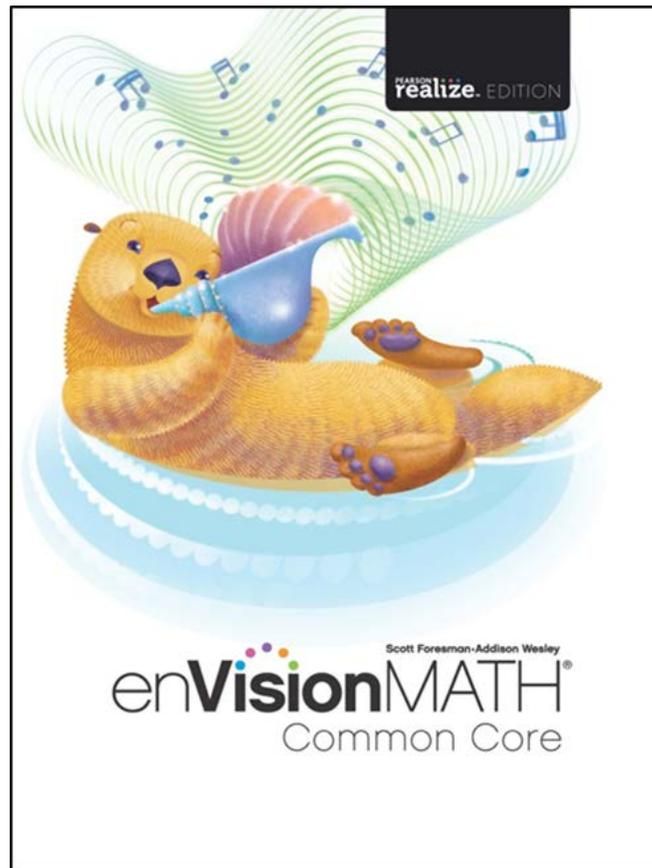


An Alignment of
**Minnesota Academic Standards
for Mathematics 2007**

Minnesota Department of
Education



To the Lessons of
enVisionMATH Common Core

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Grade 3

**An Alignment of the Minnesota Academic Standards for Mathematics 2007
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Number and Operations in Base Ten	
Topic 1: Numeration	
Lesson 1-1: Representing Numbers	<p>3.1.1.1 Read, write and represent whole numbers up to 100,000. Representations may include numerals, expressions with operations, words, pictures, number lines, and manipulatives such as bundles of sticks and base 10 blocks.</p> <p>3.1.1.2 Use place value to describe whole numbers between 1000 and 100,000 in terms of ten thousands, thousands, hundreds, tens and ones.</p> <p>2.1.1.1 Read, write and represent whole numbers up to 1000. Representations may include numerals, addition, subtraction, multiplication, words, pictures, tally marks, number lines and manipulatives, such as bundles of sticks and base 10 blocks.</p> <p>2.1.1.2 Use place value to describe whole numbers between 10 and 1000 in terms of hundreds, tens and ones. Know that 100 is 10 tens, and 1000 is 10 hundreds.</p>
Lesson 1-2: Understanding Number Lines	<p>3.1.1.1 Read, write and represent whole numbers up to 100,000. Representations may include numerals, expressions with operations, words, pictures, number lines, and manipulatives such as bundles of sticks and base 10 blocks.</p> <p>3.1.1.5 Compare and order whole numbers up to 100,000.</p> <p>2.1.1.1 Read, write and represent whole numbers up to 1000. Representations may include numerals, addition, subtraction, multiplication, words, pictures, tally marks, number lines and manipulatives, such as bundles of sticks and base 10 blocks.</p> <p>2.1.1.5 Compare and order whole numbers up to 1000.</p>

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<p>Lesson 1-3: Counting on the Number Line</p>	<p>3.1.1.1 Read, write and represent whole numbers up to 100,000. Representations may include numerals, expressions with operations, words, pictures, number lines, and manipulatives such as bundles of sticks and base 10 blocks.</p> <p>3.1.1.5 Compare and order whole numbers up to 100,000.</p> <p>2.1.1.1 Read, write and represent whole numbers up to 1000. Representations may include numerals, addition, subtraction, multiplication, words, pictures, tally marks, number lines and manipulatives, such as bundles of sticks and base 10 blocks.</p> <p>2.1.1.5 Compare and order whole numbers up to 1000.</p>
<p>Lesson 1-4: Finding the Halfway Number</p>	<p>3.1.1.1 Read, write and represent whole numbers up to 100,000. Representations may include numerals, expressions with operations, words, pictures, number lines, and manipulatives such as bundles of sticks and base 10 blocks.</p> <p>3.1.1.4 Round numbers to the nearest 10,000, 1000, 100 and 10. Round up and round down to estimate sums and differences.</p> <p>3.1.1.5 Compare and order whole numbers up to 100,000.</p> <p>2.1.1.4 Round numbers up to the nearest 10 and 100 and round numbers down to the nearest 10 and 100.</p> <p>2.1.1.5 Compare and order whole numbers up to 1000.</p>

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Lesson 1-5: Rounding	<p>3.1.1.1 Read, write and represent whole numbers up to 100,000. Representations may include numerals, expressions with operations, words, pictures, number lines, and manipulatives such as bundles of sticks and base 10 blocks.</p> <p>3.1.1.4 Round numbers to the nearest 10,000, 1000, 100 and 10. Round up and round down to estimate sums and differences.</p> <p>2.1.1.4 Round numbers up to the nearest 10 and 100 and round numbers down to the nearest 10 and 100.</p>
Lesson 1-6: More Rounding	<p>3.1.1.1 Read, write and represent whole numbers up to 100,000. Representations may include numerals, expressions with operations, words, pictures, number lines, and manipulatives such as bundles of sticks and base 10 blocks.</p> <p>3.1.1.4 Round numbers to the nearest 10,000, 1000, 100 and 10. Round up and round down to estimate sums and differences.</p> <p>2.1.1.4 Round numbers up to the nearest 10 and 100 and round numbers down to the nearest 10 and 100.</p>
Lesson 1-7: Problem Solving: Make an Organized List	<p>For related content, please see:</p> <p>3.4.1.1 Collect, display and interpret data using frequency tables, bar graphs, picture graphs and number line plots having a variety of scales. Use appropriate titles, labels and units.</p> <p>4.2.1.1 Create and use input-output rules involving addition, subtraction, multiplication and division to solve problems in various contexts. Record the inputs and outputs in a chart or table.</p>

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(Continued) Lesson 1-7: Problem Solving: Make an Organized List	4.4.1.1 Use tables, bar graphs, timelines and Venn diagrams to display data sets. The data may include fractions or decimals. Understand that spreadsheet tables and graphs can be used to display data.
Topic 2: Number Sense: Addition and Subtraction	
Lesson 2-1: Addition Meaning and Properties	<p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p> <p>3.1.2.2 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.</p> <p>3.1.2.5 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties.</p> <p>2.1.2.1 Use strategies to generate addition and subtraction facts including making tens, fact families, doubles plus or minus one, counting on, counting back, and the commutative and associative properties. Use the relationship between addition and subtraction to generate basic facts.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>

