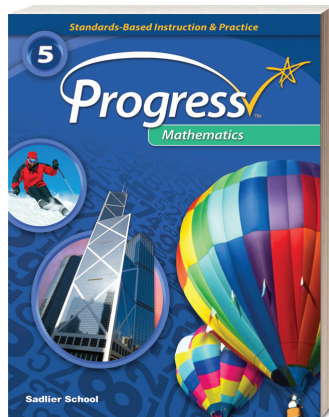


SADLIER

Progress Mathematics



Aligned to the

College and Career Ready Indiana Academic Standards Mathematics: Grade 5

Contents

- 2 Number Sense
- 2 Computation
- 4 Algebraic Thinking
- 6 Geometry
- 6 Measurement
- 7 Data Analysis and Statistics

 **Sadlier**
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Number Sense

MATHEMATICS STANDARDS & DESCRIPTION, GRADE 5

5.NS.1: Use a number line to compare and order fractions, mixed numbers, and decimals to thousandths. Write the results using $>$, $=$, and $<$ symbols.

5.NS.2: Explain different interpretations of fractions, including: as parts of a whole, parts of a set, and division of whole numbers by whole numbers.

5.NS.3: Recognize the relationship 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 inversely, a digit in one place represents $1/10$ of what it represents in the place to its left.

5.NS.4: 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. Use whole-number exponents to denote powers of 10.

5.NS.5: Use place value understanding to round decimal numbers up to thousandths to any given place value.

5.NS.6: Understand, interpret, and model percents as part of a hundred (e.g. by using pictures, diagrams, and other visual models).

SADLIER PROGRESS MATHEMATICS, GRADE 5

Lesson 7 **Compare Decimals to Thousandths**—pp. 64–71
Understand: How to use a number line to compare decimal numbers
Understand: How to use fractions to compare decimal numbers
Understand: How to use place value to compare decimal numbers
Understand: How to use expanded form to compare decimal numbers

Lesson 17 **Interpret Fractions as Division**—pp. 150–157
Understand: How to use the subtraction of fractions to solve problems
Understand: Division problems with mixed-number quotients

Lesson 4 **Understand Place Value**—pp. 40–47
Understand: The relationships between 1, $1/10$, and $1/100$
Understand: Decimal place values

Lesson 5 **Powers of 10: Use Patterns and Whole-Number Exponents**—pp. 48–55
Understand: Powers of 10
Understand: How to multiply whole numbers by powers of 10
Understand: How to divide whole numbers by powers of 10

Lesson 8 **Round Decimals: Use Place Value**—pp. 72–79
Understand: How to round decimal numbers to the nearest whole number
Understand: How to round decimal numbers to the nearest tenth
Understand: How to round decimal numbers to the nearest hundredth

Not addressed at this level.

Computation

MATHEMATICS STANDARDS & DESCRIPTION, GRADE 5

5.C.1: Multiply multi-digit whole numbers fluently using a standard algorithmic approach.

SADLIER PROGRESS MATHEMATICS, GRADE 5

Lesson 9 **Multiply Fluently with Multi-Digit Numbers**—pp. 80–87
Understand: How to multiply a multi-digit number by a one-digit number
Understand: How to multiply a two-digit number by a two-digit number

Computation

MATHEMATICS STANDARDS & DESCRIPTION, GRADE 5

5.C.2: Find whole-number quotients and remainders with up to four-digit dividends and two-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 used.

5.C.3: Compare 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.

5.C.4: Add and subtract fractions with unlike denominators, including mixed numbers.

5.C.5: Use visual fraction models and numbers to multiply a fraction by a fraction or a whole number.

5.C.6: Explain why multiplying a number by a fraction greater than 1 results in a product greater than the given number. Explain why multiplying a number by a fraction less than 1 results in a product smaller than the given number. Relate the principle of fraction equivalence, $a/b = (n \times a)/(n \times b)$, to the effect of multiplying a/b by 1.

5.C.7: Use visual fraction models and numbers to divide a unit fraction by a non-zero whole number and to divide a whole number by a unit fraction.

5.C.8: Add, subtract, multiply, and divide decimals to hundredths, using models or drawings and strategies based on place value or the properties of operations. Describe the strategy and explain the reasoning.

SADLIER PROGRESS MATHEMATICS, GRADE 5

Lesson 10 **Divide Whole Numbers: Use Place Value Strategies**—pp. 88–95
Understand: How to divide using an area model
Understand: How to divide using partial quotients

Lesson 11 **Divide Whole Numbers: Use Properties of Operations**—pp. 96–103
Understand: How to divide using the Distributive Property
Understand: How to divide by using the relationship between multiplication and division

Lesson 20 **Interpret Multiplication of Fractions as Scaling**—pp. 174–181
Understand: Comparing factors and products

Lesson 15 **Add and Subtract Fractions with Unlike Denominators**—pp. 134–141
Understand: How to use a model to subtract fractions with unlike denominators
Understand: How to use a model to add fractions with unlike denominators
Understand: How to add fractions with unlike denominators by using equivalent fractions

