## Sadlier School

## Sadlier Math"

Correlation to the Diocese of Raleigh Math Standards

## Grade 5



## Sadlier School

## OPERATIONS AND ALGEBRAIC THINKING

$5^{\text {th }}$ Grade Content Standards

| Achievement Standard: 5.OA.1 Write and interpret numerical expressions. |  |
| :---: | :---: |
| 5.OA.1.1 Write, explain, and evaluate numerical expressions involving the four operations to solve up to two-step problems. Include expressions involving: | Chapter 1: 1-4 <br> - 1-4 Problem Solving: Use the Four-Step Process-pp. 10-11 <br> Chapter 3: 3-6 <br> - 3-6 Problem Solving: Guess and Test-pp. 56-57 <br> Chapter 4: 4-9 \& 4-10 <br> - 4-9 Problem Solving: Work Backward-pp. 86-87 <br> - 4-11 Expressions-pp. 90-91 |
| - Brackets and parentheses, using the order of operations | Chapter 4: 4-10 \& 4-11 <br> - 4-10 Order of Operations-pp. 88-89 <br> - 4-11 Expressions-pp. 90-91 |
| - Commutative, associative, distributive, and identity properties. | Chapter 1: 1-5 <br> - 1-5 Addition Properties and Subtraction Rules-pp. 12-13 <br> Chapter 3: 3-1 <br> - 3-1 Multiplication Properties-pp. 44-45 <br> Chapter 10: 10-2 <br> - 10-2 Use Properties to Add Decimals-pp. 222-223 <br> Chapter 12: 12-2 <br> - 12-2 Use Properties to Multiply a Decimal by a Whole Number-pp. <br> 264-265 |

## Achievement Standard: 5.OA. 2 Analyze patterns and relationships.

| 5.OA.2.1 Given a set of numbers analyze the pattern and state the rule. | Chapter 3: 3-2 <br> - 3-2 Multiplication Patterns-pp. 46-47 <br> Chapter 4: 4-1 \& 4-3 <br> Chapter 17: 17-5 through 17-7 <br> - 17-5 Write Number Patterns-pp. 390-391 <br> - 17-6 Graph Number Patterns-pp. 392-393 <br> - 17-7 Problem Solving: Find and Use a Pattern-pp. 394-395 |
| :---: | :---: |
| - Use models to represent variables, expressions, and relationships | Chapter 2: 2-1 <br> - 2-1 Mathematical Expressions-pp. 24-25 |
| - Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. | Chapter 3: 3-2 <br> - 3-2 Multiplication Patterns-pp. 46-47 <br> Chapter 4: 4-1 \& 4-3 <br> - 4-1 Division Patterns-pp. 68-69 <br> Chapter 4: 4-3 <br> - 4-3 Multiply Tens, Hundreds, and Thousands-pp. 74-75 <br> Chapter 9: 9-\& 9-3 <br> - 9-1 Divide Whole Numbers by Unit Fractions-pp. 198-199 (patterns) continued |

## Sadlier School

OPERATIONS AND ALGEBRAIC THINKING
$5^{\text {th }}$ Grade Content Standards

## Sadlier Math, Grade 5

|  | - 9-3 Divide Whole Numbers by Fractions-pp. 202-203 (look for patterns) <br> Chapter 12: 12-1 <br> - 12-1 Multiply by Powers of 10-pp. 262-263 <br> Chapter 13: 13-5 <br> - 13-5 Divide Decimals by Whole Numbers-pp. 296-297 |
| :---: | :---: |
| - Form ordered pairs consisting of corresponding terms from the two patterns. | Chapter 17: 17-3 through 17-7 <br> - 17-3 The Coordinate Plane-pp. 386-387 <br> - 17-4 Using Coordinate Graphs-pp. 388-389 <br> - 17-5 Write Number Patterns-pp. 390-391 <br> - 17-6 Graph Number Patterns-pp. 392-393 <br> - 17-7 Problem Solving: Find and Use a Pattern-pp. 394-395 |
| - Graph the ordered pairs on a coordinate plane. | Chapter 9: 9-\& 9-3 <br> - 9-1 Divide Whole Numbers by Unit Fractions-pp. 198-199 (patterns) <br> - 9-3 Divide Whole Numbers by Fractions-pp. 202-203 (llook for patterns) |
| - Use organized and appropriate strategies to solve multi-step problems involving patterns, relationships, and functions. | Chapter 17: 17-3 through 17-7 <br> - 17-3 The Coordinate Plane-pp. 386-387 <br> - 17-4 Using Coordinate Graphs-pp. 388-389 <br> - 17-5 Write Number Patterns-pp. 390-391 <br> - 17-6 Graph Number Patterns-pp. 392-393 <br> - 17-7 Problem Solving: Find and Use a Pattern-pp. 394-395 |

## NUMBER AND OPERATIONS IN BASE TEN

$5^{\text {th }}$ Grade Content Standards
Sadlier Math, Grade 5

## Achievement Standard: 5.NBT. 1 Understand the place value system from the hundred millions place to the thousandths place.

