

Unit 1: Place Value and Whole-Number Operations

Unit 1 Project: Concert Calculations

Unit 1 Learning Mindset Focus: Challenge Seeking / Make Decisions

Module 1: Place Value of Whole Numbers

Recommended Pacing with Assessments: 8 Days

Module 1 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students used place-value understanding to round whole numbers to the nearest 10 or 100.	Students read and write multi-digit numbers in different ways and describe the values of digits in a number.	Students will recognize the relationships of the values of digits in a multi-digit number.
Students used place-value strategies to fluently add and subtract within 1,000.	Students use visual representations to group and name multi-digit whole numbers.	Students will explain patterns in the digits of numbers when multiplying and dividing by a power of 10.
Students used place-value strategies to multiply by multiples of 10.	Students use place-value charts and number lines to compare and order whole numbers.	Students will read, write, and compare decimals based on place value.
	Students round whole numbers and recognize rounding as an estimation strategy.	

Module 1 Vocabulary

place value	the value of a digit in a number based on the location of the digit
estimate	a number that is close to the exact amount
expanded form	a way to write numbers by showing the value of each digit
period	each group of three digits in a multi-digit number, periods are usually separated by commas or spaces
regroup	to exchange amounts of equal value to rename a number
round	to replace a number with another number that tells how many or how much
standard form	a way to write numbers by using the digits 0–9, with each digit having a place value
word form	a way to write numbers by using words

Lesson 1.1 Understand Place Value Relationships

Connect Concepts and Skills – 2 Days

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.

Mathematical Practices and Processes

- Use appropriate tools strategically.
- Look for and make use of structure.

I Can Objective

I can use a place-value chart to compare the values of different digits and justify the comparisons.

Learning Objective

Describe the value of a digit.

Language Objective

Work in pairs to explain different ways to describe the value of a digit.

Vocabulary

Review: place value

New: period

Lesson Materials

base-ten blocks (large cubes, flats, longs, small cubes)

Lesson 1.2 Read and Write Numbers

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.

Mathematical Practices and Processes

- Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can read and write 6-digit numbers in standard form, word form, and expanded form.

Learning Objective

Use place-value relationships to read and write multi-digit whole numbers to 1,000,000 in different forms.

Language Objective

Work in groups to explain place-value relationships and demonstrate the different forms to read and write multi-digit whole numbers to 1,000,000.

Vocabulary

New: expanded form, standard form, word form

Lesson Materials

Place-Value Charts (to hundred thousands)
(Teacher Resource Masters)

Lesson 1.3 Regroup and Rename Numbers

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.

Mathematical Practices and Processes

- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.
- Attend to Precision

I Can Objective

I can regroup and rename multi-digit whole numbers.

Learning Objective

Group multi-digit whole numbers in different ways to 1,000,000.

Language Objective

Explain different ways to group multi-digit whole numbers to 1,000,000.

Vocabulary

New: regroup

Lesson Materials

base-ten blocks, Place-Value Charts (to hundred thousands) (Teacher Resource Masters)

Lesson 1.4 Compare and Order Numbers

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Use appropriate tools strategically.
- Attend to precision.

I Can Objective

I can compare and order three numbers to the hundred thousands place. I can record and justify the comparisons.

Learning Objective

Compare and order whole numbers through 1,000,000.

Language Objective

Explain to a partner the ways to compare and order whole numbers through 1,000,000.

Lesson Materials

Place-Value Charts (to hundred thousands), Number Lines (by tens and hundreds) (Teacher Resource Masters)

Lesson 1.5 Use Place Value Understanding to Round Numbers

Connect Concepts and Skills – 1 Day

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Use place value understanding to round multi-digit whole numbers to any place.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can use place-value understanding to round whole numbers through 1,000,000 and estimate.

Learning Objective

Round whole numbers through 1,000,000.

Language Objective

Explain how to round large numbers to any place value position.

Vocabulary

New: estimate, round

Lesson Materials

Place-Value Charts (to hundred thousands),
Number Lines (by tens and hundreds) (Teacher
Resource Masters)

Unit 1: Place Value and Whole-Number Operations

Unit 1 Project: Concert Calculations

Unit 1 Learning Mindset Focus: Challenge Seeking / Make Decisions

Module 2: Addition and Subtraction of Whole Numbers

Recommended Pacing with Assessments and Performance Task: 7 Days

Module 2 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students used place-value understanding to round whole numbers.	Students determine reasonableness of sums and differences.	Students will use visual models and the standard algorithms to add and subtract decimals to hundredths.
Students fluently added and subtracted using algorithms, properties of numbers, and place values.	Students add and subtract whole numbers using understanding of place value.	Students will use place value to round numbers.
Students solved two-step problems using equations.	Students add and subtract to solve comparison problems.	Students will write simple expressions and interpret numerical expressions.
Students recognized perimeter as an attribute of plane figures.	Students determine if an equation is true and find an unknown number in an equation.	Students will convert among different-sized measurement units.
	Students use the perimeter formula for rectangles.	

Module 2 Vocabulary

addend	a number that is added to another in an addition problem
estimate (noun)	a number that is close to the exact amount
estimate (verb)	to find an answer that is close to the exact amount
formula	a set of symbols that expresses a mathematical rule

Lesson 2.1 Add Whole Numbers and Assess Reasonableness

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Fluently add and subtract multi-digit whole numbers using the standard algorithm.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Attend to precision.
- Look for and make use of structure.

I Can Objective

I can add whole numbers greater than 1,000 using place value and a grid with regrouping.

Learning Objective

Use the standard algorithm to add whole numbers and assess reasonableness using mental math and estimates.

Language Objective

Demonstrate understanding of using place value to add whole numbers by writing an explanation of the process.

Vocabulary

Review: addend, estimate

Lesson Materials

base-ten blocks; Place-Value Charts (to hundred thousands) (Teacher Resource Masters)

Lesson 2.2 Subtract Whole Numbers and Assess Reasonableness

Connect Concepts and Skills – 1 Day

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Fluently add and subtract multi-digit whole numbers using the standard algorithm.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can subtract whole numbers greater than 1,000 using place value and a grid with regrouping.

Learning Objective

Use the standard algorithm to find the difference between two whole numbers and assess the reasonableness using mental math and estimates.

Language Objective

Write an explanation of the steps used to subtract multi-digit whole numbers.

Lesson Materials

base-ten blocks; Place-Value Charts (to hundred thousands) (Teacher Resource Masters)

Lesson 2.3 Use Addition and Subtraction to Solve Comparison Problems

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Fluently add and subtract multi-digit whole numbers using the standard algorithm.

Mathematical Practices and Processes

- Model with mathematics.
- Use appropriate tools strategically.

I Can Objective

I can draw a bar model for a comparison problem. I can write an equation and use addition or subtraction to find the unknown number in the bar model.

Learning Objective

Interpret and solve comparison problems using addition and subtraction by drawing bar models.

Language Objective

Work in groups to explain how to use bar models to solve comparison problems involving addition and subtraction.

Lesson Materials

Place-Value Charts (to hundred thousands)
(Teacher Resource Masters)

Lesson 2.4 Apply the Perimeter Formula for Rectangles

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

Mathematical Practices and Processes

- Model with mathematics.
- Look for and make use of structure.

I Can Objective

I can apply the perimeter formula to find the perimeter of a rectangle.

Learning Objective

Use a formula to find the perimeter of a rectangle or to find an unknown side given the perimeter and one side of the rectangle.

Language Objective

Write an explanation for a partner about how to use a formula to find the perimeter or given the perimeter, find an unknown side of a rectangle.

Vocabulary

New: formula

Unit 2: Multiplication and Division Problems

Unit 2 Project: The Zoo and You

Unit 2 Learning Mindset Focus: Strategic Help-Seeking / Identifies Need for Help

Module 3: Interpret and Solve Problem Situations

Recommended Pacing with Assessments: 7 Days

Module 3 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students interpreted products of whole numbers in the context of equal groups.	Students solve multiplicative comparison problems using drawings and equations.	Students will use symbols and will evaluate numerical expressions.
Students interpreted whole-number quotients of whole numbers.	Students distinguish between multiplicative and additive comparison problems.	Students will write simple expressions and will interpret numerical expressions.
Students represented and solved word problems involving multiplication and division using drawings and equations.	Students solve multistep word problems with whole numbers using the four operations.	

Module 3 Vocabulary

inverse operations opposite operations that undo each other

Lesson 3.1 Explore Multiplicative Comparisons

Build Understanding – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

- Interpret a multiplication equation as a comparison, e.g. interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
- Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Mathematical Practices and Processes

- Model with mathematics.
- Use appropriate tools strategically.

I Can Objective

I can use visual models and equations to represent and interpret a multiplicative comparison.

Learning Objective

Represent and interpret multiplicative comparison problems using drawings and equations.

Language Objective

Explain how an equation and visual model both represent a multiplicative comparison problem.

Lesson Materials

two-color counters, color tiles; Number Lines (Teacher Resource Masters)

Lesson 3.2 Distinguish Between Multiplicative and Additive Comparisons

Connect Concepts and Skills – 1 Day

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Model with mathematics.

I Can Objective

I can identify and represent multiplicative and additive comparison problems.

Learning Objective

Distinguish between, represent, and solve additive and multiplicative comparisons.

Language Objectives

- Explain how to decide whether a comparison problem should use multiplication or addition.
- Explain different ways to write and solve additive and multiplicative comparisons.

Lesson Materials

two-color counters, color tiles; Number Lines (Teacher Resource Masters)

Lesson 3.3 Use Division to Solve Multiplicative Comparison Problems

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Mathematical Practices and Processes

- Model with mathematics.
- Use appropriate tools strategically.
- Look for and make use of structure.

I Can Objective

I can solve a multiplicative comparison problem using division with drawings and equations.

Learning Objective

Use inverse operations to solve multiplicative comparison problems.

Language Objectives

- Explain how multiplication and division can be used to solve the same problem.
- Demonstrate different ways to write multiplication and division equations to help solve comparison problems.

Vocabulary

New: inverse operations

Lesson 3.4 Use Comparisons to Solve Problem Situations

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Mathematical Practices and Processes

- Model with mathematics.
- Reason abstractly and quantitatively.
- Look for and make use of structure.

I Can Objective

I can write equations with letters for the unknown values to model and solve multiplicative and additive comparison problems.

Learning Objective

Use visual representations and equations to solve additive and multiplicative comparison problems.