Lesson 18 **Interpret Products of Fractions**—pp. 158–165
Understand: How to multiply a whole number by a unit fraction when the whole number is divisible by the denominator
Understand: How to multiply a whole number by a non-unit fraction when the whole number is divisible by the denominator
Understand: How to multiply a whole number by any unit fraction
Understand: How to multiply a whole number by any non-unit fraction

Lesson 20 **Interpret Multiplication of Fractions as Scaling**—pp. 174–181
Understand: Comparing factors and products

Lesson 22 **Divide Unit Fractions by Whole Numbers**—pp. 190–197
Understand: How to use a model to divide a unit fraction by a whole number

Lesson 12 **Add and Subtract Decimals to Hundredths**—pp. 104–111
Understand: How to add decimals using a number line
Understand: How to estimate the value of an expression
Understand: How to subtract decimals using hundreds grids
Understand: How to add or subtract decimals using place value

Computation

MATHEMATICS STANDARDS & DESCRIPTION, GRADE 5

5.C.9: Evaluate expressions with parentheses or brackets involving whole numbers using the commutative properties of addition and multiplication, associative properties of addition and multiplication, and distributive property.

SADLIER PROGRESS MATHEMATICS, GRADE 5

Lesson 13 Multiply Decimals to Hundredths—pp. 112–119
Understand: How to use a model to multiply a decimal by a whole number
Understand: Methods for multiplying two decimals

Lesson 14 Divide Decimals to Hundredths—pp. 120–127
Understand: How to divide a decimal by a whole number.
Understand: How to divide by 0.1 and 0.01
Understand: How to relate dividing by a decimal to dividing by a whole number

Lesson 1 Use Grouping Symbols and Evaluate Numerical Expressions—pp. 10–17
Understand: Order of Operations and parentheses
Understand: Using more than one set of grouping symbols

Algebraic Thinking

MATHEMATICS STANDARDS & DESCRIPTION, GRADE 5

5.AT.1: Solve real-world problems involving multiplication and division of whole numbers (e.g. by using equations to represent the problem). In division problems that involve a remainder, explain how the remainder affects the solution to the problem.

5.AT.2: Solve real-world problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators (e.g., by using visual fraction models and equations to represent the problem). Use benchmark fractions and number sense of fractions to estimate mentally and assess whether the answer is reasonable.

5.AT.3: Solve real-world problems involving multiplication of fractions, including mixed numbers (e.g., by using visual fraction models and equations to represent the problem).

SADLIER PROGRESS MATHEMATICS, GRADE 5

Lesson 9 Multiply Fluently with Multi-Digit Numbers—pp. 80–87
Understand: How to multiply a multi-digit number by a one-digit number
Understand: How to multiply a two-digit number by a two-digit number

Lesson 10 Divide Whole Numbers: Use Place Value Strategies—pp. 88–95
Understand: How to divide using an area model
Understand: How to divide using partial quotients

Lesson 11 Divide Whole Numbers: Use Properties of Operations—pp. 96–103
Understand: How to divide using the Distributive Property
Understand: How to divide by using the relationship between multiplication and division

Lesson 16 Problem Solving: Add and Subtract Fractions—pp. 142–149
Understand: How to use the addition of fractions to solve problems
Understand: How to use the subtraction of fractions to solve problems

Lesson 21 Problem Solving: Multiply Fractions and Mixed Numbers—pp. 182–189
Understand: How to use a drawing to multiply a whole number by a fraction
Understand: How to find the area of a rectangle with mixed-number side lengths.

Algebraic Thinking

MATHEMATICS STANDARDS & DESCRIPTION, GRADE 5

5.AT.4: Solve real-world problems involving division of unit fractions by non-zero whole numbers, and division of whole numbers by unit fractions (e.g., by using visual fraction models and equations to represent the problem).

5.AT.5: Solve real-world problems involving addition, subtraction, multiplication, and division with decimals to hundredths, including problems that involve money in decimal notation (e.g. by using equations to represent the problem).

5.AT.6: Graph points with whole number coordinates on a coordinate plane. Explain how the coordinates relate the point as the distance from the origin on each axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).

5.AT.7: Represent real-world problems and equations by graphing ordered pairs in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

5.AT.8: Define and use up to two variables to write linear expressions that arise from real-world problems, and evaluate them for given values.

