Sadlier Math™

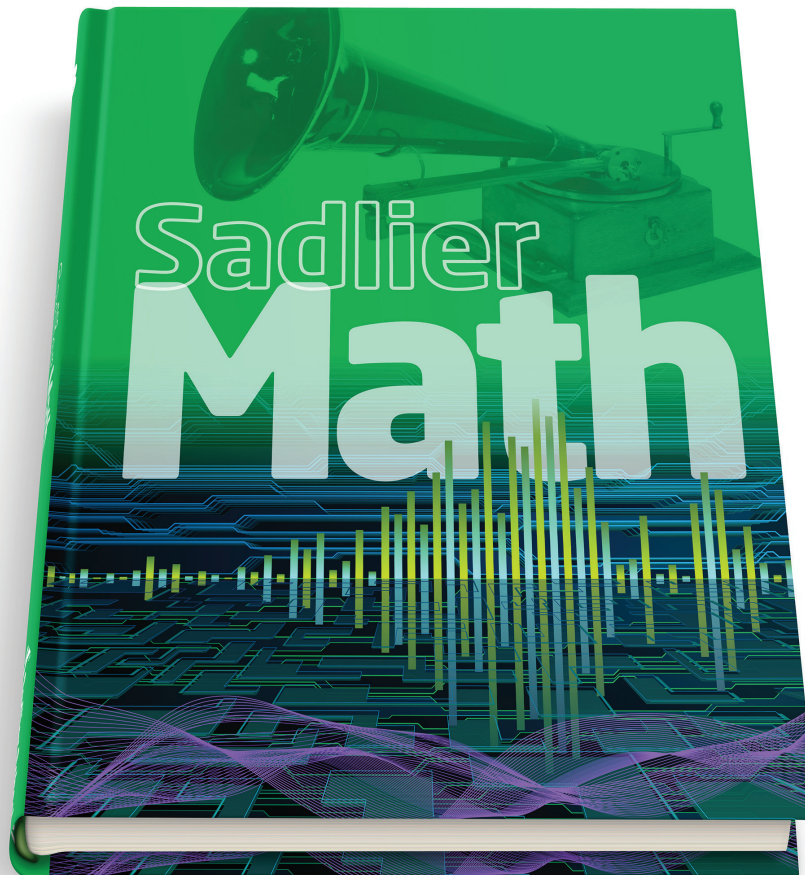## Correlation to the Arizona Mathematics Standards

Grade 3

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OPERATIONS AND ALGEBRAIC THINKING (OA)

Note: Grade 3 expectations in this domain are limited to whole number multiplication through 10 x 10 and whole number division with both quotients and divisors less than or equal to 10.

Third Grade Content Standards	*Sadlier Math*, Grade 3
3.OA.A Represent and solve problems involving multiplication and division.	
3.OA.A.1 Interpret products of whole numbers as the total number of objects in equal groups (e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each).	**Chapter 4: 4-1 through 4-3, 4-7** **Chapter 5: 5-1 through 5-4** **Chapter 6: 6-2 through 6-6** **Chapter 8: 8-7 & 8-8**
3.OA.A.2 Interpret whole number quotients of whole numbers (e.g., interpret $56 \div 8$ as the number of objects in each group when 56 objects are partitioned equally into 8 groups, or as a number of groups when 56 objects are partitioned into equal groups of 8 objects each).	**Chapter 4: 4-5 & 4-6** **Chapter 7: 7-2 through 7-5** **Chapter 8: 8-1 through 8-8**
3.OA.A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities.	**Chapter 4: 4-1 through 4-7** **Chapter 5: 5-1 through 5-5, 5-7 & 5-8** **Chapter 6: 6-1 through 6-9** **Chapter 7: 7-1 through 7-6** **Chapter 8: 8-1 through 8-5, 8-8**
3.OA.A.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 \times \square = 48$, $5 = \square \div 3$, $6 \times 6 = \square$.	**Chapter 5: 5-7** **Chapter 6: 6-6 & 6-9** **Chapter 7: 7-1**
3.OA.B Understand properties of multiplication and the relationship between multiplication and division.	
3.OA.B.5 Apply properties of operations as strategies to multiply and divide. Properties include commutative and associative properties of multiplication and the distributive property. (Students do not need to use the formal terms for these properties.)	**Chapter 4: 4-4** **Chapter 5: 5-4** **Chapter 6: 6-1 through 6-9**