Language Objectives

- Explain how visual models represent comparison problems.
- Explain how equations are related to visual models for comparison problems.

Lesson 3.5 Solve Multistep Problems with Multiplication and Division

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

- Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.
- Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Mathematical Practices and Processes

- Model with mathematics.
- Use appropriate tools strategically.

I Can Objective

I can solve multistep problems with multiplication and division by writing equations with letters representing the unknown quantities.

Learning Objective

Use strategies to solve multistep multiplication and division problems.

Language Objectives

- Explain different strategies that can be used to solve multistep multiplication and division problems.
- Justify the operation(s) selected to solve multistep multiplication and division problems.

Unit 2: Multiplication and Division Problems

Unit 2 Project: The Zoo and You

Unit 2 Learning Mindset Focus: Strategic Help-Seeking / Identifies Need for Help

Module 4: Mental Math and Estimation Strategies

Recommended Pacing with Assessments: 7 Days

Module 4 Mathematical Progressions

Prior Learning	Current Development	Future Connections
<p>Students used multiplication and division to solve word problems by using drawings and equations.</p> <p>Students interpreted products and quotients of whole numbers.</p> <p>Students applied properties of operations to multiply and divide.</p>	<p>Students use place-value patterns and properties of operations to find products.</p> <p>Students use place-value patterns, properties of operations, and the relationship between multiplication and division to find quotients.</p> <p>Students determine reasonableness of answers.</p> <p>Students use mental math to solve multiplication and division problems.</p>	<p>Students will explain patterns in the product when multiplying by powers of 10.</p> <p>Students will use the standard algorithm to fluently multiply multi-digit whole numbers.</p> <p>Students will find whole-number quotients of whole numbers with up to four-digit dividends.</p>

Module 4 Vocabulary

Commutative Property of Multiplication	the property that states that when the order of the factors is changed, the product is the same
Distributive Property	the property that states that multiplying a sum by a number is the same as multiplying each addend by the number and then adding the products
compatible numbers	numbers that are easy to use for mental computation

Lesson 4.1 Explore Multiplication Patterns with Tens, Hundreds, and Thousands

Build Understanding – 1 Day

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Look for and make use of structure.

I Can Objective

I can use basic facts, patterns, and place value to multiply a multiple of 10, 100, or 1,000 by a 1-digit number.

Learning Objective

Use place value and patterns to multiply by tens, hundreds, and thousands.

Language Objectives

- Explain patterns with tens, hundreds, and thousands.
- Explain how using patterns and place value can help find a product.

Lesson Materials

base-ten blocks, two-color counters, color tiles; Number Lines (Teacher Resource Masters)

Lesson 4.2 Explore Division Patterns with Tens, Hundreds, and Thousands

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can use basic facts, patterns, and place value to divide a multiple of 10, 100, or 1,000 by a 1-digit number.

Learning Objective

Use place value and patterns to divide tens, hundreds, and thousands.

Language Objectives

- Write different place-value patterns and explain how they can be used to find quotients.
- Explain how basic facts can be used to divide multiples of 10, 100, and 1,000.

Lesson Materials

base-ten blocks, color tiles, two-color counters; Number Lines (Teacher Resource Masters)

Lesson 4.3 Estimate Products by 1-Digit Numbers

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

- Use place value to round multi-digit whole numbers to any place.
- Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Use appropriate tools strategically.

I Can Objective

I can estimate products of 1-digit numbers and determine whether the exact product is reasonable.

Learning Objective

Use estimation to solve problems and to check if the product is reasonable.

Language Objectives

- Explain how writing estimates can help check if a solution is reasonable.
- Explain how to determine a reasonable estimate for a product.

Lesson Materials

base-ten blocks

Lesson 4.4 Estimate Quotients Using Compatible Numbers

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Attend to precision.

I Can Objective

I can estimate the quotient of a division problem involving a 1-digit divisor using compatible numbers.

Learning Objective

Use estimation to solve problems and to check if the quotient is reasonable.

Language Objectives

- Explain how writing estimates can help determine if the quotient is reasonable.
- Explain how to use compatible numbers to estimate quotients.

Vocabulary

New: compatible numbers

Lesson Materials

base-ten blocks; Digit Cards (Teacher Resource Masters)

Lesson 4.5 Use Mental Math Strategies for Multiplication and Division

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

- Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
- Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Look for and make use of structure.

I Can Objective

I can use the properties of operations and the relationship between multiplication and division to find products and quotients using mental math.

Learning Objective

Use mental math to solve multiplication and division problems.

Language Objectives

- Explain how using mental math can help to solve multiplication and division problems.
- Explain how to select a mental math strategy for a specific problem.

Vocabulary

Review: Commutative Property of Multiplication, Distributive Property

Unit 2: Multiplication and Division Problems

Unit 2 Project: The Zoo and You

Unit 2 Learning Mindset Focus: Strategic Help-Seeking / Identifies Need for Help

Module 5: Multiply by 1-Digit Numbers

Recommended Pacing with Assessments: 9 Days

Module 5 Mathematical Progressions

Prior Learning	Current Development	Future Connections
<p>Students used multiplication and division within 100 to solve word problems using drawings and equations.</p> <p>Students used strategies based on place value and properties of operations to multiply by multiples of 10.</p>	<p>Students connect area models and the Distributive Property to multiply whole numbers using strategies based on place value and properties of operations.</p> <p>Students solve multistep word problems involving multiplication of whole numbers.</p> <p>Students assess the reasonableness of answers using mental computation and estimation strategies.</p>	<p>Students will fluently multiply whole numbers using the standard algorithm.</p>

Module 5 Vocabulary

order of operations a special set of rules which gives the order in which calculations are done

partial product a method of multiplying in which the ones, tens, hundreds, and so on are multiplied separately and then the products are added together

Lesson 5.1 Represent Multiplication

Build Understanding – 1 Day

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Look for and make use of structure.

I Can Objective

I can describe how to represent multiplication using arrays or concrete models such as counters and base-ten blocks.

Learning Objective

Use flexible thinking to represent multiplication and find the product.

Language Objectives

- Explain how to represent multiplication by using flexible thinking.
- Explain how visual representations show problem situations.

Lesson Materials

base-ten blocks, counters

Lesson 5.2 Use Area Models and the Distributive Property to Multiply

Build Understanding – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Model with mathematics.

I Can Objective

I can break apart a 2-digit factor to multiply a 2-digit factor by a 1-digit factor.

Learning Objective

Use the Distributive Property to multiply 2-digit numbers by 1-digit numbers.

Language Objectives

- Explain how the Distributive Property can be used to multiply.
- Explain how to represent multiplication using area models.

Lesson Materials

base-ten blocks

Lesson 5.3 Multiply Using Expanded Form

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Look for and make use of structure.

I Can Objective

I can use partial products to find the product of a 1-digit number and a 3-digit number.

Learning Objective

Use expanded form to multiply a multi-digit number by a 1-digit number.

Language Objectives

- Explain how writing in expanded form can help solve multi-digit multiplication problems.
- Explain how multiplying with base-ten blocks is related to multiplying using expanded form.

Vocabulary

New: partial product

Lesson Materials

base-ten blocks, centimeter rulers, crayons

Lesson 5.4 Multiply Using Partial Products

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Model with mathematics.

I Can Objective

I can record partial products to multiply a multi-digit number by a 1-digit number.

Learning Objective

Connect place value and the Distributive Property to recording partial products.

Language Objectives

- Explain how place value and the Distributive Property help in recording partial products.
- Justify reasonableness of solutions.

Lesson Materials

base-ten blocks

Lesson 5.5 Use Place Value to Multiply 2-Digit Numbers

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Look for and make use of structure.

I Can Objective

I can use place value and regrouping to multiply a 2-digit number by a 1-digit number.

Learning Objective

Use place value and regrouping to multiply a 2-digit number by a 1-digit number.

Language Objectives

- Explain how to multiply 2-digit numbers by 1-digit numbers using base-ten blocks.
- Explain how to regroup in multiplication.

Lesson Materials

base-ten blocks

Lesson 5.6 Multiply 3-Digit and 4-Digit Numbers

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Look for and make use of structure.

I Can Objective

I can use the standard algorithm to find the product of a multi-digit number and a single-digit number.

Learning Objective

Use place value and regrouping to multiply a 3-digit number by a 1-digit number and a 4-digit number by a 1-digit number.

Language Objectives

- Explain how to multiply 3- and 4-digit numbers by 1-digit numbers using base-ten blocks.
- Explain how to record regrouping when multiplying 3- and 4-digit numbers by 1-digit numbers.

Lesson Materials

Place-Value Chart (to thousands)
(Teacher Resource Masters), base-ten blocks

Lesson 5.7 Use Equations to Solve Multistep Problems

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Model with mathematics.
- Look for and make use of structure.

I Can Objective

I can use equations to solve multistep problems.

Learning Objective

Use equations to model and solve multistep problems.

Language Objective

- Explain how to apply the order of operations to solve multistep problems.
- Explain how identifying each step in a multistep word problem can help to find the solution.

Vocabulary

New: order of operations

Lesson Materials

base-ten blocks, color pencils

Unit 2: Multiplication and Division Problems

Unit 2 Project: The Zoo and You

Unit 2 Learning Mindset Focus: Strategic Help-Seeking / Identifies Need for Help

Module 6: Understand Division by 1-Digit Numbers

Recommended Pacing with Assessments: 8 Days

Module 6 Mathematical Progressions

Prior Learning	Current Development	Future Connections
<p>Students interpreted quotients of whole numbers.</p> <p>Students used multiplication and division to solve word problems by using drawings and equations with a symbol for the unknown number.</p> <p>Students determined the unknown whole number in division equations.</p> <p>Students applied properties of operations to divide.</p>	<p>Students find whole number quotients and remainders with up to 4-digit dividends and 1-digit divisors.</p> <p>Students illustrate and explain the calculations by using equations, rectangular arrays, and area models.</p> <p>Students solve word problems using the four operations and assess reasonableness of answers.</p>	<p>Students will find quotients of whole numbers with up to 4-digit dividends and 2-digit divisors.</p> <p>Students will illustrate and explain the calculations by using equations, arrays, and area models.</p>

Module 6 Vocabulary

Distributive Property	the property that states that multiplying (or dividing) a sum by a number is the same as multiplying (or dividing) each addend by the number and then adding the products (or quotients)
partial quotient	a method of dividing in which multiples of the divisor are subtracted from the dividend and then the partial quotients are added together
remainder	the amount left over when a number cannot be divided equally

Lesson 6.1 Represent Division

Build Understanding – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Model with mathematics.
- Look for and make use of structure.