SADLIER PROGRESS MATHEMATICS, GRADE 5

Lesson 24 Problem Solving: Divide Unit Fractions and Whole Numbers—pp. 206–213
Understand: How to solve problems that involve more than one step
Understand: How to solve problems using a picture
Understand: How to use division to solve a comparison problem

Lesson 12 Add and Subtract Decimals to Hundredths—pp. 104–111
Understand: How to add decimals using a number line
Understand: How to estimate the value of an expression
Understand: How to subtract decimals using hundreds grids
Understand: How to add or subtract decimals using place value

Lesson 13 Multiply Decimals to Hundredths—pp. 112–119
Understand: How to use a model to multiply a decimal by a whole number
Understand: Methods for multiplying two decimals

Lesson 14 Divide Decimals to Hundredths—pp. 120–127
Understand: How to divide a decimal by a whole number.
Understand: How to divide by 0.1 and 0.01
Understand: How to relate dividing by a decimal to dividing by a whole number

Lesson 34 Understand Points on the Coordinate Plane—pp. 304–311
Understand: Points on a coordinate plane
Understand: Using ordered pairs to graph a figure on a coordinate plane

Lesson 35 Graph Points to Represent Problem Situations—pp. 312–319
Understand: Locating points on a coordinate plane
Understand: Drawing a line graph to represent a real-life situation

Lesson 1 Use Grouping Symbols and Evaluate Numerical Expressions—pp. 10–17
Independent Practice: Write and evaluate an expression to solve the problem.

Lesson 2 Write and Interpret Numerical Expressions—pp. 18–25
Understand: How to write numerical expressions
Understand: How to interpret numerical expressions

Geometry

MATHEMATICS STANDARDS & DESCRIPTION, GRADE 5

5.G.1: Identify, describe, and draw triangles (right, acute, obtuse) and circles using appropriate tools (e.g., ruler or straightedge, compass and technology). Understand the relationship between radius and diameter.

5.G.2: Identify and classify polygons including quadrilaterals, pentagons, hexagons, and triangles (equilateral, isosceles, scalene, right, acute and obtuse) based on angle measures and sides. Classify polygons in a hierarchy based on properties.

SADLIER PROGRESS MATHEMATICS, GRADE 5

Lesson 36 Analyze Properties to Classify Two-Dimensional Figures—pp. 320–327
Understand: Using properties to classify triangles
Understand: Using properties to classify quadrilaterals

* No circles, diameter, or radius at this level.

See also **Foundational Skills Handbook**
K. Understand: Identifying right, acute, obtuse, and straight angles—p. 342
L. Understand: Using angle measurement to classify two-dimensional figures—p. 342

Lesson 36 Analyze Properties to Classify Two-Dimensional Figures—pp. 320–327
Understand: Using properties to classify triangles
Understand: Using properties to classify quadrilaterals

Measurement

MATHEMATICS STANDARDS & DESCRIPTION, GRADE 5

5.M.1: Convert among different-sized standard measurement units within a given measurement system, and use these conversions in solving multi-step real-world problems.

5.M.2: Find the area of a rectangle with fractional side lengths by modeling 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.

5.M.3: Develop and use formulas for the area of triangles, parallelograms and trapezoids. Solve real-world and other mathematical problems that involve perimeter and area of triangles, parallelograms and trapezoids, using appropriate units for measures.

5.M.4: 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 or multiplying the height by the area of the base.

SADLIER PROGRESS MATHEMATICS, GRADE 5

Lesson 25 Convert Customary Measurement Units—pp. 226–233
Understand: Converting larger customary units to smaller units
Understand: Converting smaller customary units to larger units

Lesson 26 Convert Metric Measurement Units—pp. 234–241
Understand: Converting metric units of length
Understand: Converting metric units of liquid volume

Lesson 19 Find Areas of Rectangles: Tile and Multiply—pp. 166–173
Understand: How to find the area of a rectangle with unit-fraction side lengths
Understand: How to find the area of a rectangle with fractional side lengths
Understand: How to find the area of a rectangle with mixed-number side lengths

See also **Foundational Skills Handbook**
J. Understand: Area formula for rectangles—p. 341

Not addressed at this level.

Lesson 30 Find Volume: Relate Packing of Unit Cubes to Multiplying—pp. 266–273
Understand: How to find the volume of a right rectangular prism by packing it with unit cubes
Understand: How to find the volume of a right rectangular prism using multiplication

Measurement

MATHEMATICS STANDARDS & DESCRIPTION, GRADE 5

5.M.5: Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for right rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths to solve real-world problems and other mathematical problems involving shapes.

5.M.6: Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real-world problems and other mathematical problems.

SADLIER PROGRESS MATHEMATICS, GRADE 5

Lesson 31 Find Volume: Use the Associate Property— pp. 274–281
Understand: How to relate the Associative Property of Multiplication to the volume of a right rectangular prism

Lesson 32 Problem Solving: Apply Volume Formulas for Prisms— pp. 282–289
Understand: How to solve problems using formulas for volume

Lesson 33 Problem Solving: Decompose Figures to Find Volume— pp. 290–297
Understand: Breaking apart a figure made from unit cubes into right rectangular prisms to find volume
Understand: How to find the volume of a figure composed of two right rectangular prisms

Data Analysis and Statistics

MATHEMATICS STANDARDS & DESCRIPTION, GRADE 5

5.DS.1: Formulate questions that can be addressed with data and make predictions about the data. Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (including frequency tables), line plots, bar graphs, and line graphs. Recognize the differences in representing categorical and numerical data.

5.DS.2: Understand and use measures of center (mean and median) and frequency (mode) to describe a data set.

SADLIER PROGRESS MATHEMATICS, GRADE 5

Not addressed at this level.

Not addressed at this level.