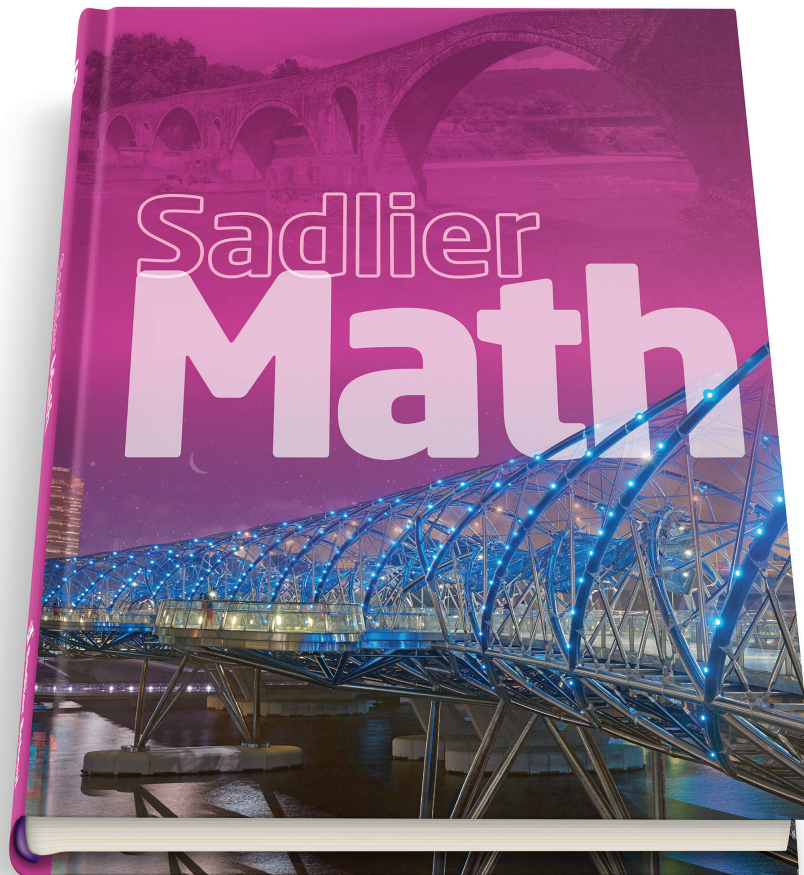# Sadlier Math™

Correlation to the Archdiocese of Hartford Mathematics Standards-based Curriculum

Grade 6

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NUMBER THEORY & ALGEBRAIC CONCEPTS (NAC)

Grade 6 Standards	*Sadlier Math*, Grade 6

NAC 6.1 Understand meanings of operations and how they relate to one another to solve real world problems

- To compute fluently with multi-digit numbers (NAC 6.1)
  - ○ Fluently divide multi-digit numbers using the standard algorithm.
  - ○ Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation

- To recognize and demonstrate equivalence using number properties (NAC 6.1)

Chapter 1: 1-1 through 1-6
- 1-1 Estimate Decimal Sums and Differences—pp. 2–3
- 1-2 Add Decimals—pp. 4–5
- 1-3 Subtract Decimals—pp. 6–7
- 1-4 Write Addition and Subtraction Expressions—pp. 10–11
- 1-5 Evaluate Addition and Subtraction Expressions—pp. 12–13
- 1-6 Problem Solving: The Four-Step Process—pp. 14–15

Chapter 2: 2-1 through 2-6
- 2-1 Multiply Decimals by 0.1, 0.01, and 0.001—pp. 22–23
- 2-2 Estimate Decimal Products—pp. 24–25
- 2-3 Multiply with Decimals—pp. 26–27
- 2-4 Write Multiplication Expressions—pp. 30–31
- 2-5 Evaluate Multiplication Expressions—pp. 32–33
- 2-6 Problem Solving: Compare Strategies—pp. 34–35

Chapter 3: 3-1 through 3-9
- 3-1 Divide Whole Numbers—pp. 42–43
- 3-2 Divide Decimals by 10, 100, and 1000—pp. 44–45
- 3-3 Divide Decimals by Whole Numbers—pp. 46–47
- 3-4 Divide Decimals by 0.1, 0.01, and 0.001—pp. 50–51
- 3-5 Estimate Decimal Quotients—pp. 52–53
- 3-6 Decimal Divisors—pp. 54–55
- 3-7 Zeros in Division—pp. 56–57
- 3-8 Write Division Expressions—pp. 58–59
- 3-9 Evaluate Division Expressions—pp. 60–61

See also Grade 5

Chapter 1: 1-7
- 1-7 Find Sums and Differences—pp. 16–17

Chapter 3: 3-4, 3-5, 3-7 & 3-8
- 3-4 Zeros in the Multiplicand—pp. 50–51
- 3-5 Multiply by Two-Digit Numbers—pp. 54–55
- 3-7 Multiply by Three-Digit Numbers—pp. 58–59
- 3-8 Zeros in the Multiplier—pp. 60–61

Chapter 4: 4-3 through 4-8
- 4-3 Divide by One-Digit Numbers—pp. 72–73
- 4-4 Zeros in the Quotient—pp. 74–75
- 4-5 Divisibility and Mental Math—pp. 76–77
- 4-6 Use Arrays and Area Models to Divide—pp. 80–81
- 4-7 Use Strategies to Divide—pp. 82–83
- 4-8 Divide by Two-Digit Numbers—pp. 84–85

NAC 6.2 Compute fluently with multi-digit numbers and find common factors and multiples

- To apply place value concepts and number properties to the addition, subtraction, multiplication and division of multi-digit numbers (NAC 6.2)

Chapter 1: 1-2 & 1-3
- 1-2 Add Decimals—pp. 4–5
- 1-3 Subtract Decimals—pp. 6–7

Chapter 2: 2-1 through 2-6
- 2-1 Multiply Decimals by 0.1, 0.01, and 0.001—pp. 22–23
- 2-2 Estimate Decimal Products—pp. 24–25
- 2-3 Multiply with Decimals—pp. 26–27
- 2-4 Write Multiplication Expressions—pp. 30–31
- 2-5 Evaluate Multiplication Expressions—pp. 32–33
- 2-6 Problem Solving: Compare Strategies—pp. 34–35

continued

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NUMBER THEORY & ALGEBRAIC CONCEPTS (NAC)

