Unit 1: Number Systems and Operations
Unit 1 Project: Crazy for Cocoa
Unit 1 Learning Mindset Focus: Perseverance: Checks for Understanding

Module 1: Rational Number Concepts
Recommended Pacing with Assessments: 10 Days

Module 1 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students compared decimals. Students found and used equivalent fractions. Students found factors and multiples. Students performed operations with multi-digit whole numbers and with decimals to hundredths.	Students write, interpret, and explain statements of order for rational numbers in real-world contexts. Students find the greatest common factor of two whole numbers less than or equal to 100. Students interpret absolute value as magnitude for positive or negative quantities. Students understand rational numbers and absolute values as they relate to number lines.	Students will describe situations in which opposite quantities combine to make 0. Students will solve real-world and mathematical problems using numerical and algebraic expressions and equations. Students will apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

Module 1 Vocabulary

common denominator	a denominator that is the same in two or more fractions
common factor	a number that is a factor of two or more numbers
common multiple	a number that is a multiple of each of two or more numbers
Distributive Property	for all real numbers, a, b, and c, $a(b + c) = ab + ac$ and $a(b - c) = ab - ac$
factor	a number that is multiplied by another number to get a product
absolute value	the distance a number is from zero on the number line; shown by $\vert\ \vert$
greatest common factor	the largest common factor of two or more numbers
inequality	a mathematical sentence that shows the relationship between quantities that are not equal

integer	an element of the set of whole numbers and their opposites
least common multiple	the smallest number, other than zero, that is a multiple of two or more given numbers
magnitude	the distance of a number from zero
negative number	a number less than zero
opposites	two numbers are opposites if, on a number line, they are the same distance from 0 but on different sides
positive number	a number greater than zero
rational number	a number that can be written in the form $\frac{a}{b}$, where a and b are integers and $b \neq 0$

Lesson 1.1 Identify and Interpret Rational Numbers
Build Conceptual Understanding – 2 Days

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

Mathematics Standards
Understand that positive and negative numbers are used together to describe quantities having opposite directions or values . . . ; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.

Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.

Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., -(-3) = 3, and that 0 is its own opposite.

Find and position integers and other rational numbers on a horizontal or vertical number line diagram. . . .

Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Look for and make use of structure.

I Can Objective
I can graph rational numbers and find their opposites.

Learning Objective
Identify and interpret rational numbers using a number line.

Language Objective
Use correct real-world terms for positive and negative values of quantities such as depth, temperature, and elevation.

Vocabulary
New: absolute value, integer, negative number, opposites, positive number, rational number

Lesson Materials
two-color counters, fraction strips

Lesson 1.2 Compare Rational Numbers Using a Number Line

Connect Concepts and Skills – 2 Days

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

Mathematics Standards

Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.

Write, interpret, and explain statements of order for rational numbers in real-world contexts.

Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

Mathematical Practices and Processes

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

I Can Objective

I can compare positive and negative rational numbers with and without a number line.

Learning Objective

Use number lines to compare and order rational numbers.

Language Objective

Use terms such as "greater than" or "less than" to describe how two rational numbers are related.

Vocabulary

New: inequality

Lesson 1.3 Find and Apply Absolute Value

Connect Concepts and Skills – 1 Day

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

Mathematics Standards

Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.

Distinguish comparisons of absolute value from statements about order.

Mathematical Practices and Processes

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

I Can Objective

I can find and use absolute value and magnitude to describe real-world situations.

Learning Objective

Find and use absolute value in real-world situations.

Language Objective

Define the terms *absolute value* and *magnitude* and use both correctly when describing their reasoning.

Vocabulary

New: magnitude

1.4 Find and Apply LCM and GCF
Apply and Practice – 2 Days

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

Mathematics Standards
Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.

Write, interpret, and explain statements of order for rational numbers in real-world contexts.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Attend to precision.
• Look for and make use of structure.

I Can Objective
I can find and use the GCF or LCM to rewrite and compare fractions.

Learning Objective
Compare rational numbers using the GCF and LCM.

Language Objective
Define the GCF and LCM of rational numbers and use both correctly.

Vocabulary
Review: common denominator, common factor, common multiple, Distributive Property, factor
New: greatest common factor, least common multiple

Lesson 1.5 Order Rational Numbers
Apply and Practice – 1 Day

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

Mathematics Standards
Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.

Write, interpret, and explain statements of order for rational numbers in real-world contexts.

Mathematical Practices and Processes
• Attend to precision.
• Look for and make use of structure.

I Can Objective
I can order positive and negative rational numbers of different forms.

Learning Objective
Use strategies to order rational numbers.

Language Objective
Explain how to order rational numbers using number lines, least common multiple (LCM), and greatest common factor (GCF).

Unit 1: Number Systems and Operations

Unit 1 Project: Crazy for Cocoa
Unit 1 Learning Mindset Focus: Perseverance: Checks for Understanding

Module 2: Fraction Division

Recommended Pacing with Assessments: 9 Days

Module 2 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students found factors and multiples. Students added and subtracted fractions with unlike denominators. Students multiplied a fraction or whole number by a fraction. Students divided unit fractions by whole numbers and whole numbers by unit fractions.	Students compute quotients of fractions. Students solve real-world problems involving division of fractions by fractions. Students use least common multiple and greatest common factor to add, subtract, multiply, and divide fractions.	Students will apply and extend previous understanding of multiplication of fractions to multiply rational numbers. Students will apply and extend previous understanding of division of fractions to divide rational numbers.

Module 2 Vocabulary

denominator	the bottom number of a fraction that tells how many equal parts are in the whole
expression	a mathematical phrase that contains operations, numbers, and/or variables
mixed number	a number made up of a whole number that is not zero and a fraction
numerator	the top number of a fraction that tells how many parts of a whole are being considered
quotient	the result when one number is divided by another
simplest form	when the numerator and denominator of a fraction have no common factors other than 1
simplify	to write a fraction in simplest form
multiplicative inverse	one of two numbers whose product is 1
reciprocal	one of two numbers whose product is 1

Lesson 2.1 Explore Division of Fractions with Like and Unlike Denominators

Build Conceptual Understanding – 2 Days

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

Mathematics Standards
Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, 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.
• Use appropriate tools strategically.

I Can Objective
I can divide two fractions using at least two methods.

Learning Objective
Divide fractions with like and unlike denominators.

Language Objective
Explain how to divide fractions with unlike denominators using reciprocals.

Vocabulary
Review: denominator, expression, numerator quotient
New: multiplicative inverse, reciprocal

Lesson 2.2 Explore Division of Mixed Numbers

Connect Concepts and Skills – 2 Days

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

Mathematics Standards
Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Attend to precision.

I Can Objective
I can divide a mixed number by a whole number, fraction, or mixed number.

Learning Objective
Divide mixed numbers.

Language Objective
Explain how to rewrite mixed numbers as fractions in order to divide.

Vocabulary
Review: mixed number, simplify

Lesson Materials
fraction strips

Lesson 2.3 Practice and Apply Division of Fractions and Mixed Numbers

Apply and Practice – 1 Day

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

Mathematics Standards
Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Attend to precision.

I Can Objective
I can solve real-world problems that require dividing with mixed numbers or fractions.

Learning Objective
Divide fractions and mixed numbers.

Language Objective
Explain how to find the quotient of fractions and mixed numbers using the reciprocal.

Lesson 2.4 Practice Fraction Operations

Apply and Practice – 2 Days

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

Mathematics Standards
Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.

Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Attend to precision.

I Can Objective
I can use the LCM and GCF to solve fraction problems with all four operations.

Learning Objective
Use LCM and GCF to add, subtract, multiply, and divide fractions.

Language Objective
Explain how to find and use the LCM and GCF to complete fraction operations.

Vocabulary
Review: simplest form

Unit 1: Number Systems and Operations

Unit 1 Project: Crazy for Cocoa
Unit 1 Learning Mindset Focus: Perseverance: Checks for Understanding

Module 3: Fluency with Multi-Digit Decimal Operations

Recommended Pacing with Assessments: 7 Days

Module 3 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students added and subtracted decimals to hundredths. Students multiplied multi-digit whole numbers. Students multiplied decimals to hundredths. Students found whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors. Students divided decimals to hundredths.	Students add and subtract multi-digit decimals. Students divide multi-digit numbers. Students multiply and divide multi-digit decimals.	Students will add and subtract rational numbers. Students will multiply and divide rational numbers. Students will solve real-world and mathematical problems involving the four operations with rational numbers.

