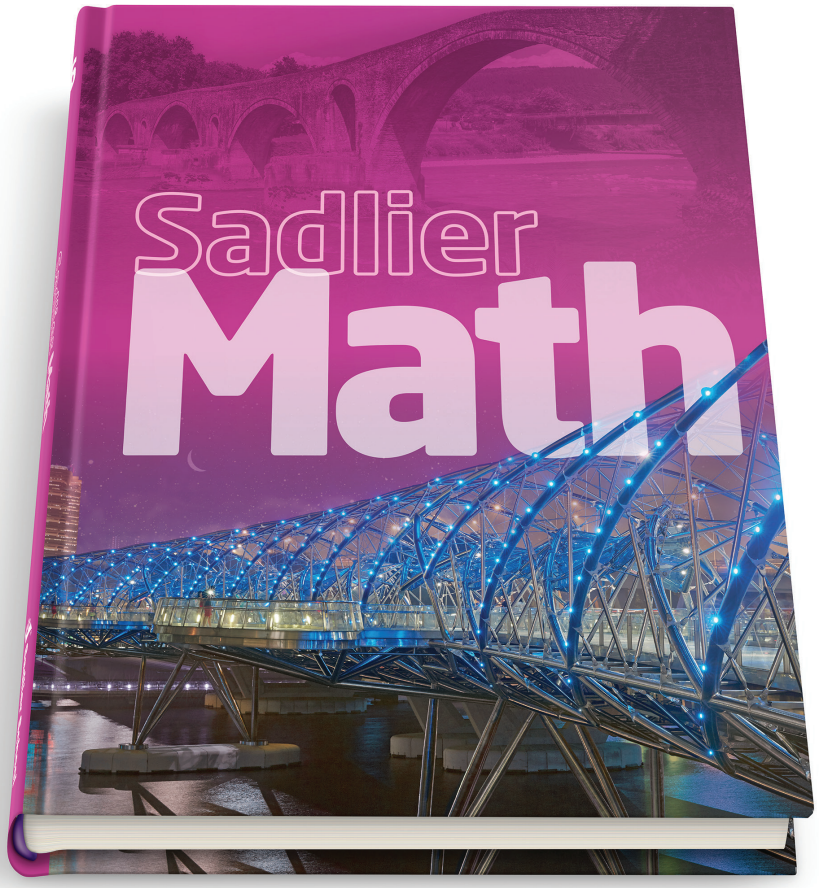
# *Sadlier Math*™

## Correlation to the Archdiocese of Washington Catholic Schools Academic Standards: Mathematics

**Grade 6**




**Learn more at www.SadlierSchool.com/SadlierMath**

## STANDARD 1 – NUMBER SENSE

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| ***Students compare and order positive and negative integers*, decimals, fractions, and mixed numbers. They find multiples* and factors*.*** | |
| **MA.6.1.1** Understand and apply the basic concept of negative numbers (e.g., on a number line, in counting, in temperature, in "owing").<br>Example: The temperature this morning was -6° and now it is 3°. How much has the temperature risen? Explain your answer. | **Chapter 9: 9-1 & 9-2**<br>• 9-1 Integers on the Number Line—pp. 196–197 (Use a number line to represent integers; TE Develop Concepts: Modeling Integers)<br>• 9-2 Integers in the Real World—pp. 198–199 (Graph and use integers to represent real-world situations, and explain the meaning of 0 in context; TE Develop Concepts: Moving on the Number Line) |
| **MA.6.1.2** Interpret the absolute value of a number as the distance from zero on a number line and find the absolute value of real numbers.<br>Example: Use a number line to explain the absolute values of -3 and of 7. | **Chapter 9: 9-3 & 9-4**<br>• 9-3 Compare and Order Integers—pp. 200–201 (Use a number line to compare and order integers and understand absolute value; TE Develop Concepts: Compare and Order Whole Numbers)<br>• 9-4 Absolute Value as Magnitude—pp. 202–203 (Compare and order integers and understand absolute value as a magnitude in a real-world situation; TE Develop Concepts: Understand Absolute Value) |
| **MA.6.1.3** Compare and represent on a number line positive and negative integers, fractions, decimals (to hundredths), and mixed numbers.<br>Example: Find the positions on a number line of 3.56, -2.5, 1 5/6, and -4. | **Chapter 9: 9-1 through 9-3, 9-5 & 9-6**<br>• 9-1 Integers on the Number Line—pp. 196–197 (Use a number line to represent integers; TE Develop Concepts: Modeling Integers)<br>• 9-2 Integers in the Real World—pp. 198–199 (Graph and use integers to represent real-world situations, and explain the meaning of 0 in context; TE Develop Concepts: Moving on the Number Line)<br>• 9-3 Compare and Order Integers—pp. 200–201 (Use a number line to compare and order integers and understand absolute value; TE Develop Concepts: Compare and Order Whole Numbers)<br>• 9-5 Rational Numbers—pp. 204–205 (Use a number line to represent negative and positive rational numbers; TE Develop Concepts: Numbers on a Number Line)<br>• 9-6 Compare and Order Rational Numbers—pp. 206–207 (Use a number line to compare and order rational numbers; TE Develop Concepts: Compare and Order Integers)<br>See also Grade 5<br>**Chapter 2: 2-3**<br>• 2-3 Compare and Order Decimals—pp. 30–31<br>**Chapter 5: 5-7**<br>• 5-7 Compare and Order Fractions and Mixed Numbers—pp. 112–113 |
| **MA.6.1.4** Convert between any two representations of numbers (fractions, decimals, and percents) without the use of a calculator.<br>*continued* | **Chapter 11: 11-2 through 11-6**<br>• 11-2 Relate Percents to Fractions—pp. 256–257 (Rename percents and fractions; TE Develop Concepts: Race to Equate)<br>• 11-3 Relate Percents to Decimals—pp. 258–259 (Rename a percent as a decimal and a decimal as a percent; TE Develop Concepts: Marking Benchmarks)<br>*continued* |

