



SADLIER

# Progress in Mathematics

Aligned to the Chapter 111.

## Texas Essential Knowledge and Skills for Mathematics

Subchapter A. Elementary, §111.5, Grade 3, Adopted 2012.

### Grade 3

(b) Knowledge and skills

(1) Mathematical process standards . . . . .	2
(2) Number and operations . . . . .	3
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## (b) Knowledge and skills

GRADE 3 TEXAS ESSENTIAL KNOWLEDGE AND SKILLS FOR MATHEMATICS	SADLIER <i>PROGRESS IN MATHEMATICS</i> GRADE 3
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	
(A) apply mathematics to problems arising in everyday life, society, and the workplace;	<p>At the beginning of each chapter in the Teacher’s Edition are suggestions for tying mathematics to everyday life, including Literature Connection and Books to Read. Also in the TE is a Problem of the Day, The introduction to many lessons in the textbook focuses on a real-world problem that can be solved by applying the new skill. Many lessons conclude with a set of problem solving exercises—word problems that further connect the new skill or concept to everyday life. The final stage of the lesson plan in the TE—Part 5: Follow-Up, includes applications, such as “Real-World Connections” or “Problem Solving.” At the end of each chapter are two problem solving lessons (Problem Solving Strategy and Problem Solving Applications: Mixed Review).</p>
(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution and evaluating the problem-solving process and the reasonableness of the solution;	<p>Located immediately after the review of key Grade 2 skills at the beginning of the book, Introduction to Problem Solving presents a four-step problem solving model— Read, Plan, Solve, Check. After discussing the model, students examine then review three problem solving strategies. Instruction in each of the 14 chapters concludes with a Problem Solving Strategy lesson and a Problem Solving Applications: Mixed Review with exercises that engage students in applying a variety of strategies they’ve studied. Throughout the program, students are given step-by-step instructions that explain each process. And often they are directed to check the reasonableness of their solutions.</p>
(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;	<p>The lesson plan in the Teacher’s Edition for many lessons offers ideas for using real objects and manipulatives—such as two-color counters, fraction strips, and base-ten blocks—to model the new concept. Depending on the topic, engaging activities involve tools and materials such as scissors, rulers, crayons, tape, or index cards. Located at the back of the TE are several blackline masters that can be used for learning activities. They include a place-value chart, grid and dot paper, number lines, fraction circles, and nets. There is also a wealth of online resources at <a href="http://www.progressinmathematics.com">www.progressinmathematics.com</a></p>
(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;	<p>Lessons in the program employ a rich variety of representations, including pictures of concrete models, diagrams, graphs, and symbols, to develop understanding of mathematical concepts and skills. Students reference these representations in their discussions and presentations. They also develop their reasoning ability using the specialized mathematical vocabulary that is highlighted and defined in context (and in the Glossary) in each lesson.</p>
(E) create and use representations to organize, record, and communicate mathematical ideas;	<p>Lessons such as 1-13 Problem Solving Strategy: Draw a Picture, 7-3 Surveys, and 8-18 Problem Solving Strategy: Make a Table as well as the entire Chapter 7 Statistics and Probability—help young people learn to record, organize, and share data.</p>

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(F) analyze mathematical relationships to connect and communicate mathematical ideas; and

A part of the chapter opener in the Teacher's Edition, the Math Connection: Critical Thinking/Finding Together feature provides suggestions for small group discussions of a challenging math problem. Students learn about relationships between concepts as they participate in these and other discussions that lead them to discover connections between mathematical ideas. They participate in several logical processes—classify and sort, compare and contrast, make conjectures, distinguish between relevant and irrelevant information, engage in deductive and inductive reasoning, and justify and verify their solutions.

(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

In addition to several opportunities in daily lessons to question and discuss the presentation of new concepts by the teacher, students explain mathematical ideas in written and oral communication in the following activities: Math Journal, Write About It, and Tell About It.

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

(A) compose and decompose numbers up to 100,000 as a sum of so many ten thousands, so many thousands, so many hundreds, so many tens, and so many ones using objects, pictorial models, and numbers, including expanded notation as appropriate;

Skills Update: Expanded Form—p. 1

1-1 Hundreds—pp. 30–31

Objective(s): To understand place value in 3-digit numbers; to read and write 3-digit numbers in standard, expanded, and word name form.

1-5 What Is One Thousand?—pp. 38–39

Objective(s): To explore the magnitude of 1000.

1-6 Thousands—pp. 40–41

Objective(s): To introduce place value in 4-digit numbers; to read and write 4-digit numbers in standard, expanded, and word name form.

1-7 Ten Thousands and Hundred Thousands—pp. 42–43

Objective(s): To introduce place value in 5- and 6-digit numbers; to read and write 5- and 6-digit numbers in standard, expanded, and word name form.

