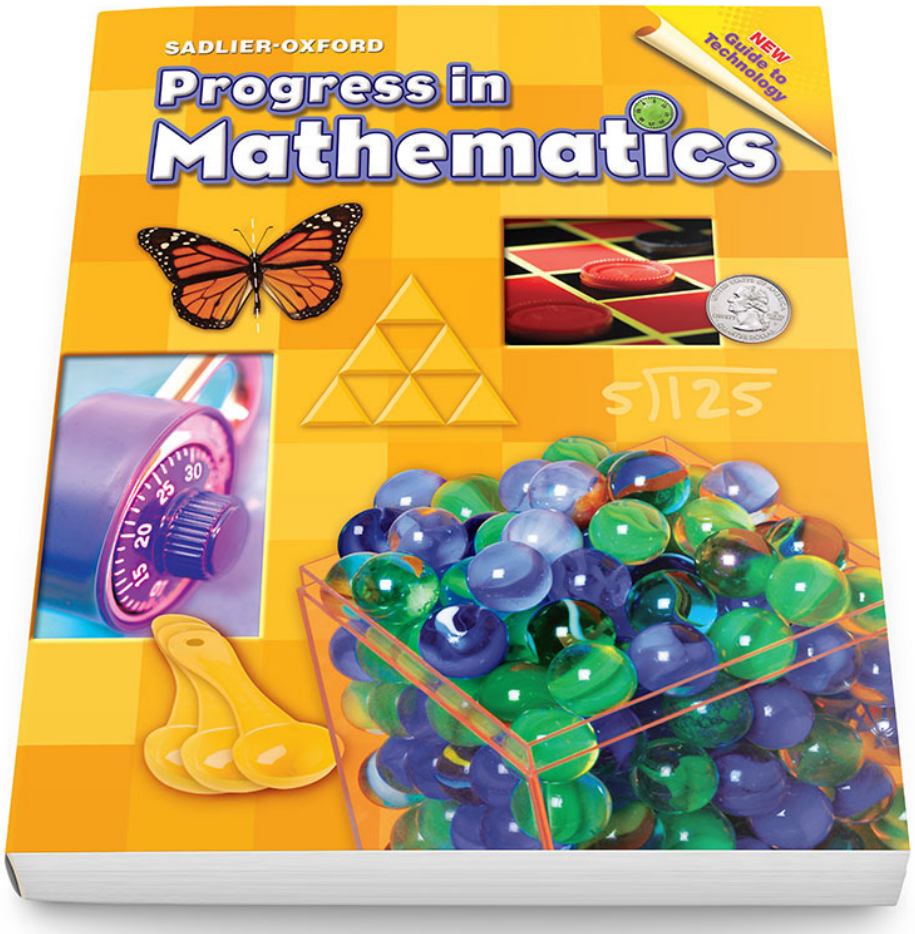
Progress in Mathematics

Correlation to the New York State
Next Generation Mathematics Learning Standards (2017)

Grade 4



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NY-4.OA OPERATIONS AND ALGEBRAIC THINKING

Grade 4 Content Standards	*Progress in Mathematics*, Grade 4
Use the four operations with whole numbers to solve problems.	
NY-4.OA.1 Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations. e.g., • Interpret 35 = 5 x 7 as a statement that 35 is 5 times as many as 7 or 7 times as many as 5. • Represent "Four times as many as eight is thirty-two" as an equation, 4 x 8 = 32.	**Chapter 4 Multiplication by One and Two Digits** *4-1B Use Multiplication to Compare Numbers—Online
NY-4.OA.2 Multiply or divide to solve word problems involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison. Use drawings and equations with a symbol for the unknown number to represent the problem.	**Chapter 4 Multiplication by One and Two Digits** *4-1B Use Multiplication to Compare Numbers—Online **Chapter 5 Divide by One Digit** *5-4A Use Bar Diagrams—Online 5-17 Problem Solving Strategy: Interpret the Remainder—pp. 196–197 5-18 Problem Solving Applications: Mixed Review—pp. 198–199 **Chapter 12 Divide by Two Digits** 12-11 Problem Solving Strategy: Use More Than One Step—pp. 402–403 12-12 Problem Solving Applications: Mixed Review—pp. 404–405 **Chapter 14 Get Ready for Algebra** 14-1 Equations—pp. 442–443
NY-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.	**Introduction to Problem Solving** Use More Than One Step—p. 32 **Chapter 2 Addition and Subtraction Concepts** 2-10 Problem Solving Strategy: Logical Reasoning—pp. 86–87 **Chapter 3 Addition and Subtraction** 3-9 Zeros in Subtraction—pp. 112–113