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<p>Lesson 2-2: Subtraction Meanings</p>	<p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p> <p>3.1.2.2 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.</p> <p>3.1.2.5 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties.</p> <p>2.1.2.1 Use strategies to generate addition and subtraction facts including making tens, fact families, doubles plus or minus one, counting on, counting back, and the commutative and associative properties. Use the relationship between addition and subtraction to generate basic facts.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
<p>Lesson 2-3: Using Mental Math to Add</p>	<p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p>

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<p>(Continued) Lesson 2-3: Using Mental Math to Add</p>	<p>3.1.2.2 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.</p> <p>3.1.2.5 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties.</p> <p>2.1.2.1 Use strategies to generate addition and subtraction facts including making tens, fact families, doubles plus or minus one, counting on, counting back, and the commutative and associative properties. Use the relationship between addition and subtraction to generate basic facts.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
<p>Lesson 2-4: Using Mental Math to Subtract</p>	<p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p> <p>3.1.2.2 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.</p>

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<p>(Continued) Lesson 2-4: Using Mental Math to Subtract</p>	<p>3.1.2.5 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties.</p> <p>2.1.2.1 Use strategies to generate addition and subtraction facts including making tens, fact families, doubles plus or minus one, counting on, counting back, and the commutative and associative properties. Use the relationship between addition and subtraction to generate basic facts.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
<p>Lesson 2-5: Estimating Sums</p>	<p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p> <p>2.1.2.2 Demonstrate fluency with basic addition facts and related subtraction facts.</p> <p>2.1.2.3 Estimate sums and differences up to 100.</p>
<p>Lesson 2-6: Estimating Differences</p>	<p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p> <p>2.1.2.2 Demonstrate fluency with basic addition facts and related subtraction facts.</p>

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(Continued) Lesson 2-6: Estimating Differences	2.1.2.3 Estimate sums and differences up to 100.
Lesson 2-7: Problem Solving: Reasonableness	<p>3.1.2.2 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.</p> <p>3.2.1.1 Create, describe, and apply single-operation input-output rules involving addition, subtraction and multiplication to solve problems in various contexts.</p> <p>2.1.2.5 Solve real-world and mathematical addition and subtraction problems involving whole numbers with up to 2 digits.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
Topic 3: Using Place Value to Add and Subtract	
Lesson 3-1: Adding with an Expanded Algorithm	<p>3.1.1.2 Use place value to describe whole numbers between 1000 and 100,000 in terms of ten thousands, thousands, hundreds, tens and ones.</p> <p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p>

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<p>(Continued) Lesson 3-1: Adding with an Expanded Algorithm</p>	<p>3.1.2.5 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties.</p> <p>2.1.1.2 Use place value to describe whole numbers between 10 and 1000 in terms of hundreds, tens and ones. Know that 100 is 10 tens, and 1000 is 10 hundreds.</p> <p>2.1.2.2 Demonstrate fluency with basic addition facts and related subtraction facts.</p> <p>2.1.2.4 Use mental strategies and algorithms based on knowledge of place value and equality to add and subtract two-digit numbers. Strategies may include decomposition, expanded notation, and partial sums and differences.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
<p>Lesson 3-2: Models for Adding 3-Digit Numbers</p>	<p>3.1.1.2 Use place value to describe whole numbers between 1000 and 100,000 in terms of ten thousands, thousands, hundreds, tens and ones.</p> <p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p>

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<p>(Continued) Lesson 3-2: Models for Adding 3-Digit Numbers</p>	<p>3.1.2.2 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.</p> <p>3.1.2.5 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties.</p> <p>2.1.1.2 Use place value to describe whole numbers between 10 and 1000 in terms of hundreds, tens and ones. Know that 100 is 10 tens, and 1000 is 10 hundreds.</p> <p>2.1.2.2 Demonstrate fluency with basic addition facts and related subtraction facts.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
<p>Lesson 3-3: Adding 3-Digit Numbers</p>	<p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p> <p>3.1.2.2 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.</p>

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<p>(Continued) Lesson 3-3: Adding 3-Digit Numbers</p>	<p>3.1.2.5 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties.</p> <p>2.1.2.3 Estimate sums and differences up to 100.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
<p>Lesson 3-4: Adding 3 or More Numbers</p>	<p>3.1.1.2 Use place value to describe whole numbers between 1000 and 100,000 in terms of ten thousands, thousands, hundreds, tens and ones.</p> <p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p> <p>3.1.2.5 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties.</p> <p>2.1.1.2 Use place value to describe whole numbers between 10 and 1000 in terms of hundreds, tens and ones. Know that 100 is 10 tens, and 1000 is 10 hundreds.</p>

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<p>(Continued) Lesson 3-4: Adding 3 or More Numbers</p>	<p>2.1.2.4 Use mental strategies and algorithms based on knowledge of place value and equality to add and subtract two-digit numbers. Strategies may include decomposition, expanded notation, and partial sums and differences.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
<p>Lesson 3-5: Problem Solving: Draw a Picture</p>	<p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p> <p>3.1.2.2 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.</p> <p>3.2.1.1 Create, describe, and apply single-operation input-output rules involving addition, subtraction and multiplication to solve problems in various contexts.</p> <p>2.1.2.1 Use strategies to generate addition and subtraction facts including making tens, fact families, doubles plus or minus one, counting on, counting back, and the commutative and associative properties. Use the relationship between addition and subtraction to generate basic facts.</p>

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(Continued) Lesson 3-5: Problem Solving: Draw a Picture	<p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
Lesson 3-6: Subtracting with an Expanded Algorithm	<p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p> <p>3.1.2.2 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.</p> <p>3.2.1.1 Create, describe, and apply single-operation input-output rules involving addition, subtraction and multiplication to solve problems in various contexts.</p> <p>2.1.2.4 Use mental strategies and algorithms based on knowledge of place value and equality to add and subtract two-digit numbers. Strategies may include decomposition, expanded notation, and partial sums and differences.</p> <p>2.1.2.2 Demonstrate fluency with basic addition facts and related subtraction facts.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>

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<p>Lesson 3-7: Models for Subtracting 3-Digit Numbers</p>	<p>3.1.1.2 Use place value to describe whole numbers between 1000 and 100,000 in terms of ten thousands, thousands, hundreds, tens and ones.</p> <p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p> <p>3.1.2.2 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.</p> <p>2.1.1.2 Use place value to describe whole numbers between 10 and 1000 in terms of hundreds, tens and ones. Know that 100 is 10 tens, and 1000 is 10 hundreds.</p> <p>2.1.2.2 Demonstrate fluency with basic addition facts and related subtraction facts.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
<p>Lesson 3-8: Subtracting 3-Digit Numbers</p>	<p>3.1.1.2 Use place value to describe whole numbers between 1000 and 100,000 in terms of ten thousands, thousands, hundreds, tens and ones.</p> <p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p>