Grade 6 Standards	*Sadlier Math*, Grade 6
○ Recognize place value patterns when multiplying and dividing decimals by powers of 10 ○ Use the distributive property [10 x (4+5) = (10 x 5) + (10 x 4)] to estimate, multiply and divide multi-digit numbers by one-digit factors ○ Identify and use the inverse relationships of multiplication and division to solve and check problems ○ Determine the proper operation to solve a problem and justify the reasoning ○ Locate, order and compare decimals on number lines, scales and the coordinate grid ○ Multiply and divide decimals by decimals	**Chapter 3: 3-1 through 3-7** • 3-1 Divide Whole Numbers—pp. 42–43 • 3-2 Divide Decimals by 10, 100, and 1000—pp. 44–45 • 3-3 Divide Decimals by Whole Numbers—pp. 46–47 • 3-4 Divide Decimals by 0.1, 0.01, and 0.001—pp. 50–51 • 3-5 Estimate Decimal Quotients—pp. 52–53 • 3-6 Decimal Divisors—pp. 54–55 • 3-7 Zeros in Division—pp. 56–57 See also Grade 5 **Chapter 1: 1-7** • 1-7 Find Sums and Differences—pp. 16–17 **Chapter 3: 3-4, 3-5, 3-7 & 3-8** • 3-4 Zeros in the Multiplicand—pp. 50–51 • 3-5 Multiply by Two-Digit Numbers—pp. 54–55 • 3-7 Multiply by Three-Digit Numbers—pp. 58–59 • 3-8 Zeros in the Multiplier—pp. 60–61 **Chapter 4: 4-3 through 4-8** • 4-3 Divide by One-Digit Numbers—pp. 72–73 • 4-4 Zeros in the Quotient—pp. 74–75 • 4-5 Divisibility and Mental Math—pp. 76–77 • 4-6 Use Arrays and Area Models to Divide—pp. 80–81 • 4-7 Use Strategies to Divide—pp. 82–83 • 4-8 Divide by Two-Digit Numbers—pp. 84–85
• To use factors to explore, represent and classify numbers (NAC 6.2)	**Chapter 6: 6-1 through 6-5** • 6-1 Prime Factorization—pp. 124–125 • 6-2 Greatest Common Factor—pp. 126–127 • 6-3 The Distributive Property and Common Factors—pp. 128–129 • 6-4 Least Common Multiple—pp. 132–133 • 6-5 Problem Solving: Make a List—pp. 134–135
NAC 6.3 Represent and analyze quantitative relationships in a variety of ways to solve problems • To represent numbers in expanded and regrouped forms in the base ten place value system (NAC 6.3) ○ Locate, order and compare whole numbers on number lines, scales and the coordinate grid ○ Compare large numbers using expanded forms and powers of ten ○ Read, write, count, skip count, order, compare, round, and expand numerals to one billion ○ Identify negative exponents by examining patterns ○ Write expanded numerals in standard form ○ Express a standard form number in scientific notation and vice versa	See Grade 5 **Chapter 1: 1-1 through 1-3** • 1-1 Place Value to Billions—pp. 2–3 • 1-2 Expanded Form—pp. 4–5 • 1-3 Powers of 10—pp. 8–9 See also Grade 4 **Chapter 1: 1-1 through 1-7** • 1-1 Thousands—pp. 2–3 • 1-2 What Is One Million?—pp. 4–5 • 1-3 Millions—pp. 6–7 • 1-4 Expanded Form—pp. 8–9 • 1-5 Round Whole Numbers—pp. 12–13 • 1-6 Compare and Order Whole Numbers—pp. 14–15 *No negative exponents or scientific notation at this level.

NUMBER THEORY & ALGEBRAIC CONCEPTS (NAC)

Grade 6 Standards	*Sadlier Math*, Grade 6
• To use models, number lines, scales and a coordinate grid to represent and illustrate decimal numbers and to express them in equivalent forms (NAC 6.3) ○ Determine and write the prime factorization of any whole number ○ Represent numbers by using exponents ○ Change exponent form to standard numeral, write as repeated factors and vice versa ○ Use factors of composite numbers, powers of ten and divisibility rules to find products and missing factors ○ Memorize and apply the divisibility rules for 2, 3, 4, 5, 6, 8, 9, and 10	**Chapter 4: 4-1** • 4-1 Exponents—pp. 70–71 **Chapter 6: 6-1 through 6-5** • 6-1 Prime Factorization—pp. 124–125 • 6-2 Greatest Common Factor—pp. 126–127 • 6-3 The Distributive Property and Common Factors—pp. 128–129 • 6-4 Least Common Multiple—pp. 132–133 • 6-5 Problem Solving: Make a List—pp. 134–135 See also Grade 5 **Chapter 2: 2-1 through 2-6** • 2-1 Thousandths—pp. 24–25 • 2-2 Decimals and Expanded Form—pp. 26–27 • 2-3 Compare and Order Decimals—pp. 30–31 • 2-4 Round Decimals—pp. 32–33 • 2-5 Problem Solving: Read and Understand—pp. 34–35 • 2-6 Estimate with Decimals—pp. 36–37 **Chapter 4: 4-5** • 4-5 Divisibility and Mental Math—pp. 76–77
• To apply and extend previous understandings of multiplication and division to divide fractions by fractions (NAC 6.3)	**Chapter 8: 8-4 through 8-6** • 8-4 Model Dividing Fractions by Fractions—pp. 170–171 • 8-5 Divide Fractions by Fractions—pp. 172–173 • 8-6 Estimate Quotients of Fractions and Mixed Numbers—pp. 174–175
• To use models and pictorial representations to develop concepts and methods by which to multiply and divide fractions and mixed numbers (NAC 6.3) ○ Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem ○ Add and subtract fractions, whole numbers and mixed numbers using a variety of computational strategies ○ Subtract mixed numbers with renaming ○ Identify reciprocal numbers ○ Apply reciprocal numbers to division of a whole number by a fraction ○ Use models to divide whole numbers by fractions and fractions by whole numbers ○ Multiply and divide fractions, whole numbers and mixed numbers using a variety of computational strategies ○ Use cancellation in multiplication of fractions ○ Model and describe when products or quotients with fractions and decimals can yield a larger or smaller result than either factor	**Chapter 7: 7-5 & 7-6** • 7-5 Addition and Subtraction Expressions with Fractions—pp. 152–153 • 7-6 Addition and Subtraction Equations with Fractions—pp. 154–155 **Chapter 8: 8-1 through 8-12** • 8-1 Multiply Fractions—pp. 164–165 • 8-2 Properties of Multiplication—pp. 166–167 • 8-3 Meaning of Division by a Fraction—pp. 168–169 • 8-4 Model Dividing Fractions by Fractions—pp. 170–171 • 8-5 Divide Fractions by Fractions—pp. 172–173 • 8-6 Estimate Quotients of Fractions and Mixed Numbers—pp. 174–175 • 8-7 Divide with Whole and Mixed Numbers—pp. 176–177 • 8-8 Order of Operations with Fractions—pp. 180–181 • 8-9 Fractions with Money—pp. 182–183 • 8-10 Multiplication and Division Expressions with Fractions—pp. 184–185 • 8-11 Multiplication and Division Equations with Fractions—pp. 186–187 • 8-12 Problem Solving: Use a Model—pp. 188–189 See also Grade 5 **Chapter 5: 5-8** • 5-8 Interpret a Remainder—pp. 114–115 **Chapter 6: 6-1 through 6-4, 6-6** • 6-1 Model Addition with Unlike Denominators—pp. 122–123 • 6-2 Add Fractions: Unlike Denominators—pp. 124–125
continued	*continued*