(B) describe the mathematical relationships found in the base-10 place value system through the hundred thousands place;

1-1 Hundreds—pp. 30–31

Objective(s): To understand place value in 3-digit numbers; to read and write 3-digit numbers in standard, expanded, and word name form.

1-5 What Is One Thousand?—pp. 38–39

Objective(s): To explore the magnitude of 1000.

1-6 Thousands—pp. 40–41

Objective(s): To introduce place value in 4-digit numbers; to read and write 4-digit numbers in standard, expanded, and word name form.

1-7 Ten Thousands and Hundred Thousands—pp. 42–43

Objective(s): To introduce place value in 5- and 6-digit numbers; to read and write 5- and 6-digit numbers in standard, expanded, and word name form.

(C) represent a number on a number line as being between two consecutive multiples of 10; 100; 1,000; or 10,000 and use words to describe relative size of numbers in order to round whole numbers; and

Order Numbers—pp. 34–35

Objective(s): To order 2- and 3-digit numbers from least to greatest and greatest to least.

1-8 Compare and Order Larger Numbers—pp. 44–45

Objective(s): To compare and order larger numbers.

1-9 Round Numbers—pp. 46–47

Objective(s): To round numbers to the nearest ten, hundred, or thousand.

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(D) compare and order whole numbers up to 100,000 and represent comparisons using the symbols  $>$ ,  $<$ , or  $=$ .

1-2 Compare Numbers—pp. 32–33  
 Objective(s): To compare 2- and 3-digit numbers.

1-3 Order Numbers—pp. 34–35  
 Objective(s): To order 2- and 3-digit numbers from least to greatest and greatest to least.

1-8 Compare and Order Larger Numbers—pp. 44–45  
 Objective(s): To compare and order larger numbers.

(3) Number and operations. The student applies mathematical process standards to represent and explain fractional units. The student is expected to:

(A) represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects and pictorial models, including strip diagrams and number lines;

Skills Update: Fractions: Part of a Whole—p. 8

Skills Update: Fractions: Part of a Set—p. 9

12-1 Fractions—pp. 386–387  
 Objective(s): To identify fractions as parts of a whole or parts of a set; to write the word name for a fraction and a fraction for the word name.

\*12-1A Use Fractions—Online  
 Objective(s): To identify fractions as part of a whole; to partition plane shapes into equal parts and express the area of each as a fraction.

12-2 Equivalent Fractions—pp. 388–389  
 Objective(s): To identify and write equivalent fractions.

12-3 Estimate Fractions—pp. 390–391  
 Objective(s): To use pictures to estimate fractional parts.

\*12-3A Compare Like Fractions Using Models—Online  
 Objective(s): To compare fractions with like denominators using models (fraction strips and number lines); to compare fractions with like denominators to 0,  $\frac{1}{2}$ , and  $\frac{1}{4}$ ; to justify comparisons using visual models.

12-4 Compare Fractions—p. 392  
 Objective(s): To explore comparing fractions with like and unlike denominators.

\*12-4B Fraction Sense—Online  
 Objective(s): To identify how the relationship between a fraction's numerator and denominator determines whether the fraction is less than  $\frac{1}{2}$ , between  $\frac{1}{2}$  and 1, or greater than 1.

12-5 Order Fractions—pp. 394–395  
 Objective(s): To compare and order fractions with like and unlike denominators.

12-6 Find Part of a Set—p. 396  
 Objective(s): To find a fractional part of a number or set.

12-7 Mixed Numbers—pp. 398–399  
 Objective(s): To write mixed numbers in standard and word name form.

12-11 Problem Solving Strategy: Use a Drawing/Model (represent fractions)—pp. 406–407  
 Objective(s): To solve problems by using a drawing or model.

(B) determine the corresponding fraction greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 given a specified point on a number line;

12-4 Compare Fractions—p. 393  
 Objective(s): To explore comparing fractions with like and unlike denominators.

12-7 Mixed Numbers (fractions on a number line)—pp. 398–399  
 Objective(s): To write mixed numbers in standard and word name form.

(C) explain that the unit fraction  $\frac{1}{b}$  represents the quantity formed by one part of a whole that has been partitioned into  $b$  equal parts where  $b$  is a non-zero whole number;

Skills Update: Fractions: Part of a Whole—p. 8

Skills Update: Fractions: Part of a Set—p. 9

12-1 Fractions—pp. 386–387  
 Objective(s): To identify fractions as parts of a whole or parts of a set; to write the word name for a fraction and a fraction for the word name.

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(D) compose and decompose a fraction  $a/b$  with a numerator greater than zero and less than or equal to  $b$  as a sum of parts  $1/b$ ;

(E) solve problems involving partitioning an object or a set of objects among two or more recipients using pictorial representations of fractions with denominators of 2, 3, 4, 6, and 8;

(F) represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines;

(G) explain that two fractions are equivalent if and only if they are both represented by the same point on the number line or represent the same portion of a same size whole for an area model; and

(H) compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models.

