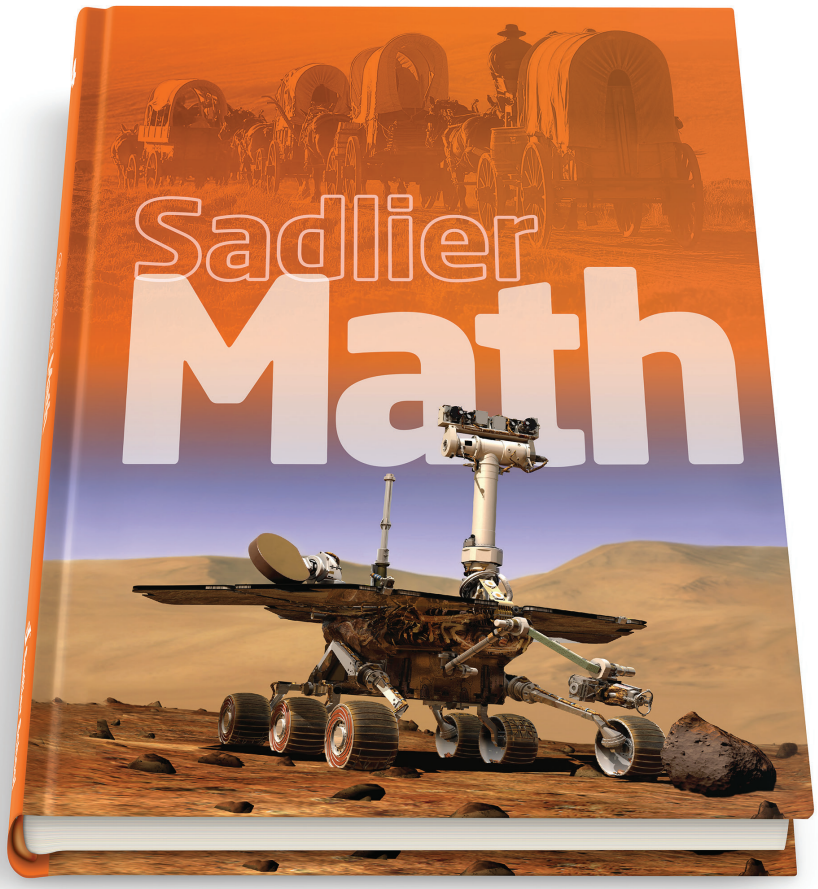
Sadlier Math™

Correlation to the Louisiana Student Standards for Mathematics

Grade 4



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OPERATIONS AND ALGEBRAIC THINKING 4.OA

Grade 4 Content Standards	*Sadlier Math*, Grade 4
A. Use the four operations with whole numbers to solve problems.	
1. Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5.	**Chapter 4: 4-5** **Chapter 5: 5-5**
2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and/or equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison (Example: 6 times as many vs. 6 more than)..	**Chapter 4: 4-5** **Chapter 5: 5-5** **Chapter 7: 7-6** **Chapter 8: 8-8**
3. Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. *Example: Twenty-five people are going to the movies. Four people fit in each car. How many cars are needed to get all 25 people to the theater at the same time?*	**Chapter 2: 2-1 through 2-3** **Chapter 3: 3-1 & 3-6** **Chapter 4: 4-4** **Chapter 7: 7-3** **Chapter 8: 8-1 & 8-3**
B. Gain familiarity with factors and multiples.	
4. Using whole numbers in the range 1–100,	
a. Find all factor pairs for a given whole number.	**Chapter 9: 9-2**
b. Recognize that a given whole number is a multiple of each of its factors.	**Chapter 9: 9-1, 9-2 & 9-4**

OPERATIONS AND ALGEBRAIC THINKING 4.OA

Grade 4 Content Standards	*Sadlier Math*, Grade 4
c. Determine whether a given whole number is a multiple of a given one-digit number.	**Chapter 9: 9-4**
d. Determine whether a given whole number is prime or composite.	**Chapter 9: 9-3**

C. Generate and analyze patterns.

5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*	**Chapter 7: 7-5** **Chapter 17: 17-5**

NUMBER AND OPERATIONS IN BASE TEN 4.NBT

Grade 4 Content Standards	*Sadlier Math*, Grade 4

A. Generalize place value understanding for multi-digit whole numbers.

1. Recognize that in a multi-digit whole number less than or equal to 1,000,000, a digit in one place represents ten times what it represents in the place to its right. *For example, (1) recognize that 700 ÷ 70 = 10; (2) in the number 7,246, the 2 represents 200, but in the number 7,426 the 2 represents 20, recognizing that 200 is ten times as large as 20, by applying concepts of place value and division.*	**Chapter 1: 1-2 & 1-3**