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<p>(Continued) Lesson 3-8: Subtracting 3-Digit Numbers</p>	<p>3.1.2.2 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.</p> <p>2.1.1.2 Use place value to describe whole numbers between 10 and 1000 in terms of hundreds, tens and ones. Know that 100 is 10 tens, and 1000 is 10 hundreds.</p> <p>2.1.2.2 Demonstrate fluency with basic addition facts and related subtraction facts.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
<p>Lesson 3-9: Subtracting Across Zero</p>	<p>3.1.1.2 Use place value to describe whole numbers between 1000 and 100,000 in terms of ten thousands, thousands, hundreds, tens and ones.</p> <p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p> <p>3.1.2.2 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.</p>

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<p>(Continued) Lesson 3-9: Subtracting Across Zero</p>	<p>2.1.1.2 Use place value to describe whole numbers between 10 and 1000 in terms of hundreds, tens and ones. Know that 100 is 10 tens, and 1000 is 10 hundreds.</p> <p>2.1.2.2 Demonstrate fluency with basic addition facts and related subtraction facts.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
<p>Lesson 3-10: Making Sense of Addition Equations</p>	<p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p> <p>3.1.2.2 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.</p> <p>2.2.2.1 Understand how to interpret number sentences involving addition, subtraction and unknowns represented by letters. Use objects and number lines and create real-world situations to represent number sentences.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>

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Lesson 3-11: Making Sense of Subtraction Equations	<p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p> <p>3.1.2.2 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.</p> <p>2.2.2.1 Understand how to interpret number sentences involving addition, subtraction and unknowns represented by letters. Use objects and number lines and create real-world situations to represent number sentences.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
Lesson 3-12: Adding and Subtracting	<p>3.1.1.2 Use place value to describe whole numbers between 1000 and 100,000 in terms of ten thousands, thousands, hundreds, tens and ones.</p> <p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p> <p>3.1.2.2 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.</p>

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<p>(Continued) Lesson 3-12: Adding and Subtracting</p>	<p>2.1.1.2 Use place value to describe whole numbers between 10 and 1000 in terms of hundreds, tens and ones. Know that 100 is 10 tens, and 1000 is 10 hundreds.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
<p>Lesson 3-13: Problem Solving: Draw a Picture and Write a Number Sentence</p>	<p>3.1.2.1 Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.</p> <p>3.1.2.2 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.</p> <p>3.1.2.5 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties.</p> <p>2.1.2.5 Solve real-world and mathematical addition and subtraction problems involving whole numbers with up to 2 digits.</p>

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(Continued) Lesson 3-13: Problem Solving: Draw a Picture and Write a Number Sentence	4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.
Operations and Algebraic Thinking	
Topic 4: Meanings of Multiplication	
Lesson 4-1: Multiplication as Repeated Addition	3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division. 3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.
Lesson 4-2: Arrays and Multiplication	3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division. 3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems. 4.1.1.1 Demonstrate fluency with multiplication and division facts.

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(Continued) Lesson 4-2: Arrays and Multiplication	<p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
Lesson 4-3: The Commutative Property	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>3.1.2.5 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>

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<p>Lesson 4-4: Writing Multiplication Stories</p>	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>3.1.2.5 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties.</p> <p>3.2.1.1 Create, describe, and apply single-operation input-output rules involving addition, subtraction and multiplication to solve problems in various contexts.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>

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Lesson 4-5: Problem Solving: Writing to Explain	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>3.1.2.5 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
Topic 5: Multiplication Facts: Use Patterns	
Lesson 5-1: 2 and 5 as Factors	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p>

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(Continued) Lesson 5-1: 2 and 5 as Factors	<p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p>
Lesson 5-2: 9 as a Factor	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p>
Lesson 5-3: Multiplying with 0 and 1	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p>

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Lesson 5-4: Patterns for Facts	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p>
Lesson 5-5: 10 as a Factor	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p> <p>4.1.1.2 Use an understanding of place value to multiply a number by 10, 100 and 1000.</p>

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Lesson 5-6: Multiplying by Multiples of 10	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p>
Lesson 5-7: Problem Solving: Two-Question Problems	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>3.2.1.1 Create, describe, and apply single-operation input-output rules involving addition, subtraction and multiplication to solve problems in various contexts.</p>

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(Continued) Lesson 5-7: Problem Solving: Two-Question Problems	<p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
Topic 6: Multiplication Facts: Use Known Facts	
Lesson 6-1: The Distributive Property	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>3.1.2.5 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties.</p> <p>3.2.1.1 Create, describe, and apply single-operation input-output rules involving addition, subtraction and multiplication to solve problems in various contexts.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p>

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<p>Lesson 6-2: 3 as a Factor</p>	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p> <p>4.1.1.3 Multiply multi-digit numbers, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms.</p>
<p>Lesson 6-3: 4 as a Factor</p>	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p>

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(Continued) Lesson 6-3: 4 as a Factor	<p>4.1.1.3 Multiply multi-digit numbers, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms.</p>
Lesson 6-4: 6 and 7 as Factors	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p> <p>4.1.1.3 Multiply multi-digit numbers, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms.</p>
Lesson 6-5: 8 as a Factor	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p>

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(Continued) Lesson 6-5: 8 as a Factor	<p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p> <p>4.1.1.3 Multiply multi-digit numbers, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms.</p>
Lesson 6-6: Multiplying with 3 Factors	<p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>3.1.2.5 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p>
Lesson 6-7: Multiplication Facts	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p>

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<p>(Continued) Lesson 6-7: Multiplication Facts</p>	<p>3.1.2.5 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p> <p>4.1.1.3 Multiply multi-digit numbers, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms.</p>
<p>Lesson 6-8: Multiplying to Find Combinations</p>	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>3.2.1.1 Create, describe, and apply single-operation input-output rules involving addition, subtraction and multiplication to solve problems in various contexts.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p> <p>4.1.1.3 Multiply multi-digit numbers, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms.</p>

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Lesson 6-9: Problem Solving: Multiple-Step Problems	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
Topic 7: Meanings of Division	
Lesson 7-1: Division as Sharing	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p>

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(Continued) Lesson 7-1: Division as Sharing	<p>4.1.1.6 Use strategies and algorithms based on knowledge of place value, equality and properties of operations to divide multi-digit whole numbers by one- or two-digit numbers. Strategies may include mental strategies, partial quotients, the commutative, associative, and distributive properties and repeated subtraction.</p>
Lesson 7-2: Division as Repeated Subtraction	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p> <p>4.1.1.6 Use strategies and algorithms based on knowledge of place value, equality and properties of operations to divide multi-digit whole numbers by one- or two-digit numbers. Strategies may include mental strategies, partial quotients, the commutative, associative, and distributive properties and repeated subtraction.</p>
Lesson 7-3: Finding Missing Numbers in a Multiplication Table	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p>