Module 3 Vocabulary

equivalent	having the same value

Lesson 3.1 Add and Subtract Multi-Digit Decimals

Apply and Practice – 1 Day

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

Mathematics Standards

Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

Mathematical Practices and Processes

• Model with mathematics.
• Attend to precision.

I Can Objective

I can add and subtract multi-digit decimals to the thousandths.

Learning Objective

Add and subtract multi-digit decimals.

Language Objective

Explain how to add and subtract multi-digit decimals using mathematical language. Explain how a 10 × 10 grid is used to add and subtract multi-digit decimals.

Lesson Materials

Decimal Models (Teacher Resource Masters)

Lesson 3.2 Multiply Multi-Digit Decimals

Apply and Practice – 1 Day

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

Mathematics Standards

Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

Mathematical Practices and Processes

• Reason abstractly and quantitatively.
• Model with mathematics.

I Can Objective

I can multiply multi-digit decimals to thousandths.

Learning Objective

Multiply multi-digit decimals.

Language Objective

Explain how to multiply multi-digit decimals using mathematical language. Explain how models are used to multiply multi-digit decimals.

Lesson Materials

Decimal Models (Teacher Resource Masters)

Lesson 3.3 Divide Multi-Digit Whole Numbers

Apply and Practice – 1 Day

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

Mathematics Standards
Fluently divide multi-digit numbers using the standard algorithm.

Mathematical Practices and Processes
• Construct viable arguments and critique the reasoning of others.
• Attend to precision.

I Can Objective
I can divide multi-digit whole numbers and use a problem's context to interpret the remainder.

Learning Objective
Divide multi-digit whole numbers using the standard algorithm.

Language Objective
Explain how to divide multi-digit whole numbers using mathematical language.

Lesson 3.4 Divide Multi-Digit Decimals

Apply and Practice – 1 Day

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

Mathematics Standards
Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

Mathematical Practices and Processes
• Model with mathematics.
• Attend to precision.

I Can Objective
I can find the quotient of multi-digit decimals.

Learning Objective
Divide multi-digit decimals using the standard algorithm.

Language Objective
Explain how to divide multi-digit decimals using mathematical language.

Vocabulary
Review: equivalent

Lesson 3.5 Apply Operations with Multi-Digit Decimals

Apply and Practice – 1 Day

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

Mathematics Standards

Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

Mathematical Practices and Processes

• Reason abstractly and quantitatively.
• Model with mathematics.

I Can Objective

I can determine which operation is needed to solve a decimal word problem.

Learning Objective

Solve real-world problems involving operations with multi-digit decimals.

Language Objective

Identify words and phrases that suggest the operation to use to solve a real-world problem.

Unit 1: Number Systems and Operations

Unit 1 Project: Crazy for Cocoa
Unit 1 Learning Mindset Focus: Perseverance: Checks for Understanding

Module 4: Understand Addition and Subtraction of Rational Numbers

Recommended Pacing with Assessments: 8 Days

Module 4 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students understood positive and negative integers. Students added and subtracted positive numbers with a positive result. Students plotted numbers on a number line.	Students use a number line to add and subtract positive and negative integers and rational numbers. Students solve real-world problems involving addition and subtraction of positive and negative integers and of rational numbers. Students describe situations in which opposite quantities combine to make 0.	Students will add or subtract rational numbers, using a number line. Students will add or subtract rational numbers without a number line. Students will perform operations with rational numbers.

Module 4 Vocabulary

degree	the unit of measure for angles or temperature
opposites	two numbers are opposites if, on a number line, they are the same distance from 0 but on different sides
Addition Property of Opposites	the property that states that the sum of a number and its opposite equals zero
additive inverse	the opposite of a number

Lesson 4.1 Add or Subtract a Positive Integer on a Number Line

Build Conceptual Understanding – 2 Days

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

Mathematics Standards

Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

Understand $p + q$ as the number located a distance $|q|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.

Mathematical Practices and Processes

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

I Can Objective

I can use a number line to add and subtract positive integers.

Learning Objective

Use a number line to add and subtract positive integers.

Language Objective

Explain how to use a number line to add and subtract positive integers.

Vocabulary

Review: degree

Lesson Materials

number lines (Teacher Resource Masters)

Lesson 4.2 Add or Subtract a Negative Integer on a Number Line

Build Conceptual Understanding – 2 Days

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

Mathematics Standards

Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

Understand $p + q$ as the number located a distance $|q|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.

Mathematical Practices and Processes

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

I Can Objective

I can use a number line to add or subtract negative integers.

Learning Objective

Use a number line to add and subtract a negative integer and then assess the results for reasonableness.

Language Objective

Explain how to use a number line to add or subtract a negative integer.

Lesson Materials

number lines (Teacher Resource Masters)

Lesson 4.3 Use a Number Line to Add and Subtract Rational Numbers

Connect Concepts and Skills – 2 Days

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

Mathematics Standards

Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

Understand $p + q$ as the number located a distance $|q|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.

Describe situations in which opposite quantities combine to make 0.

Mathematical Practices and Processes

• Construct viable arguments and critique the reasoning of others.
• Model with mathematics.
• Attend to precision

I Can Objective

I can use a number line to add and subtract rational numbers.

Learning Objective

Use a number line to add and subtract rational numbers.

Language Objective

Explain how to use a number line to add and subtract rational numbers.

Vocabulary

Review: opposites
New: Addition Property of Opposites, additive inverse

Lesson Materials

number lines (Teacher Resource Masters)

Unit 1: Number Systems and Operations

Unit 1 Project: Crazy for Cocoa
Unit 1 Learning Mindset Focus: Perseverance: Checks for Understanding

Module 5: Fluency with Rational Number Operations

Recommended Pacing with Assessments and Performance Task: 16 Days

Module 5 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students performed operations with positive rational numbers. Students divided multi-digit numbers. Students interpreted positive and negative numbers as opposites on a number line. Students used ordering and absolute value of rational numbers. Students added, subtracted, multiplied, and divided integers.	Students solve multi-step real-world and mathematical problems involving the strategic use of operations on rational numbers. Students apply a variety of estimation strategies to check the reasonableness of answers to real-world problems.	Students will apply the properties of integer exponents to generate equivalent numerical expressions. Students will perform operations with numbers expressed in scientific notation. Students will establish connections between proportional relationships, lines, and linear equations.

Module 5 Vocabulary

absolute value	the distance of a number from zero on a number line; shown by | |
dividend	the number to be divided in a division problem
divisor	the number you are dividing by in a division problem
equivalent fractions	fractions that name the same amount or part
inverse operations	operations that undo each other; addition and subtraction or multiplication and division
quotient	the result when one number is divided by another
rational number	a number that can be written in the form $\frac{a}{b}$, where a and b are integers and b $\neq 0$

Lesson 5.1 Compute Sums of Rational Numbers

Connect Concepts and Skills – 2 Days

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

Mathematics Standards

Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

Understand $p + q$ as the number located a distance $|q|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.

Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.

Solve real-world and mathematical problems involving the four operations with rational numbers.

Mathematical Practices and Processes

• Model with mathematics.

I Can Objective

I can compute sums of rational numbers with the same or different signs, and for real-world problems, I can interpret the results.

Learning Objective

Calculate the sum of rational numbers.

Language Objective

Explain how to add rational numbers when the sign of one or both addends is negative.

Vocabulary

Review: absolute value

Lesson Materials

two-color counters, number lines (Teacher Resource Masters)

Lesson 5.2 Compute Differences of Rational Numbers

Connect Concepts and Skills – 2 Days

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

Mathematics Standards

Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.

Solve real-world and mathematical problems involving the four operations with rational numbers.

Mathematical Practices and Processes

• Model with mathematics.

I Can Objective

I can compute differences of rational numbers with the same or different signs, and for real-world problems, I can interpret the results.

Learning Objective

Calculate the difference of rational numbers.

Language Objective

Explain how to use algorithms to rewrite subtraction expressions as addition.

Lesson Materials

number lines (Teacher Resource Masters)

Lesson 5.3 Understand and Compute Products and Quotients of Rational Numbers

Connect Concepts and Skills – 2 Days

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

Mathematics Standards

Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.

Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-\left(\frac{p}{q}\right) = \frac{(-p)}{q} = \frac{p}{(-q)}$. Interpret quotients of rational numbers by describing real-world contexts.

Apply properties of operations as strategies to multiply and divide rational numbers.

Solve real-world and mathematical problems involving the four operations with rational numbers.

Mathematical Practices and Processes

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

I Can Objective

I can apply the rules for multiplying and dividing rational numbers.