NUMBER AND OPERATIONS IN BASE TEN 4.NBT

Grade 4 Content Standards	*Sadlier Math*, Grade 4
2. Read and write multi-digit whole numbers less than or equal to 1,000,000 using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	**Chapter 1: 1-1 through 1-6**
3. Use place value understanding to round multi-digit whole numbers, less than or equal to 1,000,000, to any place.	**Chapter 1: 1-5**
B. Use place value understanding and properties of operations to perform multi-digit arithmetic.	
4. Fluently add and subtract multi-digit whole numbers using the standard algorithm.	**Chapter 2: 2-2, 2-4 through 2-6** **Chapter 3: 3-2 through 3-5**
5. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	**Chapter 4: 4-1 through 4-3** **Chapter 5: 5-1 through 5-5** **Chapter 6: 6-1 through 6-5** **Chapter 8: 8-7**
6. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	**Chapter 7: 7-1, 7-2 & 7-4** **Chapter 8: 8-1 through 8-7**

NUMBER AND OPERATIONS — FRACTIONS 4.NF

Grade 4 Content Standards	*Sadlier Math*, Grade 4
A. Extend understanding of fraction equivalence and ordering.	
1. Explain why a fraction *a/b* is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. (Denominators are limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100.)	**Chapter 10: 10-1 through 10-6**
2. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. (Denominators are limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100.)	**Chapter 10: 10-7 through 10-11**
B. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.	
3. Understand a fraction *a/b* with *a* > 1 as a sum of fractions 1/*b.* (Denominators are limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100.)	
a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. *Example: 3/4 = 1/4 + 1/4 + 1/4.*	**Chapter 11: 11-1 through 11-5**

NUMBER AND OPERATIONS — FRACTIONS 4.NF

Grade 4 Content Standards	*Sadlier Math*, Grade 4
b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. *Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.*	**Chapter 11: 11-2 through 11-4**
c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.	**Chapter 10: 10-9** **Chapter 11: 11-6 through 11-8**
d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	**Chapter 11: 11-1 through 11-5**
4. Multiply a fraction by a whole number. (Denominators are limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100.)	
a. Understand a fraction *a/b* as a multiple of 1/*b*. *For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).*	**Chapter 12: 12-1 through 12-4**
b. Understand a multiple of *a/b* as a multiple of 1/*b*, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)*	**Chapter 12: 12-1 through 12-5**

NUMBER AND OPERATIONS — FRACTIONS 4.NF

Grade 4 Content Standards	*Sadlier Math*, Grade 4
c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*	**Chapter 12: 12-1 through 12-7**
C. Understand decimal notation for fractions, and compare decimal fractions.	
5. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.[2] *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.*	**Chapter 13: 13-1 through 13-5**
6. Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram; represent 62/100 of a dollar as $0.62.*	**Chapter 13: 13-3 through 13-5**
7. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.	**Chapter 13: 13-6 & 13-7**

[2]Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.

MEASUREMENT AND DATA — 4.MD

Grade 4 Content Standards	*Sadlier Math*, Grade 4
A. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	
1. Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. *For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...*	**Chapter 14: 14-1 through 14-10**
2. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving whole numbers and/or simple fractions (addition and subtraction of fractions with like denominators and multiplying a fraction times a fraction[3] or a whole number), and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	**Chapter 14: 14-1 through 14-9** **Chapter 15: 15-1 through 15-3**
3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.*	**Chapter 17: 17-6 & 17-7**

[3]Students in Grade 4 will be assessed on multiplying a fraction and a whole number as indicated in the NF domain. Some students may be able to multiply a fraction by a fraction as a result of generating equivalent fractions; however, mastery of multiplying two fractions occurs in Grade 5.

MEASUREMENT AND DATA — 4.MD

Grade 4 Content Standards	*Sadlier Math*, Grade 4
B. Represent and interpret data.	
4. Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*	**Chapter 15: 15-6 & 15-7**
C. Geometric measurement: understand concepts of angle and measure angles.	
5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:	
a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.	**Chapter 16: 16-2**
b. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.	**Chapter 16: 16-2**
c. An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.	**Chapter 16: 16-1 & 16-2**
6. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	**Chapter 16: 16-1 through 16-3**

MEASUREMENT AND DATA 4.MD

Grade 4 Content Standards	*Sadlier Math*, Grade 4
7. Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.	**Chapter 16: 16-4**
D. Relate area to operations of multiplication and addition.	
8. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real-world problems.	**Chapter 17: 17-7**

GEOMETRY 4.G

Grade 4 Content Standards	*Sadlier Math*, Grade 4
A. Draw and identify lines and angles, and classify shapes by properties of their lines and angles.	
1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	**Chapter 16: 16-1 through 16-6**
2. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	**Chapter 17: 17-1 through 17-3**