OPERATIONS AND ALGEBRAIC THINKING (OA)

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Third Grade Content Standards	*Sadlier Math*, Grade 3
3.OA.B.6 Understand division as an unknown-factor problem (e.g., find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8).	**Chapter 7: 7-1 through 7-6** **Chapter 8: 8-1 through 8-8**

3.OA.C Multiply and divide within 100.

3.OA.C.7 Fluently multiply and divide within 100. By the end of Grade 3, know from memory all multiplication products through 10 x 10 and division quotients when both the quotient and divisor are less than or equal to 10.	**Chapter 5: 5-1 through 5-7** **Chapter 6: 6-1 through 6-11** **Chapter 7: 7-1 through 7-5** **Chapter 8: 8-1 through 8-9**

3.OA.D Solve problems involving the four operations, and identify and explain patterns in arithmetic

3.OA.D.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Utilize understanding of the Order of Operations when there are no parentheses.	**Chapter 2: 2-8** **Chapter 6: 6-8** **Chapter 8: 8-6**
3.OA.D.9 Identify patterns in the addition table and the multiplication table and explain them using properties of operations (e.g. observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends).	**Chapter 2: 2-2** **Chapter 5: 5-5 & 5-6** **Chapter 6: 6-10**
3.OA.D.10 When solving problems, assess the reasonableness of answers using mental computation and estimation strategies including rounding.	**Chapter 1: 1-4 through 1-6** **Chapter 2: 2-3, 2-5 & 2-7** **Chapter 3: 3-1, 3-4 through 3-6**

NUMBER AND OPERATIONS IN BASE TEN (NBT)
Note: A range of algorithms may be used.

Third Grade Content Standards	*Sadlier Math*, Grade 3

3.NBT.A Use place value understanding and properties of operations to perform multi-digit arithmetic.

3.NBT.A.1 Use place value understanding to round whole numbers to the nearest 10 or 100.	**Chapter 1: 1-4 & 1-5**
3.NBT.A.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	**Chapter 1: 1-6** **Chapter 2: 2-1, 2-3 through 2-7** **Chapter 3: 3-1 through 3-6**
3.NBT.A.3 Multiply one-digit whole numbers by multiples of 10 in the range 10 to 90 using strategies based on place value and the properties of operations (e.g., 9 x 80, 5 x 60).	**Chapter 6: 6-11**

NUMBER AND OPERATIONS — FRACTIONS (NF)
Note: Grade 3 expectations are limited to fractions with denominators: 2, 3, 4, 6, 8.

Third Grade Content Standards	*Sadlier Math*, Grade 3

3.NF.A Develop understanding of fractions as numbers.

3.NF.A.1 Understand a fraction ($1/b$) as the quantity formed by one part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.	**Chapter 9: 9-1, 9-2 & 9-4**
3.NF.A.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram.	
a. Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Understand that each part has size $1/b$ and that the endpoint of the part based *continued*	**Chapter 9: 9-3**

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NUMBER AND OPERATIONS — FRACTIONS (NF)

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Third Grade Content Standards	*Sadlier Math*, Grade 3
at 0 locates the number 1/*b* on the number line.	
b. Represent a fraction *a/b* on a number line diagram by marking off *a* lengths 1/*b* from 0. Understand that the resulting interval has size *a/b* and that its endpoint locates the number *a/b* on the number line including values greater than 1.	**Chapter 9: 9-5**
c. Understand a fraction 1/*b* as a special type of fraction that can be referred to as a unit fraction (e.g. 1/2, 1/4).	**Chapter 9: 9-2 & 9-3**
3.NF.A.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.	
a. Understand two fractions as equivalent if they have the same relative size compared to 1 whole.	**Chapter 10: 10-2 & 10-3**
b. Recognize and generate simple equivalent fractions. Explain why the fractions are equivalent.	**Chapter 10: 10-2 & 10-3**
c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.	**Chapter 9: 9-6** **Chapter 10: 10-1**
d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Understand that comparisons are valid only when the two fractions refer to the same whole. Record results of comparisons with the symbols >, =, or <, and justify conclusions.	**Chapter 10: 10-4 through 10-6**