12-2 Equivalent Fractions (explain unit fraction  $1/b$ )—pp. 388–389

Objective(s): To identify and write equivalent fractions.

12-6 Find Part of a Set—pp. 396–397

Objective(s): To find a fractional part of a number or set.

12-1 Fractions—pp. 386–387

Objective(s): To identify fractions as parts of a whole or parts of a set; to write the word name for a fraction and a fraction for the word name.

12-2 Equivalent Fractions—pp. 388–389

Objective(s): To identify and write equivalent fractions.

12-6 Find Part of a Set—pp. 396–397

Objective(s): To find a fractional part of a number or set.

Skills Update: Fractions: Part of a Whole—p. 8

Skills Update: Fractions: Part of a Set—p. 9

12-2 Equivalent Fractions (explain unit fraction  $1/b$ )—pp. 388–389

Objective(s): To identify and write equivalent fractions.

12-6 Find Part of a Set—pp. 396–397

Objective(s): To find a fractional part of a number or set.

12-11 Problem Solving Strategy: Use a Drawing/Model (fractions)—pp. 406–407

Objective(s): To solve problems by using a drawing or model.

12-2 Equivalent Fractions—pp. 388–389

Objective(s): To identify and write equivalent fractions.

\*12-2A Model Equivalent Fractions—Online

Objective(s): To express whole numbers as fractions and vice versa; to identify and generate equivalent fractions; to identify equivalent fractions on a number line.

12-2 Equivalent Fractions—pp. 388–389

Objective(s): To identify and write equivalent fractions.

\*12-2A Model Equivalent Fractions—Online

Objective(s): To express whole numbers as fractions and vice versa; to identify and generate equivalent fractions; to identify equivalent fractions on a number line.

12-8 Add Fractions (equivalent fractions)—p. 401

Objective(s): To explore adding fractions with like denominators; to choose and use fraction models to show addition of fractions.

\*12-3A Compare Like Fractions Using Models—Online

Objective(s): To compare fractions with like denominators using models (fraction strips and number lines); to compare fractions with like denominators to 0,  $1/2$ , and  $1/4$ ; to justify comparisons using visual models.

12-4 Compare Fractions—pp. 392–393

Objective(s): To explore comparing fractions with like and unlike denominators.

\*12-4A Compare Unlike Fractions Using Fraction Strips—Online

Objective(s): To compare fractions with unlike denominators using models (fraction strips); to compare unit fractions (like  $1/4$  and  $1/5$ ); to compare multiples of unit fractions with the same numerator (like  $3/5$  and  $3/4$ ).

12-5 Order Fractions—pp. 394–395

Objective(s): To compare and order fractions with like and unlike denominators.

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

(A) solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction;

(B) round to the nearest 10 or 100 or use compatible numbers to estimate solutions to addition and subtraction problems;

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Skills Update: Addition Facts Through 18—p. 4  
 Skills Update: Subtraction Facts Through 18—p. 5  
 Chapter 2 Addition—pp. 63–98  
 Chapter 3 Subtraction— pp. 99–130

- 1-9 Round Numbers—pp. 46–47  
Objective(s): To round numbers to the nearest ten, hundred, or thousand.
- 2-3 Add No Regrouping—pp. 68–69  
Objective(s): To estimate sums using front-end estimation; to add 2- and 3-digit numbers with no regrouping.
- 2-4 Estimate Sums—pp. 70–71  
Objective(s): To use rounding to estimate sums to the nearest ten or hundred and to the nearest ten cents or dollar.
- 2-5 Add with Regrouping (estimate)—p. 73  
Objective(s): To add 2-digit numbers and money amounts with regrouping.
- 2-9 Three-Digit Addition (estimate)—pp. 78–79  
Objective(s): To add 3-digit numbers and money amounts, regrouping ones (pennies) or tens (dimes).
- 2-10 More Regrouping in Addition (estimate)—pp. 80–81  
Objective(s): To add 3-digit numbers and money amounts, regrouping ones (pennies) and tens (dimes).
- 2-13 Three or More Addends (estimate)—pp. 86–87  
Objective(s): To add three or more 3-digit addends, including money amounts, with multiple regroupings.
- 2-14 Add Larger Numbers (estimate)—p. 88  
Objective(s): To add 4-digit numbers and money amounts, with regrouping.
- 3-3 Estimate Differences—pp. 104–105  
Objective(s): To estimate differences to the nearest ten or hundred and to the nearest ten cents or dollar.
- 3-4 Subtract with Regrouping (estimate)—pp. 106–107  
Objective(s): To subtract 2-digit numbers or money amounts, regrouping once.
- 3-6 Regroup Once in Subtraction (estimate)—pp. 110–111  
Objective(s): To subtract 3-digit numbers and money amounts, regrouping once.
- 3-7 Regroup Twice in Subtraction (estimate)—pp. 112–113  
Objective(s): To subtract 3-digit numbers and money amounts, regrouping twice.
- 3-8 Regroup with Zeros (estimate)—p. 115  
Objective(s): To explore subtraction involving regrouping across zeros, using manipulatives.
- 3-10 Subtract Larger Numbers (estimate)—p. 118  
Objective(s): To subtract 4-digit numbers with regrouping.
- 3-11 Choose a Computation Method (estimate)—p. 120  
Objective(s): To identify criteria for choosing a method of computation; to determine whether an exact answer or an estimate is needed.
- 3-12 Problem Solving Strategy: Choose the Operation (estimate then add or subtract)—pp. 122–123  
Objective(s): To solve problems by choosing the operation

