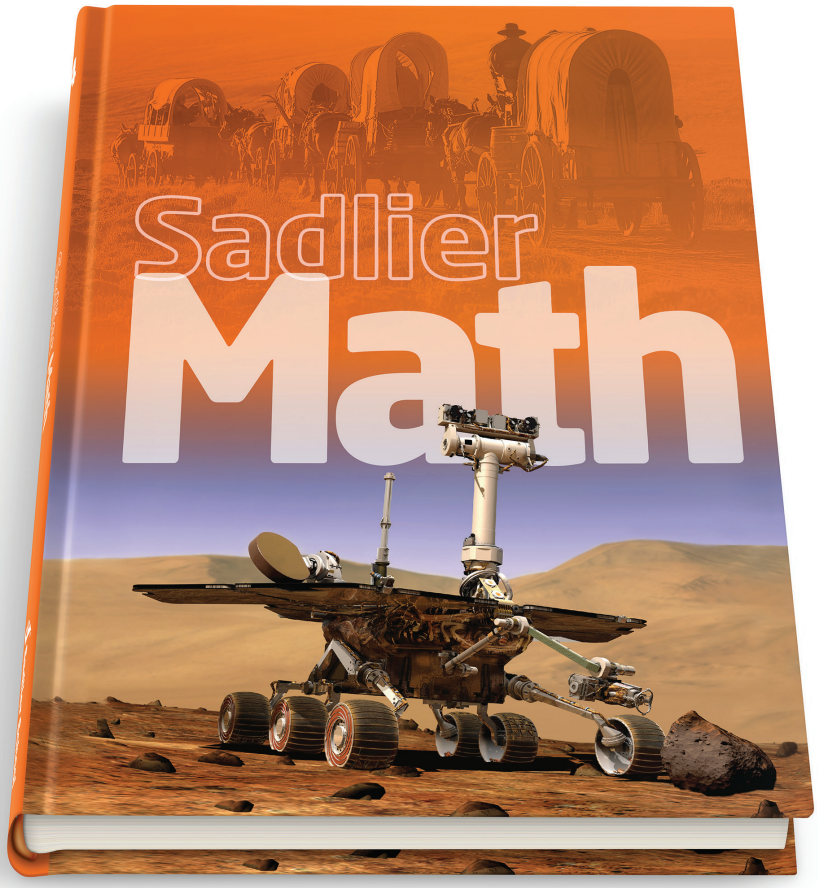
Sadlier Math™

Correlation to the ACT® Aspire® 4th Grade Mathematics Performance Level Descriptors: Ready & Exceeding

Grade 4



Learn more at www.SadlierSchool.com/SadlierMath

OPERATIONS AND ALGEBRAIC THINKING

Focus is on developing deeper understanding of operations and thinking about rules that give patterns.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
Ready *A student performing at the* Ready *level:*	
• solves problems involving prime numbers, factors, and multiples.	**Chapter 9: 9-3** • 9-3 Prime and Composite Numbers—pp. 176–177 (Use factors to determine whether a number is prime or composite; Write About It: use divisibility rules)
• extends a number pattern that is presented in a context to solve a problem.	**Problem Solving Math Practices** • Look for a Pattern—p. xxvi **Chapter 4: 4-3** • 4-3 Multiply Tens, Hundreds, and Thousands—pp. 74–75 (Understand the patterns of zeros when multiplying by tens, hundreds, and thousands; TE Develop Concepts: The Associative Property) **Chapter 6: 6-5** • 6-5 Multiplication Patterns—pp. 118–119 (Use patterns to multiply by multiples of 10, 100, or 1000; TE Develop Concepts: Break Down Factors) **Chapter 7: 7-5** • 7-5 Number Patterns—pp. 138–139 (Make a number pattern, and find features of patterns; TE Develop Concepts: Patterns and Relationships) **Chapter 13: 13-8** • 13-8 Problem Solving: Find a Pattern—pp. 288–289 (Solve problems by using a variety of strategies, including finding a pattern; TE Develop Concepts: Recognize Patterns)
• makes sense of multi-step problems involving all four operations with whole numbers.	**Chapter 3: 3-6 & 3-7** • 3-6 Multistep Problems Using Addition and Subtraction—pp. 58–59 • 3-7 Problem Solving: Use a Model—pp. 60–61 **Chapter 6: 6-6** • 6-6 Problem Solving: Write and Solve an Equation—pp. 120–121 **Chapter 7: 7-6** • 7-6 Problem Solving: Work Backward—pp. 140–141 **Chapter 8: 8-1 through 8-8** • 8-7 Multistep Problems Using Multiplication and Division—pp. 162–163 • 8-8 Problem Solving: Use a Model—pp. 164–165
• attends to the meaning of quantities.	**Chapter 1: 1-1 through 1-4** • 1-1 Thousands—pp. 2–3 (Read and write numbers to thousands; TE Develop Concepts: Modeling Place Value) • 1-2 What Is One Million?—pp. 4–5 (Use place value to understand millions; TE Develop Concepts: Place Value of 1) • 1-3 Millions—pp. 6–7 (Read and write numbers in millions using numerals and number names; TE Develop Concepts: Number Periods and Place Value) • 1-4 Expanded Form—pp. 8–9 (Read and write numbers in expanded form; TE Develop Concepts: Values of Digits in a Number)