I Can Objective

I can use visual models and equations to represent division problems.

Learning Objective

Use place value and visual models to represent division by 1-digit numbers.

Language Objectives

- Explain how to represent division using visual models.
- Explain how to write a division equation based on a visual model.

Lesson Materials

base-ten blocks, two-color counters, square tiles

Lesson 6.2 Investigate Remainders

Build Understanding – 1 Day Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Use appropriate tools strategically.

I Can Objective

I can use visual models to identify the whole-number quotient and remainder in a division problem.

Learning Objective

Use visual models to divide numbers that do not divide evenly.

Language Objective

Describe how drawing visual models helps to divide numbers that do not divide evenly.

Vocabulary

New: remainder

Lesson Materials

base-ten blocks, two-color counters, square tiles

Lesson 6.3 Interpret Remainders

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

- Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
- Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Use appropriate tools strategically.
- Attend to precision.

I Can Objective

I can solve a division problem and interpret the remainder in the context of the problem.

Learning Objective

Interpret remainders and use them to solve division problems.

Language Objective

Explain what remainders are and describe how to use them to solve division problems.

Lesson Materials

base-ten blocks, two-color counters, square tiles

Lesson 6.4 Use Area Models and the Distributive Property to Divide

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Use appropriate tools strategically.
- Look for and make use of structure.

I Can Objective

I can solve multi-digit division problems using area models and the Distributive Property.

Learning Objective

Use area models and the Distributive Property to solve division problems.

Language Objectives

- Explain how area models and the Distributive Property can be used to solve division problems.
- Explain how to break apart dividends to make division problems easier to solve.

Vocabulary

Review: Distributive Property

Lesson Materials

square tiles 1-Centimeter Grid Paper (Teacher Resource Masters)

Lesson 6.5 Divide Using Repeated Subtraction

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Model with mathematics.
- Attend to precision.

I Can Objective

I can write an equation to represent a division problem and use repeated subtraction to solve.

Learning Objective

Use repeated subtraction to divide.

Language Objectives

- Explain how repeated subtraction can be used to divide.
- Explain why the whole-number quotient is equal to the number of times the divisor is subtracted.

Lesson Materials

base-ten blocks, two-color counters, Number Lines (Teacher Resource Masters)

Lesson 6.6 Divide Using Partial Quotients

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can use partial quotients to divide multi-digit numbers by 1-digit numbers.

Learning Objective

Use partial quotients to solve division problems.

Language Objectives

- Explain how partial quotients are related to area models.
- Explain how to divide using partial quotients.

Vocabulary

New: partial quotient

Lesson Materials

base-ten blocks, 0.5-Centimeter Grid Paper, Number Lines (Teacher Resource Masters) base-ten blocks, 0.5-Centimeter Grid Paper, Number Lines (Teacher Resource Masters)

Unit 2: Multiplication and Division Problems

Unit 2 Project: The Zoo and You

Unit 2 Learning Mindset Focus: Strategic Help-Seeking / Identifies Need for Help

Module 7: Divide by 1-Digit Numbers

Recommended Pacing with Assessments and Performance Task: 8 Days

Module 7 Mathematical Progressions

Prior Learning	Current Development	Future Connections
<p>Students fluently multiplied and divided within 100; knew from memory all products of two 1-digit numbers.</p> <p>Students interpreted whole-number quotients of whole numbers.</p> <p>Students solved two-step word problems using the four operations and assessed the reasonableness of answers.</p>	<p>Students connect concrete and visual models to using place value to solve division problems with regrouping.</p> <p>Students use place value and the relationship between multiplication and division to find whole-number quotients and remainders.</p> <p>Students solve multistep word problem using the four operations and assess the reasonableness of answers.</p>	<p>Students will find quotients of whole numbers with up to 4-digit dividends and 2-digit divisors.</p> <p>Students will interpret a fraction as division of the numerator by the denominator.</p>

Module 7 Vocabulary

regroup	to exchange amounts of equal value to rename a number
remainder	the amount left over when a number cannot be divided equally

Lesson 7.1 Represent Division with Regrouping

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Use appropriate tools strategically.

I Can Objective

I can represent and record division problems with a 1-digit divisor and regrouping.

Learning Objective

Use concrete and visual models to show division with regrouping and record the division.

Language Objectives

- Explain when regrouping is necessary in division.
- Describe the process of division by using visual models.

Lesson Materials

base-ten blocks

Lesson 7.2 Use Place Value to Divide

Connect Concepts and Skills – 2 Days

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Use appropriate tools strategically.
- Look for and make use of structure.

I Can Objective

I can determine how many digits a whole-number quotient will have and use long division to divide.

Learning Objective

Use place value to divide and to determine how many digits a whole-number quotient has.

Language Objectives

- Explain how to determine whether the whole-number quotient of a 3-digit dividend and 1-digit divisor has 2 digits or 3 digits.
- Use place value to divide and explain reasoning.

Lesson Materials

base-ten blocks

Lesson 7.3 Divide by 1-Digit Numbers

Apply and Practice – 1 Day

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Attend to precision.
- Look for and make use of structure.

I Can Objective

I can divide a multi-digit number by a 1-digit number and check the answer.

Learning Objective

Use place value and the relationship between multiplication and division to divide multi-digit numbers by 1-digit numbers.

Language Objectives

- Explain how to use place value to divide by 1-digit numbers.
- Explain how to use the relationship between multiplication and division to check the result of division.

Lesson 7.4 Solve Multistep Multiplication and Division Problems

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Model with mathematics.
- Construct viable arguments and critique the reasoning of others.

I Can Objective

I can solve multistep word problems involving multiplication, division, and interpretation of remainders.

Learning Objective

Use multiplication and division to solve multistep word problems.

Language Objectives

- Explain the solution strategy for multistep problems.
- Describe the relationships between quantities and the meaning of the solution in problem situations.

Unit 3: Extend and Apply Multiplication

Unit 3 Project: The Perfect Park

Unit 3 Learning Mindset Focus: Challenge Seeking / Defines Own Challenges

Module 8: Multiply by 2-Digit Numbers

Recommended Pacing with Assessments: 10 Days

Module 8 Mathematical Progressions

Prior Learning	Current Development	Future Connections
<p>Students multiplied one-digit numbers and multiples of 10.</p> <p>Students rounded whole numbers to the nearest 10 or 100.</p> <p>Students solved two-step word problems using the four operations and assessed the reasonableness of answers.</p>	<p>Students use area models, place value, and partial products to multiply 2-digit whole numbers.</p> <p>Students round multi-digit whole numbers to any place.</p> <p>Students solve multistep word problems using the four operations.</p>	<p>Students will fluently multiply multi-digit whole numbers using the standard algorithm.</p> <p>Students will round decimals to any place.</p>

Module 8 Vocabulary

compatible numbers numbers that are easy to compute mentally

Lesson 8.1 Multiply with Tens

Build Understanding – 1 Day

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Look for and make use of structure.

I Can Objective

I can use different strategies to multiply with multiples of ten.

Learning Objective

Use strategies to multiply with tens.

Language Objectives

- Explain how to use renaming to multiply with tens.
- Explain how to apply properties to multiply with tens.

Lesson Materials

base-ten blocks (longs, small cubes), 1-Centimeter Grid Paper (Teacher Resource Masters)

Lesson 8.2 Estimate Products

Connect Concepts and Skills – 2 Days

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Use place value understanding to round multi-digit whole numbers to any place.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Look for and make use of structure.

I Can Objective

I can estimate products using a variety of methods and predict how the estimated product will relate to the actual product.

Learning Objective

Use strategies to estimate products.

Language Objectives

- Explain how to use rounding to estimate products.
- Explain how to use front-end estimation to estimate products.
- Explain how to use compatible numbers to estimate products.

Vocabulary

New: compatible numbers

Lesson 8.3 Relate Area Models and Partial Products

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Model with mathematics.

I Can Objective

I can use area models and partial products to multiply two 2-digit numbers.

Learning Objective

Use area models and partial products to multiply two 2-digit numbers.

Language Objectives

- Draw an area model to represent a multiplication problem and explain how to use the area model.
- Explain how to use the Distributive Property to find partial products.

Lesson 8.4 Multiply Using Partial Products

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can multiply two 2-digit numbers using different methods.

Learning Objective

Use place value and partial products to multiply two 2-digit numbers.

Language Objectives

- Show how partial products of a multiplication problem relate to an area model representing the problem.
- Explain how to use place value and partial products to multiply two 2-digit numbers.

Lesson 8.5 Multiply with Regrouping

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can fluently multiply two 2-digit numbers using the method of regrouping.

Learning Objective

Use regrouping to multiply two 2-digit numbers.

Language Objective

- Explain how to use place value and regrouping to multiply two 2-digit numbers.
- Explain why you find an estimate of a product.

Lesson 8.6 Choose a Multiplication Strategy

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
--	---	---

Mathematics Standards

Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can fluently multiply two 2-digit numbers using the method of my choice.

Learning Objective

Use different strategies to multiply two 2-digit numbers.

Language Objectives

- Describe different strategies that can be used to multiply two 2-digit numbers.
- Explain how you decide which strategy to use to solve a multiplication problem with two 2-digit numbers.

Lesson 8.7 Solve Multistep Problems and Assess Reasonableness

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
--	---	---

Mathematics Standards

Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Model with mathematics.

I Can Objective

I can solve word problems that involve two and three steps using whole numbers and all four operations.

Learning Objective

Solve multistep problems and assess the reasonableness of solutions.

Language Objectives

- Write a multistep problem involving multiplication with 2-digit numbers.
- Explain strategies for solving multistep problems and how to assess the reasonableness of solutions.