## STANDARD 1 – NUMBER SENSE

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| Example: Write 5/8 as a decimal and as a percent. | • 11-4 Relate Decimals, Fractions, and Percents—pp. 260–261 (Connect decimals, fractions, and percents; TE Develop Concepts: Repeat or Terminate?)<br>• 11-5 Percents Greater Than 100%—pp. 262–263 (Rename percents greater than 100%; TE Develop Concepts: Equivalent Numbers, Different Ways (improper fractions))<br>• 11-6 Percents Less Than 1%—pp. 264–265 (Rename percents less than 1%; TE Develop Concepts: Patterns in Division) |
| **MA.6.1.5** Recognize decimal equivalents for commonly used fractions without the use of a calculator.<br>Example: Know that 1/3 = 0.333..., 1/2 = 0.5, 2/5 = 0.4, etc. | **Chapter 7: 7-2 through 7-4**<br>• 7-2 Relate Fractions and Decimals—pp. 144–145 (Use word names and powers of 10 to relate fractions and decimals; TE Develop Concepts: Fraction-Decimal Riddles (denominators that are powers of 10))<br>• 7-3 Rename Fractions as Decimals—pp. 146–147 (Divide multi-digit numbers to rename fractions as decimals; TE Develop Concepts: Fractions Represent Division)<br>• 7-4 Rename Decimals as Fractions—pp. 148–149 (Rename decimals as fractions in simplest form; TE Develop Concepts: Fraction-Decimal Equivalencies) |
| **MA.6.1.6** Use models to represent ratios.<br>Example: Divide 27 pencils to represent the ratio 4:5. | **Chapter 10: 10-1**<br>• 10-1 Ratios—pp. 226–227 (TE Develop Concepts: Comparing Quantities; TE Struggling Learners) |
| **MA.6.1.7** Find the least common multiple* and the greatest common factor* of whole numbers. Use them to solve problems with fractions (e.g., to find a common denominator to add two fractions or to find the reduced form for a fraction).<br>Example: Find the smallest number that both 12 and 18 divide into. How does this help you add the fractions 5/12 and 7/18 ? | **Chapter 6: 6-1 through 6-4**<br>• 6-1 Prime Factorization—pp. 124–125 (Use prime factorization to solve problems; TE Develop Concepts: Picturing Factors)<br>• 6-2 Greatest Common Factor—pp. 126–127 (Find the greatest common factor of two or more whole numbers; TE Develop Concepts: Model Common Factors)<br>• 6-3 The Distributive Property and Common Factors—pp. 128–129 (Use the Distributive Property to rewrite addition expressions as multiplication expressions; TE Develop Concepts: Represent the Distributive Property)<br>• 6-4 Least Common Multiple—pp. 132–133 (Find the least common multiple (LCM) of two whole numbers; TE Develop Concepts: Using Multiplication Tables to Explore Common Multiples) |

## STANDARD 2 – COMPUTATION

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| ***Students solve problems involving addition, subtraction, multiplication, and division of integers. They solve problems involving fractions, decimals, ratios, proportions, and percentages.*** | |
| **MA.6.2.1** Add and subtract positive and negative integers.<br>Example: 17 + -4 = ?, -8 – 5 = ?. | N/A |
| **MA.6.2.2** Multiply and divide positive and negative integers.<br>Example: Continue the pattern: 3 × 2 = ?, 2 × 2 = ?, 1 × 2 = ?, 0 × 2 = ?, -1 × 2 = ?, -2 × 2 = ?, etc. | N/A |
| **MA.6.2.3** Add, subtract, multiply, and divide decimals.<br>Example: 2.2 + 3.4 = ?, 5.6 – 1.1 = ?, 3.265 × 0.96 = ?, 56.79 ÷ 2.4 = ?. | **Chapter 1: 1-2 & 1-3**<br>• 1-2 Add Decimals—pp. 4–5<br>• 1-3 Subtract Decimals—pp. 6–7<br>**Chapter 2: 2-1 through 2-6**<br>• 2-1 Multiply Decimals by 0.1, 0.01, and 0.001—pp. 22–23<br>• 2-2 Estimate Decimal Products—pp. 24–25<br>• 2-3 Multiply with Decimals—pp. 26–27<br>• 2-4 Write Multiplication Expressions—pp. 30–31<br>• 2-5 Evaluate Multiplication Expressions—pp. 32–33<br>• 2-6 Problem Solving: Compare Strategies—pp. 34–35<br>**Chapter 3: 3-2 through 3-10**<br>• 3-2 Divide Decimals by 10, 100, and 1000—pp. 44–45<br>• 3-3 Divide Decimals by Whole Numbers—pp. 46–47<br>• 3-4 Divide Decimals by 0.1, 0.01, and 0.001—pp. 50–51<br>• 3-5 Estimate Decimal Quotients—pp. 52–53<br>• 3-6 Decimal Divisors—pp. 54–55<br>• 3-7 Zeros in Division—pp. 56–57<br>• 3-8 Write Division Expressions—pp. 58–59<br>• 3-9 Evaluate Division Expressions—pp. 60–61<br>• 3-10 Problem Solving: Use Logical Reasoning—pp. 62–63 |
| **MA.6.2.4** Explain how to add, subtract, multiply and divide positive fractions and perform the calculations.<br>Example: Explain why 5/8 ÷ 15/16 = 5/8 ÷ 16/15 = 2/3 . | **Chapter 7: 7-5 & 7-6**<br>• 7-5 Addition and Subtraction Expressions with Fractions—pp. 152–153<br>• 7-6 Addition and Subtraction Equations with Fractions—pp. 154–155<br>**Chapter 8: 8-1 through 8-12**<br>• 8-1 Multiply Fractions—pp. 164–165<br>• 8-2 Properties of Multiplication—pp. 166–167<br>• 8-3 Meaning of Division by a Fraction—pp. 168–169<br>• 8-4 Model Dividing Fractions by Fractions—pp. 170–171<br>• 8-5 Divide Fractions by Fractions—pp. 172–173<br>• 8-6 Estimate Quotients of Fractions and Mixed Numbers—pp. 174–175<br>*continued* |

## STANDARD 2 – COMPUTATION

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| | • 8-7 Divide with Whole and Mixed Numbers—pp. 176–177<br>• 8-8 Order of Operations with Fractions—pp. 180–181<br>• 8-9 Fractions with Money—pp. 182–183<br>• 8-10 Multiplication and Division Expressions with Fractions—pp. 184–185<br>• 8-11 Multiplication and Division Equations with Fractions—pp. 186–187<br>• 8-12 Problem Solving: Use a Model—pp. 188–189 |
| **MA.6.2.5** Solve problems involving addition, subtraction, multiplication, and division of positive fractions and explain why a particular operation was used for a given situation.<br>Example: You want to place a towel bar 9 3/4 inches long in the center of a door 27 1/2 inches wide. How far from each edge should you place the bar? Explain your method. | **Chapter 7: 7-5 & 7-6**<br>• 7-5 Addition and Subtraction Expressions with Fractions—pp. 152–153<br>• 7-6 Addition and Subtraction Equations with Fractions—pp. 154–155<br>**Chapter 8: 8-1 through 8-12**<br>• 8-1 Multiply Fractions—pp. 164–165<br>• 8-2 Properties of Multiplication—pp. 166–167<br>• 8-3 Meaning of Division by a Fraction—pp. 168–169<br>• 8-4 Model Dividing Fractions by Fractions—pp. 170–171<br>• 8-5 Divide Fractions by Fractions—pp. 172–173<br>• 8-6 Estimate Quotients of Fractions and Mixed Numbers—pp. 174–175<br>• 8-7 Divide with Whole and Mixed Numbers—pp. 176–177<br>• 8-8 Order of Operations with Fractions—pp. 180–181<br>• 8-9 Fractions with Money—pp. 182–183<br>• 8-10 Multiplication and Division Expressions with Fractions—pp. 184–185<br>• 8-11 Multiplication and Division Equations with Fractions—pp. 186–187<br>• 8-12 Problem Solving: Use a Model—pp. 188–189 |
| **MA.6.2.6** Interpret and use ratios to show the relative sizes of two quantities. Use the notations: $a/b$, a to $b$, a:$b$.<br>Example: A car moving at a constant speed travels 130 miles in 2 hours. Write the ratio of distance to time and use it to find how far the car will travel in 5 hours. | **Chapter 10: 10-1**<br>• 10-1 Ratios—pp. 226–227 (Use ratio concepts and language to describe relationships between quantities; TE Develop Concepts: Comparing Quantities) |
| **MA.6.2.7** Understand proportions and use them to solve problems.<br>Example: Sam made 8 out of 24 free throws. Use a proportion to show how many free throws Sam would probably make out of 60 attempts. | **Chapter 10: 10-7 through 10-9**<br>• 10-7 Compare Prices—pp. 240–241 (Proportion defined)<br>• 10-8 Equations for Proportional Relationships—pp. 242–243 (Use ratios and rates to write equations and solve problems; TE Develop Concepts: Proportions)<br>• 10-9 Graphs of Proportional Relationships—pp. 244–245 (Use ratio and rate reasoning to make tables of equivalent ratios and plot pairs of values on the coordinate plane; TE Develop Concepts: Line Graphs) |

