

SADLIER

# Standards-Based Progress Mathematics

Aligned to the Chapter 111.

## Texas Essential Knowledge and Skills (TEKS) for Mathematics

Subchapter A. Elementary, §111.7, Grade 5,  
Adopted 2012.

### Grade 5

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##### (b) Knowledge and skills

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## (b) Knowledge and skills

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(2) Number and operations. The student applies mathematical process standards to represent, compare, and order positive rational numbers and understand relationships as related to place value. The student is expected to:

(A) represent the value of the digit in decimals through the thousandths using expanded notation and numerals;

(B) compare and order two decimals to thousandths and represent comparisons using the symbols  $>$ ,  $<$ , or  $=$ ; and

(C) round decimals to tenths or hundredths.

(3) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. The student is expected to:

(A) estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division;

(B) multiply with fluency a three-digit number by a two-digit number using the standard algorithm;

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**Lesson 4 Understand Place Value**—pp. 40–47

- Understand: The relationships between 1,  $1/10$ , and  $1/100$
- Understand: Decimal place values

**Lesson 6 Read and Write Decimals to Thousandths**—pp. 56–63

- Understand: How to express decimals to hundredths in more than one way
- Understand: How to express decimals to thousandths in more than one way

**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 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

Estimation—pp. 78–79, 102, 104, 106–108, 112–113, 116, 118–119, 132, 143, 145, 147, 184, 215, 220, 224, 343, 346

**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

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- (C) solve with proficiency for quotients of up to a four-digit dividend by a two-digit divisor using strategies and the standard algorithm;

- (D) represent multiplication of decimals with products to the hundredths using objects and pictorial models, including area models;

- (E) solve for products of decimals to the hundredths, including situations involving money, using strategies based on place-value understandings, properties of operations, and the relationship to the multiplication of whole numbers;

- (F) represent quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using objects and pictorial models, including area models;

- (G) solve for quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using strategies and algorithms, including the standard algorithm;

- (H) represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operations;

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**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 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 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 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 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 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

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(I) represent and solve multiplication of a whole number and a fraction that refers to the same whole using objects and pictorial models, including area models;

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(J) represent division of a unit fraction by a whole number and the division of a whole number by a unit fraction such as  $1/3 \div 7$  and  $7 \div 1/3$  using objects and pictorial models, including area models;

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**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

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**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

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**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.

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**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
- Understand: How to use a number line or fraction strips to divide a unit fraction by a whole number

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**Lesson 23 Divide Whole Numbers by Unit Fractions—**pp. 198–205

- Understand: How to use a model to show division of whole numbers by unit fractions
- Understand: How to use a number line to divide whole numbers by unit fractions
- Understand: How to divide whole numbers by unit fractions using the relationship between division and multiplication

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**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
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- (K) add and subtract positive rational numbers fluently; and

- (L) divide whole numbers by unit fractions and unit fractions by whole numbers.

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**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 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

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- Understand: How to use the subtraction of fractions to solve problems

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- Understand: How to use a number line or fraction strips to divide a unit fraction by a whole number

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(4) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:	
(A) identify prime and composite numbers;	n/a
(B) represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity;	<p><i>Related content—</i>  <b>Lesson 10 Divide Whole Numbers: Use Place Value Strategies</b> (using equations with a letter standing for the unknown quantity)—pp. 88–95</p> <ul style="list-style-type: none"> <li>• Understand: How to divide using an area model</li> <li>• Understand: How to divide using partial quotients</li> </ul>
(C) generate a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph;	<p><b>Lesson 3 Analyze Numerical Patterns</b>—pp. 26–33</p> <ul style="list-style-type: none"> <li>• Understand: How to generate and analyze two numerical patterns</li> <li>• Understand: How to graph ordered pairs of corresponding terms from two patterns</li> </ul>
(D) recognize the difference between additive and multiplicative numerical patterns given in a table or graph;	<p><b>Lesson 35 Graph Points to Represent Problem Situations</b>—pp. 312–319</p> <ul style="list-style-type: none"> <li>• Understand: Locating points on a coordinate plane</li> <li>• Understand: Drawing a line graph to represent a real-life situation</li> </ul>
(D) recognize the difference between additive and multiplicative numerical patterns given in a table or graph;	<p><b>Lesson 3 Analyze Numerical Patterns</b>—pp. 26–33</p> <ul style="list-style-type: none"> <li>• Understand: How to generate and analyze two numerical patterns</li> <li>• Understand: How to graph ordered pairs of corresponding terms from two patterns</li> </ul>
(E) describe the meaning of parentheses and brackets in a numeric expression;	<p><b>Lesson 35 Graph Points to Represent Problem Situations</b>—pp. 312–319</p> <ul style="list-style-type: none"> <li>• Understand: Locating points on a coordinate plane</li> <li>• Understand: Drawing a line graph to represent a real-life situation</li> </ul>
(E) describe the meaning of parentheses and brackets in a numeric expression;	<p><b>Lesson 1 Use Grouping Symbols and Evaluate Numerical Expressions</b>—pp. 10–17</p> <ul style="list-style-type: none"> <li>• Understand: Order of Operations and parentheses</li> <li>• Understand: Using more than one set of grouping symbols</li> </ul>
(F) simplify numerical expressions that do not involve exponents, including up to two levels of grouping;	<p><b>Lesson 2 Write and Interpret Numerical Expressions</b>—pp. 18–25</p> <ul style="list-style-type: none"> <li>• Understand: How to write numerical expressions</li> <li>• Understand: How to interpret numerical expressions</li> </ul>
(F) simplify numerical expressions that do not involve exponents, including up to two levels of grouping;	<p><b>Lesson 1 Use Grouping Symbols and Evaluate Numerical Expressions</b>—pp. 10–17</p> <ul style="list-style-type: none"> <li>• Understand: Order of Operations and parentheses</li> </ul>