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<p>(C) determine the value of a collection of coins and bills;</p>	<p>Skills Update: Money Less Than \$1.00—p. 3                      1-10 Coins and Bills—pp. 48–49                      Objective(s): To determine the value of sets of coins and bills.                      1-11 Make and Count Change—pp. 50–51                      Objective(s): To make and count change correctly.                      1-12 Compare and Round Money—pp. 52–53                      Objective(s): To compare money amounts; to round money amounts to the nearest dollar.</p>
<p>(D) determine the total number of objects when equally-sized groups of objects are combined or arranged in arrays up to 10 by 10;</p>	<p>*4-6A Multiplication and Arrays—Online                      Objective(s): To use arrays to find products of facts; to use the commutative property to multiply.</p>
<p>(E) represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line, and skip counting;</p>	<p>4-1 Understand Multiplication—pp. 132–133                      Objective(s): To understand the meaning of multiplication.                      4-2 One and Zero as Factors—pp. 134–135                      Objective(s): To find the product when 1 or 0 is a factor.                      4-3 Multiply Twos—pp. 136–137                      Objective(s): To multiply twos.                      4-4 Multiply Threes—pp. 138–139                      Objective(s): To multiply threes.                      4-5 Multiply Fours—pp. 140–141                      Objective(s): To multiply fours.                      4-6 Multiply Fives—pp. 142–143                      Objective(s): To multiply fives.                      *4-6A Multiplication and Arrays—Online                      Objective(s): To use arrays to find products of facts; to use the commutative property to multiply.                      *4-6B Use a Bar Diagram to Multiply—Online                      Objective(s): To use a table and a bar diagram to solve a multiplication fact problem.                      *4-6C Multiplication Stories—Online                      Objective(s): To write and solve multiplication fact stories that emphasize the different representations of multiplication.                      4-7 Multiply Cents—pp. 144–145                      Objective(s): To multiply from 2 to 5 cents.                      4-8 Sums, Differences, and Products—pp. 146–147                      Objective(s): To maintain addition, subtraction, and multiplication skills.                      4-9 Order in Multiplication—pp. 148–149                      Objective(s): To apply the commutative property of multiplication.                      4-10 Missing Factors—pp. 150–151                      Objective(s): To find a missing factor.</p>
<p>(F) recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts;</p>	<p>4-1 Understand Multiplication—pp. 132–133                      Objective(s): To understand the meaning of multiplication.                      4-2 One and Zero as Factors—pp. 134–135                      Objective(s): To find the product when 1 or 0 is a factor.                      4-3 Multiply Twos—pp. 136–137                      Objective(s): To multiply twos.                      4-4 Multiply Threes—pp. 138–139                      Objective(s): To multiply threes.                      4-5 Multiply Fours—pp. 140–141                      Objective(s): To multiply fours.                      4-6 Multiply Fives—pp. 142–143                      Objective(s): To multiply fives.                      *4-6A Multiplication and Arrays—Online                      Objective(s): To use arrays to find products of facts; to use the commutative property to multiply.                      *4-6B Use a Bar Diagram to Multiply—Online                      Objective(s): To use a table and a bar diagram to solve a multiplication fact problem.</p>