Learning Objective

Develop rules to find the products and quotients of rational numbers.

Language Objective

Explain how to use the rules for multiplying and dividing signed rational numbers to solve real-world and mathematical problems.

Vocabulary

Review: dividend, divisor, inverse operations, quotient

Lesson Materials

two-color counters, number lines (Teacher Resource Masters)

Lesson 5.4 Write Rational Numbers as Decimals

Connect Concepts and Skills – 2 Days

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

Mathematics Standards

Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-\left(\frac{p}{q}\right) = \frac{(-p)}{q} = \frac{p}{(-q)}$. Interpret quotients of rational numbers by describing real-world contexts.

Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.

Mathematical Practices and Processes

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

I Can Objective

I can show that a number is rational by writing it as a ratio of integers, and I can convert a rational number to a decimal. I can show $-\left(\frac{p}{q}\right) = \frac{(-p)}{q} = \frac{p}{(-q)}$ for specific values of p and q.

Learning Objective

Express rational numbers as decimals.

Language Objective

Explain how to express rational numbers as decimals.

Vocabulary

Review: equivalent fractions, rational number

Lesson Materials

base-ten blocks, base-ten mat, fraction strips; Decimal Models, number lines (Teacher Resource Masters)

Lesson 5.5 Multiply and Divide Rational Numbers in Context

Apply and Practice – 1 Day

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

Mathematics Standards

Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.

Solve real-world and mathematical problems involving the four operations with rational numbers.

Mathematical Practices and Processes

• Reason abstractly and quantitatively.
• Attend to precision.

I Can Objective

I can solve word problems that require multiplying and dividing rational numbers.

Learning Objective

Use products and quotients of rational numbers to solve problems.

Language Objective

Explain how to use products and quotients of rational numbers to solve problems.

Lesson 5.6 Apply Properties to Multi-Step Problems with Rational Numbers

Apply and Practice – 2 Days

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

Mathematics Standards

Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

Apply properties of operations as strategies to add and subtract rational numbers.

Apply properties of operations as strategies to multiply and divide rational numbers.

Solve real-world and mathematical problems involving the four operations with rational numbers.

Mathematical Practices and Processes

• Reason abstractly and quantitatively.
• Attend to precision.

I Can Objective

I can apply properties of operations to evaluate multi-step expressions with positive and negative rational numbers.

Learning Objective

Use properties to solve multi-step problems involving positive and negative rational numbers.

Language Objective

Describe how to write and evaluate expressions involving 3 or more integers and signed rational numbers to represent real-world problems using properties, algorithms, and integer rules, converting between forms of rational numbers as appropriate.

Lesson 5.7 Solve Multi-Step Problems with Rational Numbers in Context

Apply and Practice – 2 Days

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

Mathematics Standards

Solve real-world and mathematical problems involving the four operations with rational numbers.

Mathematical Practices and Processes

• Use appropriate tools strategically.
• Attend to precision.

I Can Objective

I can solve multi-step problems that involve rational numbers in different forms and multiple operations.

Learning Objective

Solve multi-step problems involving a combination of rational number operations.

Language Objective

Explain how to solve multi-step problems and justify the reasonableness of answers.

Unit 2: Expressions, Equations, and Inequalities
Unit 2 Project: Art in the Expression
Unit 2 Learning Mindset Focus: Resilience: Monitors Emotions

Module 6: Numerical and Algebraic Expressions
Recommended Pacing with Assessments: 12 Days

Module 6 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students evaluated expressions using parentheses, brackets, or braces. Students wrote simple expressions. Students interpreted numerical expressions.	Students write and evaluate numerical expressions involving whole-number exponents. Students identify parts of an expression using mathematical terms and view one or more parts of an expression as a single entity. Students apply the properties of operations to generate equivalent expressions. Students use variables to represent numbers and write expressions to solve problems. Students rewrite expressions to simplify solution processes.	Students will apply properties of operations. Students will rewrite an expression in different forms. Students will use variables to represent quantities in real-world and mathematical problems. Students will construct simple equations and inequalities to solve problems. Students will expand expressions with rational coefficients.

Module 6 Vocabulary

Associative Property of Addition	the property that states that for three or more numbers, their sum is always the same, regardless of their grouping
Associative Property of Multiplication	the property that states that for three or more numbers, their product is always the same, regardless of their grouping
Celsius	a metric scale for measuring temperature in which 0 °C is the freezing point of water and 100 °C is the boiling point of water; also called *centigrade*
Commutative Property of Addition	the property that states that two or more numbers can be added in any order without changing the sum
Commutative Property of Multiplication	the property that states that two or more numbers can be multiplied in any order without changing the product
Distributive Property	the property that states if you multiply a sum by a number, you will get the same result if you multiply each addend by that number and then add the products
equilateral triangle	a triangle with three congruent sides
evaluate	to find the value of a numerical or algebraic expression

Fahrenheit	a temperature scale in which 32 °F is the freezing point of water and 212 °F is the boiling point of water
order of operations	a rule for evaluating expressions: first perform the operations in parentheses, then compute powers and roots, then perform all multiplication and division from left to right, and then perform all addition and subtraction from left to right
perimeter	the distance around a polygon
quadrilateral	a polygon with four sides and four angles
algebraic expression	an expression that contains at least one variable
base	when a number is raised to a power, the number that is used as a factor is the base
coefficient	the number that is multiplied by the variable in an algebraic expression
constant	a number whose value does not change
equivalent expressions	expressions that have the same value for all values of the variables
evaluate	to find the value of a numerical or algebraic expression
exponent	the number that indicates how many times the base is used as a factor
like terms	terms with the same variables raised to the same exponents
numerical expression	an expression that contains only numbers and operations
term	the parts of an expression that are added or subtracted
variable	a letter or symbol used to represent a quantity that can change

Lesson 6.1 Understand and Apply Exponents

Connect Concepts and Skills – 1 Day

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

Mathematics Standards
Write and evaluate numerical expressions involving whole-number exponents.

Mathematical Practices and Processes
• Look for and make use of structure.
• Look for and express regularity in repeated reasoning.

I Can Objective
I can write exponential expressions to represent repeated-multiplication situations, and I can find the value of an exponential expression.

Learning Objective
Write and find the value of expressions involving exponents.

Language Objective
Use the terms *base* and *exponent* to write exponential expressions from repeated multiplication situations.

Vocabulary
New: base, exponent

Lesson Materials
Centimeter Grid Paper (Teacher Resource Masters)

Lesson 6.2 Write and Evaluate Numerical Expressions for Situations

Connect Concepts and Skills – 2 Days

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

Mathematics Standards

Write and evaluate numerical expressions involving whole-number exponents.

Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity.

Mathematical Practices and Processes

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

I Can Objective

I can write numerical expressions to represent situations, identify terms in expressions, and use the order of operations to evaluate expressions.

Learning Objective

Write and evaluate numerical expressions.

Language Objective

Describe an expression by its number of *terms* and how to simplify by evaluating.

Vocabulary

Review: Distributive Property, order of operations
New: evaluate, numerical expression, term

Lesson Materials

two-color counters

Lesson 6.3 Write Algebraic Expressions to Model Situations

Connect Concepts and Skills – 1 Day

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

Mathematics Standards

Write expressions that record operations with numbers and with letters standing for numbers.

Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity.

Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

Mathematical Practices and Processes

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

I Can Objective

I can write algebraic expressions to represent situations, and I can identify variables, coefficients, and constants.

Learning Objective

Write an algebraic expression to represent a situation.

Language Objective

Use the terms *algebraic expression*, *constant*, *variable*, and *coefficient* when writing expressions to represent problem situations.

Vocabulary

New: algebraic expression, coefficient, constant, variable

Lesson Materials

Grid Paper (Teacher Resource Masters)

Lesson 6.4 Interpret and Evaluate Algebraic Expressions
Apply and Practice – 2 Days

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

Mathematics Standards
Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Attend to precision.

I Can Objective
I can evaluate an algebraic expression for given values of the variables.

Learning Objective
Interpret and evaluate an algebraic expression.

Language Objective
Use the terms *evaluate* and *substitute* to explain the method for finding the value of algebraic expressions.

Vocabulary
Review: Celsius, evaluate, Fahrenheit, perimeter

Lesson 6.5 Identify and Generate Equivalent Algebraic Expressions
Apply and Practice – 2 Days

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

Mathematics Standards
Apply the properties of operations to generate equivalent expressions.

Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).