Unit 3: Extend and Apply Multiplication

Unit 3 Project: The Perfect Park

Unit 3 Learning Mindset Focus: Challenge Seeking / Defines Own Challenges

Module 9: Apply Multiplication to Area

Recommended Pacing with Assessments and Performance Task: 7 Days

Module 9 Mathematical Progressions

Prior Learning	Current Development	Future Connections
<p>Students solved problems involving perimeters of polygons.</p> <p>Students solved problems involving finding an unknown side length.</p> <p>Students exhibited rectangles with the same perimeter and different areas or the same area and different perimeters.</p>	<p>Students apply the area formula to solve real-world and mathematical problems.</p> <p>Students apply the area formula for rectangles to find the area of combined rectangles.</p> <p>Students find the unknown measure of a rectangle given the length of one side and the area or perimeter.</p> <p>Students find the area of figures that consist of a rectangle with one or more smaller rectangles removed.</p>	<p>Students will solve problems involving volume and apply the formula for the volume of rectangular prisms.</p> <p>Students will fluently multiply multi-digit whole numbers using the standard algorithm.</p>

Module 9 Vocabulary

base	a polygon's side
height	the measure of a perpendicular from the base to the top of a two-dimensional figure

Lesson 9.1 Apply the Area Formula to Rectangles

Connect Concepts and Skills – 1 Day

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

Mathematical Practices and Processes

- Attend to precision.
- Look for and make use of structure.

I Can Objective

I can find the area of a rectangle by using the formula for area.

Learning Objectives

Apply the area formula to find the area of rectangles.

Language Objective

- Explain what the variables in the area formula represent.
- Describe the concept of area.

Vocabulary

New: base, height

Lesson Materials

centimeter ruler, inch ruler, square tiles

Lesson 9.2 Find the Area of Combined Rectangles

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
--	---	---

Mathematics Standards

Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Attend to precision.

I Can Objective

I can find the area of a figure made of combined rectangles.

Learning Objective

Find the area of combined rectangles using addition or subtraction and the area formula.

Language Objectives

- Explain how the area formula can be applied to combined rectangles.
- Find the area of combined rectangles and justify the strategy used.

Lesson 9.3 Find Unknown Measures

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

Mathematical Practices and Processes

- Use appropriate tools strategically.
- Look for and make use of structure.

I Can Objective

I can find the unknown measure of a rectangle given the length of one side and the area or perimeter.

Learning Objective

Solve problems involving unknown measures in rectangles.

Language Objectives

- Explain how to use the area formula to find the unknown measure of a rectangle given the length of one side and the area.
- Explain how to use the perimeter formula to find the unknown measure of a rectangle given the length of one side and the perimeter.
- Solve problems about the area and perimeter of rectangles and explain reasoning.

Lesson 9.4 Solve Area Problems

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

Mathematical Practices and Processes

- Use appropriate tools strategically.
- Look for and make use of structure.

I Can Objective

I can find the area of a rectangular region that is formed by taking away rectangular pieces from its interior.

Learning Objective

Use the area formula to solve problems.

Language Objectives

- Explain why a strategy for finding the area of a figure involving rectangles makes sense.
- Justify that a solution is reasonable.

Unit 4: Fractions and Decimals

Unit 4 Project: Fractions and Decimals

Unit 4 Learning Mindset Focus: Perseverance / Collects and Tries Multiple Strategies

Module 10: Algebraic Thinking: Number Theory

Recommended Pacing with Assessments: 8 Days

Module 10 Mathematical Progressions

Prior Learning	Current Development	Future Connections
<p>Students determined the unknown number in a multiplication or division equation.</p> <p>Students understood division as an unknown factor problem.</p> <p>Students fluently multiplied and divided within 100.</p> <p>Students identified arithmetic patterns and used properties of operations to explain the patterns.</p>	<p>Students find all factor pairs of a whole number.</p> <p>Students determine whether a whole number is a multiple of a given number.</p> <p>Students determine whether a whole number is prime or composite.</p> <p>Students generate a number pattern that follows a given rule.</p>	<p>Students will find quotients of whole numbers with up to 4-digit dividends and 2-digit divisors.</p> <p>Students will find the greatest common factor and the least common multiple of two whole numbers.</p> <p>Students will generate two numerical patterns using two given rules.</p>

Module 10 Vocabulary

factor	a number that is multiplied by another number to find a product
multiple	a number that is the product of two counting numbers
pattern	an ordered set of numbers or objects; the order helps you predict what will come next
rule	an instruction that tells you how to get from one term in pattern to the next term
composite number	a number having more than two factors
divisible	a number is divisible by another number if the whole-number quotient is a counting number and the remainder is zero
factor pair	two factors that make a product
prime number	a number that has exactly two factors: 1 and itself
term	a number or object in a pattern

Lesson 10.1 Investigate Factors

Build Understanding – 1 Day

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

Mathematical Practices and Processes

- Construct viable arguments and critique the reasoning of others.
- Use appropriate tools strategically.

I Can Objective

I can use visual models and equations to find all the factor pairs of a number.

Learning Objective

Use concrete and visual models to identify all the factors of numbers up to 100.

Language Objectives

- Explain what a factor of a number is.
- Explain how to find all factors of a whole number.

Vocabulary

Review: factor

New: factor pair

Lesson Materials

square tiles; 0.5-Centimeter Grid Paper (Teacher Resource Masters)

Lesson 10.2 Identify Factors

Connect Concepts and Skills – 2 Days

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Use appropriate tools strategically.
- Look for and make use of structure.

I Can Objective

I can use division to determine whether a number is a factor of another number.

Learning Objective

Use division and divisibility rules to determine if a number is a factor of a given number.

Language Objectives

- Explain how to determine whether a number is divisible by another number.
- Describe and apply divisibility rules for 2, 3, 4, 5, 6, and 9.

Vocabulary

Review: factor

New: divisible

Lesson Materials

square tiles, 0.5-Centimeter Grid Paper (Teacher Resource Masters)

Lesson 10.3 Generate Multiples Using Factors

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

Mathematical Practices and Processes

- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can determine whether a number is a multiple of another number and generate lists of multiples.

Learning Objective

Use factors to determine if a number is a multiple of a given number, and list multiples of the given number.

Language Objectives

- Explain the relationship between factors and multiples.
- Explain how to determine if a number is a multiple of another number.
- Use multiples to solve problems and explain reasoning.

Vocabulary

Review: multiple

Lesson 10.4 Identify Prime and Composite Numbers

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

Mathematical Practices and Processes

- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can determine whether a number is prime or composite.

Learning Objective

Use factors and division to identify prime and composite numbers.

Language Objectives

- Explain the difference between prime and composite numbers.
- Identify whether a number is prime or composite and explain reasoning.

Vocabulary

New: composite number, prime number

Lesson Materials

0.5-Centimeter Grid Paper (Teacher Resource Masters)

Lesson 10.5 Generate and Analyze Number Patterns

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.

Mathematical Practices and Processes

- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can follow a given rule to write numbers in a pattern and identify other features of the pattern that are not stated in the rule.

Learning Objective

Use a rule to find numbers in a pattern and identify other features of the pattern not stated in the rule.

Language Objectives

- Explain how to generate a number pattern.
- Describe the features of number patterns.

Vocabulary

Review: pattern, rule

New: term

Unit 4: Fractions and Decimals

Unit 4 Project: Fractions and Decimals

Unit 4 Learning Mindset Focus: Perseverance / Collects and Tries Multiple Strategies

Module 11: Fraction Equivalence and Comparison

Recommended Pacing with Assessments: 9 Days

Module 11 Mathematical Progressions

Prior Learning	Current Development	Future Connections
<p>Students recognized equivalent numerical and visual representations of a fraction.</p> <p>Students compared fractions by using visual models and by reasoning about their size.</p>	<p>Students connect reasoning about the size of a fraction to using a benchmark to compare fractions.</p> <p>Students connect understanding of fraction equivalence to a numerical process using visual models to explain.</p> <p>Students extend work with fraction equivalence to a procedure of rewriting fractions with the same numerator or denominator to compare them.</p>	<p>Students will use equivalent fractions to add and subtract fractions and mixed numbers with unlike denominators.</p> <p>Students will use benchmark fractions to estimate and assess reasonableness of the sums and differences.</p>

Module 11 Vocabulary

equivalent fractions	two or more fractions that name the same amount
benchmark	a known size or amount that helps you understand a different size of an amount
common denominator	a common multiple of two or more denominators
common factor	a number that is a factor of two or more numbers
common multiple	a number that is a multiple of two or more numbers

Lesson 11.1 Compare Fractions Using Visual Models

Build Understanding – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Use appropriate tools strategically.

I Can Objective

I can use visual models to compare two fractions with different numerators and denominators.

Learning Objective

Use visual models to compare fractions with unlike numerators and denominators.

Language Objectives

- Describe visual fraction models and explain how they can be used to compare fractions.
- Explain why fractions must refer to the same whole in order to compare them.

Lesson Materials

fraction circles, fraction strips; Number Lines (fractions) (Teacher Resource Masters)

Lesson 11.2 Compare Fractions Using Benchmarks

Connect Concepts and Skills – 1 Day

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

Mathematical Practices and Processes

- Use appropriate tools strategically.
- Look for and make use of structure.

I Can Objective

I can use benchmarks to compare two fractions and record the comparison with the symbols $<$ or $>$.

Learning Objective

Use benchmarks to compare fractions with different numerators and different denominators.

Language Objectives

- Explain what a benchmark is.
- Explain ways you can use benchmarks to compare unlike fractions.

Vocabulary

New: benchmark

Lesson Materials

fraction circles, fraction strips; Number Lines (fractions) (Teacher Resource Masters)

Lesson 11.3 Explain Fraction Equivalence Using Visual Models

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Use appropriate tools strategically.

I Can Objective

I can use a visual model to show that two fractions are equivalent and explain why they are equivalent.

Learning Objective

Use visual fraction models to explain why two fractions are or are not equivalent.

Language Objectives

- Describe various visual fraction models and explain how they represent fraction equivalence.
- Explain the relationship between multiplication and fraction equivalence.

Vocabulary

Review: equivalent fractions

Lesson Materials

fraction circles, fraction strips

Lesson 11.4 Generate Equivalent Fractions

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can use multiplication and division to write fractions that are equivalent to a given fraction.

Learning Objective

Use multiplication and division to identify and generate equivalent fractions.

Language Objectives

- Explain how to use multiplication and division to write equivalent fractions.
- Explain reasoning about fraction equivalence.

Vocabulary

New: common factor

Lesson 11.5 Use Common Multiples to Write Equivalent Fractions

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Look for and make use of structure.

I Can Objective

I can use common multiples to rewrite two fractions so they have a common denominator or a common numerator.

Learning Objective

Use common multiples to represent a pair of fractions as equivalent fractions with common denominators or common numerators.