continued

NY-4.OA OPERATIONS AND ALGEBRAIC THINKING

Grade 4 Content Standards	*Progress in Mathematics*, Grade 4
	Chapter 4 Multiplication by One and Two Digits *4-1B Use Multiplication to Compare Numbers—Online 4-15 Problem Solving Strategy: Work Backward—pp. 154–155 **Chapter 5 Divide by One Digit** *5-4A Use Bar Diagrams—Online *5-13A Multistep Problems & Bar Diagrams—Online 5-17 Problem Solving Strategy: Interpret the Remainder—pp. 196–197 5-18 Problem Solving Applications: Mixed Review—pp. 198–199 **Chapter 6 Measurement** 6-13 Problem Solving Strategy: Use More Than One Step—pp. 230–231 **Chapter 12 Divide by Two Digits** 12-11 Problem Solving Strategy: Use More Than One Step—pp. 402–403 12-12 Problem Solving Applications: Mixed Review—pp. 404–405 **Chapter 14 Get Ready for Algebra** 14-1 Equations—pp. 442–443
NY-4.OA.3a Represent these problems using equations or expressions with a letter standing for the unknown quantity.	**Chapter 2 Addition and Subtraction Concepts** 2-4 Expressions and Variables—pp. 74–75 2-5 Addition and Subtraction Sentences (use a letter for the unknown quantity)—pp. 76–77 **Chapter 5 Divide by One Digit** 5-3 Missing Numbers (use a letter for the unknown quantity)—pp. 168–169 **Chapter 14 Get Ready for Algebra** 14-1 Equations—pp. 442–443 14-2 Find Missing Numbers—pp. 444–445 14-6 Use Parentheses—pp. 452–453

NY-4.OA OPERATIONS AND ALGEBRAIC THINKING

Grade 4 Content Standards	*Progress in Mathematics*, Grade 4
NY-4.OA.3b Assess the reasonableness of answers using mental computation and estimation strategies including rounding. Note: Multistep problems need not be represented by a single expression or equation.	**Chapter 2 Addition and Subtraction Concepts** 2-6 Mental Math—pp. 78–79 2-7 Estimate Sums and Differences—pp. 80–81 **Chapter 3 Addition and Subtraction** 3-1 Front-End Estimation—pp. 96–97 3-5 Three or More Addends—pp. 104–105 3-5 Three or More Addends—pp. 104–105 3-6 Subtract with Regrouping—pp. 106–107 3-9 Zeros in Subtraction—pp. 112–113 3-10 Addition and Subtraction Practice—pp. 114–115 3-11 Problem Solving Strategy: Choose the Operation—pp. 116–117 **Chapter 4 Multiplication by One and Two Digits** 4-5 Products: Front-End Estimation—pp. 134–135 *4-6A Use Mental Math to Multiply—Online *4-6A Use Mental Math to Multiply—Online 4-7 Multiply Three-Digit Numbers—pp. 138–139 4-8 Multiply Money—pp. 140–141 4-11 Products: Rounding to Estimate—pp. 146–147 4-12 Multiply by Two-Digit Numbers—pp. 148–149 4-13 More Multiplying by Two-Digit Numbers—pp. 150–151 4-14 Multiply with Three-Digit Numbers—pp. 152–153 Enrichment: Clustering—p. 159 **Chapter 5 Divide by One Digit** 5-5 Estimate in Division—pp. 172–173 *5-5A Use Models to Divide—Online *5-13A Multistep Problems & Bar Diagrams—Online **Chapter 12 Divide by Two Digits** 12-3 Estimate Quotients—pp. 386–387