Mathematical Practices and Processes
• Construct viable arguments and critique the reasoning of others.
• Attend to precision.

I Can Objective
I can use properties of operations to generate and identify equivalent algebraic expressions.

Learning Objective
Identify and generate equivalent expressions.

Language Objective
Use the terms *Associative Property*, *Commutative Property*, and *Distributive Property* to explain the method for finding equivalent expressions.

Vocabulary
Review: Associative Property of Addition, Associative Property of Multiplication, Commutative Property of Addition, Commutative Property of Multiplication
New: equivalent expression, like terms

Lesson 6.6 Add, Subtract, Factor, and Expand Linear Expressions with Rational Coefficients

Apply and Practice – 2 Days

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

Mathematics Standards
Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities are related.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Attend to precision.

I Can Objective
I can add, subtract, factor, and expand algebraic expressions with rational coefficients, and apply these skills to real-world problems.

Learning Objective
Add, subtract, and factor linear expressions with rational coefficients.

Language Objective
Discuss how to write expressions to model real-world situations and then simplify those expressions by using the commutative property of addition and the distributive property.

Vocabulary
Review: Associative Property of Addition, Commutative Property of Addition, equilateral triangle, greatest common factor, like terms, term

Lesson Materials
number lines (Teacher Resource Masters)

Unit 2: Expressions, Equations, and Inequalities

Unit 2 Project: Art in the Expression
Unit 2 Learning Mindset Focus: Resilience: Monitors Emotions

Module 7: Solve Problems Using Equations and Inequalities

Recommended Pacing with Assessments: 11 Days

Module 7 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students wrote and evaluated numerical expressions. Students wrote and evaluated expressions with variables. Students found and positioned integers on a number line.	Students learn that a variable can represent an unknown number. Students use variables in expressions to solve real-world problems. Students solve word problems by writing and solving equations in the form $x + p = q$ and $px = q$ where p, q and x are all non-negative rational numbers.	Students will solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$. Students will graph the solution sets of inequalities. Students will write one-variable, two-step equations to represent real-world problems. Students will solve one-variable, two-step equations.

Module 7 Vocabulary

angle	a figure formed by two rays with a common endpoint called the vertex
degree	the unit of measure for angles or temperature
Addition Property of Equality	the property that states that if you add the same number to both sides of an equation, the new equation will have the same solution
constraint	a restriction of the value(s) of a quantity or variable
Division Property of Equality	the property that states that if you divide both sides of an equation by the same nonzero number, the new equation will have the same solution
equation	a mathematical sentence that shows that two expressions are equivalent
inequality	a mathematical sentence that shows the relationship between quantities that are not equal
Multiplication Property of Equality	the property that states that if you multiply both sides of an equation by the same number, the new equation will have the same solution
solution of an equation	a value or set of values that make an equation true
solution of an inequality	a value or set of values that make an inequality true
Subtraction Property of Equality	the property that states that if you subtract the same number from both sides of an equation, the new equation will have the same solution

Lesson 7.1 Write Equations to Represent Situations

Connect Concepts and Skills – 1 Day

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

Mathematics Standards

Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q, and x are all non-negative rational numbers.

Mathematical Practices and Processes

• Reason abstractly and quantitatively.
• Model with mathematics.

I Can Objective

I can write an equation to model a situation and determine whether a given value is a solution of an equation.

Learning Objective

Model and write an equation to represent a situation.

Language Objective

Compare an expression to an equation, and use both terms to accurately describe mathematical statements. Describe a solution to a one-variable equation as the value for the variable that makes the equation true.

Vocabulary

New: equation, solution of an equation

Lesson 7.2 Use Addition and Subtraction Equations to Solve Problems

Connect Concepts and Skills – 2 Days

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

Mathematics Standards

Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q, and x are all non-negative rational numbers.

Mathematical Practices and Processes

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

I Can Objective

I can solve one-step addition and subtraction equations by applying the same operation to both sides.

Learning Objective

Solve equations that contain addition and subtraction.

Language Objective

Describe how the Addition Property of Equality and the Subtraction Property of Equality are useful for solving equations. Explain how equations can be used to model and solve real-world problems.

Vocabulary

New: Addition Property of Equality, Subtraction Property of Equality

Lesson Materials

algebra tiles, base-ten blocks, equation mat, number lines (Teacher Resource Masters)

Lesson 7.3 Use Multiplication and Division Equations to Solve Problems

Connect Concepts and Skills – 2 Days

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

Mathematics Standards
Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q, and x are all non-negative rational numbers.

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

I Can Objective
I can solve one-step multiplication and division equations by applying the same operation to both sides.

Learning Objective
Solve equations that contain multiplication and division.

Language Objective
Describe how the Division Property of Equality and the Multiplication Property of Equality are useful for solving equations. Describe how equations can be used to model and solve real-world problems.

Vocabulary
New: Division Property of Equality, Multiplication Property of Equality

Lesson Materials
algebra tiles, equation mat

Lesson 7.4 Use One-Step Equations to Solve a Variety of Problems

Apply and Practice – 1 Day

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

Mathematics Standards
Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q, and x are all non-negative rational numbers.

Mathematical Practices and Processes
- Reason abstractly and quantitatively.
- Model with mathematics.

I Can Objective
I can solve problems by writing and solving one-step equations.

Learning Objective
Write and use equations to represent situations and solve problems.

Language Objective
Describe the unknown quantity in a real-world situation. Explain why addition, subtraction, multiplication, or division should be used to model a situation.

Vocabulary
Review: angle, degree

Lesson 7.5 Write and Graph Inequalities

Apply and Practice – 2 Days

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

Mathematics Standards

Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

Mathematical Practices and Processes

• Reason abstractly and quantitatively.
• Model with mathematics.

I Can Objective

I can solve a one-step equation with negative integers, fractions, and decimals.

Learning Objective

Write and graph inequalities to represent real-world situations.

Language Objective

Correlate phrases such as "less than," "greater than," "at least," and "at most" with the corresponding inequality symbols.

Vocabulary

New: constraint, inequality, solution of an inequality

Lesson Materials

number lines (Teacher Resource Masters)

Lesson 7.6 Solve One-Step Equations Involving Negative Numbers

Apply and Practice – 1 Day

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

Mathematics Standards

Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all non-negative rational numbers.

Solve real-world and mathematical problems involving the four operations with rational numbers.

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 solve a one-step equation with negative integers, fractions, or decimals.

Learning Objective

Solve one-step equations that involve negative integers, fractions, and decimals.

Language Objective

Describe methods for solving one-step linear equations with negative numbers.

Unit 2: Expressions, Equations, and Inequalities

Unit 2 Project: Art in the Expression
Unit 2 Learning Mindset Focus: Resilience: Monitors Emotions

Module 8: Real-World Relationships Between Variables

Recommended Pacing with Assessments and Performance Task: 8 Days

Module 8 Mathematical Progression

Prior Learning	Current Development	Future Connections
Students generated patterns using given rules. Students identified and graphed ordered pairs based on patterns. Students represented real-world problems by graphing points and interpreted values in the context of the situation.	Students use variables to represent two quantities in real-world problems. Students write equations representing a situation with a dependent and independent variable. Students analyze the relationship between variables using graphs and tables.	Students will see a function as a rule that has one output for each input. Students will explore linear functions, including the equation $y = mx + b$. Students will construct functions to model linear relationships between two quantities.

Module 8 Vocabulary

coordinate grid	a grid formed by the intersection of horizontal and vertical lines that is used to locate points
dependent variable	the output of a function; a variable whose value depends on the value of the input, or independent variable
independent variable	the input of a function; a variable whose value determines the value of the output, or dependent variable.

Lesson 8.1 Represent Equations in Tables and Graphs

Connect Concepts and Skills – 2 Days

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

Mathematics Standards

Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

Mathematical Practices and Processes

• Model with mathematics.
• Use appropriate tools strategically.

I Can Objective

I can make a table to represent the equation for a real-world relationship, and I can graph the ordered pairs from the table.

Learning Objective

Represent an equation in a table or graph.

Language Objective

Use the terms *dependent* and *independent* to describe variables represented in equations, tables, and graphs.

Vocabulary

Review: coordinate grid
New: dependent variable, independent variable

Lesson Materials

grid of Quadrant I (Teacher Resource Masters)

Lesson 8.2 Write Equations from Verbal Descriptions

Apply and Practice – 1 Day

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

Mathematics Standards

Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

Mathematical Practices and Processes

• Reason abstractly and quantitatively.
• Model with mathematics.

I Can Objective

I can write linear equations from verbal descriptions and use them to solve problems.

