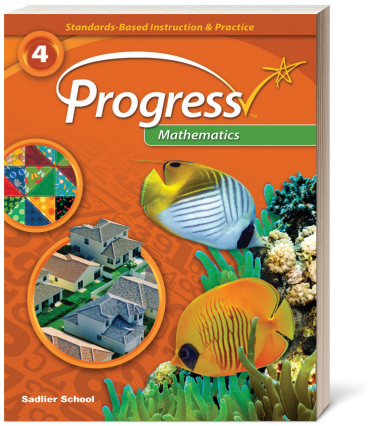
SADLIER

Progress Mathematics



Aligned to the

College and Career Ready Indiana Academic Standards

Mathematics: Grade 4

Contents

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Number Sense

Mathematics Standards & Description, Grade 4	Sadlier *Progress Mathematics*, Grade 4
4.NS.1: Read and write whole numbers up to 1,000,000. Use words, models, standard form and expanded form to represent and show equivalent forms of whole numbers up to 1,000,000.	**Lesson 6** **Understand Place Value of Whole Numbers**—pp. 56–63 Understand: Place value and the value of a digit (to 100,000s) Understand: Place value and multiples of 10
	Lesson 7 **Read, Write, and Compare Whole Numbers**—pp. 64–71 Understand: Names for whole numbers Understand: Numbers in expanded form Understand: Comparisons of whole numbers
4.NS.2: Compare two whole numbers up to 1,000,000 using >, =, and < symbols.	**Lesson 7** **Read, Write, and Compare Whole Numbers**—pp. 64–71 Understand: Names for whole numbers Understand: Numbers in expanded form Understand: Comparisons of whole numbers
4.NS.3: Express whole numbers as fractions and recognize fractions that are equivalent to whole numbers. Name and write mixed numbers using objects or pictures. Name and write mixed numbers as improper fractions using objects or pictures.	**Lesson 18** **Decompose a Fraction as a Sum of Fractions** (mixed numbers)—pp. 158–165 Understand: Ways to break apart a whole Understand: Ways to decompose a fraction
4.NS.4: 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. [*In grade 4, limit denominators of fractions to 2, 3, 4, 5, 6, 8, 10, 25, 100.*]	**Lesson 14** **Understand Equivalent Fractions**—pp. 126–133 Understand: Model equivalent fractions
	Lesson 15 **Write Equivalent Fractions**—pp. 134–141 Understand: Multiply to write equivalent fractions Understand: Divide to write fractions
4.NS.5: Compare two fractions with different numerators and different denominators (e.g., by creating common denominators or numerators, or by comparing to a benchmark, such as 0, 1/2, and 1). Recognize 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).	**Lesson 16** **Compare Two Fractions**—pp. 142–149 Understand: Using benchmarks to make comparisons Understand: Using equivalent fractions to make comparisons
4.NS.6: Write tenths and hundredths in decimal and fraction notations. Use words, models, standard form and expanded form to represent decimal numbers to hundredths. Know the fraction and decimal equivalents for halves and fourths (e.g., 1/2 = 0.5 = 0.50, 7/4 = 1 3/4 = 1.75).	**Lesson 25** **Write and Compare Decimal Fractions**—pp. 214–221 Understand: Equivalent decimals and fractions for tenths Understand: Equivalent decimals and fractions for hundredths
4.NS.7: Compare two decimals to hundredths by reasoning about their size based on the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions (e.g., by using a visual model).	**Lesson 25** **Write and Compare Decimal Fractions**—pp. 214–221 Understand: Equivalent decimals and fractions for tenths Understand: Equivalent decimals and fractions for hundredths
4.NS.8: Find all factor pairs for a whole number in the range 1–100. 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 Understand: Factors and factor pairs Understand: Prime and Composite Numbers Understand: Finding factors of a whole number Understand: Finding multiples of a whole number

Number Sense

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4.NS.9: Use place value understanding to round multi-digit whole numbers to any given place value.	**Lesson 8** **Apply Place Value to Round Whole Numbers**—pp. 72–79 Understand: The numbers you use to round