- \*4-6C Multiplication Stories—Online  
Objective(s): To write and solve multiplication fact stories that emphasize the different representations of multiplication.
- 4-7 Multiply Cents—pp. 144–145  
Objective(s): To multiply from 2 to 5 cents.
- 4-8 Sums, Differences, and Products—pp. 146–147  
Objective(s): To maintain addition, subtraction, and multiplication skills.
- 4-9 Order in Multiplication—pp. 148–149  
Objective(s): To apply the commutative property of multiplication.
- 4-10 Missing Factors—pp. 150–151  
Objective(s): To find a missing factor.
- 5-1 Understand Division—pp. 162–163  
Objective(s): To understand the meanings of division; to understand the relationship between division and repeated subtraction.
- 5-2 One and Zero in Division—pp. 164–165  
Objective(s): To use 1 and 0 in division.
- 5-3 Divide by 2—pp. 166–167  
Objective(s): To divide by 2.
- 5-4 Divide by 3—pp. 168–169  
Objective(s): To divide by 3.
- 5-5 Divide by 4—pp. 170–171  
Objective(s): To divide by 4.
- 5-6 Divide by 5—pp. 172–173  
Objective(s): To divide by 5.
- \*5-6A Division Stories—Online  
Objective(s): To read and write division stories that emphasize the different representations of division.
- 5-7 Relate Multiplication and Division—pp. 174–175  
Objective(s): To relate multiplication and division.
- 5-8 Divide Cents—pp. 176–177  
Objective(s): To divide cents by 2 through 5.
- 5-9 Function Machines (use multiplication)—pp. 178–179  
Objective(s): To apply a rule to find the output for a function machine; to determine the next term in a linear pattern.
- 6-1 Factors and Products—p. 190  
Objective(s): To practice multiplying twos, threes, fours and fives.
- 6-2 Multiply Sixes—p. 191  
Objective(s): To multiply sixes.
- 6-3 Multiply Sevens—pp. 192–193  
Objective(s): To multiply sevens.
- 6-4 Multiply Eights—pp. 194–195  
Objective(s): To multiply eights.
- 6-5 Multiply Nines—pp. 196–197  
Objective(s): To multiply nines.
- \*6-5A Break Apart Numbers to Multiply—Online  
Objective(s): To draw and decompose arrays to find products of facts; to break apart arrays to find products; to use the distributive property to find products.
- \*6-5B Multiplication Tables—Online  
Objective(s): To use a multiplication table to find products; to identify and explain number patterns in a multiplication table; to apply properties of multiplication to explain multiplication patterns.
- 6-7 Division Review—pp. 200–201  
Objective(s): To review dividing by 2, 3, 4, and 5.
- 6-8 Divide by 6—pp. 202–203  
Objective(s): To divide by 6.
- 6-9 Divide by 7—pp. 204–205  
Objective(s): To divide by 7.



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(G) use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties;

(H) determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally;

6-10 Divide by 8—pp. 206–207

Objective(s): To divide by 8.

6-11 Divide by 9—pp. 208–209

Objective(s): To divide by 9.

10-1 Multiplication Patterns—pp. 336–337

Objective(s): To use basic facts and patterns of zero to multiply tens, hundreds, and thousands mentally.

\*10-1A Multiply with Multiples—Online

Objective(s): To multiply 1-digit numbers by multiples of 10 in the range of 10-90; to use strategies based on the properties of operations and place value to multiply 1-digit numbers and multiples of 10.

10-2 Estimate Products—pp. 338–339

Objective(s): To estimate products by rounding and front-end estimation.

10-3 Multiply Two Digits—pp. 340–341

Objective(s): To multiply a 2-digit number by a 1-digit number with no regrouping.

10-4 Multiply with Models—pp. 342–343

Objective(s): To use models to show multiplication with regrouping.

10-5 Multiply with Regrouping—pp. 344–345

Objective(s): To multiply a 2-digit number by a 1-digit number, with regrouping in the ones place.

10-6 More Multiplying with Regrouping—pp. 346–347

Objective(s): To multiply a 2-digit number by a 1-digit number with regrouping in the tens and ones places.

5-3 Divide by 2—pp. 166–167

Objective(s): To divide by 2.

5-4 Divide by 3—pp. 168–169

Objective(s): To divide by 3.

5-5 Divide by 4—pp. 170–171

Objective(s): To divide by 4.

5-6 Divide by 5—pp. 172–173

Objective(s): To divide by 5.

\*5-6A Division Stories—Online

Objective(s): To read and write division stories that emphasize the different representations of division.

5-7 Relate Multiplication and Division—pp. 174–175

Objective(s): To relate multiplication and division.

5-8 Divide Cents—pp. 176–177

Objective(s): To divide cents by 2 through 5.

5-9 Function Machines (use multiplication)—pp. 178–179

Objective(s): To apply a rule to find the output for a function machine; to determine the next term in a linear pattern.

6-1 Factors and Products—p. 190

Objective(s): To practice multiplying twos, threes, fours and fives.

6-2 Multiply Sixes—p. 191

Objective(s): To multiply sixes.

6-3 Multiply Sevens—pp. 192–193

Objective(s): To multiply sevens.

6-4 Multiply Eights—pp. 194–195

Objective(s): To multiply eights.

6-5 Multiply Nines—pp. 196–197

Objective(s): To multiply nines.

\*6-5A Break Apart Numbers to Multiply—Online

Objective(s): To draw and decompose arrays to find products of facts; to break apart arrays to find products; to use the distributive property to find products.