NY-4.OA OPERATIONS AND ALGEBRAIC THINKING

Grade 4 Content Standards	*Progress in Mathematics*, Grade 4
Gain familiarity with factors and multiples.	
NY-4.OA.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.	**Chapter 5 Divide by One Digit** Enrichment: Factor Trees—p. 201 **Chapter 8 Fraction Concepts** 8-6 Factors—pp. 276–277 **Chapter 9 Fractions: Addition and Subtraction** *9-6A Factor Pairs—Online *9-6B Prime and Composite Numbers—Online
Generate and analyze patterns.	
NY-4.OA.5 Generate a number or shape pattern that follows a given rule. Identify and informally explain 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.	**Chapter 4 Multiplication by One and Two Digits** *4-1A Number Patterns—Online **Chapter 5 Divide by One Digit** 5-4 Number Patterns—pp. 170–171 **Chapter 10 Geometry** 10-12 Problem Solving Strategy: Find a Pattern—pp. 348–349 **Chapter 14 Get Ready for Algebra** 14-3 Functions—pp. 446–447

NY-4.NBT NUMBER AND OPERATIONS IN BASE TEN

Grade 4 Content Standards	*Progress in Mathematics*, Grade 4
Generalize place value understanding for multi-digit whole numbers.	
NY-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 70 × 10 = 700 (and, therefore, 700 ÷ 10 = 70) by applying concepts of place value, multiplication, and division. Note: Grade 4 expectations are limited to whole numbers less than or equal to 1,000,000.	**Skills Update** Hundreds—p. 1 **Chapter 1 Place Value** 1-1 Thousands—pp. 36-37 1-2 What is One Million?—pp. 38–39 1-3 Millions—pp. 40–41 1-4 Place Value—pp. 42–43

NY-4.NBT NUMBER AND OPERATIONS IN BASE TEN

Grade 4 Content Standards	*Progress in Mathematics*, Grade 4
NY-4.NBT.2	
NY-4.NBT.2a Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. e.g., 50,327 = 50,000 + 300 + 20 + 7	**Skills Update** Hundreds—p. 1 **Chapter 1 Place Value** 1-1 Thousands—pp. 36-37 1-2 What is One Million?—pp. 38–39 1-3 Millions—pp. 40–41 1-4 Place Value—pp. 42–43
NY-4.NBT.2b Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. Note: Grade 4 expectations are limited to whole numbers less than or equal to 1,000,000.	**Skills Update** Compare Whole Numbers—p. 2 **Chapter 1 Place Value** 1-6 Compare and Order Whole Numbers—pp. 46–47
NY-4.NBT.3 Use place value understanding to round multi-digit whole numbers to any place. Note: Grade 4 expectations are limited to whole numbers less than or equal to 1,000,000.	**Chapter 1 Place Value** 1-10 Rounding—pp. 54–55 **Chapter 2 Addition and Subtraction Concepts** 2-7 Estimate Sums and Differences (rounding)—pp. 80–81
Use place value understanding and properties of operations to perform multi-digit arithmetic.	
NY-4.NBT.4 Fluently add and subtract multi-digit whole numbers using a standard algorithm. Note: Grade 4 expectations are limited to whole numbers less than or equal to 1,000,000.	**Chapter 3 Addition and Subtraction** 3-2 Add with Regrouping—pp. 98–99 3-3 Four-Digit Addition—pp. 100–101 3-4 Add Larger Numbers—pp. 102–103 3-5 Three or More Addends—pp. 104–105 3-6 Subtract with Regrouping—pp. 106–107 3-7 Subtraction: Regroup Twice—pp. 108–109 3-8 Subtract Larger Numbers—pp. 110–111 3-9 Zeros in Subtraction—pp. 112–113 3-10 Addition and Subtraction Practice—pp. 114–115