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<p>(Continued) Lesson 7-3: Finding Missing Numbers in a Multiplication Table</p>	<p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>3.2.2.1 Understand how to interpret number sentences involving multiplication and division basic facts and unknowns. Create real-world situations to represent number sentences.</p> <p>3.2.2.2 Use multiplication and division basic facts to represent a given problem situation using a number sentence. Use number sense and multiplication and division basic facts to find values for the unknowns that make the number sentences true.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p>
<p>Lesson 7-4: Problem Solving: Choose an Appropriate Equation</p>	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>3.2.2.1 Understand how to interpret number sentences involving multiplication and division basic facts and unknowns. Create real-world situations to represent number sentences.</p>

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<p>(Continued) Lesson 7-4: Problem Solving: Choose an Appropriate Equation</p>	<p>3.2.2.2 Use multiplication and division basic facts to represent a given problem situation using a number sentence. Use number sense and multiplication and division basic facts to find values for the unknowns that make the number sentences true.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p> <p>4.1.1.6 Use strategies and algorithms based on knowledge of place value, equality and properties of operations to divide multi-digit whole numbers by one- or two-digit numbers. Strategies may include mental strategies, partial quotients, the commutative, associative, and distributive properties and repeated subtraction.</p>
<p>Lesson 7-5: Writing Division Stories</p>	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>3.2.2.1 Understand how to interpret number sentences involving multiplication and division basic facts and unknowns. Create real-world situations to represent number sentences.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p>

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(Continued) Lesson 7-5: Writing Division Stories	<p>4.1.1.6 Use strategies and algorithms based on knowledge of place value, equality and properties of operations to divide multi-digit whole numbers by one- or two-digit numbers. Strategies may include mental strategies, partial quotients, the commutative, associative, and distributive properties and repeated subtraction.</p>
Lesson 7-6: Problem Solving: Use Objects and Draw a Picture	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>4.1.1.6 Use strategies and algorithms based on knowledge of place value, equality and properties of operations to divide multi-digit whole numbers by one- or two-digit numbers. Strategies may include mental strategies, partial quotients, the commutative, associative, and distributive properties and repeated subtraction.</p>
Topic 8: Division Facts	
Lesson 8-1: Relating Multiplication and Division	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p>

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<p>(Continued) Lesson 8-1: Relating Multiplication and Division</p>	<p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>3.2.2.2 Use multiplication and division basic facts to represent a given problem situation using a number sentence. Use number sense and multiplication and division basic facts to find values for the unknowns that make the number sentences true.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
<p>Lesson 8-2: Fact Families with 2, 3, 4 and 5</p>	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>3.2.2.2 Use multiplication and division basic facts to represent a given problem situation using a number sentence. Use number sense and multiplication and division basic facts to find values for the unknowns that make the number sentences true.</p>

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(Continued) Lesson 8-2: Fact Families with 2, 3, 4 and 5	<p>4.1.1.6 Use strategies and algorithms based on knowledge of place value, equality and properties of operations to divide multi-digit whole numbers by one- or two-digit numbers. Strategies may include mental strategies, partial quotients, the commutative, associative, and distributive properties and repeated subtraction.</p>
Lesson 8-3: Fact Families with 6 and 7	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>3.2.2.2 Use multiplication and division basic facts to represent a given problem situation using a number sentence. Use number sense and multiplication and division basic facts to find values for the unknowns that make the number sentences true.</p> <p>4.1.1.6 Use strategies and algorithms based on knowledge of place value, equality and properties of operations to divide multi-digit whole numbers by one- or two-digit numbers. Strategies may include mental strategies, partial quotients, the commutative, associative, and distributive properties and repeated subtraction.</p>

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<p>Lesson 8-4: Fact Families with 8 and 9</p>	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>3.2.2.2 Use multiplication and division basic facts to represent a given problem situation using a number sentence. Use number sense and multiplication and division basic facts to find values for the unknowns that make the number sentences true.</p> <p>4.1.1.6 Use strategies and algorithms based on knowledge of place value, equality and properties of operations to divide multi-digit whole numbers by one- or two-digit numbers. Strategies may include mental strategies, partial quotients, the commutative, associative, and distributive properties and repeated subtraction.</p>
<p>Lesson 8-5: Problem Solving: Multiple-Step Problems</p>	<p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>3.2.2.1 Understand how to interpret number sentences involving multiplication and division basic facts and unknowns. Create real-world situations to represent number sentences.</p>

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<p>(Continued) Lesson 8-5: Problem Solving: Multiple-Step Problems</p>	<p>3.2.2.2 Use multiplication and division basic facts to represent a given problem situation using a number sentence. Use number sense and multiplication and division basic facts to find values for the unknowns that make the number sentences true.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>
<p>Lesson 8-6: Making Sense of Multiplication and Division Equations</p>	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>3.2.2.2 Use multiplication and division basic facts to represent a given problem situation using a number sentence. Use number sense and multiplication and division basic facts to find values for the unknowns that make the number sentences true.</p> <p>4.1.1.1 Demonstrate fluency with multiplication and division facts.</p>

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(Continued) Lesson 8-6: Making Sense of Multiplication and Division Equations	<p>4.1.1.6 Use strategies and algorithms based on knowledge of place value, equality and properties of operations to divide multi-digit whole numbers by one- or two-digit numbers. Strategies may include mental strategies, partial quotients, the commutative, associative, and distributive properties and repeated subtraction.</p>
Lesson 8-7: Dividing with 0 and 1	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p> <p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>4.1.1.6 Use strategies and algorithms based on knowledge of place value, equality and properties of operations to divide multi-digit whole numbers by one- or two-digit numbers. Strategies may include mental strategies, partial quotients, the commutative, associative, and distributive properties and repeated subtraction.</p>
Lesson 8-8: Multiplication and Division Facts	<p>3.1.2.3 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. Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. Recognize the relationship between multiplication and division.</p>

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<p>(Continued) Lesson 8-8: Multiplication and Division Facts</p>	<p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>3.2.2.1 Understand how to interpret number sentences involving multiplication and division basic facts and unknowns. Create real-world situations to represent number sentences.</p> <p>3.2.2.2 Use multiplication and division basic facts to represent a given problem situation using a number sentence. Use number sense and multiplication and division basic facts to find values for the unknowns that make the number sentences true.</p> <p>4.1.1.6 Use strategies and algorithms based on knowledge of place value, equality and properties of operations to divide multi-digit whole numbers by one- or two-digit numbers. Strategies may include mental strategies, partial quotients, the commutative, associative, and distributive properties and repeated subtraction.</p>
<p>Lesson 8-9: Problem Solving: Draw a Picture and Write a Number Sentence</p>	<p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p> <p>4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.</p>