5.NBT.1.1 Explain the patterns in the place value system from the hundred millions place to the thousandths place.

- Explain that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $1 / 10$ of what it represents in the place to its left.
- Explain patterns in products and quotients when numbers are multiplied by $1,000,100$, $10,0.1$, and /or divided by 10 and 100.


## 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

See also Grade 4

## Chapter 1: 1-1 through 1-6

- 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


## Sadlier School

## NUMBER AND OPERATIONS IN BASE TEN

## $5^{\text {th }}$ Grade Content Standards

## Sadlier Math, Grade 5

| 5.NBT.1.2 Read, write, order, round, and compare decimals to thousandths. |  |
| :---: | :---: |
| - Write decimals using base-ten numerals, number names,word form, and expanded form. | Chapter 2: 2-1 \& 2-2 <br> - 2-1 Thousandths-pp. 24-25 <br> - 2-2 Decimals and Expanded Form-pp. 26-27 |
| - Compare two decimals to thousandths based on the value of the digits in each place, using >, =, and < symbols to record the results of comparisons. | Chapter 2: 2-3 \& 2-5 <br> - 2-3 Compare and Order Decimals-pp. 30-31 <br> - 2-5 Problem Solving: Read and Understand-pp. 34-35 |
| - Use place value understanding to round decimals to any place in real life situation | Chapter 2: 2-4 <br> - 2-4 Round Decimals-pp. 32-33 |

## Achievement Standard: 5.NBT. 2 Perform operations with multi-digit whole numbers.

| 5.NBT.2.1 Demonstrate fluency with the multiplication of two whole numbers up to a three digit number by a two digit number using the standard algorithm. | Chapter 3: 3-4 through 3-8 <br> - 3-4 Zeros in the Multiplicand-pp. 50-51 <br> - 3-5 Multiply by Two-Digit Numbers-pp. 54-55 <br> - 3-6 Problem Solving: Guess and Test-pp. 56-57 <br> - 3-7 Multiply by Three-Digit Numbers-pp. 58-59 <br> - 3-8 Zeros in the Multiplier-pp. 60-61 |
| :---: | :---: |
| - Use estimation strategies to assess reasonableness of answers. | Chapter 1: 1-6 <br> - 1-6 Estimate Sums and Differences-pp. 14-15 <br> Chapter 3: 3-3 <br> - 3-3 Estimate Products-pp. 48-49 <br> Chapter 4: 4-2 <br> - 4-2 Estimation: Compatible Numbers-pp. 70-71 |
| 5.NBT.2.2 Find quotients with remainders when dividing whole numbers with up to fourdigit dividends and two digit divisors using rectangular arrays, area models, repeated subtraction, partial quotients, and/or the relationship between multiplication and division. Use models to make connections and develop the algorithm. | Chapter 7: 7-1 through 7-6 <br> - 7-1 Division Rules-pp. 128-129 <br> - 7-2 Relate Multiplication and Division-pp. 130-131 <br> - 7-3 Estimate Quotients-pp. 132-133 <br> - 7-4 Use Models to Divide—pp. 136-137 <br> - 7-5 Number Patterns-pp. 138-139 <br> - 7-6 Problem Solving: Work Backward-pp. 140-141 <br> Chapter 8: 8-1 through 8-8 <br> - 8-1 One-Digit Quotients-pp. 148-149 <br> - 8-2 Divisibility-pp. 150-151 <br> - 8-3 Two-Digit Quotients-pp. 152-153 <br> - 8-4 Zeros in Quotients-pp. 154-155 <br> - 8-5 More Quotients-pp. 158-159 <br> - 8-6 Order of Operations-pp. 160-161 <br> - 8-7 Multistep Problems Using Multiplication and Division-pp. 162-163 <br> - 8-8 Problem Solving: Use a Model—pp. 164-165 |

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## NUMBER AND OPERATIONS IN BASE TEN

## $5^{\text {th }}$ Grade Content Standards

## Sadlier Math, Grade 5

## Achievement Standard: 5.0A. 3 Perform operations with decimals.

## 5.NBT.3.1 Compute and solve real-world problems with multi-digit whole numbers and decimal numbers.

- Add and subtract decimals to thousandths using models, drawings, or strategies based on place value.