NY-4.NBT NUMBER AND OPERATIONS IN BASE TEN

Grade 4 Content Standards	*Progress in Mathematics*, Grade 4
NY-4.NBT.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. Note on and/or: Students should be taught to use equations, rectangular arrays, and area models; however, when illustrating and explaining any calculation, students can choose any strategy. Note: Grade 4 expectations are limited to whole numbers less than or equal to 1,000,000.	**Chapter 4 Multiplication by One and Two Digits** 4-1 Multiplication Properties—pp. 126–127 4-2 Multiplication Models—pp. 128–129 4-3 Special Factors—pp. 130–131 4-4 Multiply by One-Digit Numbers—pp. 132–133 *4-5A Multiply with Models—Online 4-6 Multiply with Regrouping—pp. 136–137 *4-6A Use Mental Math to Multiply—Online 4-7 Multiply Three-Digit Numbers—pp. 138–139 4-9 Multiply Four-Digit Numbers—pp. 142–143 4-10 Patterns in Multiplication—pp. 144–145 *4-11A Multiply with Area Models—Online *4-11B Break Apart Numbers to Multiply—Online 4-12 Multiply by Two-Digit Numbers—pp. 148–149 4-13 More Multiplying by Two-Digit Numbers—pp. 150–151
NY-4.NBT.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. Notes on and/or: Students should be taught to use strategies based on place value, the properties of operations, and the relationship between multiplication and division; however, when solving any problem, students can choose any strategy. Students should be taught to use equations, rectangular arrays, and area models; however, when illustrating and explaining any calculation, students can choose any strategy. Note: Grade 4 expectations are limited to whole numbers less than or equal to 1,000,000.	**Chapter 5 Divide by One Digit** 5-2 Relate Multiplication and Division—pp. 166–167 *5-5A Use Models to Divide—Online 5-6 One-Digit Quotients—pp. 174–175 5-8 Two-Digit Quotients—pp. 178–179 5-9 More Two-Digit Quotients—pp. 180–181 5-10 Three-Digit Quotients—pp. 182–183 5-11 More Quotients—pp. 184–18 5-12 Zeros in the Quotient—pp. 186–187 5-13 Larger Numbers in Division—pp. 188–189 *5-13A Multistep Problems & Bar Diagrams—Online

NY-4.NF NUMBER AND OPERATIONS—FRACTIONS

Grade 4 Content Standards	*Progress in Mathematics*, Grade 4
Extend understanding of fraction equivalence and ordering.	
NY-4.NF.1 Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{a \times n}{b \times n}$ 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. Note: Grade 4 expectations are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.	**Chapter 8 Fraction Concepts** *8-3A Model Equivalent Fractions—Online 8-4 Equivalent Fractions—pp. 272–273 8-5 Write Equivalent Fractions—pp. 274–275 8-7 Fractions: Lowest Terms—pp. 278–279
NY-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 $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Note: Without specifying the whole, the shaded area could represent fraction $\frac{3}{2}$ (if one square is the whole) or $\frac{3}{4}$ (if the entire rectangle is the whole). e.g., using a visual fraction model. Note: Grade 4 expectations are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.	**Chapter 8 Fraction Concepts** 8-2 Fractions on a Number Line—pp. 268–269 8-3 Estimate Fractions—pp. 270–271 8-4 Equivalent Fractions—pp. 272–273 *8-8A Compare Fractions Using Benchmarks—Online 8-9 Compare Fractions—pp. 282–283 8-10 Order Fractions—pp. 284–28
Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.	
NY-4.NF.3 Understand a fraction $\frac{a}{b}$ with $a > 1$ as a sum of fractions $\frac{1}{b}$. Note: $\frac{1}{b}$ refers to the unit fraction for $\frac{a}{b}$.	
NY-4.NF.3a Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.	**Chapter 9 Fractions: Addition and Subtraction** *9-1A Use Models to Add Fractions—Online *9-1C Use Models to Subtract Fractions—Online