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(I) determine if a number is even or odd using divisibility rules;

(J) determine a quotient using the relationship between multiplication and division; and

(K) solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts.

(5) Algebraic reasoning. The student applies mathematical process standards to analyze and create patterns and relationships. The student is expected to:

(A) represent one- and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations;

(B) represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations;

\*6-5B Multiplication Tables—Online

Objective(s): To use a multiplication table to find products; to identify and explain number patterns in a multiplication table; to apply properties of multiplication to explain multiplication patterns.

6-6 Multiply Three Numbers—pp. 198–199

Objective(s): To multiply three 1-digit factors.

6-7 Division Review—pp. 200–201

Objective(s): To review dividing by 2, 3, 4, and 5.

6-8 Divide by 6—pp. 202–203

Objective(s): To divide by 6.

6-9 Divide by 7—pp. 204–205

Objective(s): To divide by 7.

6-10 Divide by 8—pp. 206–207

Objective(s): To divide by 8.

6-11 Divide by 9—pp. 208–209

Objective(s): To divide by 9.

5-7 Relate Multiplication and Division—pp. 174–175

Objective(s): To relate multiplication and division.

6-7 Division Review—pp. 200–201

Objective(s): To review dividing by 2, 3, 4, and 5.

6-8 Divide by 6—p. 202

Objective(s): To divide by 6.

6-9 Divide by 7—p. 205

Objective(s): To divide by 7.

6-10 Divide by 8—p. 206

Objective(s): To divide by 8.

6-11 Divide by 9—p. 208

Objective(s): To divide by 9.

6-12 Operation Patterns—p. 210

Objective(s): To identify and extend number patterns.

\*6-12A Missing Operands: Multiplication & Division—Online

Objective(s): To write an equation that is equivalent to one with a missing operand; to find the missing dividend or divisor; to find missing factors.

6-13 Fact Families—pp. 212–213

Objective(s): To identify multiplication and division fact families.

Chapter 4 Multiplication Concepts and Facts—pp. 131–160

Chapter 5 Division Concepts and Facts—pp. 161–188

Chapter 6 More Multiplication and Division Facts—pp. 189–224

Skills Update: Addition Facts Through 18—p. 4

Skills Update: Subtraction Facts Through 18—p. 5

Chapter 2 Addition—pp. 63–98

Chapter 3 Subtraction—pp. 99–130

Chapter 4 Multiplication Concepts and Facts—pp. 131–160

\*4-6A Multiplication and Arrays—Online

Objective(s): To use arrays to find products of facts; to use the commutative property to multiply.

\*4-6B Use a Bar Diagram to Multiply—Online

Objective(s): To use a table and a bar diagram to solve a multiplication fact problem.

(C) describe a multiplication expression as a comparison such as  $3 \times 24$  represents 3 times as much as 24;

(D) determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product; and

(E) represent real-world relationships using number pairs in a table and verbal descriptions.

(6) Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional geometric figures to develop generalizations about their properties. The student is expected to:

(A) classify and sort two- and three-dimensional figures, including cones, cylinders, spheres, triangular and rectangular prisms, and cubes, based on attributes using formal geometric language;

\*4-6C Multiplication Stories—Online

Objective(s): To write and solve multiplication fact stories that emphasize the different representations of multiplication.

Chapter 5 Division Concepts and Facts—pp. 161–188

\*5-6A Division Stories—Online

Objective(s): To read and write division stories that emphasize the different representations of division.

Chapter 6 More Multiplication and Division Facts—pp. 189–224

\*6-5A Break Apart Numbers to Multiply—Online

Objective(s): To draw and decompose arrays to find products of facts; to break apart arrays to find products; to use the distributive property to find products.

\*6-5B Multiplication Tables—Online

Objective(s): To use a multiplication table to find products; to identify and explain number patterns in a multiplication table; to apply properties of multiplication to explain multiplication patterns.

\*6-12A Missing Operands: Multiplication & Division—Online

Objective(s): To write an equation that is equivalent to one with a missing operand; to find the missing dividend or divisor; to find missing factors.

4-1 Understand Multiplication—pp. 132–133

Objective(s): To understand the meaning of multiplication.

4-2 One and Zero as Factors—pp. 134–135

Objective(s): To find the product when 1 or 0 is a factor.

4-9 Order in Multiplication—pp. 148–149

Objective(s): To apply the commutative property of multiplication.

6-6 Multiply Three Numbers—pp. 198–199

Objective(s): To multiply three 1-digit factors.

6-6 Multiply Three Numbers—p. 199

Objective(s): To multiply three 1-digit factors.

\*6-12A Missing Operands: Multiplication & Division—Online

Objective(s): To write an equation that is equivalent to one with a missing operand; to find the missing dividend or divisor; to find missing factors.

