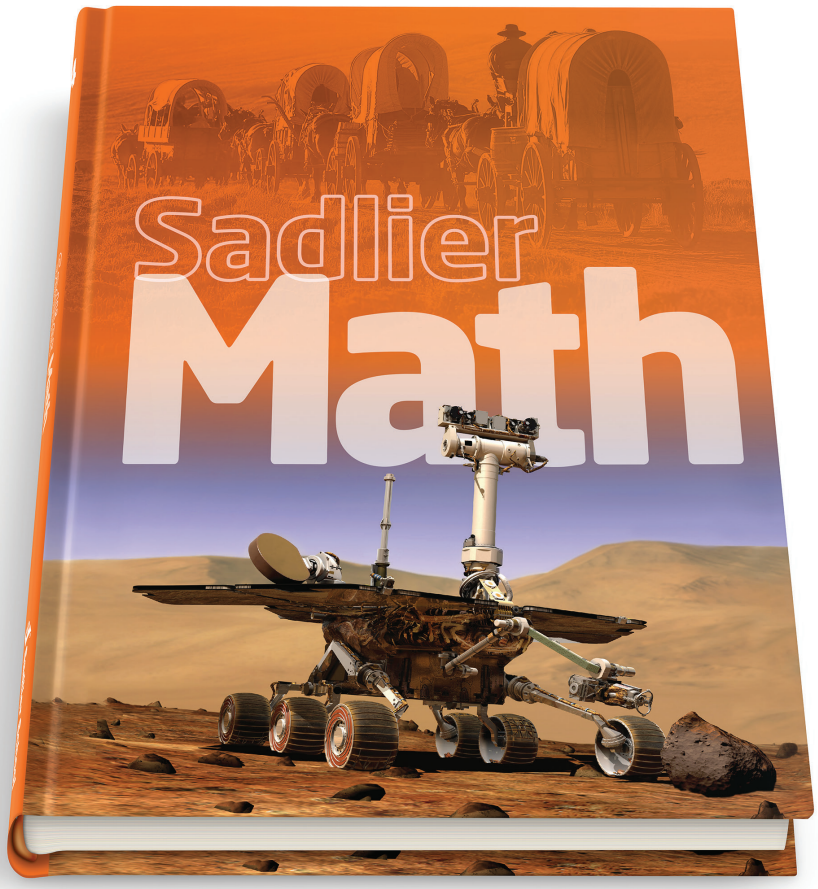
# *Sadlier Math*™

## Correlation to the Arizona Mathematics Standards

**Grade 4**

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## OPERATIONS AND ALGEBRAIC THINKING (OA)

| Fourth Grade Content Standards | *Sadlier Math*, Grade 4 |
|---|---|
| **4.OA.A Use the four operations with whole numbers to solve problems.** | |
| **4.OA.A.1** Represent verbal statements of multiplicative comparisons as multiplication equations. Interpret a multiplication equation as a comparison (e.g., 35 is the number of objects in 5 groups, each containing 7 objects, and is also the number of objects in 7 groups, each containing 5 objects). | **Chapter 4: 4-5**<br>**Chapter 5: 5-5** |
| **4.OA.A.2** Multiply or divide within 1000 to solve word problems involving multiplicative comparison (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison). | **Chapter 4: 4-5**<br>**Chapter 5: 5-5**<br>**Chapter 7: 7-6**<br>**Chapter 8: 8-8** |
| **4.OA.A.3** Solve multistep word problems using the four operations, including problems in which remainders must be interpreted. Understand how the remainder is a fraction of the divisor. Represent these problems using equations with a letter standing for the unknown quantity. | **Chapter 2: 2-1 through 2-3**<br>**Chapter 3: 3-1 & 3-6**<br>**Chapter 4: 4-4**<br>**Chapter 7: 7-3**<br>**Chapter 8: 8-1 & 8-3** |
| **4.OA.B Gain familiarity with factors and multiples.** | |
| **4.OA.B.4** Find all factor pairs for a whole number in the range 1 to 100 and understand that a whole number is a multiple of each of its factors. | **Chapter 9: 9-1 through 9-5** |
| **4.OA.C Generate and analyze patterns.** | |
| **4.OA.C.5** Generate a number pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself | **Chapter 7: 7-5**<br>**Chapter 17: 17-5** |