## STANDARD 2 – COMPUTATION

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| **MA.6.2.8** Calculate given percentages of quantities and solve problems involving discounts at sales, interest earned, and tips.<br><br>Example: In a sale, everything is reduced by 20%. Find the sale price of a shirt whose pre-sale price was $30. | **Chapter 11: 11-1, 11-7 through 11-10**<br>• 11-1 Percent—pp. 254–255 (Use models, fractions, and decimals to express percents; TE Develop Concepts: Translating Between Fractions and Decimals)<br>• 11-7 Find the Part—pp. 268–269 (Multiply a whole by a percent to find the part; TE Develop Concepts: What Are the Parts?)<br>• 11-8 Find the Percent—pp. 270–271 (Divide a part by a whole to find a percent; TE Develop Concepts: Tic-Tac-Go! (equivalent decimals, percents, fractions))<br>• 11-9 Find the Whole—pp. 272–273 (Use a formula to find a whole given the part and percent; TE Develop Concepts: Decimal Division Challenge)<br>• 11-10 Problem Solving: Act it Out—pp. 274–275 (Act it out to solve problems; TE Develop Concepts: Play the Part) |
| **MA.6.2.9** Use estimation to decide whether answers are reasonable in decimal problems.<br><br>Example: Your friend says that 56.79 ÷ 2.4 = 2.36625. Without solving, explain why you think the answer is wrong. | **Chapter 1: 1-1**<br>• 1-1 Estimate Decimal Sums and Differences—pp. 2–3 (Use front-end estimation and rounding to estimate decimal sums and differences; TE Develop Concepts: Estimate by rounding)<br>**Chapter 2: 2-2**<br>• 2-2 Estimate Decimal Products—pp. 24–25 (Estimate decimal products by rounding; TE Develop Concepts: Round Factors to Estimate Products)<br>**Chapter 3: 3-5**<br>• 3-5 Estimate Decimal Quotients—pp. 52–53 (Use estimation to divide multi-digit decimals; TE Develop Concepts: Estimating Quotients in Whole Number Division)<br>**Chapter 5: 5-3**<br>• 5-3 Multiplication and Division Equations—pp. 102–103 (TE Develop Concepts: Estimating Products and Quotients) |
| **MA.6.2.10** Use mental arithmetic to add or subtract simple fractions and decimals.<br><br>Example: Subtract 1/6 from 1/2 without using pencil and paper. | A Mental Math activity is provided in the Teacher's Edition at the beginning of each lesson. Ideal for use after the Problem of the Day, it helps to deepen students' understanding of mathematics and build math fluency. For example:<br><br>**Chapter 1: 1-3**<br>• 1-3 Subtract Decimals—pp. 6–7 (TE Mental Math: 32.5 – 16.7, 8.06 – 3.25, ...) |

## STANDARD 3 – ALGEBRA AND FUNCTIONS

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| ***Students write verbal expressions and sentences as algebraic expressions and equations. They evaluate algebraic expressions, solve simple linear equations, and graph and interpret their results. They investigate geometric relationships and describe them algebraically.*** | |
| **MA.6.3.1** Write and solve one-step linear equations and inequalities in one variable and check the answers.<br>Example: The area of a rectangle is 143 $cm^2$ and the length is 11 cm. Write an equation to find the width of the rectangle and use it to solve the problem. Describe how you will check to be sure that your answer is correct. | **Chapter 5: 5-5 through 5-8**<br>• 5-5 Inequalities—pp. 108–109 (Write word sentences and math sentences that contain an inequality; TE Develop Concepts: Ordering Numbers (after simplifying expressions))<br>• 5-6 Solutions of Inequalities—pp. 110–111 (Use substitution to determine whether a value is a solution of an inequality; Identify solutions of an inequality on a number line; TE Develop Concepts: A Living Number Line)<br>• 5-7 Write Inequalities—pp. 112–113 (Recognize when a real-world situation has a limit or boundary and write an inequality to model it; TE Develop Concepts: Inequality Families (write equations and inequalities))<br>• 5-8 Solve Inequalities—pp. 114–115 (Solve one-step inequalities; TE Develop Concepts: Equation Stations (equivalent equations)) |
| **MA.6.3.2** Write and use formulas with up to three variables to solve problems.<br>Example: You have *P* dollars in a bank that gives *r*% simple interest per year. Write a formula for the amount of interest you will receive in one year. Use the formula to find the amount of interest on $80 at 6% per year for one year. | **Chapter 4: 4-9**<br>• 4-9 Use Formulas—pp. 88–89 (Evaluate expressions that arise from formulas; TE Develop Concepts: Explore Perimeter)<br>**Chapter 10: 10-8**<br>• 10-8 Equations for Proportional Relationships—pp. 242–243 (Distance formula)<br>**Chapter 14: 14-2 through 14-7**<br>• 14-2 Areas of Triangles—pp. 318–319 (Use a formula to find the area of triangles; TE Develop Concepts: Areas of Complex Figures)<br>• 14-3 Areas of Trapezoids—pp. 320–321 (Use a formula to find the area of a trapezoid; TE Develop Concepts: Order of Operations & Formulas)<br>• 14-4 Circumferences and Areas of Circles—pp. 324–325 (Find the circumference and area of a circle; TE Develop Concepts: Investigate Pi)<br>• 14-5 Areas of Regular Polygons—pp. 326–327 (Find the area of a regular polygon; TE Develop Concepts: Regular Polygons)<br>• 14-6 Areas of Composite Figures—pp. 328–329 (Find the areas of composite figures; TE Develop Concepts: Creative Geometry (create pictures with shapes))<br>• 14-7 Problem Solving: Find a Pattern—pp. 330–331 (Find a pattern to solve problems; TE Develop Concepts: Identify Number Patterns; find area of composite figures) |
| **MA.6.3.3** Interpret and evaluate expressions that use grouping symbols such as parentheses.<br>Example: Find the values of 10 – (7 – 3) and of 2(10 – 7)(3 + 1). | **Chapter 1: 1-5**<br>• 1-5 Evaluate Addition and Subtraction Expressions—pp. 12–13 (Evaluate addition and subtraction expressions at specific values of the variables; TE Develop Concepts: Write and Evaluate Addition and Subtraction Expressions)<br>**Chapter 2: 2-5**<br>• 2-5 Evaluate Multiplication Expressions—pp. 32–33 (Evaluate multiplication expressions at specific values of the variables; TE Develop Concepts: Write and Evaluate Expressions)<br>*continued* |

