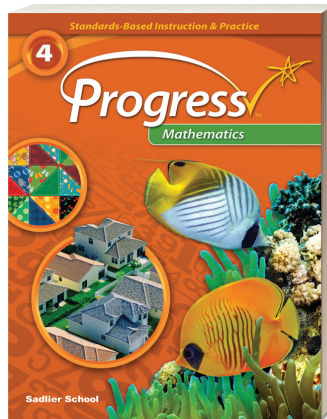SADLIER

Progress
Mathematics
Standards-Based Instruction & Practice

Aligned to the

Mathematics Florida Standards (MAFS)

Grade 4

Contents

Sadlier

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Domain: **Operations and Algebraic Thinking**

STANDARDS	SADLIER *PROGRESS MATHEMATICS*, GRADE 4
Cluster 1: Use the four operations with whole numbers to solve problems. (MAJOR CLUSTER)	
MAFS.4.OA.1.1 Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations. *Cognitive Complexity:* Level 1: Recall	**Lesson 1** **Interpret Multiplication Equations as Comparisons**—pp. 10–17
MAFS.4.OA.1.2 Multiply or divide 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. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	**Lesson 2** **Problem Solving: Use Multiplication and Division to Make Comparisons**—pp. 18–25
MAFS.4.OA.1.3 Solve multistep 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. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	**Lesson 3** **Problem Solving: Multistep Problems**—pp. 26–33
MAFS.4.OA.1.a* (*new standard) Determine whether an equation is true or false by using comparative relational thinking. *For example, without adding 60 and 24, determine whether the equation 60 + 24 = 57 + 27 is true or false.*	Online at SadlierConnect.com
MAFS.4.OA.1.b* (*new standard) Determine the unknown whole number in an equation relating four whole numbers using comparative relational thinking. *For example, solve 76 + 9 = n + 5 for n by arguing that nine is four more than five, so the unknown number must be four greater than 76.*	Online at SadlierConnect.com

Domain: **Operations and Algebraic Thinking**

STANDARDS			SADLIER *PROGRESS MATHEMATICS*, GRADE 4
Cluster 2: Gain familiarity with factors and multiples. (SUPPORTING CLUSTER)			
MAFS.4.OA.2.4* (*amended standard)	Investigate factors and multiples. *Cognitive Complexity*: Level 2: Basic Application of Skills & Concepts		
	a.	Find all factor pairs for a whole number in the range 1–100.	**Lesson 4** **Find Factors and Multiples for Whole Numbers**—pp. 34–41
	b.	Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number.	**Lesson 4** **Find Factors and Multiples for Whole Numbers**—pp. 34–41
	c.	Determine whether a given whole number in the range 1–100 is prime or composite.	**Lesson 4** **Find Factors and Multiples for Whole Numbers**—pp. 34–41
Cluster 3: Generate and analyze patterns. (ADDITIONAL CLUSTER)			
MAFS.4.OA.2.3	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.* *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts		**Lesson 5** **Generate and Analyze Number and Shape Patterns**—pp. 42–49

Domain: **Number and Operations in Base Ten**

STANDARDS	SADLIER *PROGRESS MATHEMATICS*, GRADE 4
Cluster 1: Generalize place value understanding for multi-digit whole numbers. (MAJOR CLUSTER)	
MAFS.4.NBT.1.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.* *Cognitive Complexity:* Level 1: Recall	**Lesson 6** **Understand Place Value of Whole Numbers**—pp. 56–63
MAFS.4.NBT.1.2 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. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	**Lesson 7** **Read, Write, and Compare Whole Numbers**—pp. 64–71
MAFS.4.NBT.1.3 Use place value understanding to round multi-digit whole numbers to any place. *Cognitive Complexity:* Level 1: Recall	**Lesson 8** **Apply Place Value to Round Whole Numbers**—pp. 72–79
Cluster 2: Use place value understanding and properties of operations to perform multi-digit arithmetic. (MAJOR CLUSTER)	
MAFS.4.NBT.2.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm. *Cognitive Complexity:* Level 1: Recall	**Lesson 9** **Add and Subtract Fluently with Whole Numbers**—pp. 80–87
MAFS.4.NBT.2.5 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. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	**Lesson 10** **Multiply Whole Numbers: Use Place Value**—pp. 88–95

Domain: **Number and Operations in Base Ten**

STANDARDS		SADLIER *PROGRESS MATHEMATICS*, GRADE 4	
MAFS.4.NBT.2.6	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. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	**Lesson 11**	**Multiply Whole Numbers: Use Properties of Operations**—pp. 96–103
		Lesson 12	**Divide Whole Numbers: Use Place Value**—pp. 104–111
		Lesson 13	**Divide Whole Numbers: Use Properties of Operations**—pp. 112–119

Domain: **Number and Operations—Fractions**

STANDARDS		SADLIER *PROGRESS MATHEMATICS*, GRADE 4	
Cluster 1: Extend understanding of fraction equivalence and ordering. (MAJOR CLUSTER)			
MAFS.4.NF.1.1	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. *Cognitive Complexity:* Level 3: Strategic Thinking & Complex Reasoning	**Lesson 14**	**Understand Equivalent Fractions**—pp. 126–133
		Lesson 15	**Write Equivalent Fractions**—pp. 134–141
MAFS.4.NF.1.2	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. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	**Lesson 16**	**Compare Two Fractions**—pp. 142–149

