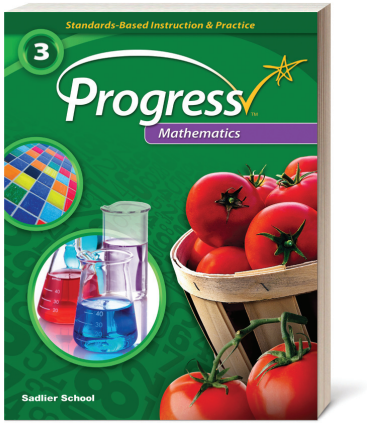
SADLIER

Progress Mathematics

Standards-Based Instruction & Practice



Aligned to the

Colorado Academic Standards for Mathematics

Third Grade

Contents

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Standard: 1. Number Sense, Properties, and Operations

Prepared Graduates:

- Understand the structure and properties of our number system. At their most basic level numbers are abstract symbols that represent real-world quantities

Concepts and skills students master:

1. The whole number system describes place value relationships through 1,000 and forms the foundation for efficient algorithms

Third Grade Evidence Outcomes	Sadlier *Progress Mathematics*, Grade 3
Students can:	
a. Use place value and properties of operations to perform multi-digit arithmetic. (CCSS: 3.NBT)	
i. Use place value to round whole numbers to the nearest 10 or 100. (CCSS: 3.NBT.1)	**Lesson 13** **Round Whole Numbers to the Nearest 10 or 100**—pp. 112–119
ii. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. (CCSS: 3.NBT.2)	**Lesson 14** **Add and Subtract Fluently within 1000**—pp. 120–127
iii. Multiply one-digit whole numbers by multiples of 10 in the range 10–90 using strategies based on place value and properties of operations. (CCSS: 3.NBT.3)	**Lesson 15** **Multiply One-Digit Whole Numbers by Multiples of 10**—pp. 128–135

Standard: 1. Number Sense, Properties, and Operations

Prepared Graduates:

- Understand that equivalence is a foundation of mathematics represented in numbers, shapes, measures, expressions, and equations

Concepts and skills students master:

2. Parts of a whole can be modeled and represented in different ways

Third Grade Evidence Outcomes	Sadlier *Progress Mathematics*, Grade 3
Students can:	
a. Develop understanding of fractions as numbers. (CCSS: 3.NF)	
i. Describe a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; describe a fraction *a*/*b* as the quantity formed by a parts of size 1/*b*. (CCSS: 3.NF.1)	**Lesson 16** **Understand Unit Fractions as Quantities**—pp. 142–149
	Lesson 17 **Understand Fractions as Quantities**—pp. 150–157
ii. Describe a fraction as a number on the number line; represent fractions on a number line diagram. (CCSS: 3.NF.2)	**Lesson 18** **Understand Fractions on the Number Line**—pp. 158–165

Third Grade Evidence Outcomes	Sadlier *Progress Mathematics*, Grade 3
iii. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. (CCSS: 3.NF.3)	
1. Identify two fractions as equivalent (equal) if they are the same size, or the same point on a number line. (CCSS: 3.NF.3a)	**Lesson 19** **Understand Equivalent Fractions**—pp. 166–173
2. Identify and generate simple equivalent fractions. Explain3 why the fractions are equivalent. (CCSS: 3.NF.3b)	**Lesson 20** **Write Equivalent Fractions**—pp. 174–181
3. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. (CCSS: 3.NF.3c)	**Lesson 21** **Relate Whole Numbers and Fractions**—pp. 182–189
4. Compare two fractions with the same numerator or the same denominator by reasoning about their size. (CCSS: 3.NF.3d)	**Lesson 22** **Compare Fractions: Same Denominator**—pp. 190–197 **Lesson 23** **Compare Fractions: Same Numerator**—pp. 198–205
5. Explain why comparisons are valid only when the two fractions refer to the same whole. (CCSS: 3.NF.3d)	**Lesson 22** **Compare Fractions: Same Denominator**—pp. 190–197 **Lesson 23** **Compare Fractions: Same Numerator**—pp. 198–205
6. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions. (CCSS: 3.NF.3d)	**Lesson 22** **Compare Fractions: Same Denominator**—pp. 190–197 **Lesson 23** **Compare Fractions: Same Numerator**—pp. 198–205

Standard: 1. Number Sense, Properties, and Operations

Prepared Graduates:

- Are fluent with basic numerical and symbolic facts and algorithms, and are able to select and use appropriate (mental math, paper and pencil, and technology) methods based on an understanding of their efficiency, precision, and transparency

Concepts and skills students master:

3. Multiplication and division are inverse operations and can be modeled in a variety of ways

Third Grade Evidence Outcomes	Sadlier *Progress Mathematics*, Grade 3
Students can:	
a. Represent and solve problems involving multiplication and division. (CCSS: 3.OA)	
i. Interpret products of whole numbers.7 (CCSS: 3.OA.1)	**Lesson 1** **Interpret Products of Whole Numbers**—pp. 10–17

Third Grade Evidence Outcomes	Sadlier *Progress Mathematics*, Grade 3
ii. Interpret whole-number quotients of whole numbers. (CCSS: 3.OA.2)	**Lesson 2** **Interpret Quotients of Whole Numbers**—pp. 18–26
iii. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities.(CCSS: 3.OA.3)	**Lesson 3** **Problem Solving: Multiplication/Division and Equal Groups**—pp. 26–33
	Lesson 4 **Problem Solving: Multiplication/Division and Arrays**—pp. 34–41
iv. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. (CCSS: 3.OA.4)	**Lesson 5** **Find Unknown Numbers in Multiplication and Division Equations**—pp. 42–49
v. Model strategies to achieve a personal financial goal using arithmetic operations (PFL)	
b. Apply properties of multiplication and the relationship between multiplication and division. (CCSS: 3.OA)	
i. Apply properties of operations as strategies to multiply and divide.(CCSS: 3.OA.5)	**Lesson 6** **Apply Commutative and Associative Properties to Multiply**—pp. 50–57
	Lesson 7 **Apply the Distributive Property to Multiply**—pp. 58–65
ii. Interpret division as an unknown-factor problem. (CCSS: 3.OA.6)	**Lesson 8** **Divide by Finding an Unknown Factor**—pp. 66–73
c. Multiply and divide within 100. (CCSS: 3.OA)	
i. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division13 or properties of operations. (CCSS: 3.OA.7)	**Lesson 9** **Multiply and Divide Fluently within 100**—pp. 80–87
ii. Recall from memory all products of two one-digit numbers. (CCSS: 3.OA.7)	**Lesson 9** **Multiply and Divide Fluently within 100**—pp. 80–87
d. Solve problems involving the four operations, and identify and explain patterns in arithmetic. (CCSS: 3.OA)	
i. Solve two-step word problems using the four operations. (CCSS: 3.OA.8)	**Lesson 10** **Problem Solving: Two-Step Problems**—pp. 88–95
	Lesson 11 **Problem Solving: Use Equations**—pp. 96–103
ii. Represent two-step word problems using equations with a letter standing for the unknown quantity. (CCSS: 3.OA.8)	**Lesson 10** **Problem Solving: Two-Step Problems**—pp. 88–95
	Lesson 11 **Problem Solving: Use Equations**—pp. 96–103

Third Grade Evidence Outcomes	Sadlier *Progress Mathematics*, Grade 3
iii. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (CCSS: 3.OA.8)	**Lesson 10** **Problem Solving: Two-Step Problems**—pp. 88–95
	Lesson 11 **Problem Solving: Use Equations**—pp. 96–103
iv. Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.(CCSS: 3.OA.9)	**Lesson 12** **Identify and Explain Arithmetic Patterns**—pp. 104–111

Standard: 2. Patterns, Functions, and Algebraic Structures

Prepared Graduates:

- The prepared graduate competencies are the preschool through twelfth-grade concepts and skills that all students who complete the Colorado education system must have to ensure success in a postsecondary and workforce setting.

Expectations for this standard are integrated into the other standards at preschool through third grade.

Standard: 3. Data Analysis, Statistics, and Probability

Prepared Graduates:

- Solve problems and make decisions that depend on understanding, explaining, and quantifying the variability in data

Concepts and skills students master:

1. Visual displays are used to describe data

Third Grade Evidence Outcomes	Sadlier *Progress Mathematics*, Grade 3
Students can:	
a. Represent and interpret data. (CCSS: 3.MD)	
i. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. (CCSS: 3.MD.3)	**Lesson 26** **Draw Graphs to Represent Categorical Data**—pp. 234–241
ii. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.(CCSS: 3.MD.3)	**Lesson 26** **Draw Graphs to Represent Categorical Data**—pp. 234–241
iii. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters. (CCSS: 3.MD.4)	**Lesson 27** **Generate and Graph Measurement Data**—pp. 242–249

Standard: 4. Shape, Dimension, and Geometric Relationships

Prepared Graduates:

- Make claims about relationships among numbers, shapes, symbols, and data and defend those claims by relying on the properties that are the structure of mathematics

Concepts and skills students master:

1. Geometric figures are described by their attributes

Third Grade Evidence Outcomes	Sadlier *Progress Mathematics*, Grade 3
Students can:	
a. Reason with shapes and their attributes. (CCSS: 3.G)	
i. Explain that shapes in different categories1 may share attributes and that the shared attributes can define a larger category.(CCSS: 3.G.1)	**Lesson 35** **Understand Shapes and Attributes**—pp. 312–319
1. Identify rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories. (CCSS: 3.G.1)	**Lesson 35** **Understand Shapes and Attributes**—pp. 312–319
ii. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. (CCSS: 3.G.2)	**Lesson 36** **Partition Shapes to Make Equal Areas**—pp. 320–327

Standard: 4. Shape, Dimension, and Geometric Relationships

Prepared Graduates:

- Understand quantity through estimation, precision, order of magnitude, and comparison. The reasonableness of answers relies on the ability to judge appropriateness, compare, estimate, and analyze error

Concepts and skills students master:

2. Linear and area measurement are fundamentally different and require different units of measure

Third Grade Evidence Outcomes	Sadlier *Progress Mathematics*, Grade 3
Students can:	
a. Use concepts of area and relate area to multiplication and to addition. (CCSS: 3.MD)	
i. Recognize area as an attribute of plane figures and apply concepts of area measurement. (CCSS: 3.MD.5)	**Lesson 28** **Understand Concepts of Area Measurement**—pp. 256–263
ii. Find area of rectangles with whole number side lengths using a variety of methods. (CCSS: 3.MD.7a)	**Lesson 29** **Find Areas of Rectangles: Tile and Multiply**—pp. 264–271
iii. Relate area to the operations of multiplication and addition and recognize area as additive. (CSSS: 3.MD.7)	**Lesson 29** **Find Areas of Rectangles: Tile and Multiply**—pp. 264–271

Third Grade Evidence Outcomes	Sadlier *Progress Mathematics*, Grade 3
	Lesson 30 **Find Areas of Rectangles: Use the Distributive Property**—pp. 272–279
	Lesson 31 **Find Areas: Decompose Figures into Rectangles**—pp. 280–287
	Lesson 32 **Problem Solving: Measurement**—pp. 288–295
b. Describe perimeter as an attribute of plane figures and distinguish between linear and area measures. (CCSS: 3.MD)	**Lesson 33** **Problem Solving: Perimeter**—pp. 296–303
	Lesson 34 **Problem Solving: Compare Perimeter and Area**—pp. 304–311
c. Solve real world and mathematical problems involving perimeters of polygons. (CCSS: 3.MD.8)	
i. Find the perimeter given the side lengths. (CCSS: 3.MD.8)	**Lesson 33** **Problem Solving: Perimeter**—pp. 296–303
	Lesson 34 **Problem Solving: Compare Perimeter and Area**—pp. 304–311
ii. Find an unknown side length given the perimeter. (CCSS: 3.MD.8)	**Lesson 33** **Problem Solving: Perimeter**—pp. 296–303
	Lesson 34 **Problem Solving: Compare Perimeter and Area**—pp. 304–311
iii. Find rectangles with the same perimeter and different areas or with the same area and different perimeters. (CCSS: 3.MD.8)	**Lesson 33** **Problem Solving: Perimeter**—pp. 296–303
	Lesson 34 **Problem Solving: Compare Perimeter and Area**—pp. 304–311

Standard: 4. Shape, Dimension, and Geometric Relationships

Prepared Graduates:

- Understand quantity through estimation, precision, order of magnitude, and comparison. The reasonableness of answers relies on the ability to judge appropriateness, compare, estimate, and analyze error

Concepts and skills students master:

3. Time and attributes of objects can be measured with appropriate tools

Third Grade Evidence Outcomes	Sadlier *Progress Mathematics*, Grade 3
Students can:	
a. Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. (CCSS: 3.MD)	
i. Tell and write time to the nearest minute. (CCSS: 3.MD.1)	**Lesson 24** **Problem Solving: Time**—pp. 218–225
ii. Measure time intervals in minutes. (CCSS: 3.MD.1)	**Lesson 24** **Problem Solving: Time**—pp. 218–225

Third Grade Evidence Outcomes		Sadlier *Progress Mathematics*, Grade 3	
iii.	Solve word problems involving addition and subtraction of time intervals in minutes using a number line diagram. (CCSS: 3.MD.1)	**Lesson 24**	**Problem Solving: Time**—pp. 218–225
iv.	Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). (CCSS: 3.MD.2)	**Lesson 25**	**Problem Solving: Volumes and Masses**—pp. 226–233
v.	Use models to add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units. (CCSS: 3.MD.2)	**Lesson 25**	**Problem Solving: Volumes and Masses**—pp. 226–233