NUMBER THEORY & ALGEBRAIC CONCEPTS (NAC)

Grade 6 Standards	*Sadlier Math*, Grade 6
○ Write whole number division problems in fraction form and round the fraction form to estimate an answer to a division problem ○ Write division problems in fraction form ○ Express remainders in division as fractions	• 6-3 Fraction Addition: Estimation and Reasonableness—pp. 126–127 • 6-4 Add Mixed Numbers—pp. 130–131 • 6-6 Rename Mixed Number Sums—pp. 134–135 **Chapter 7: 7-1 through 7-8** • 7-1 Model Subtraction of Fractions with Unlike Denominators—pp. 142–143 • 7-2 Subtract Fractions: Unlike Denominators—pp. 144–145 • 7-3 Subtract Fractions: Estimation and Reasonableness—pp. 146–147 • 7-4 Model Subtraction with Mixed Numbers—pp. 150–151 • 7-5 Estimate Sums and Differences of Mixed Numbers—pp. 152–153 • 7-6 Subtract Fractions and Whole Numbers from Mixed Numbers—pp. 154–155 • 7-7 Subtract Mixed Numbers: Rename Fractions—pp. 156–157 • 7-8 Subtract Mixed Numbers: Rename Whole Numbers and Fractions—pp. 158–159
NAC 6.4 Analyze patterns, relations, functions, and change in various contexts • To use place value concepts, number patterns and properties to develop and apply estimation and computation strategies (NAC 6.4) ○ Estimate and predict reasonable answers and recognize and explain when an estimate will be more or less than an exact answer ○ Explain orally and in writing when a situation requires an exact answer or when an estimate is sufficient ○ Develop, describe, and use a variety of ways to estimate and calculate with large numbers and connect the strategies to powers of ten ○ Use benchmarks to understand the relative magnitude of numbers ○ Use place value concepts, number patterns, the number line and the commutative, associative, and distributive properties to develop estimation and computation strategies ○ Select and apply the most suitable estimation strategy: rounding, clustering, front end (with adjustment), compatible numbers, compensation ○ Make estimates appropriate to a given situation ○ Analyze what effect the estimation method used has on the accuracy of results	**Chapter 1: 1-1 through 1-6** • 1-1 Estimate Decimal Sums and Differences—pp. 2–3 • 1-2 Add Decimals—pp. 4–5 • 1-3 Subtract Decimals—pp. 6–7 • 1-4 Write Addition and Subtraction Expressions—pp. 10–11 • 1-5 Evaluate Addition and Subtraction Expressions—pp. 12–13 • 1-6 Problem Solving: The Four-Step Process—pp. 14–15 **Chapter 2: 2-1 through 2-6** • 2-1 Multiply Decimals by 0.1, 0.01, and 0.001—pp. 22–23 • 2-2 Estimate Decimal Products—pp. 24–25 • 2-3 Multiply with Decimals—pp. 26–27 • 2-4 Write Multiplication Expressions—pp. 30–31 • 2-5 Evaluate Multiplication Expressions—pp. 32–33 • 2-6 Problem Solving: Compare Strategies—pp. 34–35 **Chapter 3: 3-1 through 3-9** • 3-1 Divide Whole Numbers—pp. 42–43 • 3-2 Divide Decimals by 10, 100, and 1000—pp. 44–45 • 3-3 Divide Decimals by Whole Numbers—pp. 46–47 • 3-4 Divide Decimals by 0.1, 0.01, and 0.001—pp. 50–51 • 3-5 Estimate Decimal Quotients—pp. 52–53 • 3-6 Decimal Divisors—pp. 54–55 • 3-7 Zeros in Division—pp. 56–57 • 3-8 Write Division Expressions—pp. 58–59 • 3-9 Evaluate Division Expressions—pp. 60–61 **Chapter 4: 4-6 through 4-8** • 4-6 Use the Distributive Property and Evaluate Algebraic Expressions—pp. 82–83 • 4-7 Apply Properties to Write Equivalent Expressions—pp. 84–85 • 4-8 Identify Equivalent Expressions—pp. 86–87

NUMBER THEORY & ALGEBRAIC CONCEPTS (NAC)

Grade 6 Standards	*Sadlier Math*, Grade 6

- To represent, extend and analyze numerical and geometric patterns (NAC 6.4)
  - Apply the addition, subtraction, multiplication, and division properties of equality to solve and check one-step algebraic equations ($2x = 4$; $x + 5 = 8$)
  - Solve real-world and mathematical problems by writing and solving equations
  - Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions
  - Represent solutions of inequalities on number line diagrams
  - Represent and analyze quantitative relationships between dependent and independent variables

Chapter 4: 4-1 through 4-10
- 4-1 Exponents—pp. 70–71
- 4-2 Order of Operations—pp. 72–73
- 4-3 Parts of Expressions—pp. 74–75
- 4-4 Translate Expressions—pp. 76–77
- 4-5 Translate Expressions Involving Exponents—pp. 78–79
- 4-6 Use the Distributive Property and Evaluate Algebraic Expressions—pp. 82–83
- 4-7 Apply Properties to Write Equivalent Expressions—pp. 84–85
- 4-8 Identify Equivalent Expressions—pp. 86–87
- 4-9 Use Formulas—pp. 88–89
- 4-10 Problem Solving: Represent the Situation—pp. 90–91