Learning Objective

Write an equation given a verbal description of a relationship.

Language Objective

Use understanding of math terms to find the operation and describe the relationship between two variables with an equation.

Lesson 8.3 Write Equations from Tables and Graphs
Apply and Practice – 2 Days

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

Mathematics Standards
Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Model with mathematics.

I Can Objective
I can use a table or graph to write an equation for a linear relationship.

Learning Objective
Learn how to write an equation using a table or graph.

Language Objective
Explain how to write an equation using a table or graph.

Lesson Materials
grid of Quadrant I (Teacher Resource Masters)

Unit 3: Ratios and Proportional Reasoning
Unit 3 Project: To Infinity (Almost)… and Beyond!
Unit 3 Learning Mindset Focus: Perseverance: Apply Learning Strategies

Module 9: Ratios and Rates
Recommended Pacing with Assessments: 10 Days

Module 9 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students wrote a ratio as a fraction. Students generated equivalent fractions. Students analyzed relationships.	Students understand the concept of ratio and use ratio language to describe a relationship between two quantities. Students make tables of equivalent ratios relating quantities with whole-number measurements. Students solve unit rate problems including those involving unit pricing and constant speed.	Students will connect rates and slope. Students will graph, interpret, and compare proportional relationships.

Module 9 Vocabulary

equivalent ratios	ratios that name the same comparison
rate	a ratio that compares two quantities measured in different units
ratio	a comparison of two quantities by division
unit rate	a rate in which the second quantity in the comparison is one unit

Lesson 9.1 Understand the Concept and Language of Ratios

Build Conceptual Understanding – 1 Day

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

Mathematics Standards
Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Attend to precision.

I Can Objective
I can find and express ratios.

Learning Objective
Understand and write ratios.

Language Objective
Define the term *ratio* and describe real-life examples of ratios.

Vocabulary
New: ratio

Lesson Materials
two-color counters

Lesson 9.2 Represent Ratios and Rates with Tables and Graphs

Connect Concepts and Skills – 2 Days

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

Mathematics Standards
Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

Understand the concept of a unit rate $\frac{a}{b}$ associated with a ratio a:b with $b \neq 0$, and use rate language in the context of a ratio relationship.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Construct viable arguments and critique the reasoning of others.
• Attend to precision.

I Can Objective
I can use tables and graphs to represent ratios and rates, and I can find equivalent ratios and unit rates.

Learning Objective
Learn to use tables and graphs to represent ratios and rate.

Language Objective
Define the terms *equivalent ratios*, *rate*, and *unit rate* and describe real-life examples.

Vocabulary
New: equivalent ratio, rate, unit rate

Lesson Materials
Number Lines (Blank, –10 to 10) (Teacher Resource Masters)

Lesson 9.3 Compare Ratios and Rates

Apply and Practice – 1 Day

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

Mathematics Standards

Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

Mathematical Practices and Processes

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

I Can Objective

I can analyze tables to compare ratios and rates.

Learning Objective

Use a table to compare ratios and rates.

Language Objective

Use the terms *equivalent ratio*, *rate*, and *unit rate* to compare rates or ratios presented in a table.

Lesson 9.4 Find and Apply Unit Rates

Apply and Practice – 2 Days

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

Mathematics Standards

Understand the concept of a unit rate $\frac{a}{b}$ associated with a ratio $a{:}b$ with $b \neq 0$, and use rate language in the context of a ratio relationship.

Solve unit rate problems including those involving unit pricing and constant speed.

Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.

Mathematical Practices and Processes

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

I Can Objective

I can find and use unit rates.

Learning Objective

Find and use unit rates to solve problems.

Language Objective

Explain how to find and use unit rates.

Lesson 9.5 Solve Ratio and Rate Problems Using Proportional Reasoning

Apply and Practice – 2 Days

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

Mathematics Standards

Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

Solve unit rate problems including those involving unit pricing and constant speed.

Mathematical Practices and Processes

• Model with mathematics.
• Look for and make use of structure.
• Look for and express regularity in repeated reasoning.

I Can Objective

I can use ratio reasoning to solve problems.

Learning Objective

Use equivalent ratios to solve real-world problems.

Language Objective

Explain how to write and use equivalent ratios to solve problems.

Unit 3: Ratios and Proportional Reasoning

Unit 3 Project: To Infinity (Almost)… and Beyond!
Unit 3 Learning Mindset Focus: Perseverance: Apply Learning Strategies

Module 10: Apply Ratios and Rates to Measurement

Recommended Pacing with Assessments: 7 Days

Module 10 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students understood the concept of a ratio and used ratio language to describe a ratio relationship between two quantities. Students identified and wrote equivalent ratios.	Students use ratio reasoning to convert measurement units. Students use ratio and rate reasoning to solve real-world and mathematical problems. Students solve unit rate problems including those involving unit pricing and constant speed.	Students will recognize and represent proportional relationships between quantities. Students will connect the constant of proportionality to real-world situations.

Module 10 Vocabulary

customary system	the measurement system often used in the United States
metric system	a decimal system of weights and measures that is used universally in science and commonly throughout the world
circle graph	a display that uses sections of a circle to show how a whole set of data is divided into parts or categories
conversion factor	a rate in which two quantities are equal, but use different units

Lesson 10.1 Use Ratio Reasoning with Circle Graphs

Connect Concepts and Skills – 1 Day

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

Mathematics Standards
Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

Mathematical Practices and Processes
• Use appropriate tools strategically.
• Model with mathematics.

I Can Objective
I can use reasoning about equivalent ratios to make and interpret a circle graph.

Learning Objective
Apply ratio reasoning to make and interpret circle graphs.

Language Objective
Use ratio language associated with real-world data to find and interpret angle measures in circle graphs.

Vocabulary
New: circle graph

Lesson Materials
Compass, Fraction Circles (Teacher Resource Masters), protractor

Lesson 10.2 Use Rate Reasoning to Convert Within Measurement Systems

Connect Concepts and Skills – 2 Days

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

Mathematics Standards
Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Model with mathematics.

I Can Objective
I can convert measurements within a measurement system by using equivalent ratios or conversion factors.

Learning Objective
Convert units within a measurement system.

Language Objective
Explain how to convert units within a measurement system.

Vocabulary
Review: customary system, metric system
New: conversion factor

Lesson Materials
fraction strips, grid paper (Teacher Resource Masters)

Lesson 10.3 Use Rate Reasoning to Convert Between Measurement Systems

Connect Concepts and Skills – 2 Days

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

Mathematics Standards

Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

Mathematical Practices and Processes

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

I Can Objective

I can convert measurements between measurement systems by using equivalent ratios or conversion factors.

Learning Objective

Use equivalent ratios to convert measurements between measurement systems.

Language Objective

Explain how to convert measurements between measurement systems.

Lesson Materials

fraction strips

Unit 3: Ratios and Proportional Reasoning
Unit 3 Project: To Infinity (Almost)… and Beyond!
Unit 3 Learning Mindset Focus: Perseverance: Apply Learning Strategies

Module 11: Identify and Represent Proportional Relationships
Recommended Pacing with Assessments: 9 Days

Module 11 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students solved problems involving unit pricing and speed. Students solved ratio and rate problems using tables of ratios, tape diagrams, double number line diagrams, and equations. Students used ratio and rate reasoning to solve real-world and mathematical problems.	Students decide whether two quantities are in a proportional relationship. Students identify the constant of proportionality (unit rate). Students represent proportional relationships by equations. Students explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation. Students use proportional relationships to solve multi–step problems.	Students will connect proportional relationships to linear functions, lines, linear equations, and graphs of linear functions. Students will compare two different proportional relationships represented in different ways. Students will understand similarity.

Module 11 Vocabulary

constant of proportionality	a constant ratio of two variables related proportionally
proportional relationship	a relationship between two quantities in which the ratio of one quantity to the other quantity is constant

Lesson 11.1 Explore Relationships

Build Conceptual Understanding – 1 Day

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

Mathematics Standards

Recognize and represent proportional relationships between quantities.

Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

Mathematical Practices and Processes

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

I Can Objective

I can recognize when a relationship presented in a table, diagram, or verbal description can be represented by a constant unit rate.

Learning Objective

Use patterns and unit rates to analyze and describe relationships.

Language Objective

Identify unit rates from verbal descriptions.

Lesson Materials

two-color counters

Lesson 11.2 Recognize Proportional Relationships in Tables

Connect Concepts and Skills – 2 Days

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

Mathematics Standards

Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

Represent proportional relationships by equations.