MEASUREMENT AND DATA (MD)

Third Grade Content Standards	*Sadlier Math*, Grade 3
3.MD.A Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.	
3.MD.A.1a Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes (e.g., representing the problem on a number line diagram).	**Chapter 13: 13-1 through 13-4**
3.MD.A.1b Solve word problems involving money through $20.00, using symbols $, ".", ¢.	**Chapter 2: 2-5** **Chapter 3: 3-1 & 3-6** **Chapter 4: 4-6** **Chapter 6: 6-2, 6-5, 6-7 & 6-8** **Chapter 8: 8-6 & 8-8** See also Grade 2 **Chapter 12: 12-1 through 12-8**
3.MD.A.2 Measure and estimate liquid volumes and masses of objects using metric units. (Excludes compound units such as cm³ and finding the geometric volume of a container.) Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units. Excludes multiplicative comparison problems (problems involving notions of "times as much").	**Chapter 11: 11-2 through 11-5**
3.MD.B Represent and interpret data.	
3.MD.B.3 Create a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.	**Chapter 12: 12-1 through 12-5**

MEASUREMENT AND DATA (MD)

Third Grade Content Standards	*Sadlier Math*, Grade 3
3.MD.B.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch to the nearest quarter-inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.	**Chapter 12: 12-7 & 12-8**

3.MD.C Geometric measurement: Understand concepts of area and perimeter.

3.MD.C.5 Understand area as an attribute of plane figures and understand concepts of area measurement.	
a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.	**Chapter 15: 15-1**
b. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.	**Chapter 15: 15-1**
3.MD.C.6 Measure areas by counting unit squares (e.g., square cm, square m, square in, square ft, and improvised units).	**Chapter 15: 15-1 through 15-3**
3.MD.C.7 Relate area to the operations of multiplication and addition.	
a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.	**Chapter 15: 15-3**
b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real-world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.	**Chapter 15: 15-3**

MEASUREMENT AND DATA (MD)

Third Grade Content Standards	*Sadlier Math*, Grade 3
c. Use tiling to show that the area of a rectangle with whole-number side lengths *a* and *b + c* is the sum of *a × b* and *a × c*. Use area models to represent the distributive property in mathematical reasoning.	**Chapter 15: 15-4**
d. Understand that rectilinear figures can be decomposed into non-overlapping rectangles and that the sum of the areas of these rectangles is identical to the area of the original rectilinear figure. Apply this technique to solve problems in real-world contexts.	**Chapter 15: 15-5**
3.MD.C.8 Solve real-world and mathematical problems involving perimeters of plane figures and areas of rectangles, including finding the perimeter given the side lengths, finding an unknown side length. Represent rectangles with the same perimeter and different areas or with the same area and different perimeters.	**Chapter 16: 16-1 through 16-6**

GEOMETRY (G)

Third Grade Content Standards	*Sadlier Math*, Grade 3
3.G.A Reason with shapes and their attributes.	
3.G.A.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others)may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples quadrilaterals that do not belong to any of these subcategories.	**Chapter 14: 14-1 through 14-3**

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GEOMETRY (G)

Third Grade Content Standards	*Sadlier Math*, Grade 3
3.G.A.2 Partition shapes into *b* parts with equal areas. Express the area of each part as a unit fraction 1/*b* of the whole. (Grade 3 expectations are limited to fractions with denominators *b* = 2, 3, 4, 6, 8.)	**Chapter 9: 9-1 & 9-2** **Chapter 15: 15-2**