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Number and Operations – Fractions	
Topic 9: Understanding Fractions	
Lesson 9-1: Dividing Regions into Equal Parts	<p>3.1.3.1 Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.</p> <p>3.1.3.2 Understand that the size of a fractional part is relative to the size of the whole.</p> <p>4.1.2.1 Represent equivalent fractions using fraction models such as parts of a set, fraction circles, fraction strips, number lines and other manipulatives. Use the models to determine equivalent fractions.</p>
Lesson 9-2: Fractions and Regions	<p>3.1.3.1 Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.</p> <p>3.1.3.2 Understand that the size of a fractional part is relative to the size of the whole.</p> <p>4.1.2.1 Represent equivalent fractions using fraction models such as parts of a set, fraction circles, fraction strips, number lines and other manipulatives. Use the models to determine equivalent fractions.</p>
Lesson 9-3: Fractions and Sets	<p>3.1.3.1 Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.</p> <p>3.1.3.2 Understand that the size of a fractional part is relative to the size of the whole.</p>

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(Continued) Lesson 9-3: Fractions and Sets	<p>4.1.2.1 Represent equivalent fractions using fraction models such as parts of a set, fraction circles, fraction strips, number lines and other manipulatives. Use the models to determine equivalent fractions.</p>
Lesson 9-4: Fractional Parts of a Set	<p>3.1.3.1 Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.</p> <p>3.1.3.2 Understand that the size of a fractional part is relative to the size of the whole.</p> <p>4.1.2.1 Represent equivalent fractions using fraction models such as parts of a set, fraction circles, fraction strips, number lines and other manipulatives. Use the models to determine equivalent fractions.</p>
Lesson 9-5: Fraction Number Lines	<p>3.1.3.1 Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.</p> <p>3.1.3.3 Order and compare unit fractions and fractions with like denominators by using models and an understanding of the concept of numerator and denominator.</p> <p>4.1.2.2 Locate fractions on a number line. Use models to order and compare whole numbers and fractions, including mixed numbers and improper fractions.</p> <p>5.1.2.3 Order fractions and decimals, including mixed numbers and improper fractions, and locate on a number line.</p>

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Lesson 9-6: Locating Fractions on the Number Line	<p>3.1.3.1 Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.</p> <p>3.1.3.3 Order and compare unit fractions and fractions with like denominators by using models and an understanding of the concept of numerator and denominator.</p> <p>4.1.2.2 Locate fractions on a number line. Use models to order and compare whole numbers and fractions, including mixed numbers and improper fractions.</p> <p>5.1.2.3 Order fractions and decimals, including mixed numbers and improper fractions, and locate on a number line.</p>
Lesson 9-7: Fractions and Length	<p>3.1.3.1 Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.</p> <p>3.1.3.2 Understand that the size of a fractional part is relative to the size of the whole.</p> <p>4.1.2.1 Represent equivalent fractions using fraction models such as parts of a set, fraction circles, fraction strips, number lines and other manipulatives. Use the models to determine equivalent fractions.</p>
Lesson 9-8: Problem Solving: Writing to Explain	<p>3.1.3.1 Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.</p>

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(Continued) Lesson 9-8: Problem Solving: Writing to Explain	<p>3.1.3.2 Understand that the size of a fractional part is relative to the size of the whole.</p> <p>4.1.2.1 Represent equivalent fractions using fraction models such as parts of a set, fraction circles, fraction strips, number lines and other manipulatives. Use the models to determine equivalent fractions.</p>
Topic 10: Fraction Comparison and Equivalence	
Lesson 10-1: Using Models to Compare Fractions: Same Denominator	<p>3.1.3.1 Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.</p> <p>3.1.3.3 Order and compare unit fractions and fractions with like denominators by using models and an understanding of the concept of numerator and denominator.</p> <p>4.1.2.1 Represent equivalent fractions using fraction models such as parts of a set, fraction circles, fraction strips, number lines and other manipulatives. Use the models to determine equivalent fractions.</p>
Lesson 10-2: Using Models to Compare Fractions: Same Numerator	<p>3.1.3.1 Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.</p> <p>3.1.3.2 Understand that the size of a fractional part is relative to the size of the whole.</p> <p>3.1.3.3 Order and compare unit fractions and fractions with like denominators by using models and an understanding of the concept of numerator and denominator.</p>

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(Continued) Lesson 10-2: Using Models to Compare Fractions: Same Numerator	<p>4.1.2.1 Represent equivalent fractions using fraction models such as parts of a set, fraction circles, fraction strips, number lines and other manipulatives. Use the models to determine equivalent fractions.</p>
Lesson 10-3: Using Fractions	<p>3.1.3.1 Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.</p> <p>3.1.3.2 Understand that the size of a fractional part is relative to the size of the whole.</p> <p>3.1.3.3 Order and compare unit fractions and fractions with like denominators by using models and an understanding of the concept of numerator and denominator.</p> <p>4.1.2.1 Represent equivalent fractions using fraction models such as parts of a set, fraction circles, fraction strips, number lines and other manipulatives. Use the models to determine equivalent fractions.</p>
Lesson 10-4: Comparing Fractions on the Number Line	<p>3.1.3.1 Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.</p> <p>3.1.3.3 Order and compare unit fractions and fractions with like denominators by using models and an understanding of the concept of numerator and denominator.</p> <p>4.1.2.1 Represent equivalent fractions using fraction models such as parts of a set, fraction circles, fraction strips, number lines and other manipulatives. Use the models to determine equivalent fractions.</p>

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(Continued) Lesson 10-4: Comparing Fractions on the Number Line	<p>4.1.2.2 Locate fractions on a number line. Use models to order and compare whole numbers and fractions, including mixed numbers and improper fractions.</p> <p>5.1.2.3 Order fractions and decimals, including mixed numbers and improper fractions, and locate on a number line.</p>
Lesson 10-5: Finding Equivalent Fractions	<p>3.1.3.1 Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.</p> <p>3.1.3.2 Understand that the size of a fractional part is relative to the size of the whole.</p> <p>3.1.3.3 Order and compare unit fractions and fractions with like denominators by using models and an understanding of the concept of numerator and denominator.</p> <p>4.1.2.2 Locate fractions on a number line. Use models to order and compare whole numbers and fractions, including mixed numbers and improper fractions.</p> <p>5.1.2.3 Order fractions and decimals, including mixed numbers and improper fractions, and locate on a number line.</p>
Lesson 10-6: Equivalent Fractions and the Number Line	<p>3.1.3.1 Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.</p> <p>3.1.3.3 Order and compare unit fractions and fractions with like denominators by using models and an understanding of the concept of numerator and denominator.</p>