Chapter 5: 5-1 through 5-9
- 5-1 Solutions of Equations—pp. 98–99
- 5-2 Addition and Subtraction Equations—pp. 100–101
- 5-3 Multiplication and Division Equations—pp. 102–103
- 5-4 Write and Solve Equations—pp. 104–105
- 5-5 Inequalities—pp. 108–109
- 5-6 Solutions of Inequalities—pp. 110–111
- 5-7 Write Inequalities—pp. 112–113
- 5-8 Solve Inequalities—pp. 114–115
- 5-9 Problem Solving: Write and Solve an Equation—pp. 116–117

Chapter 13: 13-1 through 13-4
- 13-1 Related Quantities—pp. 298–299
- 13-2 Relationships in Words and Tables—pp. 300–301
- 13-3 Relationships in Equations and Graphs—pp. 302–303
- 13-4 Multiple Representations of a Relationship—pp. 306–307

See also Grade 5

Chapter 17: 17-5 through 17-7
- 17-5 Write Number Patterns—pp. 390–391
- 17-6 Graph Number Patterns—pp. 392–393
- 17-7 Problem Solving: Find and Use a Pattern—pp. 394–395

- To demonstrate and apply knowledge of patterns, ratios, and proportions. (NAC 6.4)

Chapter 10: 10-1 through 10-10
- 10-1 Ratios—pp. 226–227
- 10-2 Tables of Equivalent Ratios—pp. 228–229
- 10-3 Tape Diagrams—pp. 230–231
- 10-4 Double Number Lines—pp. 232–233
- 10-5 Compare Ratios—pp. 236–237
- 10-6 Rates and Unit Rates—pp. 238–239
- 10-7 Compare Prices—pp. 240–241
- 10-8 Equations for Proportional Relationships—pp. 242–243
- 10-9 Graphs of Proportional Relationships—pp. 244–245
- 10-10 Problem Solving: Make a Model—pp. 246–247

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NUMBER THEORY & ALGEBRAIC CONCEPTS (NAC)

Grade 6 Standards	Sadlier Math, Grade 6

NAC 6.5 Represent and analyze mathematical situations and structures using algebraic symbols to determine equivalence and solve problems

- To recognize, use, simplify and evaluate arithmetic and algebraic expressions (NAC 6.5)
  - ○ Memorize and apply the rules for the order of operations including parentheses and exponents
  - ○ Apply the complete order of operations in evaluating expression
  - ○ Identify, express and apply the commutative, distributive, and associative properties of whole numbers
  - ○ Use order of operations to evaluate expressions including exponents

Chapter 1: 1-4 & 1-5
- 1-4 Write Addition and Subtraction Expressions—pp. 10–11
- 1-5 Evaluate Addition and Subtraction Expressions—pp. 12–13

Chapter 2: 2-4 & 2-5
- 2-4 Write Multiplication Expressions—pp. 30–31
- 2-5 Evaluate Multiplication Expressions—pp. 32–33

Chapter 3: 3-8 & 3-9
- 3-8 Write Division Expressions—pp. 58–59
- 3-9 Evaluate Division Expressions—pp. 60–61

Chapter 4: 4-1 through 4-9
- 4-1 Exponents—pp. 70–71
- 4-2 Order of Operations—pp. 72–73
- 4-3 Parts of Expressions—pp. 74–75
- 4-4 Translate Expressions—pp. 76–77
- 4-5 Translate Expressions Involving Exponents—pp. 78–79
- 4-6 Use the Distributive Property and Evaluate Algebraic Expressions—pp. 82–83
- 4-7 Apply Properties to Write Equivalent Expressions—pp. 84–85
- 4-8 Identify Equivalent Expressions—pp. 86–87
- 4-9 Use Formulas—pp. 88–89

Chapter 5: 5-1 through 5-9
- 5-2 Addition and Subtraction Equations—pp. 100–101
- 5-3 Multiplication and Division Equations—pp. 102–103
- 5-4 Write and Solve Equations—pp. 104–105
- 5-5 Inequalities—pp. 108–109
- 5-6 Solutions of Inequalities—pp. 110–111
- 5-7 Write Inequalities—pp. 112–113
- 5-8 Solve Inequalities—pp. 114–115
- 5-9 Problem Solving: Write and Solve an Equation—pp. 116–117

Chapter 7: 7-1 through 7-6
- 7-1 Fractions in Simplest Form—pp. 142–143
- 7-2 Relate Fractions and Decimals—pp. 144–145
- 7-3 Rename Fractions as Decimals—pp. 146–147
- 7-4 Rename Decimals as Fractions—pp. 148–149
- 7-5 Addition and Subtraction Expressions with Fractions—pp. 152–153
- 7-6 Addition and Subtraction Equations with Fractions—pp. 154–155

Chapter 8: 8-8, 8-10 & 8-11
- 8-8 Order of Operations with Fractions—pp. 180–181
- 8-10 Multiplication and Division Expressions with Fractions—pp. 184–185
- 8-11 Multiplication and Division Equations with Fractions—pp. 186–187

NUMBER THEORY & ALGEBRAIC CONCEPTS (NAC)

Grade 6 Standards	*Sadlier Math*, Grade 6

NAC 6.6 Understand ratio concepts and use ratio reasoning to solve problems.
 	
• To compare quantities and solve problems using ratios, rates and percents (NAC 6.6)
  ○ Use cross products, multiplication and division to find equivalent ratios
  ○ interpreting maps and scale drawings or identifying probability
  ○ Read and write rates, and change a rate to a unit rate
  ○ Convert between rates using ratios and proportions
  ○ Memorize common percent-fraction equivalents (benchmarks)
  ○ Find the percent of a number
  ○ Find what a percent one number is of another
  ○ Write percents greater than 100% and less than 1% as decimals and fractions
  ○ Generate a table of equal ratios and graph the ordered pairs
  ○ Solve problems involving sales tax and discounts
  ○ Identify and express ratios using appropriate notation (i.e., a/b, a to b, a:b)
  ○ Identify and explain equivalent ratios
  ○ Explain ratios that represent a real world situation
  ○ Design tables of equivalent ratios relating quantities and use tables to compare ratios
	Chapter 10: 10-1 through 10-9
	• 10-1 Ratios—pp. 226–227
	• 10-2 Tables of Equivalent Ratios—pp. 228–229
	• 10-3 Tape Diagrams—pp. 230–231
	• 10-4 Double Number Lines—pp. 232–233
	• 10-5 Compare Ratios—pp. 236–237
	• 10-6 Rates and Unit Rates—pp. 238–239
	• 10-7 Compare Prices—pp. 240–241
	• 10-8 Equations for Proportional Relationships—pp. 242–243
	• 10-9 Graphs of Proportional Relationships—pp. 244–245
	