Language Objectives

- Explain how to use common multiples to write equivalent fractions with common denominators or common numerators.
- Explain how to identify equivalent fractions using visual models.

Vocabulary

New: common denominator, common multiple

Lesson 11.6 Compare Fractions Using Common Numerators and Denominators

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can use common numerators or denominators to compare two fractions that have different numerators and denominators.

Learning Objective

Write equivalent fractions to compare fractions using common numerators or common denominators.

Language Objective

- Justify a choice of a fraction comparison strategy.
- Explain how to apply comparison strategies.

Lesson 11.7 Use Comparisons to Order Fractions

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Attend to precision.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can use different strategies to compare and order three or more fractions.

Learning Objective

Use various comparison strategies to order sets of fractions.

Language Objectives

- Explain how to order fractions using different strategies.
- Evaluate and explain the benefits of different strategies for specific comparison problems.

Unit 4: Fractions and Decimals

Unit 4 Project: Fractions and Decimals

Unit 4 Learning Mindset Focus: Perseverance / Collects and Tries Multiple Strategies

Module 12: Relate Fractions and Decimals

Recommended Pacing with Assessments: 8 Days

Module 12 Mathematical Progressions

Prior Learning	Current Development	Future Connections
<p>Students understood equivalent fractions.</p> <p>Students generated simple equivalent fractions.</p> <p>Students understood the value of coins, and related the value of coins to a dollar.</p>	<p>Students show equivalent decimals and fractions with denominators of 10 and 100.</p> <p>Students use linear model representations and the four operations to solve word problems involving money.</p> <p>Students use visual model and place value to compare decimals.</p> <p>Students find relationships among fractions, decimals, and money.</p>	<p>Students will read and write decimals to thousandths.</p> <p>Students will compare decimals to thousandths.</p> <p>Students will perform operations with decimals.</p>

Module 12 Vocabulary

decimal	a number with one or more digits to the right of the decimal point
decimal point	a symbol used to separate dollars from cents in money amounts, and to separate the ones and the tenths places in a decimal
equivalent decimal	two or more decimals that name the same amount
hundredth	one of one hundred equal parts
tenth	one of ten equal parts

Lesson 12.1 Represent Tenths as Fractions and Decimals

Build Understanding – 1 Day

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Use decimal notation for fractions with denominators 10 or 100.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Use appropriate tools strategically.

I Can Objective

I can use a visual model and decimal notation to represent fractions, mixed numbers, and decimals in tenths.

Learning Objective

Record tenths as fractions and as decimals.

Language Objectives

- Explain how numbers in tenths can be written as fractions and as decimals.
- Read and write decimals and fractions in tenths.

Vocabulary

New: decimal, decimal point, tenth

Lesson Materials

Decimal Models (tenths), Number Lines (tenths and hundredths) (Teacher Resource Masters)

Lesson 12.2 Represent Hundredths as Fractions and Decimals

Build Understanding – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Use decimal notation for fractions with denominators 10 or 100.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can use a visual model and decimal notation to represent fractions, mixed numbers, and decimals in hundredths.

Learning Objective

Record hundredths as fractions and as decimals.

Language Objectives

- Explain how numbers in hundredths can be written as fractions and as decimals.
- Read and write decimals and fractions in hundredths.

Vocabulary

New: hundredth

Lesson Materials

Number Lines (tenths and hundredths) (Teacher Resource Masters)

Lesson 12.3 Identify Equivalent Fractions and Decimals

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.

Use decimal notation for fractions with denominators 10 or 100.

Mathematical Practices and Processes

- Construct viable arguments and critique the reasoning of others.
- Look for and make use of structure.

I Can Objective

I can write a fraction in tenths as a fraction in hundredths and as a decimal in tenths and hundredths.

Learning Objective

Express equivalent fractions as decimals.

Language Objectives

- Explain how to write a fraction in tenths as a fraction in hundredths.
- Identify equivalent values represented as decimals and fractions in tenths and hundredths, and explain reasoning.

Vocabulary

New: equivalent decimals

Lesson Materials

Decimal Models (tenths and hundredths), Number Lines (fraction and decimal equivalence), Place- Value Charts (decimals) (Teacher Resource Masters)

Lesson 12.4 Compare Decimals

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.

Mathematical Practices and Processes

- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can use decimal models, number lines, and place-value charts to compare decimals. I can use $<$, $>$, and $=$ to write decimal comparisons.

Learning Objective

Compare decimals using visual models, number lines, or place value.

Language Objectives

- Explain how to use tenths and hundredths to compare decimals.
- Solve problems involving decimal comparison, and explain reasoning.

Lesson 12.5 Relate Fractions, Decimals, and Money

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Use decimal notation for fractions with denominators 10 or 100.

Mathematical Practices and Processes

- Attend to precision.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can use hundredths models, fractions, and decimals to represent money amounts.

Learning Objective

Find relationships among fractions, decimals, and money.

Language Objectives

- Explain how to write amounts of money as fractions and decimals.
- Explain how different combinations of bills and coins can represent the same fraction or decimal.

Lesson 12.6 Solve Multistep Money Problems

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

Mathematical Practices and Processes

- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.

I Can Objective

I can solve multistep money problems using bills and coins, visual models, or cents and represent money amounts as fractions, mixed numbers, and decimals.

Learning Objective

Solve problems relating to money by representing the problems using a visual model and a decimal dollar amount.

Language Objectives

- Determine and describe a solution strategy to solve multistep money problems.
- Justify the reasonableness of solutions to multistep money problems.

Unit 4: Fractions and Decimals

Unit 4 Project: Fractions and Decimals

Unit 4 Learning Mindset Focus: Perseverance / Collects and Tries Multiple Strategies

Module 13: Use Fractions to Understand Angles

Recommended Pacing with Assessments and Performance Task: 11 Days

Module 13 Mathematical Progressions

Prior Learning	Current Development	Future Connections
<p>Students recognized examples of quadrilaterals.</p> <p>Students understood unit fractions as 1 part of a whole partitioned into equal parts.</p> <p>Students solved real-world problems involving perimeters and areas of polygons.</p>	<p>Students draw points, lines, rays, and angles, and identify these in two-dimensional figures.</p> <p>Students understand angles and how to use a protractor to measure and sketch angles.</p> <p>Students recognize angles as additive and solve problems involving angles.</p>	<p>Students will understand categories and subcategories to classify two-dimensional figures.</p> <p>Students will recognize volume of solid figures and volume measurement.</p> <p>Students will use cubic units to measure volumes of solid figures.</p> <p>Students will recognize volume as additive and solve problems involving volume.</p>

Module 13 Vocabulary

angle	a shape formed by two line segments or rays that share the same endpoint
degree (°)	the unit used for measuring angles and temperatures
endpoint	the point at either end of a line segment or the starting point of a ray
line	a straight path of points in a plane that continues without end in both directions with no endpoints
line segment	a part of a line that includes two points called endpoints and all the points between them
point	an exact location in space
ray	a part of a line; it has one endpoint and continues without end in one direction.
reflex angle	an angle that measures greater than 180° and less than 360°
straight angle	an angle that measures 180°

Lesson 13.1 Explore Lines, Rays, and Angles

Build Understanding – 1 Day

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Model with mathematics.
- Attend to precision.

I Can Objective

I can identify, draw, and name angles.

Learning Objective

Identify, name, and draw points, lines, line segments, rays, and angles.

Language Objectives

- Explain what points, lines, line segments, rays, and angles are.
- Explain how to draw and name points, lines, line segments, rays, and angles.

Vocabulary

New: line segment, angle, ray, point, line, endpoint

Lesson Materials

straightedge

Lesson 13.2 Explore Angles

Build Understanding – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a “one-degree angle,” and can be used to measure angles.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Model with mathematics.

I Can Objective

I can compare angles and use unit angles to find how many of the unit angles complete a circle.

Learning Objective

Measure an angle using unit angles.

Language Objectives

- Explain how angles are related to rotation.
- Explain how to measure an angle using unit angles.

Vocabulary

New: vertex

Lesson Materials

straightedge

Lesson 13.3 Relate Angles to Fractional Parts of a Circle

Build Understanding – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $1/360$ of a circle is called a “one-degree angle,” and can be used to measure angles.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Model with mathematics.

I Can Objective

I can measure an angle as it relates to the fractional part of the circle.

Learning Objective

Measure an angle as it relates to the fractional parts of a circle.

Language Objectives

- Explain how fractions are related to angle measurements.
- Explain how to measure an angle as it relates to the fractional part of a circle.

Lesson Materials

Fraction Circles (Teacher Resource Masters)

Lesson 13.4 Relate Degrees to Fractional Parts of a Circle

Connect Concepts and Skills – 2 Days

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:

- An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $1/360$ of a circle is called a “one-degree angle,” and can be used to measure angles.
- An angle that turns through n one-degree angles is said to have an angle measure of n degrees.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Use appropriate tools strategically.

I Can Objective

I can find the measure of an angle by using its fractional part of a circle.

Learning Objective

Relate degrees to fractional parts of a circle.

Language Objectives

- Explain how to relate degrees to the fractional parts of a circle.
- Explain how to classify angles as acute, right, obtuse, straight, or reflex.

Vocabulary

New: acute angle, degrees, obtuse angle, reflex angle, right angle, straight angle

Lesson 13.5 Measure and Draw Angles Using a Protractor

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

Mathematical Practices and Processes

- Use appropriate tools strategically.
- Attend to precision.

I Can Objective

I can use a protractor to accurately and precisely measure and draw angles.

Learning Objective

Use a protractor to measure and draw angles.

Language Objective

- Explain how to use a protractor to measure angles.
- Explain how to use a protractor to draw angles.

Vocabulary

New: protractor

Lesson Materials

protractor

Lesson 13.6 Join and Separate Angles

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

Mathematical Practices and Processes

- Model with mathematics.
- Use appropriate tools strategically.

I Can Objective

I can find the measure of angles that are joined or separated.

Learning Objective

Find the measures of angles that are joined or separated.

Language Objective

- Explain how to find the measures of angles that are joined or separated.
- Explain why addition or subtraction can be used to find the measures of angles that are joined or separated.

Lesson Materials

protractors

Lesson 13.7 Find Unknown Angle Measures

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

Mathematical Practices and Processes

- Model with mathematics.
- Use appropriate tools strategically.
- Look for and make use of structure.

I Can Objective

I can use the relationship between known angles to find the measure of unknown angles.

Learning Objective

Use the relationship between the known angles to find the measure of unknown angles.

