

SADLIER

Common Core Progress Mathematics

SADLIER

Progress in Mathematics

Common Core State Standards for Mathematics

Crosswalk

Grade 6

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William H. Sadlier, Inc.
www.sadlierschool.com
800-221-5175

COMMON CORE PROGRESS MATHEMATICS, GRADE 6

Unit 1: Focus on Ratios and Proportional Relationships**Lesson 1** **Understand Ratios and Unit Rates**—pp. 10–17

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6.RP.1
6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.

For example, “The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly three votes.”

6.RP.2
6.RP.A.2 Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship.

For example, “This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar.” “We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger.”¹

¹Expectations for unit rates in this grade are limited to non-complex fractions.

6.RP.3a
6.RP.A.3a Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

6.RP.3b
6.RP.A.3b Solve unit rate problems including those involving unit pricing and constant speed.

For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be

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*11-2B Ratios and Unit Rates—Online
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mowed in 35 hours? At what rate were lawns being mowed?

6.RP.3c
6.RP.A.3c Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.

6.RP.3d
6.RP.A.3d Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

6.RP.3a
6.RP.A.3a Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

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11-16 Problem Solving Applications: Mixed Review—pp. 406–407

6.RP.3b Solve unit rate problems including those involving unit pricing and constant speed.
6.RP.A.3b

Unit 2: Focus on the Number System

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8-5 Meaning of Division—pp. 258–259
 *8-5A Dividing with Fractions—Online
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Application

8-18 Problem Solving Applications: Mixed Review—pp. 284–285

6.NS.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.
6.NS.A.1

For example, create a story context for $(2/3) \div (3/4)$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$ is $2/3$. (In general, $(a/b) \div (c/d) = ad/bc$.) How much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $3/4$ -cup servings are in $2/3$ of a cup of yogurt? How wide is a rectangular strip of land with length $3/4$ mi and area $1/2$ square mi?

Lesson 11 **Divide Multi-digit Numbers**—pp. 96–103

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Instruction

3-1 Short Division—pp. 88–89

6.NS.2 Fluently divide multi-digit numbers using the standard algorithm.
6.NS.B.2

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Lesson 12 **Add and Subtract Multi-digit Decimals**—pp. 104–111

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3-3 Divide Whole Numbers—pp. 92–93

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2-8 Problem Solving Applications: Mixed Review—pp. 80–81

3-14 Problem Solving Applications: Mixed Review—pp. 114–115

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6.NS.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
6.NS.B.3

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Lesson 14 Find the Greatest Common Factor and Least Common Multiple—pp. 120–127**Lesson 15 Understand Positive and Negative Numbers and Opposites**—pp. 128–135**Lesson 16 Locate Points with Rational Coordinates**—pp. 136–143

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Instruction
5-1 Integers—pp. 150–151
5-2 Compare and Order Integers—pp. 152–153

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5-1 Integers—pp. 150–151
5-2 Compare and Order Integers—pp. 152–153

6-8 Fraction Sense—pp. 192–193
6-10 Compare Fractions—pp. 196–197

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6.NS.4
6.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.

For example, express $36 + 8$ as $4(9 + 2)$.

6.NS.5
6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.

6.NS.6a
6.NS.C.6a Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$, and that 0 is its own opposite.

6.NS.6b
6.NS.C.6b Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections both axes.

6.NS.6c
6.NS.C.6c Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of

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*5-2A Use Reasoning to Compare and Order Rational Numbers—Online

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*5-2A Use Reasoning to Compare and Order Rational Numbers—Online

5-5 Multiply Integers—pp. 158–159

5-10 Problem Solving Strategy: Make a Table—pp. 168–169

6.NS.7a
6.NS.C.7a

Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.

*For example, interpret $-3 > -7$ as a statement that -3 is located to the right of -7 on a number line oriented from left to right.***6.NS.7b**
6.NS.C.7b

Write, interpret, and explain statements of order for rational numbers in real-world contexts.