## Chapter 11: 11-1 through 11-9

- 11-1 Use Models to Add Fractions-pp. 224-225
- 11-2 Add Fractions: Like Denominators—pp. 226-227
- 11-3 Decompose Fractions as Sums of Unit Fractions-pp. 228-229
- 11-4 Use Models to Subtract Fractions-pp. 230-231
- 11-5 Subtract Fractions: Like Denominators-pp. 232-233
- 11-6 Write Mixed Numbers as Equivalent Fractions-pp. 236-237
- 11-7 Add Mixed Numbers: Like Denominators—pp. 238-239
- 11-8 Subtract Mixed Numbers: Like Denominators—pp. 240-241
- 11-9 Problem Solving: Compare Strategies-pp. 242-243
- Multiply decimals with a product to thousandths using models, drawings, or strategies based on place value.


## Chapter 12: 12-1 through 12-9

- 12-1 Multiply by Powers of 10—pp. 262-263
- 12-2 Use Properties to Multiply a Decimal by a Whole Number-pp. 264-265
- 12-3 Estimate Decimal Products-pp. 266-267
- 12-4 Multiply Decimals by Whole Numbers-pp. 268-269
- 12-5 Multiplication with Money-pp. 270-271
- 12-6 Model Multiplying Two Decimals-pp. 274-275
- 12-7 Multiply Decimals by Decimals-pp. 276-277
- 12-8 Zeros in the Product-pp. 278-279
- 12-9 Problem Solving: Compare Strategies-pp. 280-281
- Divide a whole number by a decimal and divide a decimal by a whole number, using repeated subtraction or area models. Decimals should be limited to hundredths.
- Use estimation strategies to assess reasonableness of answers.

Chapter 13: 13-1, 13-2, 13-5 \& 13-6

- 13-1 Divide by Powers of 10-pp. 288-289
- 13-2 Model Dividing a Decimal by a Whole Number-pp. 290-291
- 13-5 Divide Decimals by Whole Numbers-pp. 296-297
- 13-6 Zeros in Decimal Quotients-pp. 298-299


## Chapter 2: 2-4 \& 2-6

- 2-4 Round Decimals-pp. 32-33
- 2-6 Estimate with Decimals-pp. 36-37

Chapter 10: 10-3

- 10-3 Estimate Decimal Sums-pp. 224-225


## Chapter 11: 11-2

- 11-2 Estimate Decimal Differences-pp. 244-245


## Chapter 12: 12-3

- 12-3 Estimate Decimal Products-pp. 266-267


## Chapter 13: 13-3 \& 13-4

- 13-3 Estimate Decimal Quotients-pp. 292-293
- 13-4 Estimate with Money-pp. 294-295


## Sadlier School

## NUMBER AND OPERATIONS-FRACTIONS

## $5^{\text {th }}$ Grade Content Standards

## Sadlier Math, Grade 5

## Achievement Standard: 5.NF. 1 Use equivalent fractions as a strategy to add and subtract fractions.

5.NF.1.1 Add and subtract fractions, including mixed numbers with unlike denominators using related fractions: halves, fourths, and eighths; thirds, sixths, and twelfths; fifths, tenths, and hundredths.

- Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.
- Solve one and two-step word problems in context using area and length models to develop the algorithm. Represent the word problem in an equation.


## Chapter 6: 6-1 through 6-6

- 6-1 Model Addition with Unlike Denominators-pp. 122-123
- 6-2 Add Fractions: Unlike Denominators-pp. 124-125
- 6-3 Fraction Addition: Estimation and Reasonableness-pp. 126-127
- 6-4 Add Mixed Numbers-pp. 130-131
- 6-5 Problem Solving: Use a Model-pp. 132-133
- 6-6 Rename Mixed Number Sums-pp. 134-135


## Chapter 7: 7-1 through 7-9

- 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 Numberspp. 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
- 7-9 Problem Solving: Write and Solve an Equation-pp. 160-161


## Achievement Standard: 5.NF.2 Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

5.NF.2.1 Use fractions to model and solve division problems.