Language Objective

- Explain how to use the relationship between known angles to find the measures of unknown angles.
- Explain how to use straight angles, right angles, and circles to solve problems involving the unknown measures of angles.

Unit 5: Operations with Fractions

Unit 5 Project: Fraction Game!

Unit 5 Learning Mindset Focus: Perseverance / Getting Unstuck

Module 14: Understand Addition and Subtraction of Fractions with Like Denominators

Recommended Pacing with Assessments: 8 Days

Module 14 Mathematical Progressions

Prior Learning	Current Development	Future Connections
<p>Students understood that a/b is an amount that is made up of a number of $1/b$-sized parts.</p> <p>Students understood that the unit fraction $1/b$ is 1 equal part of b equal parts of a whole or group.</p> <p>Students understood fractions as part of a whole.</p>	<p>Students decompose a fraction into a sum of fractions.</p> <p>Students understand addition and subtraction of fractions as joining and separating parts.</p> <p>Students use models and equations to represent and solve word problems involving addition and subtraction of fractions.</p> <p>Students add fractions with denominators of 10 and 100.</p>	<p>Students will add and subtract fractions with unlike denominators.</p> <p>Students will solve word problems with fractions and will estimate for reasonableness.</p>

Module 14 Vocabulary

common denominator a common multiple of two or more denominators

unit fraction a fractions that has a numerator of 1

Lesson 14.1 Decompose Fractions into Sums

Build Understanding – 1 Day

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model.

Mathematical Practices and Processes

- Model with mathematics.
- Look for and make use of structure.

I Can Objective

I can decompose visual fraction models into sums and model the decomposition with addition equations.

Learning Objective

Write fractions in multiple ways as the sum of fractions with the same denominator.

Language Objective

Explain how visual representations can be used to decompose fractions into sums of fractions.

Vocabulary

New: unit fraction

Lesson Materials

fraction circles, fraction strips

Lesson 14.2 Join Parts of the Same Whole

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.

Mathematical Practices and Processes

- Model with mathematics.
- Construct viable arguments and critique the reasoning of others.

I Can Objective

I can use fraction models to solve problems and describe joining fractions with like denominators.

Learning Objective

Solve word problems involving addition of fractions with like denominators using visual models.

Language Objective

Demonstrate how to represent same-denominator fractions with visual models, and explain how to describe the addition.

Lesson Materials

fraction circles, fraction strips

Lesson 14.3 Represent Addition of Fractions

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.

Mathematical Practices and Processes

- Model with mathematics.
- Look for and make use of structure.

I Can Objective

I can use visual representations to add fractions.
I can write equations to model a given number line or word problem.

Learning Objective

Use visual representations and equations to add fractions with the same denominator.

Language Objective

Explain how visual representations and equations can be used to add fractions with the same denominator.

Lesson Materials

fraction strips, fraction circles, Number Lines (fractions) (Teacher Resource Masters)

Lesson 14.4 Separate Parts of the Same Whole

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Use appropriate tools strategically.

I Can Objective

I can show subtraction of fractions with visual models and use words to describe the difference.

Learning Objective

Solve word problems involving subtraction of fractions with like denominators using visual representations.

Language Objective

Demonstrate ways to use visual models to write problems showing subtraction of fractions, and explain how they show the difference.

Lesson Materials

fraction circles, fraction strips, Number Lines (fractions) (Teacher Resource Masters)

Lesson 14.5 Represent Subtraction of Fractions

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Use appropriate tools strategically.

I Can Objective

I can write equations and find the difference of fractions with like denominators.

Learning Objective

Solve word problems involving subtraction of fractions with like denominators using visual representations and equations.

Language Objective

Explain and write examples of how visual models can be used to subtract fractions with like denominators.

Lesson Materials

fraction circles, fraction strips, Number Lines (fractions) (Teacher Resource Masters)

Lesson 14.6 Add Fractional Parts of 10 and 100

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.

Mathematical Practices and Processes

- Model with mathematics.
- Reason abstractly and quantitatively.
- Attend to precision.

I Can Objective

I can rename fractions with denominators of 10 and 100 so both have denominators of 100. I can add the fractions.

Learning Objective

Use a common denominator of 100 to add two fractions with denominators of 10 and 100.

Language Objective

Write and solve problems using renaming when adding fractions with the unlike denominators of 10 and 100.

Vocabulary

New: common denominator

Unit 5: Operations with Fractions

Unit 5 Project: Fraction Game!

Unit 5 Learning Mindset Focus: Perseverance / Getting Unstuck

Module 15: Add and Subtract Fractions and Mixed Numbers with Like Denominators

Recommended Pacing with Assessments: 9 Days

Module 15 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students wrote whole numbers as fractions.	<p>Students use visual and concrete models and equations to represent and solve word problems involving addition and subtraction of mixed numbers.</p> <p>Students use a visual model to decompose a fraction into a sum of fractions.</p> <p>Students rename mixed numbers as equivalent fractions to add and subtract.</p> <p>Students apply properties of addition to add mixed numbers.</p>	<p>Students will add and subtract fractions with unlike denominators.</p> <p>Students will solve word problems involving fractions with unlike denominators.</p> <p>Students will understand fractions as division of the numerator by the denominator.</p>

Module 15 Vocabulary

mixed number an amount given as a whole number and a fraction

Lesson 15.1 Add and Subtract Fractions to Solve Problems

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.

Mathematical Practices and Processes

- Model with mathematics.
- Use appropriate tools strategically.
- Reason abstractly and quantitatively.

I Can Objective

I can add and subtract fractions greater than one with like denominators to solve real-world problems.

Learning Objective

Apply skills in adding and subtracting fractions with like denominators to those whose numerators are greater than their denominators.

Language Objectives

- Explain how to make a visual model to represent a word problem involving fractions greater than one.
- Explain how to model a word problem involving fractions greater than one with an equation.

Lesson Materials

fraction circles, fraction strips, Number Lines (fraction equivalence 1) (Teacher Resource Masters)

Lesson 15.2 Rename Fractions and Mixed Numbers

Connect Concepts and Skills – 1 Day

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model.

Mathematical Practices and Processes

- Model with mathematics.
- Use appropriate tools strategically.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can rename mixed numbers as a sum of fractions with like denominators.

Learning Objective

Rename mixed numbers as fractions greater than one and vice versa by using representations such as visual models or fraction bars.

Language Objectives

- Explain how to rename a mixed number as a fraction.
- Explain how to rename a fraction greater than one as a mixed number.

Vocabulary

New: mixed number

Lesson Materials

fraction circles, fraction strips, Number Lines (fraction equivalence 1) (Teacher Resource Masters)

Lesson 15.3 Add and Subtract Mixed Numbers to Solve Problems

Connect Concepts and Skills – 2 Days

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Model with mathematics.
- Use appropriate tools strategically.

I Can Objective

I can use visual models and equations to add and subtract mixed numbers with like denominators.

Learning Objective

Add and subtract mixed numbers with like denominators.

Language Objectives

- Explain how to use a visual model to add and subtract mixed numbers.
- Explain how to use an equation to add and subtract mixed numbers.

Lesson Materials

fraction circles, fraction strips, Number Lines (fraction equivalence 2) (Teacher Resource Masters)

Lesson 15.4 Rename Mixed Numbers to Subtract

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Model with mathematics.
- Look for and make use of structure.

I Can Objective

I can rename mixed numbers to subtract fractions with like denominators to solve real-world problems.

Learning Objective

Rename mixed numbers to subtract.

Language Objectives

- Describe when to rename mixed numbers to subtract.
- Explain different ways to rename a mixed number to subtract.

Lesson Materials

fraction circles, fraction strips, Number Lines (fraction equivalence 1 and 2) (Teacher Resource Masters)

Lesson 15.5 Apply Properties of Addition to Add Fractions and Mixed Numbers

Apply and Practice – 1 Day

Conceptual
Build Understanding

Conceptual and Procedural
Connect Concepts and Skills

Procedural
Apply and Practice

Mathematics Standards

Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Attend to precision.
- Look for and make use of structure.

I Can Objective

I can add fractions and mixed numbers using the properties of addition.

Learning Objective

Use the Associative and Commutative Properties to add fractions and mixed numbers mentally.

Language Objectives

- Explain when to use properties to help add fractions and mixed numbers.
- Explain how to identify what properties are used to add fractions and mixed numbers.

Lesson 15.6 Practice Solving Fraction Problems

Apply and Practice – 1 Day

Conceptual
Build Understanding

Conceptual and Procedural
Connect Concepts and Skills

Procedural
Apply and Practice

Mathematics Standards

Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.

Mathematical Practices and Processes

- Model with mathematics.
- Reason abstractly and quantitatively.
- Attend to precision.

I Can Objective

I can add and subtract fractions and mixed numbers with like denominators to solve real-world problems.

Learning Objective

Practice solving problems involving addition and subtraction of fractions and mixed numbers with like denominators.

Language Objectives

- Write problems involving addition and subtraction of fractions and mixed numbers.
- Explain how to model addition and subtraction problems involving fractions and mixed numbers.

Unit 5: Operations with Fractions

Unit 5 Project: Fraction Game!

Unit 5 Learning Mindset Focus: Perseverance / Getting Unstuck

Module 16: Multiply Fractions by Whole Numbers

Recommended Pacing with Assessments and Performance Task: 8 Days

Module 16 Mathematical Progressions

Prior Learning	Current Development	Future Connections
<p>Students understood a fraction a/b as a pieces of $1/b$ -sized parts.</p> <p>Students multiplied within 100 to solve problems.</p>	<p>Students understand a fraction a/b as a multiple of $1/b$.</p> <p>Students multiply a fraction by a whole number.</p> <p>Students use visual models and equations to represent and solve word problems involving products of a fraction and a whole number.</p>	<p>Students will multiply a whole number by a fraction or a fraction by a fraction.</p>

Module 16 Vocabulary

multiple the product of a number and a counting number is called a multiple of that number

Lesson 16.1 Understand Multiples of Unit Fractions

Build Understanding – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Understand a fraction a/b as a multiple of $1/b$.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Look for and make use of structure.

I Can Objective

I can represent a fraction as the product of a whole number and a unit fraction and as an equation using repeated addition.

Learning Objective

Write a fraction as a multiple of a whole number and a unit fraction.

Language Objectives

- Explain how to use a visual model show a fraction as a multiple of unit fractions.
- Explain how to write fractions as a multiple of unit fractions.