*For example, write $-3^\circ C > -7^\circ C$ to express the fact that $-3^\circ C$ is warmer than $-7^\circ C$.***6.NS.7c**
6.NS.C.7c

Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation

For example, for an account balance of -30 dollars, write $|-30| = 30$ to describe the size of the debt in dollars.

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5-2 Compare and Order Integers—pp. 152–153
 *5-2A Use Reasoning to Compare and Order Rational Numbers—Online
 5-10 Problem Solving Strategy: Make a Table—pp. 168–169

6.NS.7d
6.NS.C.7d

Distinguish comparisons of absolute value from statements about order.

For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.

Unit 3: Focus on Expressions and Equations**Lesson 20** **Write and Evaluate Numerical Expressions with Exponents**—pp. 174–181**Readiness**

5-1 Integers (absolute value)—pp. 150–151

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 14-10 Problem Solving Strategy: Use More Than One Strategy—pp. 514–515

6.NS.8
6.NS.C.8

Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

Lesson 21 **Write Algebraic Expressions to Record Operations**—pp. 182–189**Instruction**

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6.EE.1
6.EE.A.1

Write and evaluate numerical expressions involving whole-number exponents.

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 4-2 Translate Expressions—pp. 124–125
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6.EE.2a
6.EE.A.2a

Write expressions that record operations with numbers and with letters standing for numbers.

For example, express the calculation “Subtract y from 5” as $5 - y$.

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Lesson 22 Identify Parts of an Expression—pp. 190–197

Lesson 23 Evaluate Algebraic Expressions—pp. 198–205

Lesson 24 Generate and Identify Equivalent Expressions—pp. 206–213

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3-11 Evaluate Multiplication and Division Expressions—pp. 108–109

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4-2 Translate Expressions—pp. 124–125
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8-3 Properties of Multiplication—pp. 254–25

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*4-3A Equivalent Expressions—Online

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6.EE.2b
6.EE.A.2b Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity.

For example, describe the expression $2(8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms.

6.EE.2c
6.EE.A.2c Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).

For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = 1/2$.

6.EE.3
6.EE.A.3 Apply the properties of operations to generate equivalent expressions.

For example, apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.

6.EE.4
6.EE.A.4 Apply the properties of operations to generate equivalent expressions.

For example, apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the

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distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.

Lesson 25 Identify Solutions to Equations and Inequalities—pp. 214–221

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4-4 Equations and Inequalities—pp. 128–129
*4-4A Inequalities—Online

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Ch. 5 Enrichment: Inequalities in One Variable—p. 173

6.EE.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

Lesson 26 Write Algebraic Expressions to Represent Problems—pp. 222–229

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4-10 Problem Solving Strategy: Use More Than One Step—pp. 140–141

7-9 Addition and Subtraction Equations with Fractions—pp. 238–239

8-11 Multiplication and Division Expressions with Fractions—pp. 270–271

6.EE.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

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Lesson 27 **Solve Equations of the Form $x + p = q$** —pp. 230–237

Lesson 28 **Solve Equations of the Form $px = q$** —pp. 238–245

Lesson 29 **Graph Solutions to Inequalities**—pp. 246–253

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12-14 Problem Solving Applications: Mixed Review—pp. 440–441

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4-3 Evaluate Algebraic Expressions—pp. 126–127

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4-7 Multiplication and Division Equations—pp. 134–135

*4-7A Write an Equation—Online

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8-12 Multiplication and Division Equations with Fractions—pp. 272–273

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4-11 Problem Solving Applications: Mixed Review—pp. 142–143

Instruction

*4-4A Inequalities—Online

*4-4B Write Inequalities—Online

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6.EE.7**6.EE.B.7**

Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p , q and x are all nonnegative rational numbers.

6.EE.8**6.EE.B.8**

Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem.

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Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

Lesson 30 **Represent Relationships Between Variables**—pp. 254–261

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 *14-4A Independent and Dependent Variables—Online
 14-8 Graph Functions—pp. 510–511
 *14-8A Related Variables—Online
 14-9 Algebraic Patterns—pp. 512–513
 14-10 Problem Solving Strategy: Use More Than One Strategy—pp. 514–515

6.EE.9
6.EE.C.9

Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time.

