Sadlier Math™

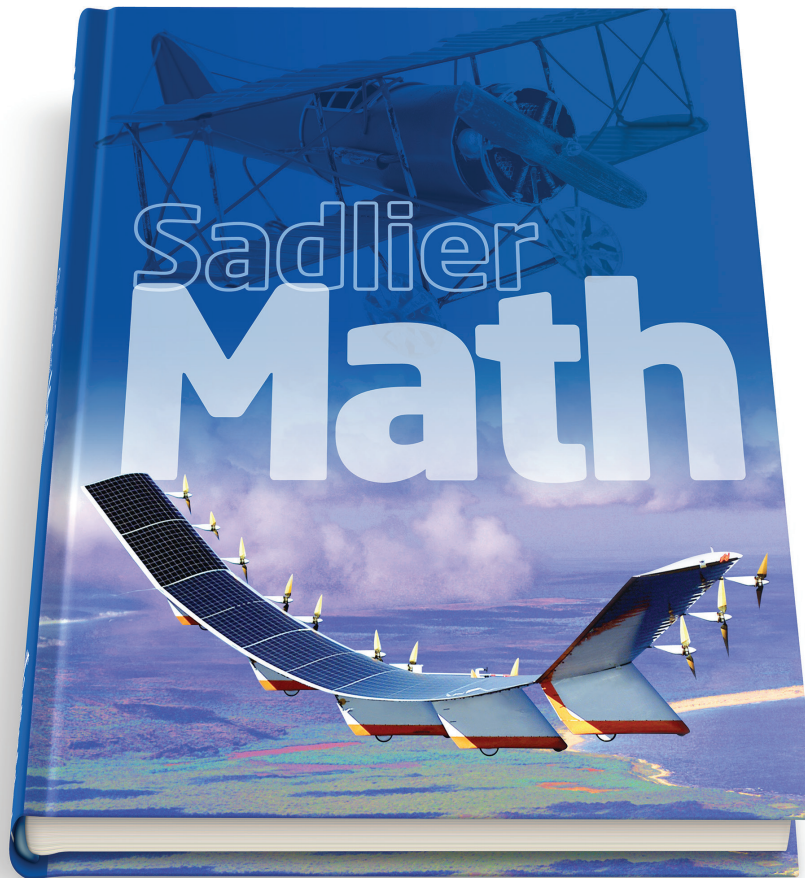## Correlation to the Arizona Mathematics Standards

Grade 5

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OPERATIONS AND ALGEBRAIC THINKING (OA)

Fifth Grade Content Standards	*Sadlier Math*, Grade 5

5.OA.A Write and interpret numerical expressions.

5.OA.A.1 Use parentheses and brackets in numerical expressions, and evaluate expressions with these symbols (Order of Operations).	**Chapter 2: 2-2** **Chapter 3: 3-1** **Chapter 4: 4-10 & 4-11** **Chapter 7: 7-2** **Chapter 12: 12-7 & 12-8**
5.OA.A.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them (e.g., express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$. Recognize that $3 \times (18,932 + 921)$ is three times as large as $18,932 + 921$, without having to calculate the indicated sum or product).	**Chapter 1: 1-5 through 1-7** **Chapter 3: 3-2 & 3-3** **Chapter 4: 4-10 & 4-11**

5.OA.B Analyze patterns and relationships.

5.OA.B.3 Generate two numerical patterns using two given rules (e.g., generate terms in the resulting sequences). Identify and explain the apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane (e.g., given the rule "add 3" and the starting number 0, and given the rule "add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence).	**Chapter 17: 17-5 through 17-7**
5.OA.B.4 Understand primes have only two factors and decompose numbers into prime factors.	**Chapter 5: 5-1**

NUMBER AND OPERATIONS IN BASE TEN (NBT)

Fifth Grade Content Standards	*Sadlier Math*, Grade 5
5.NBT.A Understand the place value system.	
5.NBT.A.1 Apply concepts of place value, multiplication, and division to understand 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.	**Chapter 1: 1-1, 1-2 & 1-4**
5.NBT.A.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10.	**Chapter 1: 1-3 & 1-4** **Chapter 12: 12-1** **Chapter 13: 13-1**
5.NBT.A.3 Read, write, and compare decimals to thousandths.	
a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.	**Chapter 2: 2-1**
b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	**Chapter 2: 2-3** **Chapter 13: 13-3 through 13-5**
5.NBT.A.4 Use place value understanding to round decimals to any place.	**Chapter 2: 2-4 through 2-6** **Chapter 10: 10-3** **Chapter 11: 11-2**
5.NBT.B Perform operations with multi-digit whole numbers and with decimals to hundredths.	
5.NBT.B.5 Fluently multiply multi-digit whole numbers using the standard algorithm.	**Chapter 3: 3-4 through 3-8**
5.NBT.B.6 Apply and extend understanding of division to find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors.	**Chapter 4: 4-1 through 4-9**

NUMBER AND OPERATIONS IN BASE TEN (NBT)

Fifth Grade Content Standards	*Sadlier Math*, Grade 5
5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, connecting objects or drawings to strategies based on place value, properties of operations, and/or the relationship between operations. Relate the strategy to a written form.	**Chapter 10: 10-1 through 10-7** **Chapter 11: 11-1 through 11-6** **Chapter 12: 12-2 through 12-9** **Chapter 13: 13-1, 13-2, 13-5 through 13-10**

NUMBER AND OPERATIONS — FRACTIONS (NF)