Computation

Mathematics Standards & Description, Grade 4	Sadlier *Progress Mathematics*, Grade 4
4.C.1: Add and subtract multi-digit whole numbers fluently using a standard algorithmic approach.	**Lesson 9** **Add and Subtract Fluently with Whole Numbers**—pp. 80–87 Understand: Place value and addition Understand: Subtraction and regrouping
4.C.2: 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. Describe the strategy and explain the reasoning.	**Lesson 10** **Multiply Whole Numbers: Use Place Value**—pp. 88–95 Understand: Products of tens, hundreds, and thousands Understand: Place value and partial products
4.C.3: 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. Describe the strategy and explain the reasoning.	**Lesson 11** **Multiply Whole Numbers: Use Properties of Operations**—pp. 96–103 Understand: The Distributive Property and expanded form Understand: The Distributive Property and two-digit factors
	Lesson 12 **Divide Whole Numbers: Use Place Value**—pp. 104–111 Understand: Quotients of tens, hundreds, and thousands Understand: Place value and regrouping
	Lesson 13 **Divide Whole Numbers: Use Properties of Operations**—pp. 112–119 Understand: Division and multiples of the divisor Understand: Division and the Distributive Property
4.C.4: Multiply fluently within 100.	**Lesson 10** **Multiply Whole Numbers: Use Place Value**—pp. 88–95
4.C.5: Add and subtract fractions with common denominators. Decompose a fraction into a sum of fractions with common denominators. Understand addition and subtraction of fractions as combining and separating parts referring to the same whole.	**Lesson 17** **Add and Subtract Fractions with Like Denominators**—pp. 150–157 Understand: Addition of fractions with like denominators Understand: Adding unit fractions to add fractions Understand: Subtraction of fractions with like denominators
4.C.6: Add and subtract mixed numbers with common 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 Understand: Adding mixed numbers Understand: Subtracting mixed numbers
4.C.7: Show how the order in which two numbers are multiplied (commutative property) and how numbers are grouped in multiplication (associative property) will not change the product. Use these properties to show that numbers can by multiplied in any order. Understand and use the distributive property.	**Lesson 11** **Multiply Whole Numbers: Use Properties of Operations**—pp. 96–103 Understand: The Distributive Property and expanded form Understand: The Distributive Property and two-digit factors (Commutative and Associative properties)

Algebraic Thinking

Mathematics Standards & Description, Grade 4	Sadlier *Progress Mathematics*, Grade 4
4.AT.1: Solve real-world problems involving addition and subtraction of multi-digit whole numbers (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).	**Lesson 3** **Problem Solving: Multistep Problems**—pp. 26–33 Understand: Equations to solve multistep problems Understand: The meaning of a remainder
4.AT.2: Recognize and apply the relationships between addition and multiplication, between subtraction and division, and the inverse relationship between multiplication and division to solve real-world and other mathematical problems.	Not addressed at this level.
4.AT.3: 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.	**Lesson 1** **Interpret Multiplication Equations as Comparisons**—pp. 10–17 Understand: How a multiplication equation represents two comparisons
4.AT.4: Solve real-world problems with whole numbers 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. [In grade 4, division problems should not include a remainder.]	**Lesson 2** **Problem Solving: Use Multiplication and Division to Make Comparisons**—pp. 18–25 Understand: Comparison with an unknown product Understand: Comparisons can involve addition Understand: Comparison with an unknown factor
4.AT.5: Solve real-world problems involving addition and subtraction of fractions referring to the same whole and having common denominators (e.g., by using visual fraction models and equations to represent the problem).	**Lesson 17** **Add and Subtract Fractions with Like Denominators**—pp. 150–157 Understand: Addition of fractions with like denominators Understand: Adding unit fractions to add fractions Understand: Subtraction of fractions with like denominators
	Lesson 20 **Problem Solving: Add and Subtract Fractions**—pp. 174–181 Understand: Using fraction models to represent and solve problems Understand: Using equations to represent and solve problems
4.AT.6: Understand that an equation, such as $y = 3x + 5$, is a rule to describe a relationship between two variables and can be used to find a second number when a first number is given. Generate a number pattern that follows a given rule.	**Lesson 5** **Generate and Analyze Number and Shape Patterns**—pp. 42–49 Understand: Number patterns and pattern rules Understand: Growing shape patterns Understand: Repeating shape patterns