OPERATIONS AND ALGEBRAIC THINKING

Focus is on developing deeper understanding of operations and thinking about rules that give patterns.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
Exceeding *A student performing at the* Exceeding *level:*	
• answers questions and solves problems involving prime numbers, factors, and multiples and explains their reasoning.	**Chapter 9: 9-1 through 9-4** • 9-1 Factors—pp. 172–173 (Use arrays and division to find whole number factors; TE Develop Concepts: Finding Factors) • 9-2 Factor Pairs—pp. 174–175 (Use area models to find factor pairs of whole numbers; TE Develop Concepts: Modeling Factor Pairs) • 9-3 Prime and Composite Numbers—pp. 176–177 (Use factors to determine whether a number is prime or composite; Write About It: use divisibility rules) • 9-4 Multiples—pp. 180–181 (Use factors to determine multiples of a whole number; TE Develop Concepts: Multiples vs. Factors)
• solves multi-step word problems with whole numbers and having whole-number answers.	**Chapter 3: 3-6 & 3-7** • 3-6 Multistep Problems Using Addition and Subtraction—pp. 58–59 • 3-7 Problem Solving: Use a Model—pp. 60–61 **Chapter 6: 6-6** • 6-6 Problem Solving: Write and Solve an Equation—pp. 120–121 **Chapter 7: 7-6** • 7-6 Problem Solving: Work Backward—pp. 140–141 **Chapter 8: 8-1 through 8-8** • 8-7 Multistep Problems Using Multiplication and Division—pp. 162–163 • 8-8 Problem Solving: Use a Model—pp. 164–165
• finds a point of entry to solve problems involving whole numbers, fractions, and decimals.	**Problem Solving Math Practices** • Pp. xxii–xxvi **Problem Solving Strategies** • Pp. xxvii–xxxii See also Problem Solving exercises for each lesson and the Problem Solving lesson in the following chapters: • Chapter 2 Addition • Chapter 3 Subtraction • Chapter 4 Multiplication Concepts • Chapter 5 Multiply by One-Digit Numbers • Chapter 6 Multiply by Two-Digit Numbers • Chapter 7 Division Concepts • Chapter 8 Divide by One-Digit Numbers • Chapter 9 Factors and Multiples • Chapter 10 Fraction Concepts • Chapter 11 Fractions: Addition and Subtraction • Chapter 12 Fractions: Multiply by a Whole Number • Chapter 13 Fractions and Decimals • Chapter 14 Measurement • Chapter 15 Measurement and Data

OPERATIONS AND ALGEBRAIC THINKING

Focus is on developing deeper understanding of operations and thinking about rules that give patterns.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
• contextualizes and decontextualizes real-world situations.	With few exceptions, each lesson begins with a word problem representing a real-world situation. The instruction that follows models how to decontextualize—represent the problem with mathematics in order to facilitate deriving a solution—then contextualize, or relate that solution to the original situation. Following are examples of lessons that directly teach decontextualization: **Problem Solving Math Practices** • Four Steps: Read and Understand, Represent the Situation, Make and Use a Plan, Look Back—p. xxii • Explain Your Reasoning/Model with Mathematics—p. xxiv **Problem Solving Strategies** • Write and Solve an Equation—p. xxxi **Chapter 4: 4-5** • 4-6 Problem Solving: Represent the Situation—pp. 80–81 (Solve problems using a variety of strategies, including representing the situation) **Chapter 6: 6-6** • 6-6 Problem Solving: Write and Solve an Equation—pp. 120–121 (Solve problems by using a variety of strategies, including writing and solving an equation; TE Develop Concepts: Translating Descriptions into Equations) **Chapter 12: 12-6 & 12-7** • 12-6 Represent Situations Involving Multiplying a Fraction and a Whole Number—pp. 262–263 (TE Develop Concepts: Represent Multiplication Situations) • 12-7 Problem Solving: Choose a Strategy—pp. 264–265 (Solve problems by choosing from a variety of strategies, including using a model or an equation) Computation problems throughout the program afford opportunities for teachers to direct students to contextualize—create stories or descriptions of real-world situations that match the abstract mathematical representation.

NUMBER AND OPERATIONS IN BASE TEN

Focus is on multi-digit whole numbers and developing fluency using place-value thinking.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
Ready *A student performing at the* Ready *level:*	
• multiplies a one-digit whole number by a four-digit whole number; multiplies two two-digit whole numbers.	**Chapter 5: 5-4** • 5-4 Multiply Three- and Four-Digit Numbers—pp. 96–97 **Chapter 6: 6-1 through 6-6** • 6-1 Use Area Models to Multiply by Two-Digit Numbers—pp. 108–109 • 6-2 Break Apart Numbers to Multiply—pp. 110–111 • 6-3 Multiply by Two-Digit Numbers: No Regrouping—pp. 114–115 • 6-4 Multiply by Two-Digit Numbers: Regrouping—pp. 116–117 • 6-5 Multiplication Patterns—pp. 118–119 • 6-6 Problem Solving: Write and Solve an Equation—pp. 120–121
• uses place value to understand the value of whole numbers within 100,000.	**Chapter 1: 1-1 through 1-3** • 1-1 Thousands—pp. 2–3 (Read and write numbers to thousands; TE Develop Concepts: Modeling Place Value) • 1-2 What Is One Million?—pp. 4–5 (Use place value to understand millions; TE Develop Concepts: Place Value of 1) • 1-3 Millions—pp. 6–7 (Read and write numbers in millions using numerals and number names; TE Develop Concepts: Number Periods and Place Value)
• writes a multi-digit whole number in expanded form using addition. Example: 328 = 300 + 20 + 8	**Chapter 1: 1-4** • 1-4 Expanded Form—pp. 8–9 (Read and write numbers in expanded form; TE Develop Concepts: Values of Digits in a Number)
• uses the distributive property to decompose and recompose numbers.	**Chapter 4: 4-1** • 4-1 Multiplication Properties—pp. 68–69 (Use multiplication properties to multiply accurately and efficiently; TE Develop Concepts: Examples of the Properties of Multiplication) **Chapter 5: 5-2** • 5-2 Use Properties to Multiply by One-Digit Numbers—pp. 90–91 (Use properties to multiply efficiently; TE Develop Concepts: Using Properties to Make Multiplication Simpler)
• estimates to check the result of a calculation	**Chapter 2: 2-2** • 2-3 Estimate Sums—pp. 28–29 (Use estimation to add numbers; TE Develop Concepts: Find Sums Using Rounded Numbers) **Chapter 3: 3-1 & 3-3** • 3-1 Estimate Differences—pp. 46–47 (Use estimation strategies to solve subtraction problems; TE Develop Concepts: Which Difference is Closest?) • 3-3 Subtract with Two Regroupings—pp. 50–51 (First estimate then check reasonableness of answer) **Chapter 4: 4-4** • 4-4 Estimate Products—pp. 76–77 (Use front-end estimation and rounding to estimate products; TE Develop Concepts: Estimate to Evaluate Answers)