## STANDARD 3 – ALGEBRA AND FUNCTIONS

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| | **Chapter 3: 3-9**<br>• 3-9 Evaluate Division Expressions—pp. 60–61 (Write and evaluate division expressions; TE Develop Concepts: Speaking Math: Match situations to expressions)<br>**Chapter 4: 4-1 & 4-2**<br>• 4-1 Exponents—pp. 70–71 (Write and evaluate expressions with exponents; TE Develop Concepts: Powers of 10)<br>• 4-2 Order of Operations—pp. 72–73 (Use the order of operations to simplify expressions; TE Develop Concepts: Recognize the Need for Order) |
| **MA.6.3.4** Use parentheses to indicate which operation to perform first when writing expressions containing more than two terms and different operations.<br>Example: Write in symbols: add 19 and 34 and double the result. | **Chapter 4: 4-2**<br>• 4-2 Order of Operations—pp. 72–73 (Use the order of operations to simplify expressions; TE Develop Concepts: Recognize the Need for Order) |
| **MA.6.3.5** Use variables in expressions describing geometric quantities.<br>Example: Let *l*, *w*, and *P* be the length, width, and perimeter of a rectangle. Write a formula for the perimeter in terms of the length and width. | **Chapter 14: 14-2 through 14-7**<br>• 14-2 Areas of Triangles—pp. 318–319 (Use a formula to find the area of triangles; TE Develop Concepts: Areas of Complex Figures)<br>• 14-3 Areas of Trapezoids—pp. 320–321 (Use a formula to find the area of a trapezoid; TE Develop Concepts: Order of Operations & Formulas)<br>• 14-4 Circumferences and Areas of Circles—pp. 324–325 (Find the circumference and area of a circle; TE Develop Concepts: Investigate Pi)<br>• 14-5 Areas of Regular Polygons—pp. 326–327 (Find the area of a regular polygon; TE Develop Concepts: Regular Polygons)<br>• 14-6 Areas of Composite Figures—pp. 328–329 (Find the areas of composite figures; TE Develop Concepts: Creative Geometry (create pictures with shapes))<br>• 14-7 Problem Solving: Find a Pattern—pp. 330–331 (Find a pattern to solve problems; TE Develop Concepts: Identify Number Patterns; find area of composite figures) |
| **MA.6.3.6** Apply the correct order of operations and the properties of real numbers (e.g., identity, inverse, commutative*, associative*, and distributive* properties) to evaluate numerical expressions. Justify each step in the process.<br>Example: Simplify 3(4 – 1) + 2. Explain your method. | **Chapter 4: 4-2, 4-6 through 4-8**<br>• 4-2 Order of Operations—pp. 72–73 (Use the order of operations to simplify expressions; TE Develop Concepts: Recognize the Need for Order)<br>• 4-6 Use the Distributive Property and Evaluate Algebraic Expressions—pp. 82–83 (Write and evaluate algebraic expressions; Use the Distributive Property to combine like terms; TE Develop Concepts: Model and Evaluate Expressions with the Distributive Property)<br>• 4-7 Apply Properties to Write Equivalent Expressions—pp. 84–85 (Apply properties of operations to write equivalent expressions; TE Develop Concepts: Use Properties to Simplify Expressions)<br>• 4-8 Identify Equivalent Expressions—pp. 86–87 (Identify equivalent expressions; TE Develop Concepts: Explore Identity Properties) |

## STANDARD 3 – ALGEBRA AND FUNCTIONS

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| **MA.6.3.7** Identify and graph ordered pairs in the four quadrants of the coordinate plane.<br>Example: Plot the points (3, -1), (-6, 2) and (9, -3). What do you notice? | **Chapter 9: 9-7 & 9-8**<br>• 9-7 Plot Points in the Coordinate Plane—pp. 210–211 (Use signs of coordinates to locate and plot points in the coordinate plane; TE Develop Concepts: Describing Movement in Space)<br>• 9-8 Reflections of Points—pp. 212–213 (Use signs of coordinates to recognize when points are reflections across one or both axes; TE Develop Concepts: Symmetry) |
| **MA.6.3.8** Solve problems involving linear functions with integer* values. Write the equation and graph the resulting ordered pairs of integers on a grid.<br>Example: A plant is 3 cm high the first time you measure it (on Day 0). Each day after that the plant grows by 2 cm. Write an equation connecting the height and the number of the day and draw its graph. | Related content<br>**Chapter 13: 13-3 & 13-4**<br>• 13-3 Relationships in Equations and Graphs—pp. 302–303 (Use graphs and equations to describe relationships between dependent and independent variables; TE Develop Concepts: Concentrate on Relationships (between two variables))<br>• 13-4 Multiple Representations of a Relationship—pp. 306–307 (Use tables, equations, and graphs to represent the relationship between independent and dependent variables; TE Develop Concepts: Make More Equal Parts) |
| **MA.6.3.9** Investigate how a change in one variable relates to a change in a second variable.<br>Example: In the last example, what do you notice about the shape of the graph? | **Chapter 13: 13-1 through 13-3**<br>• 13-1 Related Quantities—pp. 298–299 (Identify the relationship between two variables and use rate to solve problems; TE Develop Concepts: Find the Best Deal)<br>• 13-2 Relationships in Words and Tables—pp. 300–301 (Use tables to identify and describe the relationship between dependent and independent variables; TE Develop Concepts: Number Pattern Puzzles)<br>• 13-3 Relationships in Equations and Graphs—pp. 302–303 (Use graphs and equations to describe relationships between dependent and independent variables; TE Develop Concepts: Concentrate on Relationships (between two variables)) |

## STANDARD 4 – GEOMETRY

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| ***Students identify, describe, and classify the properties of plane and solid geometric shapes and the relationships between them.*** | |
| **MA.6.4.1** Identify and draw vertical*, adjacent*, complementary*, and supplementary* angles and describe these angle relationships.<br>Example: Draw two parallel lines with another line across them. Identify all pairs of supplementary angles. | N/A |