Lesson Materials

fraction strips, fraction circles, Number Lines (fractions) (Teacher Resource Masters)

Lesson 16.2 Find Multiples of Fractions

Build Understanding – 1 Day

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number.

Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Model with mathematics.
- Look for and make use of structure.

I Can Objective

I can represent the product of a whole number and a fraction as the product of a whole number and a unit fraction.

Learning Objective

Write the product of a whole number and a fraction as the product of a whole number and a unit fraction.

Language Objectives

- Explain and demonstrate how to write multiples of fractions using visual models.
- Explain how to write an equation to model a problem that multiplies a whole number and a fraction.

Lesson Materials

fraction strips, fraction circles

Lesson 16.3 Represent Multiplication of a Fraction by a Whole Number

Connect Concepts and Skills – 2 Days

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

- Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number.
- Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Model with mathematics.
- Look for and make use of structure.

I Can Objective

I can find the product of a whole number and a fraction using a visual representation or an equation.

Learning Objective

Use a visual representation to find the product of a whole number and a fraction, and model it with numbers and symbols.

Language Objectives

- Demonstrate and explain how to draw a visual model representing the product of a whole number and a fraction.
- Explain how to use an equation to find the product of whole number and a fraction.

Lesson Materials

fraction strips, fraction circles, Number Lines (fraction equivalence 1) (Teacher Resource Materials)

Lesson 16.4 Solve Problems Using Multiplication of a Fraction or Mixed Number by a Whole Number

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.

I Can Objective

I can solve problems involving the multiplication of mixed numbers and whole numbers.

Learning Objective

Find the solutions to problems involving multiplication of fractions or mixed numbers and whole numbers.

Language Objectives

- Describe how to solve problems that involve multiplying a fraction by a whole number.
- Describe how to solve problems that involve multiplying a mixed number by a whole number.

Unit 6: Two-Dimensional Figures and Symmetry

Unit 6 Project: Wrangle Some Angles

Unit 6 Learning Mindset Focus: Resilience / Manages the Learning Process

Module 17: Two-Dimensional Figures

Recommended Pacing with Assessments: 7 Days

Module 17 Mathematical Progressions

Prior Learning	Current Development	Future Connections
<p>Students recognized and classified quadrilaterals.</p> <p>Students solved problems involving perimeter of polygons.</p>	<p>Students identify perpendicular and parallel lines and angles in two-dimensional figures.</p> <p>Students classify two-dimensional figures based on types of lines and angles and identify right triangles.</p> <p>Students measure angles using a protractor.</p>	<p>Students will understand attributes of and classify two-dimensional figures.</p> <p>Students will measure volumes using cubic units.</p>

Module 17 Vocabulary

acute triangle	a triangle with three acute angles
equilateral triangle	a triangle with three sides of equal length
intersecting lines	lines that cross each other at exactly one point
isosceles triangle	a triangle with two sides of equal length
obtuse triangle	a triangle with one obtuse angle
parallel lines	lines in the same plane that never intersect and are always the same distance apart
parallelogram	a quadrilateral whose opposite sides are parallel and of equal length
perpendicular lines	two lines that intersect to form four right angles
rhombus	a quadrilateral with two pairs of parallel sides and four sides of equal length
right triangle	a triangle with one right angle
scalene triangle	a triangle with no sides of equal length
square	a quadrilateral with two pairs of parallel sides, four sides of equal length, and four right angles
trapezoid (exclusive)	a quadrilateral with exactly one pair of parallel sides
trapezoid (inclusive)	a quadrilateral with at least one pair of parallel sides

Lesson 17.1 Identify and Draw Perpendicular and Parallel Lines

Connect Concepts and Skills – 1 Day

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

Mathematical Practices and Processes

- Use appropriate tools strategically.
- Attend to precision.

I Can Objective

I can identify parallel lines, perpendicular lines, and lines that are neither parallel nor perpendicular.

Learning Objective

Identify and draw perpendicular and parallel lines.

Language Objectives

- Explain how to identify parallel, perpendicular, and intersecting lines.
- Recognize and identify parallel, perpendicular, and intersecting lines in two-dimensional figures and justify reasoning.

Vocabulary

Review: line segment

New: intersecting lines, parallel lines, perpendicular lines

Lesson Materials

straightedge

Lesson 17.2 Identify and Classify Triangles by Angles

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

- Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
- Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Use appropriate tools strategically.
- Attend to precision.

I Can Objective

I can measure and classify all of the angles in a triangle.

Learning Objective

Identify and classify triangles by the size of their angles.

Language Objectives

- Describe the differences between acute, right, and obtuse triangles.
- Classify triangles as acute, right, and obtuse, explaining the reasoning used.

Vocabulary

Review: polygon, triangle

New: acute triangle, obtuse triangle, right triangle

Lesson Materials

protractors

Lesson 17.3 Identify and Classify Triangles by Sides

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

- Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
- Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

Mathematical Practices and Processes

- Use appropriate tools strategically.
- Attend to precision.

I Can Objective

I can identify trapezoids, parallelograms, rectangles, rhombuses, and squares.

Learning Objective

Identify and classify quadrilaterals.

Language Objectives

- Describe the attributes of quadrilaterals, trapezoids, parallelograms, rectangles, rhombuses, and squares.
- Classify quadrilaterals and explain reasoning.

Vocabulary

Review: quadrilateral

New: parallelogram, rectangle, rhombus, square, trapezoid

Lesson 17.4 Identify and Classify Quadrilaterals

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

- Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
- Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Use appropriate tools strategically.
- Attend to precision.

I Can Objective

I can use a protractor to accurately and precisely measure and draw angles in two-dimensional figures.

Learning Objective

Measure and draw angles of two-dimensional figures.

Language Objectives

- Explain how to measure an angle in a two-dimensional figure.
- Explain how to draw an angle of a specified measure in a two-dimensional figure.

Lesson Materials

Protractors

Lesson 17.5 Measure and Draw Angles of Two-Dimensional Figures

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

- Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
- Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Use appropriate tools strategically.
- Attend to precision.

I Can Objective

I can use a protractor to accurately and precisely measure and draw angles in two-dimensional figures.

Learning Objective

Measure and draw angles of two-dimensional figures.

Language Objective

- Explain how to measure an angle in a two-dimensional figure.
- Explain how to draw an angle of a specified measure in a two-dimensional figure.

Lesson Materials

protractors

Unit 6: Two-Dimensional Figures and Symmetry

Unit 6 Project: Wrangle Some Angles

Unit 6 Learning Mindset Focus: Resilience / Manages the Learning Process

Module 18: Symmetry and Patterns

Recommended Pacing with Assessments and Performance Task: 7 Days

Module 18 Mathematical Progressions

Prior Learning	Current Development	Future Connections
<p>Students identified and drew shapes with specific attributes.</p> <p>Students identified arithmetic patterns.</p>	<p>Students identify line symmetry and draw lines of symmetry.</p> <p>Students generate a shape pattern that follows a rule.</p>	<p>Students will recognize that attributes of twodimensional figures in a category also are attributes in a subcategory.</p> <p>Students will classify and organize two-dimensional figures.</p> <p>Students will generate two numerical patterns using two rules.</p>

Module 18 Vocabulary

line of symmetry	an imaginary line on a figure about which the figure can be folded so that its two parts match exactly
line symmetry	what a figure has if it can be folded about a line so that its two parts match exactly
regular polygon	a polygon that has all sides that are equal in length and all angles equal in measure

Lesson 18.1 Recognize Lines of Symmetry

Build Understanding – 1 Day

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Attend to precision.

I Can Objective

I can identify a line of symmetry on a two-dimensional figure.

Learning Objective

Identify and describe line symmetry in two-dimensional figures.

Language Objectives

- Explain what a line of symmetry is.
- Recognize lines of symmetry in two-dimensional figures and explain reasoning.

Vocabulary

New: line of symmetry, line symmetry

Lesson Materials

color paper, scissors, 1-Centimeter Grid Paper (Teacher Resource Masters), Dot Paper (square) (Teacher Resource Masters)

Lesson 18.2 Identify and Draw Lines of Symmetry

Apply and Practice – 2 Days

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

Mathematical Practices and Processes

- Use appropriate tools strategically.
- Look for and make use of structure.

I Can Objective

I can identify two-dimensional figures that have line symmetry. I can draw all lines of symmetry on a two-dimensional figure.

Learning Objective

Find or draw a line of symmetry in two-dimensional figures.

Language Objectives

- Explain how to identify figures with line symmetry.
- Explain how to draw figures with line symmetry.

Vocabulary

New: regular polygon

Lesson Materials

color paper, scissors

Lesson 18.3 Generate and Identify Shape Patterns

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.

Mathematical Practices and Processes

- Attend to precision.
- Look for and make use of structure.

I Can Objective

I can describe and extend shape patterns.

Learning Objective

Identify, describe, and extend patterns involving shapes.

Language Objectives

- Describe shape patterns.
- Describe lines of symmetry in shape patterns.
- Explain how to make repeating shape patterns.
- Explain how a shape pattern relates to a number pattern.

Lesson Materials

color paper, 1-Centimeter Grid Paper (Teacher Resource Masters), pattern blocks

Unit 7: Measurement, Data, and Time

Unit 7 Project: It's a Dirty Job

Unit 7 Learning Mindset Focus: Resilience / Notices Others

Module 19: Relative Sizes of Customary Measurement Units

Recommended Pacing with Assessments: 8 Days

Module 19 Mathematical Progressions

Prior Learning	Current Development	Future Connections
<p>Students measured lengths of objects.</p> <p>Students measured and estimated liquid volumes and masses of objects.</p> <p>Students measured lengths to generate measurement data and displayed data on a line plot.</p>	<p>Students know relative sizes of measurement units and express measurements in a larger unit in terms of a smaller unit.</p> <p>Students use the four operations to solve word problems involving measurement units and money.</p> <p>Students make a line plot to display a data set of measurements and solve problems using information presented by the line plot.</p>	<p>Students will convert among different-sized measurement units and will solve multistep word problems.</p> <p>Students will display measurements in a line plot and will solve problems using operations on fractions.</p>

Module 19 Vocabulary

cup (c)	a customary unit used to measure capacity and liquid volume; 1 cup = 8 fluid ounces
fluid ounce (fl oz)	a customary unit used to measure liquid capacity and liquid volume; 1 cup = 8 fluid ounces
gallon (gal)	a customary unit for measuring capacity and liquid volume; 1 gallon = 4 quarts
mile (mi)	a customary unit for measuring length or distance; 1 mile = 5,280 feet
ounce (oz)	a customary unit for measuring weight; 1 pound = 16 ounces
pint (pt)	a customary unit for measuring capacity and liquid volume; 1 pint = 2 cups
pound (lb)	a customary unit for measuring weight; 1 pound = 16 ounces
quart (qt)	a customary unit for measuring capacity and liquid volume; 1 quart = 2 pints
ton (T)	a customary unit for measuring weight; 1 ton = 2,000 pounds
weight	how heavy an object is

Lesson 19.1 Identify Customary Measurement Benchmarks

Build Understanding – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.