continued

NUMBER AND OPERATIONS IN BASE TEN

Focus is on multi-digit whole numbers and developing fluency using place-value thinking.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
	Chapter 6: 6-3 & 6-4 • 6-3 Multiply by Two-Digit Numbers: No Regrouping—pp. 114–115 (First estimate then check reasonableness of answer) • 6-4 Multiply by Two-Digit Numbers: Regrouping—pp. 116–117 (First estimate then check reasonableness of answer) **Chapter 7: 7-3** • 7-3 Estimate Quotients—pp. 132–133 (Use estimation strategies to find and assess the solutions for division problems; TE Develop Concepts: Estimating Quotients)
Exceeding *A student performing at the* Exceeding *level:*	
• solves multi-step real-world problems involving operations with multi-digit numbers.	**Chapter 3: 3-6 & 3-7** • 3-6 Multistep Problems Using Addition and Subtraction—pp. 58–59 • 3-7 Problem Solving: Use a Model—pp. 60–61 **Chapter 6: 6-6** • 6-6 Problem Solving: Write and Solve an Equation—pp. 120–121 **Chapter 7: 7-6** • 7-6 Problem Solving: Work Backward—pp. 140–141 **Chapter 8: 8-1 through 8-8** • 8-7 Multistep Problems Using Multiplication and Division—pp. 162–163 • 8-8 Problem Solving: Use a Model—pp. 164–165
• writes a multi-digit whole number in expanded form using addition and multiplication. Example: 328 = 3*100 + 2*10 + 8	**Chapter 1: 1-4** • 1-4 Expanded Form—pp. 8–9 (Read and write numbers in expanded form; TE Develop Concepts: Values of Digits in a Number)

NUMBER AND OPERATIONS—FRACTIONS

Focus is on fraction equivalence and on strategies for comparing and adding fractions with unlike denominators. Students multiply fractions by whole numbers, and decimals are introduced.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
Ready *A student performing at the* Ready *level:*	
• compares decimals between 0 and 1 to hundredths.	**Chapter 13: 13-6** • 13-6 Compare Decimals with Models and Symbols—pp. 284–285 (Compare decimals to the hundredths place; TE Develop Concepts: Model Comparing Decimals)

NUMBER AND OPERATIONS—FRACTIONS

Focus is on fraction equivalence and on strategies for comparing and adding fractions with unlike denominators. Students multiply fractions by whole numbers, and decimals are introduced.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
• solves mathematical or real-world problems involving addition and subtraction of mixed numbers referring to the same whole with like common denominators	**Chapter 11: 11-7 & 11-8** • 11-7 Add Mixed Numbers: Like Denominators—pp. 238–239 (Add mixed numbers with like denominators; TE Develop Concepts: Modeling Addition with Mixed Numbers) • 11-8 Subtract Mixed Numbers: Like Denominators—pp. 240–241 (Subtract mixed numbers with like denominators; TE Develop Concepts: Modeling Subtraction with Mixed Numbers)
• recognizes and generates equivalent fractions using visual fraction models.	**Chapter 10: 10-2 through 10-4** • 10-2 Equivalent Fractions: Number Line Diagrams—pp. 194–195 (Use a number line to find equivalent fractions; TE Develop Concepts: Fractions and Number Lines) • 10-3 Write Equivalent Fractions: Use Models—pp. 196–197 (Use models to find equivalent fractions; TE Develop Concepts: Modeling Fractions) • 10-4 Write Equivalent Fractions: Use Multiplication and Division—pp. 198–199 (Use multiplication and division to find equivalent fractions; TE Develop Concepts: Make More Equal Parts)
• uses the mathematical symbols <, =, > appropriately.	**Chapter 10: 10-6 through 10-8, 10-10** • 10-6 Compare Fractions: Use Benchmarks—pp. 204–205 (Use benchmark fractions to compare fractions; TE Develop Concepts: Indirect Comparison) • 10-7 Compare Fractions with the Same Denominator—pp. 206–207 (Compare fractions with the same denominator; TE Develop Concepts: Compare Parts of a Whole) • 10-8 Compare Fractions—pp. 208–209 (Compare fractions with different denominators; TE Develop Concepts: Model Comparing Fractions) • 10-10 Compare Mixed Numbers—pp. 212–213 (Compare mixed numbers; TE Develop Concepts: Compare Mixed Numbers on Number Lines)
• decomposes and recomposes mixed numbers.	**Chapter 10: 10-9** • 10-9 Mixed Numbers—pp. 210–211 (Read and write mixed numbers; TE Develop Concepts: Mixed Number Pizzas)

Exceeding

A student performing at the Exceeding *level:*

• compares two fractions with different numerators and different denominators by creating common denominators and explains how they know their comparison is correct.	**Chapter 10: 10-6 through 10-8, 10-10** • 10-6 Compare Fractions: Use Benchmarks—pp. 204–205 (Use benchmark fractions to compare fractions; TE Develop Concepts: Indirect Comparison) • 10-7 Compare Fractions with the Same Denominator—pp. 206–207 (Compare fractions with the same denominator; TE Develop Concepts: Compare Parts of a Whole) • 10-8 Compare Fractions—pp. 208–209 (Compare fractions with different denominators; TE Develop Concepts: Model Comparing Fractions) • 10-10 Compare Mixed Numbers—pp. 212–213 (Compare mixed numbers; TE Develop Concepts: Compare Mixed Numbers on Number Lines)