## STANDARD 4 – GEOMETRY

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| **MA.6.4.2** Use the properties of complementary, supplementary, and vertical angles to solve problems involving an unknown angle. Justify solutions.<br>Example: Find the size of the supplement to an angle that measures 122°. Explain how you obtain your answer. | See Grade 4<br>**Chapter 16: 16-4**<br>• 16-4 Unknown Angle Measures—pp. 358–359 (Find unknown angle measures; TE Develop Concepts: Additive Property) |
| **MA.6.4.3** Draw quadrilaterals* and triangles from given information about them.<br>Example: Draw a quadrilateral with equal sides but no right angles. | See Grade 5<br>**Chapter 15: 15-2 & 15-3**<br>• 15-2 Triangles—pp. 344–345 (Understand and use attributes of triangles; TE Develop Concepts: Classifying Angles)<br>• 15-3 Quadrilaterals—pp. 348–349 (Understand and use attributes of quadrilaterals: trapezoid, parallelogram, rhombus, rectangle, square; TE Develop Concepts: Draw Four-Sided Polygons) |
| **MA.6.4.4** Understand that the sum of the interior angles of any triangle is 180° and that the sum of the interior angles of any quadrilateral is 360°. Use this information to solve problems.<br>Example: Find the size of the third angle of a triangle with angles of 73° and 49°. | Related Grade 4 content<br>**Chapter 16: 16-2 through 16-4**<br>• 16-2 Angle Measure—pp. 352–353 (Recognize that an angle turns through a fraction of a circle with the vertex of the angle at the center of the circle; degrees; TE Develop Concepts: Angles and Circles)<br>• 16-3 Measure Angles—pp. 356–357 (Measure and sketch angles using a protractor; Workbook: draw an angle; TE Develop Concepts: Measuring Angles)<br>• 16-4 Unknown Angle Measures—pp. 358–359 (Find unknown angle measures; TE Develop Concepts: Additive Property) |
| **MA.6.4.5** Identify and draw two-dimensional shapes that are similar*.<br>Example: Draw a rectangle similar to a given rectangle, but twice the size. | N/A |
| **MA.6.4.6** Draw the translation (slide) and reflection (flip) of shapes.<br>Example: Draw a square and then slide it 3 inches horizontally across your page. Draw the new square in a different color. | **Chapter 9: 9-8**<br>• 9-8 Reflections of Points—pp. 212–213 (Use signs of coordinates to recognize when points are reflections across one or both axes; TE Develop Concepts: Symmetry) |
| ** [Standard 6.4.7 was deleted from this grade level. Standard 7.4.4 addresses this skill] | |

## STANDARD 5 – MEASUREMENT

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| ***Students deepen their understanding of the measurement of plane and solid shapes and use this understanding to solve problems. They calculate with temperature and money, and choose appropriate units of measure in other areas.*** | |
| **MA.6.5.1** Select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature, and the size of angles.<br>Example: A triangular sheet of metal is about 1 foot across. Describe the units and tools you would use to measure its weight, its angles, and the lengths of its sides. | See Grade 4<br>**Chapter 15: 15-1 through 15-4**<br>• 15-1 Represent Measures on a Number Line—pp. 324–325 (Measure length in inches; TE Develop Concepts: Make a Ribbon Ruler)<br>• 15-2 Use Multiplication to Rename Measures—pp. 326–327 (Solve length problems using customary units of measure; TE Develop Concepts: Conversion Tables)<br>• 15-3 Elapsed Time—pp. 328–329 (Solve problems involving the passage of time.; TE Develop Concepts: Modeling Elapsed Time)<br>• 15-4 Temperature—pp. 330–331 (Solve problems involving temperature; TE Develop Concepts: Scales as Measurement) |
| **MA.6.5.2** Understand and use larger units for measuring length by comparing miles to yards and kilometers to meters.<br>Example: How many meters are in a kilometer? | **Chapter 12: 12-1 & 12-2**<br>• 12-1 Convert Customary Units—pp. 282–283 (Use ratio reasoning to convert customary units; TE Develop Concepts: Comparing Units of Measure)<br>• 12-2 Convert Metric Units—pp. 284–285 (Use ratio reasoning to convert between metric units; TE Develop Concepts: Comparing Metric Measures) |
| **MA.6.5.3** Understand and use larger units for measuring area by comparing acres and square miles to square yards and square kilometers to square meters.<br>Example: How many square meters are in a square kilometer? | **Chapter 14: 14-1 through 14-3, 14-5 & 14-6**<br>• 14-1 Areas of Parallelograms and Rhombuses—pp. 316–317 (Find the areas of parallelograms; TE Develop Concepts: Name Banners)<br>• 14-2 Areas of Triangles—pp. 318–319 (Use a formula to find the area of triangles; TE Develop Concepts: Areas of Complex Figures)<br>• 14-3 Areas of Trapezoids—pp. 320–321 (Use a formula to find the area of a trapezoid; TE Develop Concepts: Order of Operations & Formulas)<br>• 14-5 Areas of Regular Polygons—pp. 326–327 (Find the area of a regular polygon; TE Develop Concepts: Regular Polygons)<br>• 14-6 Areas of Composite Figures—pp. 328–329 (Find the areas of composite figures; TE Develop Concepts: Creative Geometry (create pictures with shapes)) |
| **MA.6.5.4** Understand the concept of the constant π as the ratio of the circumference to the diameter of a circle. Develop and use the formulas for the circumference and area of a circle.<br>Example: Measure the diameter and circumference of several circular objects. (Use string to find the circumference.) With a calculator, divide each circumference by | **Chapter 14: 14-4**<br>• 14-4 Circumferences and Areas of Circles—pp. 324–325 (Find the circumference and area of a circle; TE Develop Concepts: Investigate Pi) |

*continued*

## STANDARD 5 – MEASUREMENT

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| its diameter. What do you notice about the results? | |
| **MA.6.5.5** Know common estimates of π (3.14, 22/7) and use these values to estimate and calculate the circumference and the area of circles. Compare with actual measurements.<br>Example: Find the area of a circle of radius 15 cm. | **Chapter 14: 14-4**<br>• 14-4 Circumferences and Areas of Circles—pp. 324–325 (Find the circumference and area of a circle; TE Develop Concepts: Investigate Pi) |
| **MA.6.5.6** Understand the concept of significant figures and round answers to an appropriate number of significant figures.<br>Example: You measure the diameter of a circle as 2.47 m and use the approximation 3.14 for π to calculate the circumference. Is it reasonable to give 7.7558 m as your answer? Why or why not? | **Chapter 14: 14-4**<br>• 14-4 Circumferences and Areas of Circles—pp. 324–325 (Write About It/TE Using the Student Pages: Pi as an approximate value) |
| **MA.6.5.7** Construct a cube and rectangular box from two-dimensional patterns and use these patterns to compute the surface area of these objects.<br>Example: Find the total surface area of a shoe box with length 30 cm, width 15 cm, and height 10 cm. | **Chapter 15: 15-1**<br>• 15-1 Nets of Three-Dimensional Figures—pp. 338–339 (Use nets to represent three-dimensional figures; TE Develop Concepts: Relate Two-Dimensional and Three-Dimensional Figures) |
| **MA.6.5.8** Use strategies to find the surface area and volume of right prisms* and cylinders using appropriate units.<br>Example: Find the volume of a cylindrical can 15 cm high and with a diameter of 8 cm. | **Chapter 15: 15-2, 15-4 & 15-5**<br>• 15-1 Nets of Three-Dimensional Figures—pp. 338–339 (Use nets to represent three-dimensional figures; TE Develop Concepts: Relate Two-Dimensional and Three-Dimensional Figures)<br>• 15-2 Use Nets to Find Surface Areas of Prisms—pp. 340–341 (Find the surface area of a prism; TE Develop Concepts: Relate Areas of Rectangles and Triangles to Surface Areas of Prisms)<br>• 15-4 Use Cubes to Find Volumes—pp. 346–347 (Use cubes to find the volume of a rectangular prism; TE Develop Concepts: Model Fractional Edge Lengths)<br>• 15-5 Volumes of Right Rectangular Prisms—pp. 348–349 (Use formulas to find the volume of a rectangular prism; TE Develop Concepts: Explore Volumes of Prisms) |