NY-4.NF NUMBER AND OPERATIONS—FRACTIONS

Grade 4 Content Standards	*Progress in Mathematics*, Grade 4
NY-4.NF.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., Justify decompositions by using a visual fraction model such as, but not limited to: • $\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$ • $\frac{3}{8} = \frac{1}{8} + \frac{2}{8}$ • $2\frac{1}{8} = 1 + 1 + \frac{1}{8} = \frac{8}{8} + \frac{8}{8} + \frac{1}{8}$	**Chapter 9 Fractions: Addition and Subtraction** *9-1B Decompose Fractions—Online
NY-4.NF.3c Add and subtract mixed numbers with like denominators. e.g., replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.	**Chapter 9 Fractions: Addition and Subtraction** *9-4A Add Mixed Numbers—Online *9-4B Subtract Mixed Numbers—Online 9-5 Add and Subtract Mixed Numbers—pp. 304–305
NY-4.NF.3d Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators. e.g., using visual fraction models and equations to represent the problem. Note: Grade 4 expectations are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.	**Chapter 9 Fractions: Addition and Subtraction** 9-1 Add Fractions: Like Denominators—pp. 296–297 9-2 Subtract Fractions: Like Denominators—pp. 298–299 *9-2A Word Problems Involving Fractions—Online 9-12 Problem Solving Applications: Mixed Review—pp. 318–319
NY-4.NF.4 Apply and extend previous understandings of multiplication to multiply a whole number by a fraction. Note: This standard refers to *n* groups of a fraction (where *n* is a whole number), e.g., 4 groups of $\frac{1}{3}$; which lends itself to being thought about as repeated addition. In grade 5 (NY-5. NF.4) students will be multiplying a fraction by a whole number, e.g., $\frac{1}{3}$ of 4.	
NY-4.NF.4a Understand a fraction $\frac{a}{b}$ as a multiple of $\frac{1}{b}$. e.g., Use a visual fraction model to represent $\frac{5}{4}$ as the product $5 \times \frac{1}{4}$, recording the conclusion with the equation $\frac{5}{4} = 5 \times \frac{1}{4}$.	**Chapter 9 Fractions: Addition and Subtraction** *9-8A Multiply with Fractions—Online 9-10 Find Part of a Number—pp. 314–315

NY-4.NF NUMBER AND OPERATIONS—FRACTIONS

Grade 4 Content Standards	*Progress in Mathematics*, Grade 4
NY-4.NF.4b Understand a multiple of $\frac{a}{b}$ as a multiple of $\frac{1}{b}$, and use this understanding to multiply a whole number by a fraction. e.g., Use a visual fraction model to express $3 \times \frac{2}{5}$ 2/5 as $6 \times \frac{1}{5}$, recognizing this product as $\frac{6}{5}$, in general, $n \times \frac{a}{b} = \frac{(n \times a)}{b}$.	**Chapter 9 Fractions: Addition and Subtraction** *9-8A Multiply with Fractions—Online
NY-4.NF.4c Solve word problems involving multiplication of a whole number by a fraction. e.g., using visual fraction models and equations to represent the problem. e.g., If each person at a party will eat $\frac{3}{8}$ 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? Note: Grade 4 expectations are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.	**Chapter 9 Fractions: Addition and Subtraction** *9-8A Multiply with Fractions—Online 9-10 Find Part of a Number—pp. 314–315

Understand decimal notation for fractions, and compare decimal fractions.