- Interpret a fraction as an equal sharing context, where a quantity is divided into equal parts.
- Model and interpret a fraction as the division of the numerator by the denominator.
- Solve word problems involving division of whole numbers leading to answers in the form of fractions and mixed numbers, with denominators of $2,3,4,5,6,8,10$, and 12, using area, length, and set models or equations.


## Chapter 5: 5-3 through 5-8

- 5-3 Estimation and Equivalent Fractions-pp. 102-103
- 5-4 Common Multiples and Common Denominators-pp. 106-107
- 5-5 Problem Solving: Make an Organized List—pp. 108-109
- 5-6 Fractions Greater Than or Equal to One-pp. 110-111
- 5-7 Compare and Order Fractions and Mixed Numbers-pp. 112-113
- 5-8 Interpret a Remainder-pp. 114-115


## Chapter 9: 9-1 through 9-7

- 9-1 Divide Whole Numbers by Unit Fractions-pp. 198-199
- 9-2 Reciprocals-pp. 200-201
- 9-3 Divide Whole Numbers by Fractions-pp. 202-203
- 9-4 Divide Unit Fractions by Whole Numbers-pp. 206-207
- 9-5 Divide Fractions by Whole Numbers-pp. 208-209
- 9-6 Word Problems Involving Fraction Division-pp. 210-211
- 9-7 Problem Solving: Choose a Strategy-pp. 212-213


## NUMBER AND OPERATIONS-FRACTIONS

## $5^{\text {th }}$ Grade Content Standards

## Sadlier Math, Grade 5

5.NF.2.2 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction, including mixed numbers.

- Use area and length models to multiply two fractions, with the denominators $2,3, \& 4$.
- Explain why multiplying a given number greater than 1 results in a product greater than the given number and when multiplying a given number by a fraction less than 1 results in a product smaller than the given number.
- Solve one-step word problems involving multiplication of fractions using models to develop the algorithm.
5.NF.2.3 Solve one-step word problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions using area and length models, and equations to represent the problem.
5.NF.2.4 Gain familiarity with factors and multiples.
- Identify the greatest common factor
- Identify the least common multiple
- Use divisibility rules for $2,3,5,9$, and 10
- Identify prime and composite numbers.


## Chapter 8: 8-1 through 8-10

- 8-1 Model Multiplying Fractions-pp. 168-169
- 8-2 Multiply Fractions by Fractions-pp. 170-171
- 8-3 Multiply Fractions and Whole Numbers-pp. 172-173
- 8-4 Scaling Fractions-pp. 174-175
- 8-5 Common Factors in Products-pp. 176-177
- 8-6 Rename Mixed Numbers as Fractions-pp. 180-181
- 8-7 Estimate Products with Mixed Numbers-pp. 182-183
- 8-8 Multiply Fractions and Mixed Numbers-pp. 184-185
- 8-9 Multiply Mixed Numbers-pp. 186-187
- 8-10 Find the Area of a Rectangle—pp. 188-189


## Chapter 9: 9-1 through 9-7

- 9-1 Divide Whole Numbers by Unit Fractions-pp. 198-199
- 9-2 Reciprocals-pp. 200-201
- 9-3 Divide Whole Numbers by Fractions-pp. 202-203
- 9-4 Divide Unit Fractions by Whole Numbers-pp. 206-207
- 9-5 Divide Fractions by Whole Numbers—pp. 208-209
- 9-6 Word Problems Involving Fraction Division-pp. 210-211
- 9-7 Problem Solving: Choose a Strategy-pp. 212-213

Chapter 14: 14-1 \& 14-5

- 14-1 Relate Customary Units of Length—pp. 316-317
- 14-5 Relate Metric Units of Length-pp. 326-327


## Chapter 15: 15-5

- 15-5 Problem Solving: Use a Model—pp. 352-353 (area)


## Chapter 4: 4-5

- 4-5 Divisibility and Mental Math-pp. 76-77


## Chapter 5: 5-1 through 5-8

- 5-1 Factors, Primes and Composite Numbers-pp. 98-99
- 5-2 Common Factors-pp. 100-101
- 5-3 Estimation and Equivalent Fractions-pp. 102-103
- 5-4 Common Multiples and Common Denominators-pp. 106-107
- 5-5 Problem Solving: Make an Organized List-pp. 108-109
- 5-6 Fractions Greater Than or Equal to One-pp. 110-111
- 5-7 Compare and Order Fractions and Mixed Numbers-pp. 112-113
- 5-8 Interpret a Remainder-pp. 114-115


## Sadlier School

## MEASUREMENT AND DATA

## $5^{\text {th }}$ Grade Content Standards

## Sadlier Math, Grade 5

## Achievement Standard: 5.MD. 1 Convert like measurement units within a given measurement system.

5.MD.1.1 Given a conversion chart, use multiplicative reasoning to solve onestep conversion problems with a given measurement system.