6-13 Fact Families—pp. 212–213

Objective(s): To identify multiplication and division fact families.

4-10 Missing Factors—pp. 150–151

Objective(s): To find a missing factor.

9-6 Ordered Pairs—pp. 314–315

Objective(s): To locate points and name ordered pairs on a coordinate grid.

9-14 Problem Solving Applications: Mixed Review (ordered pair)—p. 328

Skills Update: Solid Figures—p. 17

9-3 Polygons and Circles—pp. 308–309

Objective(s): To explore and classify polygons; to distinguish polygons from circles.

9-4 Triangles—pp. 310–311

Objective(s): To identify right isosceles, equilateral, and scalene triangles.

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(B) use attributes to recognize rhombuses, parallelograms, trapezoids, rectangles, and squares as examples of quadrilaterals and draw examples of quadrilaterals that do not belong to any of these subcategories;

(C) determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row;

(D) decompose composite figures formed by rectangles into non-overlapping rectangles to determine the area of the original figure using the additive property of area; and

(E) decompose two congruent two-dimensional figures into parts with equal areas and express the area of each part as a unit fraction of the whole and recognize that equal shares of identical wholes need not have the same shape.

(7) Geometry and measurement. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving customary and metric measurement. The student is expected to:

(A) represent fractions of halves, fourths, and eighths as distances from zero on a number line;

(B) determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems;

(C) determine the solutions to problems involving addition and subtraction of time intervals in minutes using pictorial models or tools such as a 15-minute event plus a 30-minute event equals 45 minutes;

9-9 Solid Figures—pp. 318–319  
 Objective(s): To identify solid figures and attributes of solid figures; to recognize and use nets for solid figures.

Ch. 9 Enrichment: Complex Solid Figures (make other figures)—p. 331

9-3 Polygons and Circles—pp. 308–309  
 Objective(s): To explore and classify polygons; to distinguish polygons from circles.

\*9-4A Quadrilaterals—Online  
 Objective(s): To identify and classify quadrilaterals; to draw examples of quadrilaterals that do not belong to any subcategory.

9-11 Area—pp. 322–323  
 Objective(s): To find the area of a given shape.

\*9-11A Area of a Rectangle—Online  
 Objective(s): To find the area of a rectangle by tiling it; to find the area of a rectangle by multiplication.

\*9-11B Area of Composite Shapes—Online  
 Objective(s): To find the area of composite rectilinear shapes by adding areas; to find the area of a rectangle by using the distributive property.

9-14 Problem Solving Applications: Mixed Review—pp. 328–329

Ch. 9 Enrichment: Complex Solid Figures (make other figures)—p. 331

12-4 Compare Fractions (on a number line)—p. 393  
 Objective(s): To explore comparing fractions with like and unlike denominators.

12-7 Mixed Numbers (on a number line)—pp. 398–399  
 Objective(s): To write mixed numbers in standard and word name form.

13-1 Fractions and Decimals (on a number line)—p. 417  
 Objective(s): To read and write fractions and decimals expressed as tenths.

9-10 Perimeter—pp. 320–321  
 Objective(s): To estimate and find perimeter.

9-11 Area (find perimeter)—pp. 322–323  
 Objective(s): To find the area of a given shape.

\*9-11C Perimeter and Area—Online  
 Objective(s): To show there is no relation between perimeter and area; to understand that figures with the same perimeter can have different areas; to understand that figures with the same area can have different perimeters.

8-14 Quarter Hour—pp. 286–287  
 Objective(s): To tell and write time to the hour, half hour, and quarter hour; to write times that include A.M. and P.M.

8-15 Minutes—pp. 288–289  
 Objective(s): To tell time to the minute, and to estimate time to the nearest half hour and nearest hour.

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(D) determine when it is appropriate to use measurements of liquid volume (capacity) or weight; and

(E) determine liquid volume (capacity) or weight using appropriate units and tools.

(8) Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to:

(A) summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals; and

8-16 Elapsed Time—pp. 290–291  
 Objective(s): To find the elapsed time between two given times; to tell what time it will be in a given number of minutes or hours.

\*8-16A Time on a Number Line—Online  
 Objective(s): To use a number line to solve problems about elapsed time

Skills Update: Cup, Pint, Quart—p. 12

Skills Update: Liter—p. 13

8-4 Customary Units of Capacity—pp. 266–267  
 Objective(s): To use customary units to measure liquid capacity; to compare customary units of capacity.

8-5 Ounce, Pound—pp. 268–269  
 Objective(s): To choose the appropriate customary unit of weight; to compare customary units of weight.

8-9 Milliliter, Liter—pp. 276–277  
 Objective(s): To use the metric units of milliliter and liter to estimate capacity; to compare metric units of capacity.

8-11 Rename Units of Measure—pp. 280–281  
 Objective(s): To rename customary units of length and capacity; to rename metric units of length.