Domain: **Number and Operations—Fractions**

STANDARDS	SADLIER *PROGRESS MATHEMATICS*, GRADE 4
Cluster 2: Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. (MAJOR CLUSTER)	
MAFS.4.NF.2.3 — Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	
a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.	**Lesson 17** **Add and Subtract Fractions with Like Denominators**—pp. 150–157
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.*	**Lesson 18** **Decompose a Fraction as a Sum of Fractions**—pp. 158–165
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.	**Lesson 19** **Add and Subtract Mixed Numbers with Like Denominators**—pp. 166–173
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.	**Lesson 20** **Problem Solving: Add and Subtract Fractions**—pp. 174–181
MAFS.4.NF.2.4 — Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	
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).*	**Lesson 21** **Multiply Unit Fractions by Whole Numbers**—pp. 182–189

Domain: **Number and Operations—Fractions**

STANDARDS		SADLIER *PROGRESS MATHEMATICS*, GRADE 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. 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. *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.)*	**Lesson 22** **Multiply Fractions by Whole Numbers**—pp. 190–197
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?*	**Lesson 23** **Problem Solving: Multiply Fractions by Whole Numbers**—pp. 198–205

Cluster 3: Understand decimal notation for fractions, and compare decimal fractions.
(MAJOR CLUSTER)

STANDARDS		SADLIER *PROGRESS MATHEMATICS*, GRADE 4
MAFS.4.NF.3.5	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. *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.* *Cognitive Complexity:* Level 1: Recall	**Lesson 24** **Add Fractions: Denominators of 10 and 100**—pp. 206–213
MAFS.4.NF.3.6	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.* *Cognitive Complexity:* Level 1: Recall	**Lesson 25** **Write and Compare Decimal Fractions**—pp. 214–221
MAFS.4.NF.3.7	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 *– continued on next page –*	**Lesson 25** **Write and Compare Decimal Fractions**—pp. 214–221

Domain: **Number and Operations—Fractions**

STANDARDS	SADLIER *PROGRESS MATHEMATICS*, GRADE 4

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symbols >, =. or <, and justify the
conclusions, e.g., by using a visual model.

Cognitive Complexity: Level 2: Basic
Application of Skills & Concepts

Domain: **Measurement and Data**

STANDARDS	SADLIER *PROGRESS MATHEMATICS*, GRADE 4

Cluster 1: Solve problems involving
measurement and conversion of measurements
from a larger unit to a smaller unit.
(SUPPORTING CLUSTER)

MAFS.4.MD.1.1	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), . . .* *Cognitive Complexity:* Level 1: Recall	**Lesson 26**	**Convert Customary Measurement Units**—pp. 234–241
		Lesson 27	**Convert Metric Measurement Units**—pp. 242–249
MAFS.4.MD.1.2* (*amended standard)	Use the four operations to solve word problems[1] involving distances, intervals of time, and money, including problems involving simple fractions or decimals[2]. Represent fractional quantities of distance and intervals of time using linear models. ([1]See glossary Table 1 and Table 2) ([2]Computational fluency with fractions and decimals is not the goal for students at this grade level.) *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	**Lesson 28**	**Problem Solving: Measurement**—pp. 250–257
MAFS.4.MD.1.3	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*	**Lesson 29**	**Problem Solving: Apply Area and Perimeter Formulas**—pp. 258–265

Domain: **Measurement and Data**

STANDARDS	SADLIER *PROGRESS MATHEMATICS*, GRADE 4
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flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.	
Cognitive Complexity: Level 2: Basic Application of Skills & Concepts	

Cluster 2: Represent and interpret data.
(SUPPORTING CLUSTER)

MAFS.4.MD.2.4	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). 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.*	**Lesson 30**	**Problem Solving: Use Line Plots**—pp. 266–273
	Cognitive Complexity: Level 2: Basic Application of Skills & Concepts		

Cluster 3: Geometric measurement: understand concepts of angle and measure angles.
(ADDITIONAL CLUSTER)

MAFS.4.MD.3.5	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:		
	Cognitive Complexity: Level 1: Recall		
	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.	**Lesson 31**	**Understand Angle Measures**—pp. 274–281
	b. An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.	**Lesson 31**	**Understand Angle Measures**—pp. 274–281

Domain: **Measurement and Data**

STANDARDS		SADLIER *PROGRESS MATHEMATICS*, GRADE 4	
MAFS.4.MD.3.6	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	**Lesson 32**	**Use a Protractor to Measure Angles**—pp. 282–289
MAFS.4.MD.3.7	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. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	**Lesson 33**	**Problem Solving: Find Unknown Angle Measures**—pp. 290–297

Domain: **Geometry**

STANDARDS		SADLIER *PROGRESS MATHEMATICS*, GRADE 4	
Cluster 1: Draw and identify lines and angles, and classify shapes by properties of their lines and angles. (ADDITIONAL CLUSTER)			
MAFS.4.G.1.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. *Cognitive Complexity:* Level 1: Recall	**Lesson 34**	**Draw and Identify Points, Lines, and Angles**—pp. 304–311
MAFS.4.G.1.2	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. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	**Lesson 35**	**Classify Two-Dimensional Figures**—pp. 312–319
MAFS.4.G.1.3	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	**Lesson 36**	**Identify Lines of Symmetry**—pp. 320–327

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Domain: **Geometry**

Standards	Sadlier *Progress Mathematics*, Grade 4
– continued from previous page – line-symmetric figures and draw lines of symmetry. *Cognitive Complexity:* Level 2: Basic Application of Skills & Concepts	