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<p>(Continued) Lesson 10-6: Equivalent Fractions and the Number Line</p>	<p>4.1.2.1 Represent equivalent fractions using fraction models such as parts of a set, fraction circles, fraction strips, number lines and other manipulatives. Use the models to determine equivalent fractions.</p> <p>4.1.2.2 Locate fractions on a number line. Use models to order and compare whole numbers and fractions, including mixed numbers and improper fractions.</p> <p>5.1.2.3 Order fractions and decimals, including mixed numbers and improper fractions, and locate on a number line.</p>
<p>Lesson 10-7: Whole Numbers and Fractions</p>	<p>3.1.3.1 Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.</p> <p>3.1.3.3 Order and compare unit fractions and fractions with like denominators by using models and an understanding of the concept of numerator and denominator.</p> <p>4.1.2.1 Represent equivalent fractions using fraction models such as parts of a set, fraction circles, fraction strips, number lines and other manipulatives. Use the models to determine equivalent fractions.</p> <p>4.1.2.2 Locate fractions on a number line. Use models to order and compare whole numbers and fractions, including mixed numbers and improper fractions.</p>
<p>Lesson 10-8: Problem Solving: Draw a Picture</p>	<p>3.1.2.4 Solve real-world and mathematical problems involving multiplication and division, including both "how many in each group" and "how many groups" division problems.</p>

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(Continued) Lesson 10-8: Problem Solving: Draw a Picture	4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.
Geometry	
Topic 11: Two-Dimensional Shapes and Their Attributes	
Lesson 11-1: Polygons	<p>3.3.1.2 Sketch polygons with a given number of sides or vertices (corners), such as pentagons, hexagons and octagons.</p> <p>2.3.1.1 Describe, compare, and classify two- and three-dimensional figures according to number and shape of faces, and the number of sides, edges and vertices (corners).</p> <p>2.3.1.2 Identify and name basic two- and three-dimensional shapes, such as squares, circles, triangles, rectangles, trapezoids, hexagons, cubes, rectangular prisms, cones, cylinders and spheres.</p> <p>4.3.1.2 Describe, classify and draw quadrilaterals, including squares, rectangles, trapezoids, rhombuses, parallelograms and kites. Recognize quadrilaterals in various contexts.</p>
Lesson 11-2: Quadrilaterals	<p>3.3.1.1 Identify parallel and perpendicular lines in various contexts, and use them to describe and create geometric shapes, such as right triangles, rectangles, parallelograms and trapezoids.</p> <p>3.3.1.2 Sketch polygons with a given number of sides or vertices (corners), such as pentagons, hexagons and octagons.</p>

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<p>(Continued) Lesson 11-2: Quadrilaterals</p>	<p>2.3.1.1 Describe, compare, and classify two- and three-dimensional figures according to number and shape of faces, and the number of sides, edges and vertices (corners).</p> <p>2.3.1.2 Identify and name basic two- and three-dimensional shapes, such as squares, circles, triangles, rectangles, trapezoids, hexagons, cubes, rectangular prisms, cones, cylinders and spheres.</p> <p>4.3.1.2 Describe, classify and draw quadrilaterals, including squares, rectangles, trapezoids, rhombuses, parallelograms and kites. Recognize quadrilaterals in various contexts.</p>
<p>Lesson 11-3: Classifying Shapes</p>	<p>3.3.1.1 Identify parallel and perpendicular lines in various contexts, and use them to describe and create geometric shapes, such as right triangles, rectangles, parallelograms and trapezoids.</p> <p>3.3.1.2 Sketch polygons with a given number of sides or vertices (corners), such as pentagons, hexagons and octagons.</p> <p>2.3.1.1 Describe, compare, and classify two- and three-dimensional figures according to number and shape of faces, and the number of sides, edges and vertices (corners).</p> <p>2.3.1.2 Identify and name basic two- and three-dimensional shapes, such as squares, circles, triangles, rectangles, trapezoids, hexagons, cubes, rectangular prisms, cones, cylinders and spheres.</p> <p>4.3.1.2 Describe, classify and draw quadrilaterals, including squares, rectangles, trapezoids, rhombuses, parallelograms and kites. Recognize quadrilaterals in various contexts.</p>

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<p>Lesson 11-4: Problem Solving: Make and Test Generalizations</p>	<p>3.3.1.2 Sketch polygons with a given number of sides or vertices (corners), such as pentagons, hexagons and octagons.</p> <p>2.3.1.1 Describe, compare, and classify two- and three-dimensional figures according to number and shape of faces, and the number of sides, edges and vertices (corners).</p> <p>4.2.1.1 Create and use input-output rules involving addition, subtraction, multiplication and division to solve problems in various contexts. Record the inputs and outputs in a chart or table.</p>
<p>Lesson 11-5: Problem Solving: Solve a Simpler Problem</p>	<p>For related content, please see:</p> <p>3.1.3.1 Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.</p> <p>3.2.1.1 Create, describe, and apply single-operation input-output rules involving addition, subtraction and multiplication to solve problems in various contexts.</p> <p>2.2.1.1 Identify, create and describe simple number patterns involving repeated addition or subtraction, skip counting and arrays of objects such as counters or tiles. Use patterns to solve problems in various contexts.</p> <p>4.2.1.1 Create and use input-output rules involving addition, subtraction, multiplication and division to solve problems in various contexts. Record the inputs and outputs in a chart or table.</p>

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Measurement and Data	
Topic 12: Time	
Lesson 12-1: Time to the Half Hour and Quarter Hour	<p>3.3.3.1 Tell time to the minute, using digital and analog clocks. Determine elapsed time to the minute.</p> <p>1.3.2.2 Tell time to the hour and half-hour.</p> <p>2.3.3.1 Tell time to the quarter-hour and distinguish between a.m. and p.m.</p>
Lesson 12-2: Time to the Minute	<p>3.3.3.1 Tell time to the minute, using digital and analog clocks. Determine elapsed time to the minute.</p> <p>1.3.2.2 Tell time to the hour and half-hour.</p> <p>2.3.3.1 Tell time to the quarter-hour and distinguish between a.m. and p.m.</p>
Lesson 12-3: Elapsed Time	<p>3.3.3.1 Tell time to the minute, using digital and analog clocks. Determine elapsed time to the minute.</p> <p>3.3.3.2 Know relationships among units of time.</p> <p>2.3.3.1 Tell time to the quarter-hour and distinguish between a.m. and p.m.</p>
Lesson 12-4: Problem Solving: Work Backward	<p>3.3.3.1 Tell time to the minute, using digital and analog clocks. Determine elapsed time to the minute.</p> <p>3.3.3.2 Know relationships among units of time.</p> <p>2.3.3.1 Tell time to the quarter-hour and distinguish between a.m. and p.m.</p>

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Topic 13: Perimeter	
Lesson 13-1: Understanding Perimeter	<p>3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides.</p> <p>2.3.2.1 Understand the relationship between the size of the unit of measurement and the number of units needed to measure the length of an object.</p>
Lesson 13-2: Perimeter of Common Shapes	<p>3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides.</p> <p>2.3.2.1 Understand the relationship between the size of the unit of measurement and the number of units needed to measure the length of an object.</p>
Lesson 13-3: Perimeter and Unknown Side Lengths	<p>3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides.</p> <p>2.3.2.1 Understand the relationship between the size of the unit of measurement and the number of units needed to measure the length of an object.</p>
Lesson 13-4: Different Shapes with the Same Perimeter	<p>3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides.</p> <p>2.3.2.1 Understand the relationship between the size of the unit of measurement and the number of units needed to measure the length of an object.</p>
Lesson 13-5: Problem Solving: Solve a Simpler Problem and Make a Table	<p>3.4.1.1 Collect, display and interpret data using frequency tables, bar graphs, picture graphs and number line plots having a variety of scales. Use appropriate titles, labels and units.</p>