	Chapter 11: 11-1 through 11-9
	• 11-1 Percent—pp. 254–255
	• 11-2 Relate Percents to Fractions—pp. 256–257
	• 11-3 Relate Percents to Decimals—pp. 258–259
	• 11-4 Relate Decimals, Fractions, and Percents—pp. 260–261
	• 11-5 Percents Greater Than 100%—pp. 262–263
	• 11-6 Percents Less Than 1%—pp. 264–265
	• 11-7 Find the Part—pp. 268–269
	• 11-8 Find the Percent—pp. 270–271
	• 11-9 Find the Whole—pp. 272–273

NAC 6.7 Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
 	
• To add and subtract fractions and mixed numbers using models, pictures and number sentences (NAC 6.7)
  ○ Locate, order and compare fractions on number lines, scales and the coordinate grid
  ○ Determine the decimal equivalents of fractions
  ○ Convert fractions to decimals, decimals to fractions, and fractions to percents
  ○ Change a fraction to a decimal using division
  ○ Write fractions as terminating and repeating decimals
  ○ Convert repeating decimals to fractions
  ○ Solve problems involving addition and subtraction of fractions and mixed numbers, and express answers in simplest form
	Chapter 7: 7-1 through 7-6
	• 7-1 Fractions in Simplest Form—pp. 142–143
	• 7-2 Relate Fractions and Decimals—pp. 144–145
	• 7-3 Rename Fractions as Decimals—pp. 146–147
	• 7-4 Rename Decimals as Fractions—pp. 148–149
	• 7-5 Addition and Subtraction Expressions with Fractions—pp. 152–153
	• 7-6 Addition and Subtraction Equations with Fractions—pp. 154–155
	
	Chapter 8: 8-1 through 8-11
	• 8-1 Multiply Fractions—pp. 164–165
	• 8-2 Properties of Multiplication—pp. 166–167
	• 8-3 Meaning of Division by a Fraction—pp. 168–169
	• 8-4 Model Dividing Fractions by Fractions—pp. 170–171
	• 8-5 Divide Fractions by Fractions—pp. 172–173
	• 8-6 Estimate Quotients of Fractions and Mixed Numbers—pp. 174–175
	• 8-7 Divide with Whole and Mixed Numbers—pp. 176–177
	• 8-8 Order of Operations with Fractions—pp. 180–181
	• 8-9 Fractions with Money—pp. 182–183
	• 8-10 Multiplication and Division Expressions with Fractions—pp. 184–185
	• 8-11 Multiplication and Division Equations with Fractions—pp. 186–187
	
	continued

NUMBER THEORY & ALGEBRAIC CONCEPTS (NAC)

Grade 6 Standards	*Sadlier Math*, Grade 6
	Chapter 11: 11-1 through 11-4 • 11-1 Percent—pp. 254–255 • 11-2 Relate Percents to Fractions—pp. 256–257 • 11-3 Relate Percents to Decimals—pp. 258–259 • 11-4 Relate Decimals, Fractions, and Percents—pp. 260–261

NAC 6.8 Apply and extend previous understandings of numbers to the system of rational numbers.
 	
• To extend whole number place value concepts to include decimal numbers which are also represented as fractions whose denominators are multiples of ten (NAC 6.8)
  ○ Read and write decimals to ten thousandths place in standard form as number words
  ○ Round decimals to the nearest ten thousandths place
  ○ Compare and order decimals
  ○ Convert decimals to fractions
 	
• To model, identify and express equivalent forms of numbers expressed as whole numbers, fractions and mixed numbers (NAC 6.8)
	Chapter 9: 9-1 through 9-6
	• 9-1 Integers on the Number Line—pp. 196–197
	• 9-2 Integers in the Real World—pp. 198–199
	• 9-3 Compare and Order Integers—pp. 200–201
	• 9-4 Absolute Value as Magnitude—pp. 202–203
	• 9-5 Rational Numbers—pp. 204–205
	• 9-6 Compare and Order Rational Numbers—pp. 206–207
	Chapter 11: 11-1 through 11-4
	• 11-1 Percent—pp. 254–255
	• 11-2 Relate Percents to Fractions—pp. 256–257
	• 11-3 Relate Percents to Decimals—pp. 258–259
	• 11-4 Relate Decimals, Fractions, and Percents—pp. 260–261
	
	See also Grade 5
	  Chapter 2: 2-1 through 2-6
	  • 2-1 Thousandths—pp. 24–25
	  • 2-2 Decimals and Expanded Form—pp. 26–27
	  • 2-3 Compare and Order Decimals—pp. 30–31
	  • 2-4 Round Decimals—pp. 32–33
	  • 2-5 Problem Solving: Read and Understand—pp. 34–35
	  • 2-6 Estimate with Decimals—pp. 36–37

• To explore numbers less than zero and extend the number line to illustrate concepts and computation strategies of integers (NAC 6.8)
  ○ Define and recognize integers
  ○ Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; represent quantities in real world context
  ○ Use a number line to illustrate, compare and order integers
  ○ Identify and demonstrate the absolute value of an integer as its distance from 0 on the number line
  ○ Demonstrate understanding of ordering and absolute value of rational numbers
  ○ Write, interpret, and explain statements of order for rational numbers in real world contexts
  ○ Identify opposite integers
  ○ Add, subtract, multiply and divide integers
	Chapter 9: 9-1 through 9-6
	• 9-1 Integers on the Number Line—pp. 196–197
	• 9-2 Integers in the Real World—pp. 198–199
	• 9-3 Compare and Order Integers—pp. 200–201
	• 9-4 Absolute Value as Magnitude—pp. 202–203
	• 9-5 Rational Numbers—pp. 204–205
	• 9-6 Compare and Order Rational Numbers—pp. 206–207
	
	*No operations with integers at this level.

NUMBER THEORY & ALGEBRAIC CONCEPTS (NAC)

Grade 6 Standards	*Sadlier Math*, Grade 6

NAC 6.9 Reason about and solve one-variable equations and inequalities.