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## OPERATIONS AND ALGEBRAIC THINKING (OA)

| Fourth Grade Content Standards | *Sadlier Math*, Grade 4 |
|---|---|
| and explain the pattern informally (e.g., 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). | |
| **4.OA.C.6** When solving problems, assess the reasonableness of answers using mental computation and estimation strategies including rounding. | **Chapter 1: 1-5**<br>**Chapter 2: 2-3 through 2-5**<br>**Chapter 3: 3-1, 3-3 & 3-6**<br>**Chapter 6: 6-3 & 6-4**<br>**Chapter 4: 4-4**<br>**Chapter 7: 7-3**<br>**Chapter 10: 10-12** |

## NUMBER AND OPERATIONS IN BASE TEN (NBT)

*Note: Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.*

| Fourth Grade Content Standards | *Sadlier Math*, Grade 4 |
|---|---|
| **4.NBT.A Generalize place value understanding for multi-digit whole numbers.** | |
| **4.NBT.A.1** Apply concepts of place value, multiplication, and division to understand that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. | **Chapter 1: 1-2 & 1-3** |
| **4.NBT.A.2** Read and write multi-digit whole numbers 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** |
| **4.NBT.A.3** Use place value understanding to round multi-digit whole numbers to any place. | **Chapter 1: 1-5** |

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| Fourth Grade Content Standards | *Sadlier Math*, Grade 4 |
|---|---|
| **4.NBT.B Use place value understanding and properties of operations to perform multi-digit arithmetic.** | |
| **4.NBT.B.4** Fluently add and subtract multi-digit whole numbers using a standard algorithm. | **Chapter 2: 2-2, 2-4 through 2-6**<br>**Chapter 3: 3-2 through 3-5** |
| **4.NBT.B.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**<br>**Chapter 5: 5-1 through 5-5**<br>**Chapter 6: 6-1 through 6-5**<br>**Chapter 8: 8-7** |
| **4.NBT.B.6** Demonstrate understanding of division by finding whole-number quotients and remainders with up to four-digit dividends and one-digit divisors. | **Chapter 7: 7-1, 7-2 & 7-4**<br>**Chapter 8: 8-1 through 8-7** |

## NUMBER AND OPERATIONS — FRACTIONS (NF)

*Note: Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.*

| Fourth Grade Content Standards | *Sadlier Math*, Grade 4 |
|---|---|
| **4.NF.A Extend understanding of fraction equivalence and ordering.** | |
| **4.NF.A.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. | **Chapter 10: 10-1 through 10-6** |

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| Fourth Grade Content Standards | *Sadlier Math*, Grade 4 |
|---|---|
| **4.NF.A.2** Compare two fractions with different numerators and different denominators (e.g., by creating common denominators or numerators and by comparing to a benchmark fraction). | |
| a. Understand that comparisons are valid only when the two fractions refer to the same size whole. | **Chapter 10: 10-7 through 10-11** |
| b. Record the results of comparisons with symbols >, =, or <, and justify the conclusions. | **Chapter 10: 10-7 through 10-11** |
| **4.NF.B Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.** | |
| **4.NF.B.3** Understand a fraction *a*/*b* with *a* > 1 as a sum of fractions 1/*b*. | |
| a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. | **Chapter 11: 11-1 through 11-5** |
| b. Decompose a fraction into a sum of fractions with the same denominator in more than one way (e.g., 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 2/8 + 1/8 ; 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 using properties of operations and the relationship between addition and subtraction and/or by replacing each mixed number with an equivalent fraction). | **Chapter 10: 10-9**<br>**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. | **Chapter 11: 11-1 through 11-5** |