(G) use concrete objects and pictorial models to develop the formulas for the volume of a rectangular prism, including the special form for a cube ( $V = l \times w \times h$ ,  $V = s \times s \times s$ , and  $V = Bh$ ); and

- Understand: Using more than one set of grouping symbols

**Lesson 2 Write and Interpret Numerical Expressions**—pp. 18–25

- Understand: How to write numerical expressions
- Understand: How to interpret numerical expressions

**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 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.

**Lesson 28 Understand Concepts of Volume Measurement**—pp. 250–257

- Understand: Volume and cubic units
- Understand: Comparing volumes

**Lesson 29 Measure Volume**—pp. 258–265

- Understand: Counting unit cubes

**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

**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

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- (H) represent and solve problems related to perimeter and/or area and related to volume.

(5) Geometry and measurement. The student applies mathematical process standards to classify two-dimensional figures by attributes and properties. The student is expected to classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties.

6) Geometry and measurement. The student applies mathematical process standards to understand, recognize, and quantify volume. The student is expected to:

- (A) recognize a cube with side length of one unit as a unit cube having one cubic unit of volume and the volume of a three-dimensional figure as the number of unit cubes ( $n$  cubic units) needed to fill it with no gaps or overlaps if possible; and

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Perimeter—pp. 78, 132, 223, 231–232

**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

**Lesson 28 Understand Concepts of Volume Measurement**—pp. 250–257

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- Understand: How to solve problems using formulas for volume

**Lesson 36 Analyze Properties to Classify Two-Dimensional Figures**—pp. 320–327

- Understand: Using properties to classify triangles
- Understand: Using properties to classify quadrilaterals

**Lesson 28 Understand Concepts of Volume Measurement**—pp. 250–257

- Understand: Volume and cubic units
- Understand: Comparing volumes



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- (B) determine the volume of a rectangular prism with whole number side lengths in problems related to the number of layers times the number of unit cubes in the area of the base.

(7) Geometry and measurement. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving measurement. The student is expected to solve problems by calculating conversions within a measurement system, customary or metric.

(8) Geometry and measurement. The student applies mathematical process standards to identify locations on a coordinate plane. The student is expected to:

- (A) describe the key attributes of the coordinate plane, including perpendicular number lines (axes) where the intersection (origin) of the two lines coincides with zero on each number line and the given point (0, 0); the  $x$ -coordinate, the first number in an ordered pair, indicates movement parallel to the  $x$ -axis starting at the origin; and the  $y$ -coordinate, the second number, indicates movement parallel to the  $y$ -axis starting at the origin;

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**Lesson 28 Understand Concepts of Volume Measurement**—pp. 250–257

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- Understand: How to solve problems using formulas for volume

**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 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

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<p>(B) describe the process for graphing ordered pairs of numbers in the first quadrant of the coordinate plane; and</p>	<p><b>Lesson 35 Graph Points to Represent Problem Situations</b>—pp. 312–319</p> <ul style="list-style-type: none"> <li>• Understand: Locating points on a coordinate plane</li> <li>• Understand: Drawing a line graph to represent a real-life situation</li> </ul>
<p>(C) apply knowledge of right angles to identify acute, right, and obtuse triangles; and</p>	<p><b>Lesson 36 Analyze Properties to Classify Two-Dimensional Figures</b>—pp. 320–327</p> <ul style="list-style-type: none"> <li>• Understand: Using properties to classify triangles</li> <li>• Understand: Using properties to classify quadrilaterals</li> </ul>
<p>(C) graph in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table.</p>	<p><b>Lesson 3 Analyze Numerical Patterns</b>—pp. 26–33</p> <ul style="list-style-type: none"> <li>• Understand: How to generate and analyze two numerical patterns</li> <li>• Understand: How to graph ordered pairs of corresponding terms from two patterns</li> </ul> <p><b>Lesson 35 Graph Points to Represent Problem Situations</b>—pp. 312–319</p> <ul style="list-style-type: none"> <li>• Understand: Locating points on a coordinate plane</li> <li>• Understand: Drawing a line graph to represent a real-life situation</li> </ul>
<p>(9) Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to:</p>	
<p>(A) represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem-and-leaf plots;</p>	n/a
<p>(B) represent discrete paired data on a scatterplot; and</p>	n/a
<p>(C) solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot.</p>	n/a
<p>(10) Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. The student is expected to:</p>	
<p>(A) define income tax, payroll tax, sales tax, and property tax;</p>	n/a
<p>(B) explain the difference between gross income and net income;</p>	n/a
<p>(C) identify the advantages and disadvantages of different methods of payment, including check, credit card, debit card, and electronic payments;</p>	n/a
<p>(D) develop a system for keeping and using financial records;</p>	n/a

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(E) describe actions that might be taken to balance a budget when expenses exceed income; and	n/a
(F) balance a simple budget.	n/a