- To write and analyze expressions, equations and inequalities that express relationships between numbers (NAC 6.9)
  - ○ Contrast constants and variables
  - ○ Evaluate algebraic expressions and formulas
  - ○ Demonstrate how to maintain equivalence in equations
  - ○ Model and solve one step linear equations by maintaining equivalence (use inverse operations)

- To recognize, use, simplify and evaluate arithmetic and algebraic expressions (NAC 6.9)
  - ○ Represent mathematical relationships using variables in expressions, equations and inequalities
  - ○ Describe how a change in one variable relates to a change in a second variable in a practical situation
  - ○ Represent numerical and contextual situations with algebraic expressions, equations and inequalities
  - ○ Use variables as placeholders, to denote a pattern, to write a formula and to represent a function or relation
  - ○ Write and evaluate algebraic expressions with two variables
  - ○ Recognize, identify, and apply the inverse property of addition and multiplication
  - ○ Recognize, identify, and apply the addition, subtraction, multiplication, and division properties of equality
  - ○ Recognize, identify, and apply the identity properties of addition and multiplication
  - ○ Identify and apply the distributive property of addition and multiplication

Chapter 4: 4-1 through 4-9
- 4-1 Exponents—pp. 70–71
- 4-2 Order of Operations—pp. 72–73
- 4-3 Parts of Expressions—pp. 74–75
- 4-4 Translate Expressions—pp. 76–77
- 4-5 Translate Expressions Involving Exponents—pp. 78–79
- 4-6 Use the Distributive Property and Evaluate Algebraic Expressions—pp. 82–83
- 4-7 Apply Properties to Write Equivalent Expressions—pp. 84–85
- 4-8 Identify Equivalent Expressions—pp. 86–87
- 4-9 Use Formulas—pp. 88–89

Chapter 5: 5-2 through 5-9
- 5-2 Addition and Subtraction Equations—pp. 100–101
- 5-3 Multiplication and Division Equations—pp. 102–103
- 5-4 Write and Solve Equations—pp. 104–105
- 5-5 Inequalities—pp. 108–109
- 5-6 Solutions of Inequalities—pp. 110–111
- 5-7 Write Inequalities—pp. 112–113
- 5-8 Solve Inequalities—pp. 114–115
- 5-9 Problem Solving: Write and Solve an Equation—pp. 116–117

Chapter 6: 6-3
- 6-3 The Distributive Property and Common Factors—pp. 128–129

Chapter 7: 7-5 & 7-6
- 7-5 Addition and Subtraction Expressions with Fractions—pp. 152–153
- 7-6 Addition and Subtraction Equations with Fractions—pp. 154–155

Chapter 8: 8-2, 8-8, 8-10 & 8-11
- 8-2 Properties of Multiplication—pp. 166–167
- 8-8 Order of Operations with Fractions—pp. 180–181
- 8-10 Multiplication and Division Expressions with Fractions—pp. 184–185
- 8-11 Multiplication and Division Equations with Fractions—pp. 186–187

NAC 6.10 Represent and analyze quantitative relationships between dependent and independent variables.

- To represent numerical and linear relationships in graphic forms (NAC 6.10)
  - ○ Choose and use benchmarks to approximate locations on number lines and coordinate grids
  - ○ Locate points on a four quadrant coordinate grid by using ordered pairs
  - ○ Use a table to explore functions and graph them

continued

Chapter 13: 13-1 through 13-4
- 13-1 Related Quantities—pp. 298–299
- 13-2 Relationships in Words and Tables—pp. 300–301
- 13-3 Relationships in Equations and Graphs—pp. 302–303
- 13-4 Multiple Representations of a Relationship—pp. 306–307

NUMBER THEORY & ALGEBRAIC CONCEPTS (NAC)

Grade 6 Standards	*Sadlier Math*, Grade 6
○ Determine the nature of changes in linear relationships using graphs, tables, and equations	

GEOMETRY (G)

Grade 6 Standards	*Sadlier Math*, Grade 6

G 6.1 Solve real-world and mathematical problems involving area, surface area, and volume.

- To identify, draw and describe elements needed to explain spatial relationships (G 6.1, 6.3)
  - ○ Make and test conjectures about geometric relationships
  - ○ Classify polygons according to their transformational properties
  - ○ Use the relationships of sides and angles to classify sets of polygons
  - ○ Make and test conjectures about side and angle relationships and congruence
  - ○ Identify, compare and contrast regular and irregular polygons
  - ○ Use angles to measure and classify polygons
  - ○ Identify and classify angles as complementary and supplementary
  - ○ Use a protractor to measure angles
  - ○ Use the rectangle as a basic shape to model and develop formulas for the area of triangles, parallelograms, trapezoids and circles
  - ○ Use a compass to draw a circle
  - ○ Find the area of a circle
  - ○ Find the circumference of a circle using a formula
  - ○ Identify and measure the parts of a circle (radius, diameter, chord, central angle)
  - ○ Describe the relationships between and among radius, diameter, circumference and area of a circle
  - ○ Identify the meaning and value of pi
  - ○ Determine the volume of rectangular solids
  - ○ Represent the surface of three-dimensional objects through the use of two-dimensional nets
  - ○ Identify rotational symmetry and points of rotation
  - ○ Use spatial reasoning location and geometric relationships to solve problems

Chapter 14: 14-1 through 14-7
- 14-1 Areas of Parallelograms and Rhombuses—pp. 316–317
- 14-2 Areas of Triangles—pp. 318–319
- 14-3 Areas of Trapezoids—pp. 320–321
- 14-4 Circumferences and Areas of Circles—pp. 324–325
- 14-5 Areas of Regular Polygons—pp. 326–327
- 14-6 Areas of Composite Figures—pp. 328–329
- 14-7 Problem Solving: Find a Pattern—pp. 330–331

Chapter 15: 15-1 through 15-6
- 15-1 Nets of Three-Dimensional Figures—pp. 338–339
- 15-2 Use Nets to Find Surface Areas of Prisms—pp. 340–341
- 15-3 Use Nets to Find Surface Areas of Pyramids—pp. 342–343
- 15-4 Use Cubes to Find Volumes—pp. 346–347
- 15-5 Volumes of Right Rectangular Prisms—pp. 348–349
- 15-6 Problem Solving: Compare Models—pp. 350–351