## STANDARD 5 – MEASUREMENT

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| **MA.6.5.9** Use a formula to convert temperatures between Celsius and Fahrenheit.<br><br>Example: What is the Celsius equivalent of 100°F? Explain your method. | See Grade 4<br><br>**Chapter 15: 15-4**<br>• 15-4 Temperature—pp. 330–331 (TE Early Finishers: formula for converting a temperature given in Fahrenheit to a temperature in Celsius) |
| **MA.6.5.10** Add, subtract, multiply, and divide with money in decimal notation.<br><br>Example: Share $7.25 among five people. | **Chapter 1: 1-2, 1-3, 1-5 & 1-6**<br>• 1-2 Add Decimals—pp. 4–5 (Add money in decimal notation)<br>• 1-3 Subtract Decimals—pp. 6–7 (Subtract money in decimal notation)<br>• 1-5 Evaluate Addition and Subtraction Expressions—pp. 12–13 (Subtract money in decimal notation)<br>• 1-6 Problem Solving: The Four-Step Process—pp. 14–15 (TE Early Finishers)<br><br>**Chapter 2: 2-3 & 1-3**<br>• 2-3 Multiply with Decimals—pp. 26–27 (Multiply multi-digit decimals; TE Develop Concepts: Multiply Decimals by Converting to Fractions)<br>• 3-2 Divide Decimals by 10, 100, and 1000—pp. 44–45 (Divide multi-digit decimals by 10, 100, and 1000; TE Develop Concepts: Understanding Place Value and Division)<br>• 3-3 Divide Decimals by Whole Numbers—pp. 46–47 (Divide multi-digit decimals by whole numbers; TE Develop Concepts: Understanding Division Patterns)<br>• 3-4 Divide Decimals by 0.1, 0.01, and 0.001—pp. 50–51 (Divide multi-digit decimals by 01, 001, and 0001; TE Develop Concepts: Relating Decimal Multiplication and Division)<br>• 3-5 Estimate Decimal Quotients—pp. 52–53 (Use estimation to divide multi-digit decimals; TE Develop Concepts: Estimating Quotients in Whole Number Division)<br>• 3-6 Decimal Divisors—pp. 54–55 (Divide with decimal divisors; TE Develop Concepts: Comparing Equations)<br>• 3-7 Zeros in Division—pp. 56–57 (Divide multi-digit decimals that require writing zeros; TE Develop Concepts: Find Meaning in Place Value)<br><br>**Chapter 8: 8-9**<br>• 8-9 Fractions with Money—pp. 182–183 (Multiply and divide dollar amounts by fractions; TE Develop Concepts: Sharing Money) |

# STANDARD 6 - DATA ANALYSIS AND PROBABILITY

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| ***Students compute and analyze statistical measures for data sets. They determine theoretical and experimental probabilities and use them to make predictions about events.*** | |
| **MA.6.6.1** Organize and display single-variable data in appropriate graphs and stem-and-leaf plots*, and explain which types of graphs are appropriate for various data sets.<br><br>Example: This stem-and-leaf diagram shows a set of test scores for your class:<br><br>Stem \| Leaf<br>6 \| 2 3 7<br>7 \| 1 5 5 6 8 9<br>8 \| 0 1 1 2 3 3 5 7 8 8<br>9 \| 1 2 2 3 3 4<br><br>Find your score of 85 in this diagram. Are you closer to the top or the bottom of the class on this test? | **Chapter 17: 17-1 through 17-4, 17-6**<br>• 17-1 Dot Plots—pp. 378–379 (Organize data in dot plots and use dot plots to describe the data; TE Develop Concepts: Data Display Review)<br>• 17-2 Box Plots—pp. 380–381 (Make and read box plots; TE Develop Concepts: Visualizing Data)<br>• 17-3 Histograms—pp. 382–383 (Make and read frequency tables and histograms; TE Develop Concepts: Frequency Tables)<br>• 17-4 Data Distributions—pp. 386–387 (Use data displays to describe data; TE Develop Concepts: Describe Data)<br>• 17-6 Problem Solving: Compare Models—pp. 390–391 (Compare models to solve problems; dot plot, box plot, histogram; TE Develop Concepts: Different Displays for Data)<br><br>*No stem-and-leaf plots at this level. |
| **MA.6.6.2** Make frequency tables for numerical data, grouping the data in different ways to investigate how different groupings describe the data. Understand and find relative and cumulative frequency for a data set. Use histograms of the data and of the relative frequency distribution, and a broken line graph for cumulative frequency, to interpret the data.<br><br>Example: A bag contains pens in three colors. Nine students each draw a pen from the bag without looking, then record the results in the frequency table shown. Complete the column showing relative frequency.<br><br>Color \| Frequency \| Relative Frequency<br>Red \| 2/9 \|<br>Green \| \|<br>Purple \| \| | **Chapter 17: 17-1 through 17-4, 17-6**<br>• 17-1 Dot Plots—pp. 378–379 (Organize data in dot plots and use dot plots to describe the data; TE Develop Concepts: Data Display Review)<br>• 17-2 Box Plots—pp. 380–381 (Make and read box plots; TE Develop Concepts: Visualizing Data)<br>• 17-3 Histograms—pp. 382–383 (Make and read frequency tables and histograms; TE Develop Concepts: Frequency Tables)<br>• 17-4 Data Distributions—pp. 386–387 (Use data displays to describe data; TE Develop Concepts: Describe Data)<br>• 17-6 Problem Solving: Compare Models—pp. 390–391 (Compare models to solve problems; dot plot, box plot, histogram; TE Develop Concepts: Different Displays for Data) |