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(Continued) Lesson 13-5: Problem Solving: Solve a Simpler Problem and Make a Table	4.4.1.1 Use tables, bar graphs, timelines and Venn diagrams to display data sets. The data may include fractions or decimals. Understand that spreadsheet tables and graphs can be used to display data.
Topic 14: Area	
Lesson 14-1: Covering Regions	For related content, please see: 3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides. 3.3.2.3 Measure distances around objects. 4.3.2.3 Understand that the area of a two-dimensional figure can be found by counting the total number of same size square units that cover a shape without gaps or overlaps. Justify why length and width are multiplied to find the area of a rectangle by breaking the rectangle into one unit by one unit squares and viewing these as grouped into rows and columns. 4.3.2.4 Find the areas of geometric figures and real-world objects that can be divided into rectangular shapes. Use square units to label area measurements.
Lesson 14-2: Area and Units	For related content, please see: 3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides. 3.3.2.3 Measure distances around objects. 4.3.2.3 Understand that the area of a two-dimensional figure can be found by counting the total number of same size square units that cover a shape without gaps or overlaps. Justify why length and width are multiplied to find the area of a rectangle by breaking the rectangle into one unit by one unit squares and viewing these as grouped into rows and columns.

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(Continued) Lesson 14-2: Area and Units	<p>4.3.2.4 Find the areas of geometric figures and real-world objects that can be divided into rectangular shapes. Use square units to label area measurements.</p>
Lesson 14-3: Standard Units	<p>For related content, please see:</p> <p>3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides.</p> <p>3.3.2.3 Measure distances around objects.</p> <p>4.3.2.3 Understand that the area of a two-dimensional figure can be found by counting the total number of same size square units that cover a shape without gaps or overlaps. Justify why length and width are multiplied to find the area of a rectangle by breaking the rectangle into one unit by one unit squares and viewing these as grouped into rows and columns.</p> <p>4.3.2.4 Find the areas of geometric figures and real-world objects that can be divided into rectangular shapes. Use square units to label area measurements.</p>
Lesson 14-4: Area of Squares and Rectangles	<p>For related content, please see:</p> <p>3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides.</p> <p>3.3.2.3 Measure distances around objects.</p> <p>4.3.2.3 Understand that the area of a two-dimensional figure can be found by counting the total number of same size square units that cover a shape without gaps or overlaps. Justify why length and width are multiplied to find the area of a rectangle by breaking the rectangle into one unit by one unit squares and viewing these as grouped into rows and columns.</p>

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(Continued) Lesson 14-4: Area of Squares and Rectangles	<p>4.3.2.4 Find the areas of geometric figures and real-world objects that can be divided into rectangular shapes. Use square units to label area measurements.</p>
Lesson 14-5: Area and the Distributive Property	<p>For related content, please see:</p> <p>3.1.2.5 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two- or three-digit number by a one-digit number. Strategies may include mental strategies, partial products, the standard algorithm, and the commutative, associative, and distributive properties.</p> <p>3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides.</p> <p>3.3.2.3 Measure distances around objects.</p> <p>4.3.2.3 Understand that the area of a two-dimensional figure can be found by counting the total number of same size square units that cover a shape without gaps or overlaps. Justify why length and width are multiplied to find the area of a rectangle by breaking the rectangle into one unit by one unit squares and viewing these as grouped into rows and columns.</p> <p>4.3.2.4 Find the areas of geometric figures and real-world objects that can be divided into rectangular shapes. Use square units to label area measurements.</p>
Lesson 14-6: Problem Solving: Solve a Simpler Problem	<p>For related content, please see:</p> <p>3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides.</p> <p>3.3.2.3 Measure distances around objects.</p>

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<p>(Continued): Lesson 14-6: Problem Solving: Solve a Simpler Problem</p>	<p>2.3.2.2 Demonstrate an understanding of the relationship between length and the numbers on a ruler by using a ruler to measure lengths to the nearest centimeter or inch.</p> <p>4.3.2.4 Find the areas of geometric figures and real-world objects that can be divided into rectangular shapes. Use square units to label area measurements.</p>
<p>Lesson 14-7: Area of Irregular Shapes</p>	<p>For related content, please see:</p> <p>3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides.</p> <p>3.3.2.3 Measure distances around objects.</p> <p>4.3.2.3 Understand that the area of a two-dimensional figure can be found by counting the total number of same size square units that cover a shape without gaps or overlaps. Justify why length and width are multiplied to find the area of a rectangle by breaking the rectangle into one unit by one unit squares and viewing these as grouped into rows and columns.</p> <p>4.3.2.4 Find the areas of geometric figures and real-world objects that can be divided into rectangular shapes. Use square units to label area measurements.</p>
<p>Lesson 14-8: Different Area, Same Perimeter</p>	<p>For related content, please see:</p> <p>3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides.</p> <p>3.3.2.3 Measure distances around objects.</p>

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(Continued) Lesson 14-8: Different Area, Same Perimeter	<p>4.3.2.3 Understand that the area of a two-dimensional figure can be found by counting the total number of same size square units that cover a shape without gaps or overlaps. Justify why length and width are multiplied to find the area of a rectangle by breaking the rectangle into one unit by one unit squares and viewing these as grouped into rows and columns.</p> <p>4.3.2.4 Find the areas of geometric figures and real-world objects that can be divided into rectangular shapes. Use square units to label area measurements.</p>
Lesson 14-9: Same Area, Different Perimeter	<p>For related content, please see:</p> <p>3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides.</p> <p>3.3.2.3 Measure distances around objects.</p> <p>4.3.2.3 Understand that the area of a two-dimensional figure can be found by counting the total number of same size square units that cover a shape without gaps or overlaps. Justify why length and width are multiplied to find the area of a rectangle by breaking the rectangle into one unit by one unit squares and viewing these as grouped into rows and columns.</p> <p>4.3.2.4 Find the areas of geometric figures and real-world objects that can be divided into rectangular shapes. Use square units to label area measurements.</p>
Lesson 14-10: Equal Areas and Fractions	<p>For related content, please see:</p> <p>3.1.3.1 Read and write fractions with words and symbols. Recognize that fractions can be used to represent parts of a whole, parts of a set, points on a number line, or distances on a number line.</p>