8-12 Choose the Measuring Tool—pp. 282–283  
 Objective(s): To choose the appropriate tool for measuring length, capacity, weight, or mass.

8-19 Problem Solving Applications: Mixed Review (units of weight/mass)—pp. 296–297

Ch. 8 Enrichment: Compare Systems of Measure—p. 299

Skills Update: Cup, Pint, Quart—p. 12

Skills Update: Liter—p. 13

8-4 Customary Units of Capacity—pp. 266–267  
 Objective(s): To use customary units to measure liquid capacity; to compare customary units of capacity.

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8-19 Problem Solving Applications: Mixed Review (units of weight/mass)—pp. 296–297

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*\*Related content—*

Skills Update: Read a Pictograph—p. 19

Skills Update: Read a Bar Graph—p. 20

7-1 Pictographs—pp. 226–227

Objective(s): To read, interpret, and make pictographs.

7-2 Bar Graphs—pp. 228–229

Objective(s): To read, interpret, and make bar graphs.

- (B) solve one- and two-step problems using categorical data represented with a frequency table, dot plot, pictograph, or bar graph with scaled intervals.

- \*7-2A Data and Two-Step Problems—Online  
 Objective(s): To solve two-step problems using information presented in bar graphs.
- 7-3 Surveys—pp. 230–231  
 Objective(s): To learn how to conduct a survey; to organize and record data in a tally chart; to make a graph from data in a tally chart.
- 7-4 Circle Graphs—pp. 232–233  
 Objective(s): To read and interpret circle graphs.
- 7-5 Line Plots—pp. 234–235  
 Objective(s): To make, read, and interpret line plots; to use line plots to find the mode and range of a set of data.
- 7-6 Line Graphs—pp. 236–237  
 Objective(s): To read and interpret line graphs.
- 7-7 Median and Mean—pp. 238–239  
 Objective(s): To analyze a set of data by finding the median and the mean.
- 7-8 Compare Data—pp. 240–241  
 Objective(s): To compare sets of data displayed in bar graphs, line plots, and pictographs.
- 7-14 Problem Solving Applications: Mixed Review—pp. 252–253
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- Tables—pp. 24 (SU), 27 (SU), 32, 56, 72, 86, 88, 92, 106, 125, 137, 139, 141, 151, 167, 169, 171, 173, 190, 191, 193, 194, 197, 202, 204, 216, 219, 263, 269, 271, 273, 274, 277, 279, 291, 294, 319, 325, 345, 347, 352, 425, 429, 432, 441, 452
- 3-1 Subtraction Concepts (use a pictograph)—pp. 101  
 Objective(s): To learn four meanings of subtraction.
- 5-11 Problem Solving Applications: Mixed Review (use a pictograph)—p. 183
- 6-16 Problem Solving Applications: Mixed Review (use a pictograph)—p. 219
- 7-1 Pictographs—pp. 226–227  
 Objective(s): To read, interpret, and make pictographs.
- 7-2 Bar Graphs—pp. 228–229  
 Objective(s): To read, interpret, and make bar graphs.
- \*7-2A Data and Two-Step Problems—Online  
 Objective(s): To solve two-step problems using information presented in bar graphs.
- 7-3 Surveys—pp. 230–231  
 Objective(s): To learn how to conduct a survey; to organize and record data in a tally chart; to make a graph from data in a tally chart.
- 7-5 Line Plots—pp. 234–235  
 Objective(s): To make, read, and interpret line plots; to use line plots to find the mode and range of a set of data.
- 7-6 Line Graphs—pp. 236–237  
 Objective(s): To read and interpret line graphs.
- 7-7 Median and Mean (chart)—p. 239  
 Objective(s): To analyze a set of data by finding the median and the mean.
- 7-8 Compare Data—p. 241  
 Objective(s): To compare sets of data displayed in bar graphs, line plots, and pictographs.
- 7-11 Graph Results of Probability Experiments—pp. 246–247  
 Objective(s): To graph the results of probability experiments.
- 7-13 Problem Solving Strategy: Use a Graph—pp. 250–251  
 Objective(s): To use a bar graph or pictograph to solve problems.
- 7-14 Problem Solving Applications: Mixed Review—pp. 252–253

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(9) 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:	
(A) explain the connection between human capital/labor and income;	n/a
(B) describe the relationship between the availability or scarcity of resources and how that impacts cost;	n/a
(C) identify the costs and benefits of planned and unplanned spending decisions;	n/a
(D) explain that credit is used when wants or needs exceed the ability to pay and that it is the borrower's responsibility to pay it back to the lender, usually with interest;	n/a
(E) list reasons to save and explain the benefit of a savings plan, including for college; and	n/a
(F) identify decisions involving income, spending, saving, credit, and charitable giving.	n/a