Mathematical Practices and Processes

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

I Can Objective

I can identify a proportional relationship, find its constant of proportionality, and write an equation to represent it.

Learning Objective

Determine if a relationship represented in a table is proportional, identify the constant of proportionality, and write an equation in the form of $y = kx$.

Language Objective

Analyze and describe relationships in tables and identify and write equations for proportional relationships.

Vocabulary

New: constant of proportionality, proportional relationship

Lesson Materials

two-color counters

Lesson 11.3 Recognize Proportional Relationships in Graphs
Connect Concepts and Skills – 2 Days

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

Mathematics Standards
Decide whether two quantities are in a proportional relationship by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Model with mathematics.
• Look for and make use of structure.

I Can Objective
I can identify a proportional relationship from a graph and use the graph to find the constant of proportionality and equation.

Learning Objective
Identify the characteristics of a proportional relationship when graphed.

Language Objective
Explain how to determine whether a graph shows a proportional relationship, and if so, what the constant of proportionality is.

Lesson Materials
grid paper (Teacher Resource Masters)

Lesson 11.4 Use Proportional Relationships to Solve Rate Problems
Apply and Practice – 2 Days

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

Mathematics Standards
Use proportional relationships to solve multi-step ratio and percent problems.

Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Model with mathematics.

I Can Objective
I can identify the constant of proportionality and write an equation for a proportional relationship presented in various forms and use them to solve multi-step ratio problems.

Learning Objective
Use a proportional relationship to solve multi-step problems.

Language Objective
Explain how to use unit rates, tables, graphs, and equations to solve multi-step problems.

Lesson Materials
grid paper (Teacher Resource Masters)

Houghton Mifflin Harcourt.
The Learning Company™

Unit 3: Ratios and Proportional Reasoning

Unit 3 Project: To Infinity (Almost)… and Beyond!
Unit 3 Learning Mindset Focus: Perseverance: Apply Learning Strategies

Module 12: Understand and Apply Percent

Recommended Pacing with Assessments: 7 Days

Module 12 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students understood decimal notation for fractions. Students related fractions to percents and percents to decimals.	Students find a percent of a quantity as a rate per 100. Students solve problems involving finding the whole, given a part and the percent. Students use percent, rate, and ratios to solve real-world and mathematical problems.	Students will solve problems involving percent increase, percent decrease, and percent of change. Students will find sales tax, total cost, and simple interest.

Module 12 Vocabulary

percent	a ratio comparing a number to 100

Lesson 12.1 Understand, Express, and Compare Percent Ratios
Connect Concepts and Skills – 2 Days

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

Mathematics Standards
Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $\frac{30}{100}$ times the quantity); solve problems involving finding the whole, given a part and the percent.

Mathematical Practices and Processes
• Attend to precision.
• Model with mathematics.
• Use appropriate tools strategically.

I Can Objective
I can use three different methods to write a ratio as a percent.

Learning Objective
Write a ratio as a percent.

Language Objective
Describe ratios using the term *percent*. Describe *percent* using the language of ratios.

Use *percent* to explain and interpret solutions to real-world problems

Vocabulary
New: percent

Lesson 12.2 Use Strategies to Find a Percent of a Quantity
Connect Concepts and Skills – 2 Days

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

Mathematics Standards
Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $\frac{30}{100}$ times the quantity); solve problems involving find the whole, given a part and a percent.

Mathematical Practices and Processes
• Model with mathematics.
• Attend to precision.
• Look for and make use of structure.

I Can Objective
I can find the percent of a quantity by using equivalent ratios, models, or
Multiplication.

Learning Objective
Find a percent of a quantity.

Language Objective
Express *percent* as representing part of a quantity.

Explain how to use bar diagrams, multiplication, and equivalent ratios to find the percent of a quantity.

Lesson 12.3 Solve a Variety of Percent Problems
Apply and Practice – 1 Day

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

Mathematics Standards
Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $\frac{30}{100}$ times the quantity); solve problems involving find the whole, given a part and a percent.

Mathematical Practices and Processes
• Use appropriate tools strategically.
• Look for and make use of structure.

I Can Objective
I can solve real-world percent problems that require me to find the part, the percent, or the whole.

Learning Objective
Use percents to solve real-world problems.

Language Objective
Explain how to solve real-world problems with percents.

Explain what *percent* means in a real-world context.

Unit 3: Ratios and Proportional Reasoning
Unit 3 Project: To Infinity (Almost)… and Beyond!
Unit 3 Learning Mindset Focus: Perseverance: Apply Learning Strategies

Module 13: Proportional Reasoning with Percents
Recommended Pacing with Assessments and Performance Task: 8 Days

Module 13 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students used ratio language to describe a ratio relationship between two quantities. Students defined unit rate. Students solved problems by reasoning about tables of equivalent ratios, tape diagrams, double number lines, or equations, and found equivalent rates.	Students use proportional reasoning to calculate percent increase, percent decrease, markups, markdowns, taxes, gratuities, commissions, fees, simple interest, and the total value of an account. Students represent markups, markdowns, retail prices, discount prices, taxes, gratuity, total cost, commissions, and fees by equations of the form $y = kx$ by applying proportional reasoning. Students use proportional reasoning to assess the reasonableness of their answers. Students rewrite an expression in different forms to shed light on how the quantities in it are related.	Students will graph proportional relationships, interpreting the unit rate as the slope of the graph. Students will compare two different proportional relationships represented in different ways.

Module 13 Vocabulary

commission	a fee paid to a person for making a sale
fee	a payment to someone for a service
gratuity	a tip, or monetary percentage that is given or paid in addition to the price of a service
markdown	the amount of decrease in a price
markup	the amount of increase in a price
percent change	the amount stated as a percent that a number increases or decreases

percent decrease	a percent change describing a decrease in a quantity
percent increase	a percent change describing an increase in a quantity
principal	the initial amount of money borrowed or saved
retail price	the amount an item is sold for after a company adds a markup or markdown
sales tax	a percent of the cost of an item that is charged by governments to raise money
simple interest	a fixed percent of the principal found using the formula $I = Prt$, where P represents the principal, r the rate of interest, and t the time
tip	another word for gratuity, a monetary percent that is given or paid in addition to the price of a service

Lesson 13.1 Percent Change
Apply and Practice –1 Day

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

Mathematics Standards
Use proportional relationships to solve multi-step ratio and percent problems.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Look for and make use of structure.

I Can Objective
I can solve multi-step problems involving percent change.

Learning Objective
Use proportional reasoning to calculate percent increase or decrease.

Language Objective
Use the terms *percent increase* and *percent decrease* to explain the solutions to real-world problems.

Vocabulary
New: percent change, percent decrease, percent increase

Lesson 13.2 Markups and Discounts
Apply and Practice – 1 Day

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

Mathematics Standards
Use proportional relationships to solve multi-step ratio and percent problems.

Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Model with mathematics.

I Can Objective
I can calculate markups, markdowns, and retail prices and write equations for markup and markdown situations.

Learning Objective
Calculate markups, markdowns, retail prices, and discount prices, and represent them using equations of the form $y = kx$.

Language Objective
Use the terms *markup*, *markdown*, and *retail price* to explain the solutions to real-world problems.

Vocabulary
New: markdown, markup, retail price

Lesson 13.3 Taxes and Gratuities
Apply and Practice – 1 Day

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

Mathematics Standards
Use proportional relationships to solve multi-step ratio and percent problems.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Model with mathematics.
• Look for and make use of structure.

I Can Objective
I can find taxes, gratuities, and total costs by writing and using equations of the form $y = kx$, and assess the reasonableness of results.

Learning Objective
Represent taxes, gratuities, and total cost using equations in the form $y = kx$ by applying proportional reasoning. Use the equations to solve problems and assess reasonableness of their answers.

Language Objective
Use the terms *tax* and *gratuity* to explain the solutions to real-world problems.

Vocabulary
New: gratuity, sales tax, tip

Lesson 13.4 Commissions and Fees
Apply and Practice – 1 Day

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

Mathematics Standards
Use proportional relationships to solve multi-step ratio and percent problems.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Model with mathematics.
• Attend to precision.

I Can Objective
I can calculate commissions, fees, and total earnings and assess the reasonableness of my results.

Learning Objective
Use proportional reasoning to find total earnings for someone earning a base salary plus a commission. Use proportional reasoning to find fees (including fees as percent and as a constant) and assess the reasonableness of their answers.

Language Objective
Use the terms *commission* and *fee* to explain the solutions to real-world problems.