NY-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 $\frac{3}{10}$ as $\frac{30}{100}$, and add $\frac{3}{10} + \frac{4}{100} = \frac{34}{100}$. Notes: • Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade. • Grade 4 expectations are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.	**Chapter 9 Fractions: Addition and Subtraction** *9-6C Add Fractions with Denominators of 10 and 100—Online

NY-4.NF NUMBER AND OPERATIONS—FRACTIONS

Grade 4 Content Standards	*Progress in Mathematics*, Grade 4
NY-4.NF.6 Use decimal notation for fractions with denominators 10 or 100. e.g., • Rewrite 0.62 as $\frac{62}{100}$ or $\frac{62}{100}$ as 0.62. • Describe a length as 0.62 meters. • Locate 0.62 on a number line. Note: Grade 4 expectations are limited	**Chapter 13 Decimals** 13-1 Tenths and Hundredths—pp. 412–413 13-2 Decimals Greater Than One—pp. 414–415 13-3 Decimal Place Value—pp. 416–417
NY-4.NF.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions. e.g., using a visual model. Note: Grade 4 expectations are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.	**Chapter 13 Decimals** *13-3A Compare Decimals with Models and Symbols—Online 13-4 Compare Decimals—pp. 418–419 13-5 Order Decimals—pp. 420–421

NY-4.MD MEASUREMENT AND DATA

Grade 4 Content Standards	*Progress in Mathematics*, Grade 4
Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	
NY-4.MD.1 Know relative sizes of measurement units: ft., in.; km, m, cm e.g., • An inch is about the distance from the tip of your thumb to your first knuckle. • A foot is the length of two-dollar bills. • A meter is about the height of a kitchen counter. • A kilometer is 2½ laps around most tracks. Know the conversion factor and use it to convert measurements in a larger unit in terms of a smaller unit: ft., in.; km, m, cm; hr., min., sec. *continued*	**Chapter 6 Measurement** 6-2 Rename Units of Length—pp. 208–209 6-3 Compute Customary Units—pp. 210–211 6-4 Customary Units of Capacity—pp. 212–213 6-5 Customary Units of Weight—pp. 214–215 6-6 Measure with Metric Units—pp. 216–217 6-7 Work with Metric Units—pp. 218–219 6-8 Metric Units of Capacity—pp. 220–221 6-9 Metric Units of Mass—pp. 222–223 6-11 Time—pp. 226–227 6-12 Elapsed Time—pp. 228–229 *continued*

NY-4.MD MEASUREMENT AND DATA

Grade 4 Content Standards	*Progress in Mathematics*, Grade 4
e.g., Know that 1 ft. is 12 times as long as 1 in. and express the length of a 4 ft. snake as 48 in. Given the conversion factor, convert all other measurements within a single system of measurement from a larger unit to a smaller unit. e.g., Given the conversion factors, convert kilograms to grams, pounds to ounces, or liters to milliliters. Record measurement equivalents in a two-column table. e.g., Generate a conversion table for feet and inches.	**Chapter 12 Divide by Two Digits** 12-1 Metric Measurement—pp. 382–383 12-2 Relate Metric Units of Length—pp. 384–385 12-3 Relate Metric Units of Capacity—pp. 386–387 12-4 Relate Metric Units of Mass—pp. 388–389
NY-4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money.	
NY-4.MD.2a Solve problems involving fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit.	**Chapter 2 Addition and Subtraction Concepts** 2-8 Add and Subtract Money—pp. 82–83 **Chapter 4 Multiplication by One and Two Digits** 4-8 Multiply Money—pp. 140–141 4-12 Multiply by Two-Digit Numbers—pp. 148–149 **Chapter 5 Divide by One Digit** 5-14 Divide Money—pp. 190–191 **Chapter 6 Measurement** 6-2 Rename Units of Length—pp. 208–209 6-3 Compute Customary Units—pp. 210–211 6-4 Customary Units of Capacity—pp. 212–213 6-5 Customary Units of Weight—pp. 214–215 6-6 Measure with Metric Units—pp. 216–217 6-7 Work with Metric Units—pp. 218–219 6-8 Metric Units of Capacity—pp. 220–221 6-9 Metric Units of Mass—pp. 222–223 *6-9A Represent Measures on a Number Line—Online 6-12 Elapsed Time—pp. 228–229 6-13 Problem Solving Strategy: Use More Than One Step—pp. 230–231