Unit 4: Focus on Geometry

Lesson 31 **Find Areas of Parallelograms and Triangles**—pp. 268–275

Readiness

Skills Update: Perimeter and Area of Rectangles—p. 25

6.G.1
6.G.A.1

Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.

Lesson 32 **Find Areas of Polygons**—pp. 276–283

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13-9 Area of Rectangles and Squares—pp. 464–465
 13-10 Area of Triangles and Parallelograms—pp. 466–467
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Lesson 33 Find Volumes of Rectangular Prisms—
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13-16 Volume of Prisms—pp. 478–479
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*13-16B Volume of a Prism—Online

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6.G.2
6.G.A.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

Lesson 34 Plot and Analyze Polygons in the
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*14-5B Graphing Polygons—Online
14-6 Graph Reflections and Translations—pp. 506–507
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6.G.3
6.G.A.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

Lesson 35 Use Nets to Find Surface Area—pp.
300–307

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*13-13A Use Nets to Find Surface Area—Online
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13-15 Surface Area of Pyramids and Triangular
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6.G.4
6.G.B.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

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Unit 5: Focus on Statistics and Probability

Lesson 36 Understand Statistical Questions and
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*9-6A Statistical Characteristics of a Data Set—Online

6.SP.1
6.SP.A.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.

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For example, “How old am I?” is not a statistical question, but “How old are the students in my school?” is a statistical question because one anticipates variability in students’ ages.

Lesson 37 Find the Median and Interquartile Range—pp. 322–329

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9-5 Apply Measures of Central Tendency and Range—pp. 300–301
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*9-7A Describe Data—Online
9-8 Stem-and-Leaf Plots—pp. 306–307

**6.SP.2
6.SP.A.2**

Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.

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6.SP.A.2**

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9-6 Analyze Data—pp. 302–303
*9-7A Describe Data—Online

**6.SP.3
6.SP.A.3**

Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

Lesson 38 Find the Mean and Mean Absolute Deviation—pp. 330–337

Instruction

9-5 Apply Measures of Central Tendency and Range—pp. 300–301
9-6 Analyze Data—pp. 302–303
*9-7A Describe Data—Online

**6.SP.3
6.SP.A.3**

Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

Lesson 39 Display Numerical Data—pp. 338–345

Instruction

9-5 Apply Measures of Central Tendency and Range—pp. 300–301
9-6 Analyze Data—pp. 302–303
9-7 Box-and-Whisker Plots—pp. 304–305
*9-7A Describe Data—Online
9-8 Stem-and-Leaf Plots—pp. 306–307

**6.SP.4
6.SP.B.4**

Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

COMMON CORE PROGRESS MATHEMATICS, GRADE 6

Lesson 40 Summarize Numerical Data—pp. 346–353

PROGRESS IN MATHEMATICS, GRADE 6

Instruction

*9-3A Summarize the Data—Online
 9-4 Record and Interpret Data—pp. 298–299
 *9-7A Describe Data—Online
 9-8 Stem-and-Leaf Plots—pp. 306–307
 9-13 Histograms—pp. 316–317

Instruction

*9-3A Summarize the Data—Online
 *9-7A Describe Data—Online

Instruction

9-5 Apply Measures of Central Tendency and Range—pp. 300–301
 9-6 Analyze Data—pp. 302–303
 *9-6B Choosing the Best Measures to Describe Data—Online
 9-7 Box-and-Whisker Plots—pp. 304–305
 *9-7A Describe Data—Online
 9-8 Stem-and-Leaf Plots—pp. 306–307
 9-9 Line Graphs—pp. 308–309

Application

9-16 Problem Solving Applications: Mixed Review—pp. 322–323

Instruction

*9-6B Choosing the Best Measures to Describe Data—Online

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 6

6.SP.5 Summarize numerical data sets in relation to their context, such as by:
6.SP.B.5

6.SP.5a Reporting the number of observations.
6.SP.B.5a

6.SP.5b Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.
6.SP.B.5b

6.SP.5c Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.
6.SP.B.5c

6.SP.5d Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.
6.SP.B.5d