NUMBER AND OPERATIONS—FRACTIONS

Focus is on fraction equivalence and on strategies for comparing and adding fractions with unlike denominators. Students multiply fractions by whole numbers, and decimals are introduced.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
• compares decimals to hundredths when presented in a real-world context.	**Chapter 13: 13-16 & 13-7** • 13-6 Compare Decimals with Models and Symbols—pp. 284–285 (Compare decimals to the hundredths place; TE Develop Concepts: Model Comparing Decimals) • 13-7 Order Decimals—pp. 286–287 (Order decimals to hundredths; TE Develop Concepts: Decimals and Number Lines)
• uses decimal notation for fractions with denominators of 10 or 100.	**Chapter 13: 13-1** • 13-1 Equivalent Fractions: Rename Tenths as Hundredths—pp. 272–273 (Express a fraction with a denominator of 10 as an equivalent fraction with a denominator of 100; TE Develop Concepts: Equivalent Fractions)

MEASUREMENT AND DATA

Focus is on understanding measurement units and equivalent measurements in different units. Angle measure is explored.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
Ready *A student performing at the* Ready *level:*	
• uses a protractor to measure and compare angles.	**Chapter 16: 16-3** • 16-3 Measure Angles—pp. 356–357 (Measure and sketch angles using a protractor; Workbook: draw an angle; TE Develop Concepts: Measuring Angles)
• converts measurements in fractional amounts expressed in a measurement systems larger unit in terms of as smaller unit in real-world situations	**Chapter 14: 14-2 through 14-10** • 14-2 Customary Units of Length—pp. 298–299 (Solve length problems using customary units of measure; TE Develop Concepts: Converting Units with Tables) • 14-3 Customary Units of Capacity—pp. 300–301 (Solve capacity problems using customary units of measure; TE Develop Concepts: Converting Units of Capacity) • 14-4 Customary Units of Weight—pp. 302–303 (Solve weight problems using customary units of measure; TE Develop Concepts: Converting Units of Weight) • 14-5 Operations with Customary Units—pp. 304–305 (Solve problems using customary units of measure; TE Develop Concepts: Measurement Operations) • 14-6 Metric Units of Length—pp. 308–311 (Solve length problems with metric units of measure; TE Develop Concepts: Measuring with Tens) • 14-7 Metric Units of Capacity—pp. 310–313 (Solve capacity problems using metric units of measure; TE Develop Concepts: Liters and Milliliters) • 14-8 Metric Units of Mass—pp. 312–313 (Solve mass problems using metric units of measure; TE Develop Concepts: Metric Mass Balance) *continued*

MEASUREMENT AND DATA

Focus is on understanding measurement units and equivalent measurements in different units. Angle measure is explored.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
	• 14-9 Operations with Metric Units—pp. 314–315 (Solve problems using metric units of measure Use tables to help solve problems; TE Develop Concepts: Modeling Metric Operations) • 14-10 Problem Solving: Make a Table—pp. 316–317 (Use tables to help solve problems; TE Develop Concepts: Organize with Tables)
• constructs a line plot with tick marks that are multiples of 1/2, 1/4, or 1/8 to display a data set of measurements.	**Chapter 15: 15-6 & 15-7** • 15-6 Line Plots—pp. 336–337 (Solve length problems with metric units of measure; TE Develop Concepts: Making and Using Tally Charts) • 15-7 Surveys and Line Plots—pp. 338–339 (Solve capacity problems using metric units of measure; TE Develop Concepts: Analyzing Surveys)
• attends to precision when using a tool.	**Problem Solving Math Practices** • Use the Right Tools/Be Precise—p. xxv **Chapter 14: 14-1, 14-6 through 14-8, 14-10** • 14-1 Measure with Inches—pp. 296–297 (Measure length in inches; TE Develop Concepts: Units of Measure) • 14-6 Metric Units of Length—pp. 308–311 (Solve length problems with metric units of measure; TE Develop Concepts: Measuring with Tens) • 14-7 Metric Units of Capacity—pp. 310–313 (Solve capacity problems using metric units of measure; TE Develop Concepts: Liters and Milliliters) • 14-8 Metric Units of Mass—pp. 312–313 (Solve mass problems using metric units of measure; TE Develop Concepts: Metric Mass Balance • 14-10 Problem Solving: Make a Table—pp. 316–317 (Use tables to help solve problems; TE Develop Concepts: Organize with Tables)

Exceeding

A student performing at the Exceeding *level:*

• solves problems involving length and distance, using all four operations with whole numbers, fractions, and decimals	**Chapter 14: 14-1 & 14-6** • 14-1 Measure with Inches—pp. 296–297 (Measure length in inches; TE Develop Concepts: Units of Measure) • 14-6 Metric Units of Length—pp. 308–311 (Solve length problems with metric units of measure; TE Develop Concepts: Measuring with Tens)
• performs computations based on data presented in a line plot that includes fractions.	**Chapter 15: 15-6 & 15-7** • 15-6 Line Plots—pp. 336–337 (Solve length problems with metric units of measure; TE Develop Concepts: Making and Using Tally Charts) • 15-7 Surveys and Line Plots—pp. 338–339 (Solve capacity problems using metric units of measure; TE Develop Concepts: Analyzing Surveys)

MEASUREMENT AND DATA

Focus is on understanding measurement units and equivalent measurements in different units. Angle measure is explored.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
• uses a protractor to apply the additive property of non-overlapping angles in order to explain solutions for problems involving addition and subtraction of angle measures	**Chapter 16: 16-3 & 16-4** • 16-3 Measure Angles—pp. 356–357 (Measure and sketch angles using a protractor; Workbook: draw an angle; TE Develop Concepts: Measuring Angles) • 16-4 Unknown Angle Measures—pp. 358–359 (Find unknown angle measures; TE Develop Concepts: Additive Property)
• selects and uses appropriate tools to solve complex and multi-step problems.	**Problem Solving Math Practices** • Use the Right Tools/Be Precise—p. xxv **Chapter 14: 14-1, 14-6 through 14-8, 14-10** • 14-1 Measure with Inches—pp. 296–297 (Measure length in inches; TE Develop Concepts: Units of Measure) • 14-6 Metric Units of Length—pp. 308–311 (Solve length problems with metric units of measure; TE Develop Concepts: Measuring with Tens) • 14-7 Metric Units of Capacity—pp. 310–313 (Solve capacity problems using metric units of measure; TE Develop Concepts: Liters and Milliliters) • 14-8 Metric Units of Mass—pp. 312–313 (Solve mass problems using metric units of measure; TE Develop Concepts: Metric Mass Balance • 14-10 Problem Solving: Make a Table—pp. 316–317 (Use tables to help solve problems; TE Develop Concepts: Organize with Tables)
• uses models to visualize results and compare predictions with data.	**Chapter 15: 5 & 15-7** • 15-5 Line Graphs—pp. 334–335 (Solve problems using customary units of measure; TE Develop Concepts: Graphing Data) • 15-7 Surveys and Line Plots—pp. 338–339 (Solve capacity problems using metric units of measure; make predictions; TE Develop Concepts: Analyzing Surveys)