## STANDARD 6 - DATA ANALYSIS AND PROBABILITY

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| **MA.6.6.3** Compare the mean*, median*, and mode* for a set of data and explain which measure is most appropriate in a given context.<br><br>Example: Twenty students were given a science test and the mean, median and mode were as follows:<br><br>mean = 8.5, median = 9, mode = 10.<br><br>What does the difference between the mean and the mode suggest about the twenty quiz scores? | **Chapter 16: 16-2 through 16-5**<br>• 16-2 Measures of Center—pp. 360–361 (Determine measures of center and use them to summarize data sets; TE Develop Concepts: Review Decimal Division)<br>• 16-3 Measures of Variation: Range and Interquartile Range—pp. 362–363 (Determine measures of variation and use them to summarize data sets; TE Develop Concepts: Exploring Measures of Center)<br>• 16-4 Measure of Variation: Mean Absolute Deviation—pp. 366–367 (Determine mean absolute deviation; TE Develop Concepts: Making Line Plots with People)<br>• 16-5 Analyze Data—pp. 368–369 (Identify clusters, gaps, and outliers and use them to analyze data; TE Develop Concepts: Analyze Statistical Pictures) |
| **MA.6.6.4** Show all possible outcomes for compound events in an organized way and find the theoretical probability of each outcome.<br><br>Example: A box contains four cards with the numbers 1 through 4 written on them. Show a list of all the possible outcomes if you draw two cards from the box without looking. What is the theoretical probability that you will draw the numbers one and two? Explain your answer. | N/A |
| **MA.6.6.5** Use data to estimate the probability of future events.<br><br>Example: Teams A and B have played each other 3 times this season and Team A has won twice. When they play again, what is the probability of Team B winning? How accurate do you think this estimate is? | N/A |
| **MA.6.6.6** Understand and represent probabilities as ratios, measures of relative frequency, decimals between 0 and 1, and percentages between 0 and 100 and verify that the probabilities computed are reasonable.<br><br>Example: The weather forecast says that the chance of rain today is 30%. Should you carry an umbrella? Explain your answer. | N/A |

## STANDARD 7 - PROBLEM SOLVING

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| ***Students make decisions about how to approach problems and communicate their ideas.*** | |
| **MA.6.7.1** Analyze problems by identifying relationships, telling relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns.<br><br>Example: Solve the problem: "Develop a method for finding all the prime numbers up to 100." Notice that any numbers that 4, 6, 8, ... divide into also divide exactly by 2, and so you do not need to test 4, 6, 8, ... . | For each lesson, the new skill or skills are presented in the context of a real-world situation or problem. Students study step-by-step solutions then apply what they've learned in the Problem Solving section of the lesson.<br><br>In addition, each chapter includes a full Problem Solving lesson that combines application of newly learned skills with a focus on problem solving strategies.<br><br>See the following problem solving resources:<br><br>**Problem Solving Math Practices**<br>• Four Steps: Read and Understand, Represent the Situation, Make and Use a Plan, Look Back—p. xxii<br>• Make Sense of Problems/Use Reasoning—p. xxiii<br>• Explain Your Reasoning/Model with Mathematics—p. xxiv<br>• Use the Right Tools/Be Precise—p. xxv<br>**Problem Solving Strategies**<br>• Look for a Pattern—p. xxvi<br>• Use a Model—p. xxvii<br>• Work Backward—p. xxviii<br>• Use Logical Reasoning—p. xxix<br>• Draw a Picture—p. xxx<br>• Write and Solve an Equation—p. xxxi<br>• Make an Organized List—p. xxxii<br>**Chapter 1: 1-6**<br>• 1-6 Problem Solving: The Four-Step Process—pp. 14–15<br>**Chapter 2: 2-6**<br>• 2-6 Problem Solving: Compare Strategies—pp. 34–35<br>**Chapter 3: 3-10**<br>• 3-10 Problem Solving: Use Logical Reasoning—pp. 62–63<br>**Chapter 4: 4-10**<br>• 4-10 Problem Solving: Represent the Situation—pp. 90–91<br>**Chapter 5: 5-9**<br>• 5-9 Problem Solving: Write and Solve an Equation—pp. 116–117<br>**Chapter 6: 6-5**<br>• 6-5 Problem Solving: Make a List—pp. 134–135<br>**Chapter 7: 7-7**<br>• 7-7 Problem Solving: Choose a Strategy—pp. 156–157<br>**Chapter 8: 8-12**<br>• 8-12 Problem Solving: Use a Model—pp. 188–189<br><br>*continued* |

## STANDARD 7 - PROBLEM SOLVING

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| | **Chapter 9: 9-11**<br>• 9-11 Problem Solving: Draw a Picture—pp. 218–219<br>**Chapter 10: 10-10**<br>• 10-10 Problem Solving: Make a Model—pp. 246–247<br>**Chapter 11: 11-10**<br>• 11-10 Problem Solving: Act it Out—pp. 274–275<br>**Chapter 12: 2-4**<br>• 12-4 Problem Solving: Choose a Strategy—pp. 290–291<br>**Chapter 13: 13-5**<br>• 13-5 Problem Solving: Guess and Test—pp. 308–309<br>**Chapter 14: 14-7**<br>• 14-7 Problem Solving: Find a Pattern—pp. 330–331<br>**Chapter 15: 15-6**<br>• 15-6 Problem Solving: Compare Models—pp. 350–351<br>**Chapter 16: 16-6**<br>• 16-6 Problem Solving: Work Backward—pp. 370–371<br>**Chapter 17: 17-6**<br>• 17-6 Problem Solving: Compare Models—pp. 390–391 |
| **MA.6.7.2** Make and justify mathematical conjectures based on a general description of a mathematical question or problem.<br>Example: In the first example, decide that you need to test only the prime numbers as divisors, and explain it in the same way as for 4, 6, 8, … . | Throughout the program, students are encouraged to show their work and justify their reasoning when solving problems in order to gain insight into their thinking process. For example:<br>**Chapter 8: 8-3**<br>• 8-3 Meaning of Division by a Fraction—pp. 168–169 (Write About It: Look at Exercises 3 and 4. Make a conjecture about what happens when you divide a whole number by a unit fraction. Provide an example.)<br>**Chapter 5: Performance Assessment**<br>• 5. Make a recommendation to the county board. Justify your recommendations based on cost and ability to solve the traffic problem, as well as any other factors you can think of.<br>**Chapter 10: 10-7**<br>• 10-7 Compare Prices—pp. 240–241 (TE Problem Solving Exercise #14: Students should justify their answer by comparing the cost per ticket.) |
| **MA.6.7.3** Decide when and how to break a problem into simpler parts.<br>Example: In the first example, decide to find first those numbers not divisible by 2. | **Chapter 14: 14-6**<br>• 14-6 Areas of Composite Figures—pp. 328–329 (TE Summarize: How can you find the area of complex figures made up of simpler shapes?) |