See also Grade 5

Chapter 15: 15-1 through 15-4
- 15-1 Polygons—pp. 342–343
- 15-2 Triangles—pp. 344–345
- 15-3 Quadrilaterals—pp. 348–349
- 15-4 Classify Quadrilaterals—pp. 350–351

Chapter 16: 16-2 through 16-5
- 16-2 Cubic Measure—pp. 362–363
- 16-3 Volume of Rectangular Prisms—pp. 364–365
- 16-4 Volume Formulas—pp. 368–369
- 16-5 Volume of Composite Figures—pp. 370–371

See also Grade 4

Chapter 16: 16-2 through 16-4
- 16-2 Angle Measure—pp. 352–353
- 16-3 Measure Angles—pp. 356–357 (use a protractor)
- 16-4 Unknown Angle Measures—pp. 358–359

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GEOMETRY (G)

Grade 6 Standards	*Sadlier Math*, Grade 6
G 6.2 Specify locations and describe spatial relationships using coordinate geometry and other representational systems • Students will describe and develop relationships between geometric properties of plane and solid figures. (G 6.2)	**Chapter 9: 9-7 through 9-10** • 9-7 Plot Points in the Coordinate Plane—pp. 210–211 • 9-8 Reflections of Points—pp. 212–213 • 9-9 Distance on the Coordinate Plane—pp. 214–215 • 9-10 Plot Polygons—pp. 216–217 See also Grade 5 **Chapter 15: 15-1 through 15-5** • 15-1 Polygons—pp. 342–343 • 15-2 Triangles—pp. 344–345 • 15-3 Quadrilaterals—pp. 348–349 • 15-4 Classify Quadrilaterals—pp. 350–351 • 15-5 Problem Solving: Use a Model—pp. 352–353 **Chapter 16: 16-1** • 16-1 Solid Figures—pp. 360–361
G 6.3 Use visualization, spatial reasoning, and geometric modeling to solve problems • To identify, draw and describe elements needed to explain spatial relationships (G 6.1, 6.3)	**Chapter 14: 14-1 through 14-7** • 14-1 Areas of Parallelograms and Rhombuses—pp. 316–317 • 14-2 Areas of Triangles—pp. 318–319 • 14-3 Areas of Trapezoids—pp. 320–321 • 14-4 Circumferences and Areas of Circles—pp. 324–325 • 14-5 Areas of Regular Polygons—pp. 326–327 • 14-6 Areas of Composite Figures—pp. 328–329 • 14-7 Problem Solving: Find a Pattern—pp. 330–331 **Chapter 15: 15-1 through 15-6** • 15-1 Nets of Three-Dimensional Figures—pp. 338–339 • 15-2 Use Nets to Find Surface Areas of Prisms—pp. 340–341 • 15-3 Use Nets to Find Surface Areas of Pyramids—pp. 342–343 • 15-4 Use Cubes to Find Volumes—pp. 346–347 • 15-5 Volumes of Right Rectangular Prisms—pp. 348–349 • 15-6 Problem Solving: Compare Models—pp. 350–351

MEASUREMENT (M)

Grade 6 Standards	*Sadlier Math*, Grade 6

M 6.1 Apply appropriate techniques, tools and formulas to determine measurements to solve real world problems
 	
• To identify and generalize relationships between measurable attributes of plane and solid figures (M 6.1)
  ○ Describe, analyze and extend numeric, geometric and statistical patterns
  ○ Make generalizations about patterns and relationships and test those generalizations
 	
<center>*continued*</center>
	Chapter 12: 12-1 through 12-4
	• 12-1 Convert Customary Units—pp. 282–283
	• 12-2 Convert Metric Units—pp. 284–285
	• 12-3 Convert Between Customary and Metric Units—pp. 288–289
	• 12-4 Problem Solving: Choose a Strategy—pp. 290–291
	Chapter 14: 14-1 through 14-7
	• 14-1 Areas of Parallelograms and Rhombuses—pp. 316–317
	• 14-2 Areas of Triangles—pp. 318–319
	• 14-3 Areas of Trapezoids—pp. 320–321
	• 14-4 Circumferences and Areas of Circles—pp. 324–325
	• 14-5 Areas of Regular Polygons—pp. 326–327
	• 14-6 Areas of Composite Figures—pp. 328–329
	• 14-7 Problem Solving: Find a Pattern—pp. 330–331
	
	<center>*continued*</center>

MEASUREMENT (M)

Grade 6 Standards	*Sadlier Math*, Grade 6
○ Extend and compare arithmetic and geometric sequences ○ Represent geometric and numeric patterns using words, tables, graphs and equations ○ Analyze patterns and data to make predictions ○ Determine the nature of changes in linear relationships using graphs, tables, and equations	**Chapter 15: 15-1 through 15-6** • 15-1 Nets of Three-Dimensional Figures—pp. 338–339 • 15-2 Use Nets to Find Surface Areas of Prisms—pp. 340–341 • 15-3 Use Nets to Find Surface Areas of Pyramids—pp. 342–343 • 15-4 Use Cubes to Find Volumes—pp. 346–347 • 15-5 Volumes of Right Rectangular Prisms—pp. 348–349 • 15-6 Problem Solving: Compare Models—pp. 350–351
• To coordinate systems to identify and illustrate spatial location and geometric relationships (M 6.1) ○ Use different ratios to convert between units of length, area, and volume in the customary and metric systems ○ Recognize and use powers of ten as conversion ratios in the metric system ○ Compute customary and metric measurements with regrouping recording answer in simplified form ○ Select, justify, convert, metric and standard units of measurement ○ Explain the difference between mass and weight	**Chapter 12: 12-1 through 12-4** • 12-1 Convert Customary Units—pp. 282–283 • 12-2 Convert Metric Units—pp. 284–285 • 12-3 Convert Between Customary and Metric Units—pp. 288–289 • 12-4 Problem Solving: Choose a Strategy—pp. 290–291 See also Grade 5 **Chapter 14: 14-1 through 14-9** • 14-1 Relate Customary Units of Length—pp. 316–317 • 14-2 Relate Customary Units of Capacity—pp. 318–319 • 14-3 Relate Customary Units of Weight—pp. 320–321 • 14-4 Compute with Customary Units—pp. 322–323 • 14-5 Relate Metric Units of Length—pp. 326–327 • 14-6 Relate Metric Units of Capacity—pp. 328–329 • 14-7 Relate Metric Units of Mass—pp. 330–331 • 14-8 Compute with Metric Units—pp. 332–333 • 14-9 Problem Solving: Use the Four-Step Process—pp. 334–335 **Chapter 16: 16-2** • 16-2 Cubic Measure—pp. 362–363 See also Grade 4 **Chapter 14: 14-1 through 14-9** • 14-1 Measure with Inches—pp. 296–297 • 14-2 Customary Units of Length—pp. 298–299 • 14-3 Customary Units of Capacity—pp. 300–301 • 14-4 Customary Units of Weight—pp. 302–303 • 14-5 Operations with Customary Units—pp. 304–305 • 14-6 Metric Units of Length—pp. 308–311 • 14-7 Metric Units of Capacity—pp. 310–313 • 14-8 Metric Units of Mass—pp. 312–313 • 14-9 Operations with Metric Units—pp. 314–315 **Chapter 15: 15-2 through 15-4** • 15-2 Use Multiplication to Rename Measures—pp. 326–327 • 15-3 Elapsed Time—pp. 328–329 • 15-4 Temperature—pp. 330–331