GEOMETRY

Focus is on the idea that shapes can be categorized by their properties. Symmetry is a property of some shapes.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
Ready *A student performing at the* Ready *level:*	
• classifies two-dimensional figures based on the presence of parallel sides.	**Chapter 16: 16-5 & 16-6** • 16-5 Parallel and Perpendicular Lines—pp. 360–361 (Identify and draw parallel and perpendicular lines) • 16-6 Problem Solving: Use a Diagram—pp. 362–363 (Identify and draw parallel and perpendicular lines) **Chapter 17: 17-2** • 17-2 Quadrilaterals—pp. 372–373 (Identify and classify quadrilaterals, parallel sides)

GEOMETRY

Focus is on the idea that shapes can be categorized by their properties. Symmetry is a property of some shapes.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
• identifies angles in a diagram or drawing of two-dimensional figures as right, acute, or obtuse.	**Chapter 17: 17-2 & 17-3** • 17-2 Quadrilaterals—pp. 372–373 (Identify and classify quadrilaterals, right angles) • 17-3 Triangles—pp. 374–375 (Identify and classify triangles; right, obtuse, acute angles)
• understands that a line of symmetry for a two-dimensional figure is a line across the figure such that the figure would be divided into matching parts if it were folded on the line.	**Chapter 17: 17-4** • 17-4 Symmetry—pp. 376–377 (Identify line symmetry in figures and draw lines of symmetry; TE Develop Concepts: Symmetry as Reflections)
Exceeding *A student performing at the* Exceeding *level:*	
• classifies two-dimensional figures based on the presence or absence of parallel or perpendicular lines.	**Chapter 16: 16-5 & 16-6** • 16-5 Parallel and Perpendicular Lines—pp. 360–361 (Identify and draw parallel and perpendicular lines) • 16-6 Problem Solving: Use a Diagram—pp. 362–363 (Identify and draw parallel and perpendicular lines) **Chapter 17: 17-2** • 17-2 Quadrilaterals—pp. 372–373 (Identify and classify quadrilaterals, parallel sides)
• identifies multiple lines of symmetry for a two-dimensional figure.	**Chapter 17: 17-4** • 17-4 Symmetry—pp. 376–377 (Identify line symmetry in figures and draw lines of symmetry; TE Develop Concepts: Symmetry as Reflections)

MODELING

Producing, interpreting, understanding, evaluating, and improving mathematical models.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
Ready *A student performing at the* Ready *level:*	
• recognizes a two-dimensional figure based on a verbal description of the properties of the figure and creates and uses diagrams of two-dimensional figures to analyze relationships between quantities.	**Chapter 17: 17-1 through 17-3** • 17-1 Polygons—pp. 370–371 (Identify and name polygons: triangle, quadrilateral, pentagon, hexagon, and octagon; TE Develop Concepts: Building Polygons) • 17-2 Quadrilaterals—pp. 372–373 (Identify and classify quadrilaterals; TE Develop Concepts: Constructing Quadrilaterals) • 17-3 Triangles—pp. 374–375 (Identify and classify triangles; TE Develop Concepts: Drawing Triangles)

MODELING

Producing, interpreting, understanding, evaluating, and improving mathematical models.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
• determines an appropriate model for a given real-world situation (area and fraction models, number lines, etc.).	**Chapter 5: 5-3** • 5-3 Use Area Models to Multiply by One-Digit Numbers—pp. 92–93 (Multiply by one-digit numbers using area models; TE Develop Concepts: Arrays) **Chapter 6: 6-1** • 6-1 Use Area Models to Multiply by Two-Digit Numbers—pp. 108–109 (Use area models to multiply by two-digit numbers; TE Develop Concepts: Area Models) **Chapter 9: 9-2** • 9-2 Factor Pairs—pp. 174–175 (Use area models to find factor pairs of whole numbers; TE Develop Concepts: Modeling Factor Pairs) • 9-4 Multiples—pp. 180–181 (TE Develop Concepts: Multiples vs. Factors, number lines) **Chapter 10: 10-2 & 10-10** • 10-2 Equivalent Fractions: Number Line Diagrams—pp. 194–195 (Use a number line to find equivalent fractions; TE Develop Concepts: Fractions and Number Lines) • 10-10 Compare Mixed Numbers—pp. 212–213 (Compare mixed numbers; TE Develop Concepts: Compare Mixed Numbers on Number Lines) **Chapter 11: 11-4** • 11-4 Use Models to Subtract Fractions—pp. 230–231 (Subtract fractions using fraction strips and number lines; TE Develop Concepts: Difference of Fractions)
• uses and creates area models for multiplication.	**Chapter 5: 5-3** • 5-3 Use Area Models to Multiply by One-Digit Numbers—pp. 92–93 (Multiply by one-digit numbers using area models; TE Develop Concepts: Arrays) **Chapter 6: 6-1** • 6-1 Use Area Models to Multiply by Two-Digit Numbers—pp. 108–109 (Use area models to multiply by two-digit numbers; TE Develop Concepts: Area Models)

