions-less-than-greater-than-and-equal-to-one> for the full set of lessons****

5.NF.7.b - Interpret division of a whole number by a unit fraction, and compute such quotients (*See supplemental lesson 74, add to 5th grade Math in Focus lesson 4.6. This standard is also covered in 6th grade Math in Focus lesson 3.1.*)

5.NF.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 vision fraction models and equations to represent the problem (e.g., 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?) (*The **bolded** portions are not covered in 5th grade Math in Focus. See supplemental lesson 76, add to 5th grade Math in Focus lesson 4.7*)

5.MD.1 - Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5cm to 0.05m), and use these conversations in solving multi-step, real-world problems (*See supplemental lessons 78-84, add at any point as a stand-alone unit.*)

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5.MD.2 - Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$); use operations on fractions for this grade to solve problems involving information presented in line plots, e.g., 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 (See *supplemental lesson 85, add to 5th grade Math in Focus chapter 3. This standard is also covered in 3rd grade Math in Focus lesson 13.3 and 4th grade Math in Focus lesson 4.3.*)

5.G.4 - Classify two-dimensional figures in a hierarchy based on properties (See *supplemental lesson 100, add to 5th grade Math in Focus chapter 13.*)