Geometry

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4.G.1: Identify, describe, and draw parallelograms, rhombuses, and trapezoids using appropriate tools (e.g., ruler, straightedge and technology).	**Lesson 35** **Classify Two-Dimensional Figures**—pp. 312–319 Understand: Using parallel or perpendicular lines to classify two-dimensional figures Understand: Using angle measurement to classify two-dimensional figures
4.G.2: Recognize and draw lines of symmetry in two-dimensional figures. Identify figures that have lines of symmetry.	**Lesson 36** **Identify Lines of Symmetry**—pp. 320–327 Understand: Identifying lines of symmetry Understand: Drawing lines of symmetry

Geometry

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4.G.3: Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint.	**Lesson 34** **Draw and Identify Points, Lines, and Angles**—pp. 304–311 Understand: Using and applying geometric terms Understand: Identifying right, acute, obtuse, and straight angles
4.G.4: Identify, describe, and draw rays, angles (right, acute, obtuse), and perpendicular and parallel lines using appropriate tools (e.g., ruler, straightedge and technology). Identify these in two-dimensional figures.	**Lesson 34** **Draw and Identify Points, Lines, and Angles**—pp. 304–311 Understand: Using and applying geometric terms Understand: Identifying right, acute, obtuse, and straight angles
4.G.5: Classify triangles and quadrilaterals based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles (right, acute, obtuse).	**Lesson 35** **Classify Two-Dimensional Figures**—pp. 312–319 Understand: Using parallel or perpendicular lines to classify two-dimensional figures Understand: Using angle measurement to classify two-dimensional figures

Measurement

Mathematics Standards & Description, Grade 4	Sadlier *Progress Mathematics*, Grade 4
4.M.1: Measure length to the nearest quarter- inch, eighth-inch, and millimeter.	Not addressed at this level.
4.M.2: Know relative sizes of measurement units within one system of units, including km, m, cm; kg, g; lb, oz; l, ml; hr, min, sec. Express measurements in a larger unit in terms of a smaller unit within a single system of measurement. Record measurement equivalents in a two-column table.	**Lesson 26** **Convert Customary Measurement Units**—pp. 234–241 Understand: Relative sizes of customary units of weight Understand: Relative sizes of customary units of liquid volume
	Lesson 27 **Convert Metric Measurement Units**—pp. 242–249 Understand: Relative sizes of metric measurements of length Understand: Converting metric units of length
4.M.3: Use the four operations (addition, subtraction, multiplication and division) to solve real-world problems involving distances, intervals of time, volumes, masses of objects, and money. Include addition and subtraction problems involving simple fractions and problems that require expressing measurements given in a larger unit in terms of a smaller unit.	**Lesson 28** **Problem Solving: Measurement**—pp. 250–257 Understand: Using a diagram with a measurement scale to solve a problem Understand: Using models for units of time
4.M.4: Apply the area and perimeter formulas for rectangles to solve real-world problems and other mathematical problems involving shapes. Recognize area as additive and find the area of complex shapes composed of rectangles by decomposing them into non-overlapping rectangles and adding the areas of the non- overlapping parts; apply this technique to solve real-world problems and other mathematical problems involving shapes.	**Lesson 29** **Problem Solving: Apply Area and Perimeter Formulas**—pp. 258–265 Understand: Perimeter formulas for rectangles Understand: Area formula for rectangles *No finding the area of complex shapes at this level.

Measurement

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4.M.5: Understand that 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. Understand an angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure other angles. Understand 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 Understand: Angles and parts of angles Understand: Angle measures and fractions of a circle
4.M.6: Measure angles in whole-number degrees using appropriate tools. Sketch angles of specified measure.	**Lesson 32** **Use a Protractor to Measure Angles**—pp. 282–289 Understand: Classifying angles by size Understand: How to measure angles with a protractor

Data Analysis

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4.DA.1: Formulate questions that can be addressed with data. Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (including frequency tables), line plots, and bar graphs.	**Lesson 30** **Problem Solving: Use Line Plots**—pp. 266–273 Understand: Using number lines to display data Understand: Reading and using line plots *No discussion of survey questions or bar graphs at this level.
4.DA.2: 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 data displayed in line plots.	**Lesson 30** **Problem Solving: Use Line Plots**—pp. 266–273 Understand: Using number lines to display data Understand: Reading and using line plots
4.DA.3: Interpret data displayed in a circle graph.	Not addressed at this level.