## STANDARD 7 - PROBLEM SOLVING

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| ***Students use strategies, skills, and concepts in finding and communicating solutions to problems.*** | |
| **MA.6.7.4** Apply strategies and results from simpler problems to solve more complex problems.<br>Example: In the first example, begin by finding all the prime numbers up to 10. | **Chapter 3: 3-6**<br>• 3-6 Decimal Divisors—pp. 54–55 (TE Develop Concepts: To make sure students understand why division is used to solve this problem, restate it using simpler numbers.) |
| **MA.6.7.5** Express solutions clearly and logically by using the appropriate mathematical terms and notation. Support solutions with evidence in both verbal and symbolic work.<br>Example: In the first example, use a hundreds chart to cross off all multiples of 2 (except 2), then all multiples of 3 (except 3), then all multiples of 5 (except 5), etc. Explain why you are doing this. | In addition to representative instructional activities cited below, students express solutions clearly and logically with appropriate mathematical terms and notation in every lesson. Students support solutions with evidence in the **Write About It** exercises at the conclusion of every lesson. Consider the following representative lessons:<br>**Problem Solving Strategies**<br>• Use Logical Reasoning—p. xxix<br>**Chapter 3: 3-10**<br>• 3-10 Problem Solving: Use Logical Reasoning—pp. 62–63 (Write About It: You can think of division as separating a number into equal groups. For example, you can think of 20 ÷ 4 = 5 as 20 divided into groups of 4 equals 5 groups. Or, 4 + 4 + 4 + 4 + 4 = 20. Use this reasoning to explain why you cannot divide by zero.)<br>**Chapter 5: 5-1**<br>• 5-1 Solutions of Equations—pp. 98–99 (Problem Solving #18: Explain how you can use the equation 409 + $x$ = 842 and the bar model to find your answer.)<br>**Chapter 9: 9-11**<br>• 9-11 Problem Solving: Draw a Picture—pp. 218–219 (Use the coordinate plane to draw a picture and solve real-world problems; TE Develop Concepts: Finding Perimeters) |
| **MA.6.7.6** Recognize the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.<br>Example: Calculate the perimeter of a rectangular field that needs to be fenced. How accurate should you be: to the nearest kilometer, meter, centimeter, or millimeter? Explain your answer. | **Chapter 3: 3-10**<br>• 3-10 Problem Solving: Use Logical Reasoning—pp. 62–63 (Solve real-world division problems and make sense of the solution; TE Develop Concepts: Using Your Head: Answering real-world questions using new skills; exact or estimates)<br>**Chapter 13: 13-5**<br>• 13-5 Problem Solving: Guess and Test—pp. 308–309 (You might not find the exact answer, but you could use your guess to eliminate some wrong answers.) |

## STANDARD 7 - PROBLEM SOLVING

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| **MA.6.7.7** Select and apply appropriate methods for estimating results of rational-number computations.<br><br>Example: Measure the length and height of the walls of a room to find the total area. Estimate an answer by imagining meter squares covering the walls. | **Chapter 1: 1-1**<br>• 1-1 Estimate Decimal Sums and Differences—pp. 2–3 (Use front-end estimation and rounding to estimate decimal sums and differences; TE Develop Concepts: Estimate by rounding)<br>• 1-2 Add Decimals—pp. 4–5 (Add multi-digit decimals; TE Develop Concepts: Estimate, Model, and Compare)<br>• 1-3 Subtract Decimals—pp. 6–7 (Subtract multi-digit decimals; TE Develop Concepts: Estimate, Model, Compare)<br>**Chapter 2: 2-2**<br>• 2-2 Estimate Decimal Products—pp. 24–25 (Estimate decimal products by rounding; TE Develop Concepts: Round Factors to Estimate Products)<br>**Chapter 3: 3-5**<br>• 3-5 Estimate Decimal Quotients—pp. 52–53 (Use estimation to divide multi-digit decimals; TE Develop Concepts: Estimating Quotients in Whole Number Division)<br>**Chapter 5: 5-3**<br>• 5-3 Multiplication and Division Equations—pp. 102–103 (Write equations and use multiplication and division to solve for a variable; TE Develop Concepts: Estimating Products and Quotients)<br>**Chapter 8: 8-6**<br>• 8-6 Estimate Quotients of Fractions and Mixed Numbers—pp. 174–175 (Estimate quotients of fractions and mixed numbers; TE Develop Concepts: Comparing Fractions) |
| **MA.6.7.8** Use graphing to estimate solutions and check the estimates with analytic approaches.<br><br>Example: Use a graphing calculator to estimate the coordinates of the point where the straight line $y = 8x - 3$ crosses the $x$-axis. Confirm your answer by checking it in the equation. | Related content<br>**Chapter 10: 10-9**<br>• 10-9 Graphs of Proportional Relationships—pp. 244–245 (Use ratio and rate reasoning to make tables of equivalent ratios and plot pairs of values on the coordinate plane)<br>**Chapter 13: 13-3**<br>• 13-3 Relationships in Equations and Graphs—pp. 302–303 (Use graphs and equations to describe relationships between dependent and independent variables; TE Develop Concepts: Concentrate on Relationships (between two variables)) |
| **MA.6.7.9** Make precise calculations and check the validity of the results in the context of the problem.<br><br>Example: In the first example, check whether some of the numbers not crossed out are in fact primes. | **Problem Solving Math Practices**<br>• Be Precise—p. xxv<br>**Chapter 1: 1-6**<br>• 1-6 Problem Solving: The Four-Step Process—pp. 14–15 (TE Use the Student Pages: The fourth step in the problem solving process is to look back and check your answer.)<br>**Chapter 2: 2-3**<br>• 2-3 Multiply with Decimals—pp. 26–27 (Use estimation to check products. Correct unreasonable products.) |

## STANDARD 7 - PROBLEM SOLVING

| 6th Grade Content Standards | *Sadlier Math*, Grade 6 |
|---|---|
| ***Students determine when a solution is complete and reasonable and move beyond a particular problem by generalizing to other situations.*** | |
| **MA.6.7.10** Decide whether a solution is reasonable in the context of the original situation.<br>Example: In the first example, decide whether your method was a good one — did it find all the prime numbers efficiently? | Students routinely apply estimation skills to determine whether a solution is reasonable. For example:<br>**Chapter 1: 1-3**<br>• 1-3 Subtract Decimals—pp. 6–7 (The Suez Canal is 116.3 km longer than the Panama Canal. This is close to the estimate of 110 km, so it is a reasonable answer.)<br>**Chapter 2: 2-2**<br>• 2-2 Estimate Decimal Products—pp. 24–25 (Estimate to determine if Liam's statement is reasonable.) |
| **MA.6.7.11** Note the method of finding the solution and show a conceptual understanding of the method by solving similar problems.<br>Example: Use a hundreds chart to find all the numbers that are multiples of both 2 and 3. | In several lessons, students are directed to note similarities between a new skill or process and one they've studied earlier. For example:<br>**Chapter 3: 3-2**<br>• 3-2 Divide Decimals by 10, 100, and 1000—pp. 44–45 (TE Develop Concepts: Understanding Place Value and Division: display similar division patterns using the place-value chart.)<br>**Chapter 5: 5-8**<br>• 5-8 Solve Inequalities—pp. 114–115 (Solving an inequality is similar to solving an equation.)<br>**Chapter 9: 9-9**<br>• 9-9 Distance on the Coordinate Plane—pp. 214–215 (TE Use the Student Pages: counting grid lines is similar to finding the length of a rectangle by counting squares,) |