Vocabulary
New: commission, fee

Lesson 13.5 Simple Interest
Apply and Practice – 1 Day

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

Mathematics Standards
Use proportional relationships to solve multi-step ratio and percent problems.

Mathematical Practices and Processes
• Look for and make use of structure.
• Attend to precision.

I Can Objective
I can calculate simple interest and the total value of an account after any period of time. I understand and can apply the equation $I = Prt$.

Learning Objective
Use proportional reasoning to calculate simple interest, the total value of an account earning simple interest, and assess the reasonableness of their answers.

Language Objective
Use the term *simple interest* to explain the solutions to real-world problems.

Vocabulary
New: principal, simple interest

Unit 4: Relationships in Geometry

Unit 4 Project: Think Outside the Box
Unit 4 Learning Mindset Focus: Strategic Help-Seeking: Identifies Need for Help

Module 14: Polygons on the Coordinate Plane

Recommended Pacing with Assessments: 7 Days

Module 14 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students recognized and identified right triangles. Students classified two-dimensional figures based on angles and lines. Students represented real-world problems by graphing points and interpreted values in the context of the situation.	Students understand that signs in ordered pairs indicate locations in quadrants and that signs are related to reflections across one or both axes. Students graph points in all four quadrants and use coordinates and absolute value to find distance between points. Students draw polygons on a coordinate plane and use coordinates to find side lengths.	Students will solve problems involving scale drawings of geometric figures, including computing actual lengths. Students will draw geometric figures with given conditions. Students will compute lengths of geometric figures to solve problems. Students will connect tables and verbal descriptions with a linear relationship. Students will relate graphs and equations with a linear relationship. Students will connect ordered pairs with an equation.

Module 14 Vocabulary

area	the number of square units needed to cover a given surface
base	a side of a polygon
coordinates	the numbers of an ordered pair that locate a point on a coordinate graph
formula	a rule showing relationships among quantities
height	in a triangle, the perpendicular distance from the base to the opposite vertex. In a trapezoid, the perpendicular distance between the bases
hexagon	a six-sided polygon
pentagon	a five-sided polygon
right angle	an angle that measures 90°

right triangle	a triangle containing a right angle
transformation	a change in the size or position of a figure
***x*-coordinate**	the first number in an ordered pair; it represents the distance to move right or left from the origin, (0, 0)
***y*-coordinate**	the second number in an ordered pair; it represents the distance to move up or down from the origin, (0, 0)
coordinate plane	a plane formed by the intersection of a horizontal number line called the *x*-axis and a vertical number line called the *y*-axis
ordered pair	a pair of numbers that can be used to locate a point on a coordinate plane
origin	the point where the *x*-axis and *y*-axis intersect on the coordinate plane; (0, 0)
polygon	a closed plane figure formed by three or more line segments that intersect only at their endpoints
quadrant	the *x*- and *y*-axes divide the coordinate plane into four regions; each region is called a quadrant
reflection	a transformation of a figure that flips the figure across a line
vertex	on an angle or polygon, the point where two sides intersect
***x*-axis**	the horizontal axis on a coordinate plane
***y*-axis**	the vertical axis on a coordinate plane

Lesson 14.1 Graph and Find Distances Between Points on the Coordinate Plane

Connect Concepts and Skills – 2 Days

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

Mathematics Standards

Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.

Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.

Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

Mathematical Practices and Processes

• Use appropriate tools strategically.
• Attend to precision.
• Look for and express regularity in repeated reasoning.

I Can Objective

I can plot a point with rational number coordinates and locate its reflection over the *x*- or *y*-axis, and I can use absolute value to find the distance between points with same *x*- or *y*-coordinate.

Learning Objective

Locate and find distances between rational ordered pairs on the coordinate plane.

Language Objective

Use the terms *coordinate plane*, *x-axis*, *y-axis*, *origin*, *quadrant*, *ordered pair*, *x-coordinate*, *y-coordinate*, and *rational number* when describing points on a coordinate plane.

Vocabulary

Review: coordinates, *x*-coordinate, *y*-coordinate, transformation
New: coordinate plane, ordered pair, origin, quadrants, reflection, *x*-axis, *y*-axis

Lesson Materials

Coordinate Planes (Teacher Resource Masters)

Lesson 14.2 Graph Polygons on the Coordinate Plane

Connect Concepts and Skills – 2 Days

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

Mathematics Standards

Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

Mathematical Practices and Processes

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

I Can Objective

I can graph polygons on a coordinate plane, classify them, and identify a vertex that completes a specified polygon.

Learning Objective

Solve problems by graphing and identifying polygons in the coordinate plane.

Language Objective

Use *vertex*, *polygon*, *quadrilateral*, and similar terms to describe figures drawn on the coordinate plane. Use the terms *coordinate plane*, *x-axis*, *y-axis*, *origin*, *quadrant*, *ordered pair*, *x-coordinate*, *y-coordinate*, and *rational number* when describing points on a coordinate plane.

Vocabulary

Review: hexagon, pentagon, right angle, right triangle
New: polygon, vertex

Lesson Materials

ruler; grid paper, Coordinate Planes (Teacher Resource Masters)

Lesson 14.3 Find Perimeter and Area on the Coordinate Plane

Apply and Practice – 1 Day

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

Mathematics Standards

Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

Mathematical Practices and Processes

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

I Can Objective

I can find the perimeter and area of polygons in the coordinate plane.

Learning Objective

Find the perimeter and area of polygons on the coordinate plane.

Language Objective

Use *polygon*, *quadrilateral*, *perimeter*, *area*, and similar terms to describe shapes.

Vocabulary

Review: area, base, formula, height

Unit 4: Relationships in Geometry
Unit 4 Project: Think Outside the Box
Unit 4 Learning Mindset Focus: Strategic Help-Seeking: Identifies Need for Help

Module 15: Area of Triangles and Special Quadrilaterals
Recommended Pacing with Assessments: 7 Days

Module 15 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students recognized area as an attribute of plane figures and understood concepts of area measurement. Students related area to the operations of multiplication and addition. Students understood properties of triangles and quadrilaterals.	Students find the areas of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes. Students use information about area to solve real-world problems. Students calculate unit rates involving areas.	Students will explore the formulas for the area and circumference of a circle and use them to solve problems. Students will use area, volume, and surface area of two- and three-dimensional objects to solve real-world problems.

Module 15 Vocabulary

base	any side of a parallelogram
height	in a triangle, the perpendicular distance from the base to the opposite vertex. In a trapezoid, the perpendicular distance between the bases
parallelogram	a quadrilateral with two pairs of parallel sides
base of a trapezoid	either of two parallel sides
base of a triangle	any side of the sides
composite figure	a figure made up of simple geometric shapes
height of a trapezoid	the perpendicular distance between the bases
height of a triangle	the perpendicular distance from the base to the opposite vertex
trapezoid	a quadrilateral with at least one pair of parallel sides

Lesson 15.1 Develop and Use the Formulas for Areas of Quadrilaterals

Connect Concepts and Skills – 2 Days

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

Mathematics Standards

Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.

Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.

Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).

Mathematical Practices and Processes

• Reason abstractly and quantitatively.
• Model with mathematics.

I Can Objective

I can use formulas to find areas of parallelograms and trapezoids.

Learning Objective

Find the areas of parallelograms and trapezoids.

Language Objective

Identify the base length and height of a parallelogram or trapezoid, and relate them to the base and height of a rectangle.

Vocabulary

Review: base, height, parallelogram
New: base of a trapezoid, height of a trapezoid, trapezoid

Lesson Materials

tangrams; grid paper (Teacher Resource Masters)

Lesson 15.2 Develop and Use the Formula for Area of Triangles
Connect Concepts and Skills – 1 Day

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

Mathematics Standards
Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.

Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Model with mathematics.

I Can Objective
I can use a formula to find the area of a triangle.

Learning Objective
Find the area of triangles.

Language Objective
Use the terms *base* and *height* to describe the linear dimensions of a triangle.

Vocabulary
New: base of a triangle, height of a triangle

Lesson Materials
grid paper (Teacher Resource Masters)

Lesson 15.3 Find Area of Composite Figures
Apply and Practice – 2 Days

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

Mathematics Standards
Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Model with mathematics.

I Can Objective
I can find the area of a composite figure by breaking it into familiar figures.

Learning Objective
Find the area of composite figures.

Language Objective
Use the terms *trapezoid*, *parallelogram*, *base*, and *height* to explain how to find the area of a composite figure.