continued

NY-4.MD MEASUREMENT AND DATA

Grade 4 Content Standards	*Progress in Mathematics*, Grade 4
	6-14 Problem Solving Applications: Mixed Review—pp. 232–233 **Chapter 13 Decimals** 13-10 Divide with Money—pp. 430–431
NY-4.MD.2b Represent measurement quantities using diagrams that feature a measurement scale, such as number lines. Note: Grade 4 expectations are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.	**Skills Update** Customary Units of Length—p. 14 **Chapter 6 Measurement** 6-1 Measure with Inches—pp. 206–207 6-6 Measure with Metric Units—pp. 216–217 *6-9A Represent Measures on a Number Line—Online 6-10 Temperature—pp. 224–225
NY-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 equation with an unknown factor.	**Skills Update** Perimeter—p. 20 Area—p. 24 **Chapter 11 Perimeter, Area, and Volume** 11-1 Use Perimeter Formulas—pp. 358–359 11-2 Use Area Formulas—pp. 360–361 11-3 Perimeter and Area—pp. 362–363 *11-3A Perimeter and Area Formulas—Online
Represent and interpret data.	
NY-4.MD.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. e.g., Given measurement data on a line plot, find and interpret the difference in length between the longest and shortest specimens in an insect collection.	**Chapter 7 Statistics and Probability** 7-4 Surveys and Line Plots—pp. 246–247 **Chapter 9 Fractions: Addition and Subtraction** *9-5A Organize Measurement Data—Online

NY-4.MD MEASUREMENT AND DATA

Grade 4 Content Standards	*Progress in Mathematics*, Grade 4
Geometric measurement: understand concepts of angle and measure angles.	
NY-4.MD.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.	
NY-4.MD.5a Recognize 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.	**Chapter 10 Geometry** *10-1A Angle Measure—Online 10-2 Rays and Angles—pp. 328–329
NY-4.MD.5b Recognize an angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.	**Chapter 10 Geometry** *10-1A Angle Measure—Online 10-2 Rays and Angles—pp. 328–329
NY-4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	**Chapter 10 Geometry** *10-1A Angle Measure—Online 10-2 Rays and Angles—pp. 328–329 *10-2A Measure Angles (sketch and measure angles with a protractor)—Online
NY-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. e.g., using an equation with a symbol for the unknown angle measure.	**Chapter 10 Geometry** *10-2B Unknown Angle Measures—Online

NY-4.G GEOMETRY

Grade 4 Content Standards	*Progress in Mathematics*, Grade 4
Draw and identify lines and angles, and classify shapes by properties of their lines and angles.	
NY-4.G.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	**Chapter 10 Geometry** 10-1 Points, Lines, and Line Segments—pp. 326–327 10-2 Rays and Angles—pp. 328–329 10-3 Parallel and Perpendicular Lines—pp. 330–331 10-4 Circles—pp. 332–333 10-11 Coordinate Geometry—pp. 346–347
NY-4.G.2	
NY-4.G.2a Identify and name triangles based on angle size (right, obtuse, acute).	**Chapter 10 Geometry** 10-7 Triangles—pp. 338–339
NY-4.G.2b Identify and name all quadrilaterals with 2 pairs of parallel sides as parallelograms.	**Chapter 10 Geometry** 10-3 Parallel and Perpendicular Lines—pp. 330–331 10-6 Quadrilaterals—pp. 336–337
NY-4.G.2c Identify and name all quadrilaterals with four right angles as rectangles.	**Chapter 10 Geometry** 10-6 Quadrilaterals—pp. 336–337
NY-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 10 Geometry** *10-7A Symmetry—Online