Exceeding

A student performing at the Exceeding *level:*

• analyzes a representation such as a geometric model, a frequency plot, a data table, or a Venn diagram to solve a problem presented in a context.	**Chapter 15: 15-1 through 15-8** • 15-1 Represent Measures on a Number Line—pp. 324–325 • 15-2 Use Multiplication to Rename Measures—pp. 326–327 • 15-3 Elapsed Time—pp. 328–329 • 15-4 Temperature—pp. 330–331 • 15-5 Line Graphs—pp. 334–335 • 15-6 Line Plots—pp. 336–337 • 15-7 Surveys and Line Plots—pp. 338–339 • 15-8 Choose an Appropriate Display—pp. 340–341 **Chapter 16: 16-2 through 16-6** • 16-2 Angle Measure—pp. 352–353 • 16-3 Measure Angles—pp. 356–357

continued

MODELING

Producing, interpreting, understanding, evaluating, and improving mathematical models.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
	• 16-4 Unknown Angle Measures—pp. 358–359 • 16-5 Parallel and Perpendicular Lines—pp. 360–361 • 16-6 Problem Solving: Use a Diagram—pp. 362–363 **Chapter 17: 17-1 through 17-8** • 17-1 Polygons—pp. 370–371 • 17-2 Quadrilaterals—pp. 372–373 • 17-3 Triangles—pp. 374–375 • 17-4 Symmetry—pp. 376–377 • 17-5 Shape Patterns—pp. 380–381 • 17-6 Use Perimeter Formulas—pp. 382–383 • 17-7 Use Area Formulas—pp. 384–385 • 17-8 Problem Solving: Draw a Picture—pp. 386–387
• creates and uses an appropriate model to solve real-world situations (area and fraction models, number lines, etc.).	**Chapter 1: 1-5** • 1-5 Round Whole Numbers—pp. 12–13 (TE Develop Concepts: Navigating the Number Line) **Chapter 5: 5-3** • 5-3 Use Area Models to Multiply by One-Digit Numbers—pp. 92–93 (Multiply by one-digit numbers using area models; TE Develop Concepts: Arrays) **Chapter 6: 6-1** • 6-1 Use Area Models to Multiply by Two-Digit Numbers—pp. 108–109 (Use area models to multiply by two-digit numbers; TE Develop Concepts: Area Models) **Chapter 7: 7-4** • 7-4 Use Models to Divide—pp. 136–137 (Find whole-number quotients using models such as arrays and area models; TE Develop Concepts: Arrays as Multiplication and Division) **Chapter 8: 8-4** • 8-4 Zeros in Quotients—pp. 154–155 (TE Develop Concepts: Divide Using Area Models) **Chapter 9: 9-2** • 9-2 Factor Pairs—pp. 174–175 (Use area models to find factor pairs of whole numbers; TE Develop Concepts: Modeling Factor Pairs) • 9-4 Multiples—pp. 180–181 (TE Develop Concepts: number lines) **Chapter 10: 10-2 & 10-10** • 10-2 Equivalent Fractions: Number Line Diagrams—pp. 194–195 (Use a number line to find equivalent fractions; TE Develop Concepts: Fractions and Number Lines) • 10-10 Compare Mixed Numbers—pp. 212–213 (TE Develop Concepts: Compare Mixed Numbers on Number Lines) **Chapter 11: 11-4** • 11-4 Use Models to Subtract Fractions—pp. 230–231 (Subtract fractions using fraction strips and number lines) **Chapter 15: 15-1** • 15-1 Represent Measures on a Number Line—pp. 324–325 (Measure length in inches; TE Develop Concepts: Make a Ribbon Ruler)

JUSTIFICATION AND EXPLANATION

Giving reasons, explaining "Why?".

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
Ready *A student performing at the* Ready *level:*	
• draws conclusions using both a specific and general evidentiary statement.	Students provide written evidence and examples as they support their argument or conclusion in response to the **Write About It** prompt (at the end of each Student Edition lesson and each corresponding Workbook lesson). For example: **Chapter 7: 7-4** • 7-4 Use Models to Divide—pp. 136–137 (Write About It: Spence and Aaron need to find 117 ÷ 9. Spence says he will use an array to find the answer. Aaron says an area model is a better method. Who do you agree with and why?)
• provides general support for a claim in order to reach a conclusion.	For many lessons, students provide general support for a claim in order to reach a response to **Write About It** prompts (at the end of each Student Edition lesson and each corresponding Workbook lesson). **Chapter 11: 11-6** • 11-6 Write Mixed Numbers as Equivalent Fractions—pp. 236–237 (Write About It: When you rewrite a mixed number as an improper fraction, will the numerator always be greater than the denominator? Explain.)
• uses and cites conditional statements, specific aspects of created visual representations, and/or computations or procedures to clarify an argument or draw a conclusion.	Students clarify an argument or draw a conclusion based on visual representations, computations, or procedures in many **Problem Solving** and **Write About It** exercises (located at the end of each Student Edition lesson and each corresponding Workbook lesson). For example: **Chapter 5: 5-6** • 5-6 Problem Solving: Guess and Test—pp. 100–101 (Write About It: Mr. Chen wants to paint his living room. At the store he sees that paint costs $16 per gallon, paintbrushes cost $10 each, and paint rollers cost $12 each. He buys three items and spends $42. What strategy could you use to find what items Mr. Chen bought? Explain why you would use that strategy.) Students become familiar with conditional statements in many lessons and assessment activities. For example: **Chapter 2: 2-1** • 2-1 Mathematical Expressions—pp. 24–25 (Students are given a "What if" scenario) *continued*

JUSTIFICATION AND EXPLANATION

Giving reasons, explaining "Why?".