Fifth Grade Content Standards	*Sadlier Math*, Grade 5
5.NF.A Use equivalent fractions as a strategy to add and subtract fractions.	
5.NF.A.1 Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators (e.g., 2/3 + 5/4 = 8/12 + 15/12 = 23/12).	**Chapter 6: 6-1 through 6-6** **Chapter 7: 7-1, 7-2, 7-4, 7-6 through 7-8**
5.NF.A.2 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators by using a variety of representations, equations, and visual models to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers (e.g. recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2).	**Chapter 6: 6-1 through 6-6** **Chapter 7: 7-1 through 7-3, 7-5, 7-7 through 7-9** **Chapter 8: 8-11** **Chapter 9: 9-6**
5.NF.B Use previous understandings of multiplication and division to multiply and divide fractions.	
5.NF.B.3 Interpret a fraction as the number that results from dividing the whole number numerator by the whole number denominator *continued*	**Chapter 5: 5-8** **Chapter 8: 8-6 & 8-7**

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NUMBER AND OPERATIONS — FRACTIONS (NF)

Fifth Grade Content Standards	*Sadlier Math*, Grade 5
(*a/b* = *a* ÷ *b*). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers. *For example, interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people, each person has a share of size 3/4. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?*	
5.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number and a fraction by a fraction.	
a. Interpret the product (*a/b*) × *q* as *a* parts of a partition of *q* into *b* equal parts; equivalently, as the result of a sequence of operations *a* × *q* ÷ *b*. *For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this equation.*	**Chapter 8: 8-1 through 8-3, 8-5, 8-8 & 8-9**
b. Interpret the product of a fraction multiplied by a fraction *(a/b) × (c/d)*. Use a visual fraction model and create a story context for this equation. *For example, use a visual fraction model to show (2/3) × (4/5) = 8/15, and create a story context for this equation. In general, (a/b) × (c/d) = ac/bd.)*	**Chapter 8: 8-1 & 8-2**
c. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	**Chapter 8: 8-10**

NUMBER AND OPERATIONS — FRACTIONS (NF)

Fifth Grade Content Standards	*Sadlier Math*, Grade 5
5.NF.B.5 Interpret multiplication as scaling (resizing), by:	
a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.	**Chapter 8: 8-4**
b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $\frac{a}{b} = \frac{n \times a}{n \times b}$ to the effect of multiplying $\frac{a}{b}$ by 1.	**Chapter 8: 8-4**
5.NF.B.6 Solve problems in real-world contexts involving multiplication of fractions, including mixed numbers, by using a variety of representations including equations and models.	**Chapter 8: 8-2, 8-3 & 8-11** **Chapter 9: 9-6**
5.NF.B.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.	
a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. Use the relationship between multiplication and division to justify conclusions.	**Chapter 9: 9-4 & 9-5**
b. Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship* *continued*	**Chapter 9: 9-1 through 9-3**

NUMBER AND OPERATIONS — FRACTIONS (NF)

Fifth Grade Content Standards	*Sadlier Math*, Grade 5
between multiplication and division to justify conclusions (e.g., 4 ÷ (1/5) = 20 because 20 x (1/5) = 4).	
c. Solve problems in real-world context involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, using a variety of representations.	**Chapter 9: 9-6 & 9-7**

MEASUREMENT AND DATA (MD)

Fifth Grade Content Standards	*Sadlier Math*, Grade 5
5.MD.A Convert like measurement units within a given measurement system.	
5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system, and use these conversions in solving multi-step, real-world problems.	**Chapter 14: 14-1 through 14-9**
5.MD.B Represent and interpret data.	
5.MD.B.2 Make a line plot to display a data set of measurements in fractions of a unit (1/8, 1/2, 3/4). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*	**Chapter 17: 17-1 & 17-2**

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MEASUREMENT AND DATA (MD)

Fifth Grade Content Standards	**_Sadlier Math_, Grade 5**
5.MD.C Geometric measurement: understand concepts of volume.	
5.MD.C.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement.	
a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.	**Chapter 16: 16-1 through 16-3**
b. A solid figure which can be packed without gaps or overlaps using _n_ unit cubes is said to have a volume of _n_ cubic units.	**Chapter 16: 16-2 & 16-3**
5.MD.C.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	**Chapter 16: 16-2 & 16-3**
5.MD.C.5 Relate volume to the operations of multiplication and addition and solve mathematical problems and problems in real-world contexts involving volume.	
a. Find the volume of a right 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, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes (e.g., to represent the associative property of multiplication).	**Chapter 16: 16-3 & 16-6**
b. Understand and use the formulas $V = l \times w \times h$ and $V = b \times h$, where in this case B is the area of the base ($B = l \times w$), for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths to solve mathematical problems and problems in real-world contexts.	**Chapter 16: 16-4**

MEASUREMENT AND DATA (MD)

Fifth Grade Content Standards	*Sadlier Math*, Grade 5
c. Understand volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms, applying this technique to solve mathematical problems and problems in real-world contexts.	**Chapter 16: 16-5**

GEOMETRY (G)

Fifth Grade Content Standards	*Sadlier Math*, Grade 5
5.G.A Graph points on the coordinate plane to solve mathematical problems as well as problems in real-world context.	
5.G.A.1 Understand and describe a coordinate system as perpendicular number lines, called axes, that intersect at the origin (0 , 0). Identify a given point in the first quadrant of the coordinate plane using an ordered pair of numbers, called coordinates. Understand that the first number (x) indicates the distance traveled on the horizontal axis, and the second number (y) indicates the distance traveled on the vertical axis.	**Chapter 17: 17-3**
5.G.A.2 Represent real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	**Chapter 17: 17-4**
5.G.B Classify two-dimensional figures into categories based on their properties.	
5.G.B.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.	**Chapter 15: 15-1 through 15-5**
5.G.B.4 Classify two-dimensional figures in a hierarchy based on properties.	**Chapter 15: 15-2, 15-4 & 15-5**