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| Fourth Grade Content Standards | *Sadlier Math*, Grade 4 |
|---|---|
| **4.NF.B.4** Build fractions from unit fractions. | |
| a. Understand a fraction $\frac{a}{b}$ as a multiple of a unit fraction $\frac{1}{b}$. In general, $\frac{a}{b} = a \times \frac{1}{b}$. | **Chapter 12: 12-1 through 12-4** |
| b. Understand a multiple of $\frac{a}{b}$ as a multiple of a unit fraction $\frac{1}{b}$, and use this understanding to multiply a whole number by a fraction. In general, $n \times \frac{a}{b} = \frac{n \times a}{b}$. | **Chapter 12: 12-1 through 12-5** |
| c. Solve word problems involving multiplication of a whole number by a fraction. *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** |
| **4.NF.C Understand decimal notation for fractions, and compare decimal fractions.** | |
| **4.NF.C.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 (tenths) and 100 (hundredths). *For example, express 3/10 as 30/100, and and 3/10 + 4/100 = 34/100.* (Note: 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.) | **Chapter 13: 13-1 through 13-5** |

## NUMBER AND OPERATIONS — FRACTIONS (NF)

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| Fourth Grade Content Standards | *Sadlier Math*, Grade 4 |
|---|---|
| **4.NF.C.6** Use decimal notation for fractions with denominators 10 (tenths) or 100 (hundredths), and locate these decimals on a number line. | **Chapter 13: 13-3 through 13-5** |
| **4.NF.C.7** Compare two decimals to hundredths by reasoning about their size. Understand that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <. | **Chapter 13: 13-6 & 13-7** |

## MEASUREMENT AND DATA (MD)

| Fourth Grade Content Standards | *Sadlier Math*, Grade 4 |
|---|---|
| **4.MD.A Solve problems involving measurement and conversion of measurements.** | |
| **4.MD.A.1** Know relative sizes of measurement units within one system of units which could include 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 and in a smaller unit in terms of a larger unit. *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** |
| **4.MD.A.2** Use the four operations to solve word problems and problems in real-world context involving distances, intervals of time (hr, min, sec), liquid volumes, masses of objects, and money, including decimals and problems involving fractions with like denominators, and problems that require expressing measure- | **Chapter 14: 14-1 through 14-9**<br>**Chapter 15: 15-1 through 15-3** |

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## MEASUREMENT AND DATA (MD)

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|---|---|
| ments given in a larger unit in terms of a smaller unit. Represent measurement quantities using a variety of representations, including number lines that feature a measurement scale. | |
| **4.MD.A.3** Apply the area and perimeter formulas for rectangles in mathematical problems and problems in real-world contexts including problems with unknown side lengths. | **Chapter 17: 17-6 & 17-7** |
| **4.MD.B Represent and interpret data.** | |
| **4.MD.B.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. | **Chapter 15: 15-6 & 15-7** |
| **4.MD.C Geometric measurement: Understand concepts of angle and measure angles.** | |
| **4.MD.C.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 *n* one-degree angles is said to have an angle measure of *n* degrees. | **Chapter 16: 16-1 & 16-2** |
| **4.MD.C.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 (MD)

| Fourth Grade Content Standards | *Sadlier Math*, Grade 4 |
|---|---|
| **4.MD.C.7** Understand angle measures 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 within mathematical problems as well as problems in real-world contexts. | **Chapter 16: 16-4** |

## GEOMETRY (G)

| Fourth Grade Content Standards | *Sadlier Math*, Grade 4 |
|---|---|
| **4.G.A Draw and identify lines and angles, and classify shapes by properties of their lines and angles.** | |
| **4.G.A.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** |
| **4.G.A.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 (e.g., understand right triangles as a category, and identify right triangles). | **Chapter 17: 17-1 through 17-3** |
| **4.G.A.3** Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. | **Chapter 17: 17-4** |