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
	Chapter 7 • Chapter 7 Performance Assessment—pp. 145 (6. A typical computer in 2016 can perform work as much as 60 times faster than a computer from the year 2000. If a certain task takes 3 seconds in 2016, how many seconds would it have taken the 2000 computer? Explain how you found your answer.) Students create and analyze visual representations. For example: **Chapter 17: 17-4** • 17-4 Symmetry—pp. 376–377 (Problem Solving #10: Antonio draws a triangle that has three lines of symmetry. What type of triangle does he draw? Explain your reasoning.)
• justifies and defends conclusions by explaining errors in reasoning or calculations, providing counterexamples, applying relevant classification schemes, and/or verifying statements or claims used to draw a conclusion.	Students justify and defend conclusions in many **Problem Solving** and **Write About It** exercises (located at the end of each Student Edition lesson and each corresponding Workbook lesson). For example: **Chapter 2: 2-4** (error analysis) • 2-4 Add Thousands—pp. 30–31 (Workbook Write About It: Ashley says that when adding five-digit numbers, she can add the ten-thousands place first, and then add each column from left to right. Explain why she is not correct.) **Chapter 15: 15-9** (reasoning) • 15-9 Problem Solving: Use Logical Reasoning—pp. 342–343 **Chapter 17: 17-2** (classification) • 17-2 Quadrilaterals—pp. 372–373 (Write About It: Explain if it is possible for two sides of a quadrilateral to be parallel to each other and perpendicular to each other.)

Exceeding

A student performing at the Exceeding *level:*

• provides a coherent, logical argument or solution pathway by providing evidence to support claims.	Students exercise logical reasoning to support claims in many lessons. They cite evidence to support claims in many **Problem Solving** and **Write About It** exercises (located at the end of each Student Edition lesson and each corresponding Workbook lesson). For example: **Problem Solving Strategies** • Use Logical Reasoning—p. xxix **Chapter 11: 11-9** • 11-9 Problem Solving: Compare Strategies—pp. 242–243 (Logical reasoning)

continued

JUSTIFICATION AND EXPLANATION

Giving reasons, explaining "Why?".

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
	Chapter 15: 15-9 • 15-9 Problem Solving: Use Logical Reasoning—pp. 342–343 **Chapter 17: 17-3** • 17-3 Triangles—pp. 374–375 (Problem Solving: explain your reasoning)
• provides thorough justification and defends conclusions by using multiple, connected statements and incorporating justification techniques such as explaining errors in reasoning or calculations, providing counterexamples, applying relevant classification schemes, and/or verifying statements or claims used to draw a conclusion.	Students justify and defend conclusions in many **Problem Solving** and **Write About It** exercises (located at the end of each Student Edition lesson and each corresponding Workbook lesson). For example: **Chapter 2: 2-4** (error analysis) • 2-4 Add Thousands—pp. 30–31 (Workbook Write About It: Ashley says that when adding five-digit numbers, she can add the ten-thousands place first, and then add each column from left to right. Explain why she is not correct.) **Chapter 15: 15-9** (reasoning) • 15-9 Problem Solving: Use Logical Reasoning—pp. 342–343 **Chapter 17: 17-2** (classification) • 17-2 Quadrilaterals—pp. 372–373 (Write About It: Explain if it is possible for two sides of a quadrilateral to be parallel to each other and perpendicular to each other.)

INTEGRATING ESSENTIAL SKILLS

Integrate and continue to grow with topics from prior grades.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
Ready *A student performing at the* Ready *level:*	
• solves multi-step real-world problems addressing concepts from the previous grade, including whole number rounding concepts; multi-digit operations with whole numbers; geometric properties.	**Chapter 1: 5** • 1-5 Round Whole Numbers—pp. 12–13 **Chapter 3: 6** • 3-6 Multistep Problems Using Addition and Subtraction—pp. 58–59 • 1-5 Round Whole Numbers—pp. 12–13 **Chapter 8: 7** • 8-7 Multistep Problems Using Multiplication and Division—pp. 162–163 **Chapter 17: 17-1 through 17-3** • 17-1 Polygons—pp. 370–371 • 17-2 Quadrilaterals—pp. 372–373 • 17-3 Triangles—pp. 374–375

INTEGRATING ESSENTIAL SKILLS

Integrate and continue to grow with topics from prior grades.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
• explains the desired number of parts, equal sized parts, and exhausting the whole.	**Chapter 10: 1 through 10-4** • 10-1 Fractions of a Set—pp. 192–193 • 10-2 Equivalent Fractions: Number Line Diagrams—pp. 194–195 • 10-3 Write Equivalent Fractions: Use Models—pp. 196–197 • 10-4 Write Equivalent Fractions: Use Multiplication and Division—pp. 198–199 See also Grade 5 **Chapter 9: 9-1 & 9-3** • 9-1 Divide Whole Numbers by Unit Fractions—pp. 198–199 (Divide whole numbers by unit fractions; TE Develop Concepts: Patterns in Quotients) • 9-3 Divide Whole Numbers by Fractions—pp. 202–203 (Divide a whole number by a fraction; TE Develop Concepts: Look for Patterns)
• relates rectangular arrays to area, multiplication and division.	**Chapter 5: 5-3** • 5-3 Use Area Models to Multiply by One-Digit Numbers—pp. 92–93 (Multiply by one-digit numbers using area models; TE Develop Concepts: Arrays) **Chapter 6: 6-1** • 6-1 Use Area Models to Multiply by Two-Digit Numbers—pp. 108–109 (Use area models to multiply by two-digit numbers; TE Develop Concepts: Area Models) **Chapter 7: 7-4** • 7-4 Use Models to Divide—pp. 136–137 (Find whole-number quotients using models such as arrays and area models; TE Develop Concepts: Arrays as Multiplication and Division) **Chapter 9: 9-1** • 9-1 Factors—pp. 172–173 (Use arrays and division to find whole number factors; TE Develop Concepts: Finding Factors)
• solves two-step word problems using the four operations with whole numbers and having whole-number answers.	**Chapter 3: 3-6** • 3-6 Multistep Problems Using Addition and Subtraction—pp. 58–59 **Chapter 8: 8-7** • 8-7 Multistep Problems Using Multiplication and Division—pp. 162–163
• creates numbers sentences from a given situation involving only addition and subtraction or only multiplication and division.	Students are shown how to create and solve equations representing real-world situations in most lessons on computation. See the following representative instructional activities: **Problem Solving Strategies** • Write and Solve an Equation—p. xxxi **Chapter 2: 2-1** • 2-1 Mathematical Expressions—pp. 24–25 (Represent problems *continued*