DATA ANALYSIS, STATISTICS, & PROBABILITY (DSP)

Grade 6 Standards	*Sadlier Math*, Grade 6

DSP 6.1 Formulate questions that can be addressed with data; collect, organize, and display relevant data to answer them using appropriate statistical and graphical methods
 	
• To collect, organize, describe, and apply data (DSP 6.1)
  ○ Use, read, create, interpret, and compare a variety of graphic organizers, charts, and graphs
  ○ (These charts, graphs, etc. should include Venn diagrams, histograms, broken line graphs, bar graphs, picture graphs, circle graphs, stem and leaf, and scatter plots.)
 	
• To pose questions to be answered through collection and analysis of a data set (DSP 6.1, 6.2)
  ○ Use a variety of ways to collect, organize, record, analyze, and interpret data and identify patterns and trends
  ○ Use technology to create spreadsheets and convert information into graphs
  ○ Use extended numeric, geometric and statistical patterns to identify trends and justify predictions
  ○ Differentiate between numerical and categorical data and their appropriate representations
	Chapter 16: 16-1
	• 16-1 Statistical Questions—pp. 358–359
	Chapter 17: 17-1 through 17-6
	• 17-1 Dot Plots—pp. 378–379 (Organize data in dot plots and use dot plots to describe the data.)
	• 17-2 Box Plots—pp. 380–381
	• 17-3 Histograms—pp. 382–383 (Make and read frequency tables and histograms.)
	• 17-4 Data Distributions—pp. 386–387
	• 17-5 Interpret Circle Graphs—pp. 388–389
	• 17-6 Problem Solving: Compare Models—pp. 390–391
	
	See also Grade 4
	Chapter 1: 1-7
	• 1-7 Problem Solving: Make a Table—pp. 16–17
	Chapter 14: 14-10
	• 14-10 Problem Solving: Make a Table—pp. 316–317

DSP.6.2 Analyze data sets to form hypotheses and make predictions
 	
• To determine the possible outcomes and likelihood of certain events through games and simple experiments (DSP 6.2)
  ○ Conduct probability experiments and express the probability based on possible outcomes
  ○ Design and conduct probability experiments and make predictions about outcomes that are equally likely or not equally likely
  ○ Relate the likelihood of an event to a numerical value
  ○ Identify possible outcomes and express the likelihood of events as a fraction
  ○ Explain that probabilities are more reliable to use as predictors when there is a large number of trials
  ○ Describe the relationship between the number of trials in an experiment and the predicted outcomes
  ○ Express probabilities as fractions, ratios, decimals and percents
	Chapter 18: 18-3 through 18-7
	• 18-3 Probability and Likelihood—online
	• 18-4 Theoretical Probability—online
	• 18-5 Relative Frequency and Experimental Probability—online
	• 18-6 Uniform Probability Models—online
	• 18-7 Non-Uniform Probability Models—online

DATA ANALYSIS, STATISTICS, & PROBABILITY (DSP)

Grade 6 Standards	*Sadlier Math*, Grade 6

• To pose questions to be answered through collection and analysis of a data set (DSP 6.1, 6.2)
  ○ Use a variety of ways to collect, organize, record, analyze, and interpret data and identify patterns and trends
  ○ Use technology to create spreadsheets and convert information into graphs
  ○ Use extended numeric, geometric and statistical patterns to identify trends and justify predictions
  ○ Differentiate between numerical and categorical data and their appropriate representations
	Chapter 16: 16-1
	• 16-1 Statistical Questions—pp. 358–359
	Chapter 17: 17-1 through 17-6
	• 17-1 Dot Plots—pp. 378–379
	• 17-2 Box Plots—pp. 380–381
	• 17-3 Histograms—pp. 382–383
	• 17-4 Data Distributions—pp. 386–387
	• 17-5 Interpret Circle Graphs—pp. 388–389
	• 17-6 Problem Solving: Compare Models—pp. 390–391
	Chapter 18: 18-1 & 18-2
	• 18-1 Populations and Samples—online
	• 18-2 Drawing Conclusions from Samples—online

DSP.6.3 Develop understanding of statistical variability
 	
DSP.6.4 Summarize and describe distributions.
• To describe and analyze features of a data set (DSP 6.3, 6.4)
  ○ Analyze patterns and data to make generalizations and predictions
  ○ Describe the shape of data sets using measures of spread (range and outliers) and central tendency (mode, median, and mean)
  ○ Recognize that changes in a data set can affect the mode, median, mean, and range
  ○ Recognize misleading data
	Chapter 16: 16-2 through 16-6
	• 16-2 Measures of Center—pp. 360–361
	• 16-3 Measures of Variation: Range and Interquartile Range—pp. 362–363
	• 16-4 Measure of Variation: Mean Absolute Deviation—pp. 366–367
	• 16-5 Analyze Data—pp. 368–369
	• 16-6 Problem Solving: Work Backward—pp. 370–371
	Chapter 17: 17-1 through 17-6
	• 17-1 Dot Plots—pp. 378–379
	• 17-2 Box Plots—pp. 380–381
	• 17-3 Histograms—pp. 382–383
	• 17-4 Data Distributions—pp. 386–387
	• 17-5 Interpret Circle Graphs—pp. 388–389
	• 17-6 Problem Solving: Compare Models—pp. 390–391
	Chapter 18: 18-1 & 18-2
	• 18-1 Populations and Samples—online
	• 18-2 Drawing Conclusions from Samples—online