- Understand the need for measuring and estimating with standard units in both the customary and metric systems.
- Carry out simple unit conversions, such as from centimeters to meters, within a system of measurement.


## 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

| Achievement Standard: 5.MD. 2 Represent and interpret data. |  |
| :---: | :---: |
| 5.MD.2.1 Represent and interpret data. |  |
| - Collect data by asking a question that yields data that changes over time. | See Grade 6 <br> Chapter 16: 16-1 through 16-6 <br> - 16-1 Statistical Questions-pp. 358-359 |
| - Make and interpret a representation of data using a line graph and dot (line) plot. | Chapter 17: 17-1, 17-2, 17-4 \& 17-6 <br> - 17-1 Line Plots with Whole Numbers and Decimals-pp. 380-381 <br> - 17-2 Line Plots with Fractions and Mixed Numbers-pp. 382-383 <br> - 17-4 Using Coordinate Graphs-pp. 388-389 <br> - 17-6 Graph Number Patterns-pp. 392-393 <br> See also Grade 4 <br> Chapter 15: 15-5 \& 15-6 <br> - 15-5 Line Graphs-pp. 334-335 <br> - 15-6 Line Plots-pp. 336-337 |
| - Determine whether a survey question will yield categorical or numerical data, or data that changes over time. | See Grade 6 <br> Chapter 16: 16-1 through 16-6 <br> - 16-1 Statistical Questions-pp. 358-359 |
| - Determine the measures of central tendency (range, median, mean, mode) for a given set of data. | See Grade 6 <br> Chapter 16: 16-2 through 16-4 <br> - 16-2 Measures of Center-pp. 360-361 <br> - 16-3 Measures of Variation: Range and Interquartile Range-pp. 362-363 <br> - 16-4 Measure of Variation: Mean Absolute Deviation-pp. 366-367 |

## Sadlier School

## MEASUREMENT AND DATA

## $5^{\text {th }}$ Grade Content Standards

| Achievement Standard: 5.MD. 3 Understand concepts of volume. |  |
| :---: | :---: |
| 5.MD.3.1 Recognize volume as an attribute of solid figures and measure volume by counting unit cubes, using cubic centimeters, cubic inches, cubic feet, and improvised units. | Chapter 16: 16-1 through 16-3 <br> 16-1 Solid Figures-pp. 360-361 <br> - 16-2 Cubic Measure-pp. 362-363 <br> - 16-3 Volume of Rectangular Prisms-pp. 364-365 |
| 5.MD.3.2 Relate volume to the operations of multiplication and addition. <br> - Find the volume of a rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths. <br> - Build understanding of the volume formula for rectangular prisms with whole-number edge lengths in the context of solving problems. <br> - Find volume of solid figures with onedigit dimensions composed of two nonoverlapping rectangular prisms. | Chapter 16: 16-3 through 16-6 <br> - 16-3 Volume of Rectangular Prisms-pp. 364-365 <br> - 16-4 Volume Formulas-pp. 368-369 <br> - 16-5 Volume of Composite Figures-pp. 370-371 <br> - 16-6 Problem Solving: Act it Out-pp. 372-373 |

## GEOMETRY

$5^{\text {th }}$ Grade Content Standards

## Sadlier Math, Grade 5

## Achievement Standard: 5.G.1 Understand the coordinate plane.

5.G.1.1 Graph points in the first quadrant of a coordinate plane, and identify and interpret the $x$ and $y$ coordinates to solve problems.

## Chapter 17: 17-3 through 17-7

- 17-3 The Coordinate Plane-pp. 386-387
- 17-4 Using Coordinate Graphs-pp. 388-389
- 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


## See also Grade 6

Chapter 9: 9-7 through 9-11

- 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


## GEOMETRY

## $5^{\text {th }}$ Grade Content Standards

## Sadlier Math, Grade 5

| Achievement Standard: 5.G.2 Classify quadrilaterals and their attributes and circles. |
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