INTEGRATING ESSENTIAL SKILLS

Integrate and continue to grow with topics from prior grades.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
	using mathematical expressions; TE Develop Concepts: Representing an Unknown with a Letter) **Chapter 3: 3-6** • 3-6 Multistep Problems Using Addition and Subtraction—pp. 58–59 (Solve multistep addition and subtraction problems using equations; TE Develop Concepts: Representing Equations) **Chapter 6: 6-6** • 6-6 Problem Solving: Write and Solve an Equation—pp. 120–121 (Solve problems by using a variety of strategies, including writing and solving an equation; TE Develop Concepts: Translating Descriptions into Equations) **Chapter 8: 8-5 through 8-7** • 8-5 More Quotients—pp. 158–159 (Find whole number quotients and remainders; TE Develop Concepts: Analyze Division Expressions) • 8-6 Order of Operations—pp. 160–161 (Solve problems using the order of operations; TE Develop Concepts: Analyze Division Expressions) • 8-7 Multistep Problems Using Multiplication and Division—pp. 162–163 (Solve multistep problems that involve multiplication and division; TE Develop Concepts: Model a Multistep Problem)
Exceeding *A student performing at the* Exceeding *level:* • solves and explains their process and solutions for multi-step, multi-part problems addressing concepts from the previous grades, including rounding; area, perimeter, and elapsed time measurements; properties of quadrilaterals; and fraction concepts, including fraction equivalence.	**Chapter 1: 5** • 1-5 Round Whole Numbers—pp. 12–13 **Chapter 3: 6** • 3-6 Multistep Problems Using Addition and Subtraction—pp. 58–59 • 1-5 Round Whole Numbers—pp. 12–13 **Chapter 8: 7** • 8-7 Multistep Problems Using Multiplication and Division—pp. 162–163 **Chapter 10: 1 through 10-11** • 10-1 Fractions of a Set—pp. 192–193 • 10-2 Equivalent Fractions: Number Line Diagrams—pp. 194–195 • 10-3 Write Equivalent Fractions: Use Models—pp. 196–197 • 10-4 Write Equivalent Fractions: Use Multiplication and Division—pp. 198–199 • 10-5 Fractions: Lowest Terms—pp. 200–201 • 10-6 Compare Fractions: Use Benchmarks—pp. 204–205 • 10-7 Compare Fractions with the Same Denominator—pp. 206–207 • 10-8 Compare Fractions—pp. 208–209 • 10-9 Mixed Numbers—pp. 210–211 • 10-10 Compare Mixed Numbers—pp. 212–213 • 10-11 Order Fractions and Mixed Numbers—pp. 214–215 **Chapter 15: 3** • 15-3 Elapsed Time—pp. 328–329 *continued*

INTEGRATING ESSENTIAL SKILLS

Integrate and continue to grow with topics from prior grades.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
	Chapter 17: 17-2, 17-6 & 17-7 • 17-2 Quadrilaterals—pp. 372–373 • 17-6 Use Perimeter Formulas—pp. 382–383 • 17-7 Use Area Formulas—pp. 384–385 See also Grade 3 **Chapter 1: 1-4 & 1-5** • 1-4 Round Numbers to the Nearest Ten—pp. 10–11 • 1-5 Round Numbers to the Nearest Hundred—pp. 12–13 **Chapter 8: 8-6** • 8-6 Problem Solving: Work Backward—pp. 174–175 (Solve multistep word problems by working backward) **Chapter 14: 14-1 & 14-2** • 14-1 Classify Polygons—pp. 294–295 • 14-2 Classify Quadrilaterals—pp. 296–297 **Chapter 15: 15-1 through 15-6** • 15-1 Understand Area—pp. 312–313 • 15-2 Find Area Using Standard Units—pp. 314–315 • 15-3 Find the Area of a Rectangle and a Square—pp. 316–317 • 15-4 Find Area Using the Distributive Property—pp. 320–321 • 15-5 Find Area of Composite Shapes—pp. 322–323 • 15-6 Problem Solving: Guess and Test—pp. 324–325 **Chapter 9: 9-1 through 9-6** • 9-1 Understand Equal Parts—pp. 188–189 • 9-2 Name Unit Fractions of a Whole—pp. 190–191 • 9-3 Find Unit Fractions on a Number Line—pp. 192–193 • 9-4 Name Fractions of a Whole—pp. 196–197 • 9-5 Find Fractions on a Number Line—pp. 198–199 • 9-6 Use a Fraction to Find the Whole—pp. 200–201 **Chapter 10: 10-1 through 10-6** • Chapter 10 Fractions: Comparison and Equivalence • 10-1 Whole Numbers and Fractions—pp. 210–211 • 10-2 Find Equivalent Fractions—pp. 212–213 • 10-3 Find Equivalent Fractions on a Number Line—pp. 214–215 • 10-4 Compare Fractions with the Same Denominator—pp. 218–219 • 10-5 Compare Fractions with the Same Numerator—pp. 220–221 • 10-6 Order Fractions—pp. 222–223 **Chapter 16: 16-1 through 16-6** • 16-1 Understand Perimeter—pp. 332–333 • 16-2 Find Perimeter—pp. 334–335 • 16-3 Find Unknown Side Lengths—pp. 336–337 • 16-4 Problem Solving: Compare Strategies—pp. 340–341 • 16-5 Same Perimeter, Different Areas—pp. 342–343 • 16-6 Same Area, Different Perimeters—pp. 344–345

INTEGRATING ESSENTIAL SKILLS

Integrate and continue to grow with topics from prior grades.

4th Grade Performance Level Descriptors	*Sadlier Math*, Grade 4
• composes and decomposes complex geometric shapes.	See Grade 3 **Chapter 14: 14-4** • 14-4 Compose and Decompose Shapes—pp. 302–303 (Compose and decompose shapes; TE Develop Concepts: Tetrominoes) **Chapter 15: 15-5** • 15-5 Find Area of Composite Shapes—pp. 322–323 (Find the area of a composite shape by decomposition into non-overlapping rectangles; TE Develop Concepts: Decompose Shapes into Rectangles and Squares)