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(Continued) Lesson 14-10: Equal Areas and Fractions	<p>3.1.3.2 Understand that the size of a fractional part is relative to the size of the whole.</p> <p>3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides.</p> <p>4.3.2.3 Understand that the area of a two-dimensional figure can be found by counting the total number of same size square units that cover a shape without gaps or overlaps. Justify why length and width are multiplied to find the area of a rectangle by breaking the rectangle into one unit by one unit squares and viewing these as grouped into rows and columns.</p> <p>4.3.2.4 Find the areas of geometric figures and real-world objects that can be divided into rectangular shapes. Use square units to label area measurements.</p>
Lesson 14-11: Problem Solving: Selecting Appropriate Measurement Units and Tools	<p>For related content, please see:</p> <p>3.3.2.1 Use half units when measuring distances.</p> <p>3.1.3.2 Understand that the size of a fractional part is relative to the size of the whole.</p> <p>3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides.</p> <p>2.3.2.1 Understand the relationship between the size of the unit of measurement and the number of units needed to measure the length of an object.</p> <p>4.3.2.4 Find the areas of geometric figures and real-world objects that can be divided into rectangular shapes. Use square units to label area measurements.</p>

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Topic 15: Liquid Volume and Mass	
Lesson 15-1: Metric Units of Capacity	<p>For related content, please see:</p> <p>3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides.</p> <p>3.3.2.3 Measure distances around objects.</p> <p>2.3.2.1 Understand the relationship between the size of the unit of measurement and the number of units needed to measure the length of an object.</p> <p>4.3.2.4 Find the areas of geometric figures and real-world objects that can be divided into rectangular shapes. Use square units to label area measurements.</p> <p>5.3.2.2 Use various tools and strategies to measure the volume and surface area of objects that are shaped like rectangular prisms.</p> <p>5.3.2.4 Develop and use the formulas $V = lwh$ and $V = Bh$ to determine the volume of rectangular prisms. Justify why base area B and height h are multiplied to find the volume of a rectangular prism by breaking the prism into layers of unit cubes.</p>
Lesson 15-2: Measuring Capacity	<p>For related content, please see:</p> <p>3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides.</p> <p>3.3.2.3 Measure distances around objects.</p> <p>2.3.2.1 Understand the relationship between the size of the unit of measurement and the number of units needed to measure the length of an object.</p> <p>4.3.2.4 Find the areas of geometric figures and real-world objects that can be divided into rectangular shapes. Use square units to label area measurements.</p>

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(Continued) Lesson 15-2: Measuring Capacity	<p>5.3.2.2 Use various tools and strategies to measure the volume and surface area of objects that are shaped like rectangular prisms.</p> <p>5.3.2.4 Develop and use the formulas $V = lwh$ and $V = Bh$ to determine the volume of rectangular prisms. Justify why base area B and height h are multiplied to find the volume of a rectangular prism by breaking the prism into layers of unit cubes.</p>
Lesson 15-3: Units of Mass	<p>For related content, please see:</p> <p>3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides.</p> <p>3.3.2.3 Measure distances around objects.</p> <p>2.3.2.1 Understand the relationship between the size of the unit of measurement and the number of units needed to measure the length of an object.</p> <p>4.3.2.4 Find the areas of geometric figures and real-world objects that can be divided into rectangular shapes. Use square units to label area measurements.</p>
Lesson 15-4: Measuring Mass	<p>For related content, please see:</p> <p>3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides.</p> <p>3.3.2.3 Measure distances around objects.</p> <p>2.3.2.1 Understand the relationship between the size of the unit of measurement and the number of units needed to measure the length of an object.</p> <p>4.3.2.4 Find the areas of geometric figures and real-world objects that can be divided into rectangular shapes. Use square units to label area measurements.</p>

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Lesson 15-5: Problem Solving: Draw a Picture	<p>For related content, please see:</p> <p>3.3.2.2 Find the perimeter of a polygon by adding the lengths of the sides.</p> <p>3.3.2.3 Measure distances around objects.</p> <p>2.3.2.1 Understand the relationship between the size of the unit of measurement and the number of units needed to measure the length of an object.</p> <p>4.3.2.4 Find the areas of geometric figures and real-world objects that can be divided into rectangular shapes. Use square units to label area measurements.</p>
Topic 16: Data	
Lesson 16-1: Line Plots	<p>3.4.1.1 Collect, display and interpret data using frequency tables, bar graphs, picture graphs and number line plots having a variety of scales. Use appropriate titles, labels and units.</p> <p>4.4.1.1 Use tables, bar graphs, timelines and Venn diagrams to display data sets. The data may include fractions or decimals. Understand that spreadsheet tables and graphs can be used to display data.</p>
Lesson 16-2: Length and Line Plots	<p>3.4.1.1 Collect, display and interpret data using frequency tables, bar graphs, picture graphs and number line plots having a variety of scales. Use appropriate titles, labels and units.</p> <p>4.4.1.1 Use tables, bar graphs, timelines and Venn diagrams to display data sets. The data may include fractions or decimals. Understand that spreadsheet tables and graphs can be used to display data.</p>

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<p>Lesson 16-3: Reading Pictographs and Bar Graphs</p>	<p>3.4.1.1 Collect, display and interpret data using frequency tables, bar graphs, picture graphs and number line plots having a variety of scales. Use appropriate titles, labels and units.</p> <p>2.1.2.6 Use addition and subtraction to create and obtain information from tables, bar graphs and tally charts.</p> <p>4.4.1.1 Use tables, bar graphs, timelines and Venn diagrams to display data sets. The data may include fractions or decimals. Understand that spreadsheet tables and graphs can be used to display data.</p>
<p>Lesson 16-4: Making Pictographs</p>	<p>3.4.1.1 Collect, display and interpret data using frequency tables, bar graphs, picture graphs and number line plots having a variety of scales. Use appropriate titles, labels and units.</p> <p>4.4.1.1 Use tables, bar graphs, timelines and Venn diagrams to display data sets. The data may include fractions or decimals. Understand that spreadsheet tables and graphs can be used to display data.</p>
<p>Lesson 16-5: Making Bar Graphs</p>	<p>3.4.1.1 Collect, display and interpret data using frequency tables, bar graphs, picture graphs and number line plots having a variety of scales. Use appropriate titles, labels and units.</p> <p>2.1.2.6 Use addition and subtraction to create and obtain information from tables, bar graphs and tally charts.</p> <p>4.4.1.1 Use tables, bar graphs, timelines and Venn diagrams to display data sets. The data may include fractions or decimals. Understand that spreadsheet tables and graphs can be used to display data.</p>

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Lesson 16-6: Problem Solving: Use Tables and Graphs to Draw Conclusion	<p>3.4.1.1 Collect, display and interpret data using frequency tables, bar graphs, picture graphs and number line plots having a variety of scales. Use appropriate titles, labels and units.</p> <p>2.1.2.6 Use addition and subtraction to create and obtain information from tables, bar graphs and tally charts.</p> <p>4.2.1.1 Create and use input-output rules involving addition, subtraction, multiplication and division to solve problems in various contexts. Record the inputs and outputs in a chart or table.</p> <p>4.4.1.1 Use tables, bar graphs, timelines and Venn diagrams to display data sets. The data may include fractions or decimals. Understand that spreadsheet tables and graphs can be used to display data.</p>