I Can Objective

I can select and use nonstandard units to measure lengths, weights, and liquid volume.

Learning Objective

Use benchmarks to describe the relative sizes of customary measurement units.

Language Objective

Explain what a benchmark is and use them to describe the relative sizes of customary measurement units.

Vocabulary

New: cup, gallon, liquid volume, mile, ounce, pint, pound, quart, ton, weight

Lesson Materials

crayons, yardstick, measuring cup, spring scale

Lesson 19.2 Compare Customary Units of Length

Connect Concepts and Skills – 2 Days

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Attend to precision.

I Can Objective

I can represent and compare measurements given in feet and inches, feet and yards, and inches and yards.

Learning Objective

Use visual representations to describe and compare customary units of length.

Language Objective

Explain how to use visual representations to describe and compare customary units of length.

Vocabulary

Review: yard

Lesson Materials

square tiles, Number Lines (Teacher Resource Masters), inch rulers

Lesson 19.3 Compare Customary Units of Weight

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.

Mathematical Practices and Processes

- Model with mathematics.
- Attend to precision.
- Look for and make use of structure.

I Can Objective

I can represent and compare different units of weight.

Learning Objective

Use visual representations to describe and compare customary units of weight.

Language Objective

Explain how to use visual representations to describe and compare customary units of weight.

Vocabulary

Review: ounce, pound, ton

Lesson Materials

Number Lines (Teacher Resource Masters), spring scale

Lesson 19.4 Compare Customary Units of Liquid Volume

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.

Mathematical Practices and Processes

- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Look for and make use of structure.

I Can Objective

I can represent and compare different customary units of liquid volume.

Learning Objective

Use visual representations to describe and compare customary units of liquid volume.

Language Objective

Explain and demonstrate, using visual representations, ways to describe and compare customary units of liquid volume.

Vocabulary

Review: cup, gallon, liquid volume, pint, quart
New: fluid ounce

Lesson Materials

measuring cups

Lesson 19.5 Represent and Interpret Measurement Data in Line Plots

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

- Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots.
- Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

Mathematical Practices and Processes

- Model with mathematics.
- Attend to precision.

I Can Objective

I can make a line plot and use a line plot to answer questions.

Learning Objective

Make and interpret line plots with fractional data.

Language Objective

Make line plots using fractional data and explain how they display measurements.

Vocabulary

New: line plot

Unit 7: Measurement, Data, and Time

Unit 7 Project: It's a Dirty Job

Unit 7 Learning Mindset Focus: Resilience / Notices Others

Module 20: Relative Sizes of Metric Measurement Units

Recommended Pacing with Assessments: 6 Days

Module 20 Mathematical Progressions

Prior Learning	Current Development	Future Connections
<p>Students measured lengths of objects.</p> <p>Students measured and estimated liquid volumes and masses of objects.</p>	<p>Students know relative sizes of measurement units and express measurements in a larger unit in terms of a smaller unit.</p> <p>Students solve multistep word problems involving measurement units.</p> <p>Students add and use decimal notation for fractions with denominators 10 and 100.</p>	<p>Students will convert among different-sized measurement units and will solve multistep word problems.</p> <p>Students will display measurements in a line plot and will solve problems using operations on fractions.</p>

Module 20 Vocabulary

decimeter	a metric unit for measuring length or distance; 1 meter = 10 decimeters
gram	a metric unit for measuring mass; 1 kilogram = 1,000 grams
kilogram	a metric unit for measuring mass; 1 kilogram = 1,000 grams
kilometer	a metric unit for measuring length or distance; 1 kilometer = 1,000 meters
liter	a metric unit for measuring capacity and liquid volume; 1 liter = 1,000 milliliters
milligram	a metric unit for measuring mass; 1 gram = 1,000 milligrams
milliliter	a metric unit for measuring capacity and liquid volume; 1 liter = 1,000 milliliters
millimeter	a metric unit for measuring length or distance; 1 centimeter = 10 millimeters

Lesson 20.1 Identify Metric Measurement Benchmarks

Build Understanding – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Model with mathematics.
- Use appropriate tools strategically.

I Can Objective

I can choose an appropriate metric unit and estimate the measure of the length, mass, or liquid volume of an object.

Learning Objective

Use benchmarks to describe the relative sizes of metric measurement units.

Language Objectives

- Explain how to use benchmarks to describe relative sizes of metric measurement units.
- Select appropriate metric measurement units for measuring mass, length, and volume, and explain reasoning.

Vocabulary

Review: centimeter, meter

New: decimeter, gram, kilogram, kilometer, liter, milliliter, millimeter

Lesson Materials

meter stick

Lesson 20.2 Compare Metric Units of Length

Connect Concepts and Skills – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.

Mathematical Practices and Processes

- Reason abstractly and quantitatively.
- Attend to precision.

I Can Objective

I can represent and compare measurements given in different metric units of length.

Learning Objective

Use visual representations to describe and compare metric units of length.

Language Objectives

- Explain how to compare metric units of length using visual representations.
- Explain how to compare metric units of length using fractions and decimals.

Vocabulary

Review: centimeter, decimeter, kilometer, meter, millimeter

Lesson Materials

meter sticks, base-ten blocks, Number Lines (Teacher Resource Master)

Lesson 20.3 Compare Metric Units of mass and Liquid Volume

Connect Concepts and Skills – 1 Day

Professional Learning Video

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.

Mathematical Practices and Processes

- Attend to precision.
- Look for and make use of structure.

I Can Objective

I can represent and compare measurements given in different metric units of mass and liquid volume.

Learning Objective

Use visual representations to describe and compare metric units of mass and liquid volume.

Language Objectives

- Describe and compare metric units of mass and liquid volume.
- Explain how to compare mass and liquid volume amounts given in different metric units.

Vocabulary

Review: gram, kilogram, liter, millimeter
New: milligram

Lesson Materials

measuring cups, 1-liter containers

Lesson 20.4 Solve Problems Using Measurements

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

Mathematical Practices and Processes

- Model with mathematics.
- Attend to precision.

I Can Objective

I can use my understanding of the relative sizes of measurement units to solve problems involving metric units and customary units of measure.

Learning Objective

Solve problems involving metric and customary units of measure.

Language Objectives

- Explain the solution strategy used when solving problems using measurements.
- Justify the reasonableness of answers using benchmarks.

Unit 7: Measurement, Data, and Time

Unit 7 Project: It's a Dirty Job

Unit 7 Learning Mindset Focus: Resilience / Notices Others

Module 21: Solve Problems with Time and Measurement

Recommended Pacing with Assessments and Performance Task: 7 Days

Module 21 Mathematical Progressions

Prior Learning	Current Development	Future Connections
<p>Students told and wrote time and time intervals.</p> <p>Students solved word problems involving addition and subtraction of time intervals.</p>	<p>Students know relative sizes of measurement units and express measurements in a larger unit in terms of a smaller unit.</p> <p>Students solve multistep word problems involving measurement units, time intervals, and money.</p>	<p>Students will convert among different-sized measurement units and solve multistep word problems.</p>

Module 21 Vocabulary

hour	time period of sixty minutes
minute	a unit used to measure short amounts of time made up of sixty seconds
elapsed time	the time that passes from the start of an activity to the end of that activity
second	a small unit of time; 1 minute = 60 seconds

Lesson 21.1 Compare Units of Time

Connect Concepts and Skills – 1 Day

Professional Learning Video

Conceptual
Build Understanding

Conceptual and Procedural
Connect Concepts and Skills

Procedural
Apply and Practice

Mathematics Standards

Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.

Mathematical Practices and Processes

- Construct viable arguments and critique the reasoning of others.
- Look for and express regularity in repeated reasoning.

I Can Objective

I can represent and compare units of time given in hours, minutes, and seconds.

Learning Objective

Use visual representations and reasoning to compare measurements of time.

Language Objectives

- Describe the relative sizes of seconds, minutes, and hours.
- Explain how to compare two lengths of time given in different units.

Vocabulary

Review: hour, minute

New: second

Lesson 21.2 Solve Problems Involving Elapsed Time

Apply and Practice – 1 Day

Conceptual
Build Understanding

Conceptual and Procedural
Connect Concepts and Skills

Procedural
Apply and Practice

Mathematics Standards

Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

Mathematical Practices and Processes

- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.

I Can Objective

I can use visual models to represent, add, and subtract times to solve problems involving elapsed time.

Learning Objective

Solve problems involving elapsed time.

Language Objectives

- Explain how to add and subtract times to solve elapsed time problems.
- Explain strategies using visual models to solve elapsed time problems.

Vocabulary

New: elapsed time

Lesson Materials

clock face, Number Lines (by Ones) (Teacher Resource Masters)

Lesson 21.3 Solve Problems Involving Start Time and End Time

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

Mathematical Practices and Processes

- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.

I Can Objective

I can use visual models to represent, add, and subtract times to solve problems involving start and end times.

Learning Objective

Solve problems involving start time and end time.

Language Objectives

- Explain how to add and subtract times to solve start time and end time problems.
- Explain strategies using visual models to solve start time and end time problems.

Lesson 21.4 Practice with Mixed Measures

Apply and Practice – 1 Day

Conceptual Build Understanding	Conceptual and Procedural Connect Concepts and Skills	Procedural Apply and Practice
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Mathematics Standards

Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

Mathematical Practices and Processes

- Attend to precision.
- Look for and make use of structure.

I Can Objective

I can use my understanding of the relative size of measurement units and more than one operation to solve problems involving length and time.

Learning Objective

Solve problems involving mixed measures.

Language Objectives

- Explain problem-solving strategies for problems involving distance and time.
- Convert units of distance and time to smaller units in order to solve problems, and explain reasoning.