Vocabulary
New: composite figure

Unit 4: Relationships in Geometry

Unit 4 Project: Think Outside the Box
Unit 4 Learning Mindset Focus: Strategic Help-Seeking: Identifies Need for Help

Module 16: Surface Area and Volume

Recommended Pacing with Assessments and Performance Task: 7 Days

Module 16 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students found the areas of triangles and quadrilaterals. Students determined the volumes of rectangular prisms by using unit cubes and by multiplying edge lengths.	Students apply what they have learned about area as they use nets to find surface areas of prisms and pyramids. Students build on their understanding of volume by investigating rectangular prisms with fractional edge lengths and by applying volume formulas. Students evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problems.	Students will determine surface area and volume for right prisms and figures composed of right prisms. Students will give an informal derivation of the relationship between the circumference and area of a circle. Students will use the formulas for the volumes of cones, cylinders, and spheres to solve real-world and mathematical problems.

Module 16 Vocabulary

solid figure	a three-dimensional figure
volume	the number of cubic units needed to fill a given space
net	an arrangement of two-dimensional figures that can be folded to form a solid figure
pyramid	a three-dimensional figure with a polygon base and triangular sides that all meet at a common vertex
surface area	the sum of the areas of the faces, or surfaces, of a three-dimensional figure

Lesson 16.1 Explore Nets and Surface Area
Build Conceptual Understanding – 2 Days

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

Mathematics Standards
Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Model with mathematics.

I Can Objective
I can use nets to find the surface area of prisms and pyramids.

Learning Objective
Use nets to find surface area.

Language Objective
Use the terms *net* and *surface area* to describe the faces of a solid object.

Vocabulary
Review: solid figure
New: net, pyramid, surface area

Lesson Materials
scissors, construction paper, grid paper and Rectangular Prism Net (Teacher Resource Masters)

Lesson 16.2 Find Volume of Rectangular Prisms
Connect Concepts and Skills – 1 Day

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

Mathematics Standards
Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = Bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Model with mathematics.

I Can Objective
I can use the formulas $V = \ell wh$ or $V = Bh$ to find the volumes of rectangular prisms with fractional edge lengths.

Learning Objective
Find the volume of a rectangular prism.

Language Objective
Use the term *rectangular prism* to identify a class of solid objects, and use the terms *length*, *width*, and *base* to describe a rectangular prism and the formula for its volume.

Vocabulary
Review: volume

Lesson Materials
fraction strips (Teacher Resource Masters), centimeter cubes

Lesson 16.3 Solve Volume Problems

Apply and Practice – 1 Day

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

Mathematics Standards

Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = Bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).

Mathematical Practices and Processes

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

I Can Objective

I can use equations to solve volume problems in which the volume or an edge length of a rectangular prism is unknown.

Learning Objective

Write equations to solve problems involving volume of rectangular prisms.

Language Objective

Use the term *rectangular prism* to identify a class of solid objects, and use the terms *length*, *width*, *height* and *base* to describe a rectangular prism and the formula for its volume.

Unit 5: Data Collection and Analysis

Unit 5 Project: The Right Price
Unit 5 Learning Mindset Focus: Resilience: Monitors Knowledge and Skills

Module 17: Data Collection and Displays

Recommended Pacing with Assessments: 9 Days

Module 17 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students plotted fractions on a number line. Students constructed line plots to display measurement data.	Students identify statistical questions. Students examine a given data set to determine the attribute being measured and how the measurements were made. Students build on what they have learned about number lines and line plots as they display data in dot plots and histograms. Students use the shape of a distribution to choose appropriate measures of center and variability.	Students will compare two populations by comparing their measures of center. Students will extend what they have learned about representing univariate data in dot plots as they display bivariate data in scatter plots. Students will use random sampling to draw inferences about a population. Students will make informal comparative inferences about populations. Students will construct and interpret scatter plots for bivariate measurement data.

Module 17 Vocabulary

bar graph	a graph that uses vertical or horizontal bars to display data
interval	the space between marked values on a number line or the scale of a graph
line plot	a number line with marks or dots that show frequency
data	a set of information collected about people or things, often to draw conclusions about them
dot plot	a visual display in which each piece of data is represented by a dot above a number line
frequency	the number of times the value appears in the data set
frequency table	a table that lists items together according to the number of times, or frequency, that the items occur
histogram	a bar graph whose bars represent the frequencies of numeric data within equal intervals

mean	the sum of the items in a set of data divided by the number of items in the set; also called *average*
measure of center	a measure used to describe the middle of a data set; the mean, median, and mode are measures of center
median	the middle number, or the mean (average) of the two middle numbers, in an ordered set of data
mode	the number of numbers that occur most frequently in a set of data; when all numbers occur with the same frequency, we say there is no mode
outlier	a value much greater or much less than the others in a data set
statistical question	a question that has many different, or variable, answers

Lesson 17.1 Explore Statistical Data Collection
Build Conceptual Understanding – 1 Day

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

Mathematics Standards
Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.

Summarize numerical data sets in relation to their context, such as by:
Reporting the number of observations.

Summarize numerical data sets in relation to their context, such as by:
Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.

Mathematical Practices and Processes
• Attend to precision.

I Can Objective
I can identify a statistical question, and I can describe the attributes of a data set.

Learning Objective
Identify a statistical question and describe data.

Language Objective
Explain the difference between a *statistical question* and other types of questions and use the term *attributes* to describe data.

Vocabulary
New: data, statistical question

Lesson Materials
number lines (Teacher Resource Masters), two-color counters

Lesson 17.2 Display Data in Dot Plots

Apply and Practice – 2 Days

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

Mathematics Standards
Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Use appropriate tools strategically.

I Can Objective
I can make a dot plot to display data, and use a dot plot to answer questions about data.

Learning Objective
Use dot plots to display data.

Language Objective
Define a dot plot and explain how it is useful for displaying data.

Vocabulary
Review: line plot
New: dot plot

Lesson Materials
number lines (Teachers Resource Masters), two-color counters

Lesson 17.3 Make Histograms and Frequency Tables

Apply and Practice – 2 Days

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

Mathematics Standards
Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

Mathematical Practices and Processes
• Use appropriate tools strategically.
• Look for and make use of structure.

I Can Objective
I can make a histogram and frequency table, and I can answer questions about data displayed in these ways.

Learning Objective
Make histograms and frequency tables to display data.

Language Objective
Students describe and compare a histogram and frequency table and explain how they are constructed.

Vocabulary
Review: bar graph, interval
New: frequency, frequency table, histogram

Lesson 17.4 Find Measures of Center
Apply and Practice – 1 Day

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

Mathematics Standards
Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

Summarize numerical data sets in relation to their context, such as by:
Reporting the number of observations.

Mathematical Practices and Processes
• Use appropriate tools strategically.
• Attend to precision.

I Can Objective
I can find the mean, median, and mode of a set of data.

Learning Objective
Describe a set of data using mean, median, and mode.

Language Objective
Use the terms *mean*, *median*, and *mode* to describe and compare data sets.

Vocabulary
New: mean, measure of center, median, mode

Lesson Materials
number lines (Teachers Resource Masters), two-color counters

Lesson 17.5 Choose a Measure of Center
Apply and Practice – 1 Day

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

Mathematics Standards
Summarize numerical data sets in relation to their context, such as by:
Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.
• Attend to precision.

I Can Objective
I can choose an appropriate measure of center to describe a data set.

Learning Objective
Choose an appropriate measure of center to describe a data set.

Language Objective
Use the terms *mean*, *median*, and *mode* to identify the most appropriate measure of center of a data set and to explain your reasoning.

Vocabulary
New: outlier

Unit 5: Data Collection and Analysis

Unit 5 Project: The Right Price
Unit 5 Learning Mindset Focus: Resilience: Monitors Knowledge and Skills

Module 18: Variability and Data Distribution

Recommended Pacing with Assessments and Performance Task: 9 Days

Module 18 Mathematical Progressions

Prior Learning	Current Development	Future Connections
Students determined and interpreted the absolute value of numbers. Students calculated the mean and median of data sets. Students used numerical patterns and rules when interpreting the relationship between data. Students used graphed data to answer questions.	Students use their prior knowledge of median to help them generate box plots for sets of data. Students apply their understanding of absolute value and the mean of a data set to calculate mean absolute deviation. Students determine the range and interquartile range of a data set. Students describe patterns in the distribution of a data set, such as gaps, clusters, peaks, and symmetry.	Students will use what they have learned about data distributions to assess the degree of overlap between two data sets. Students will use their prior knowledge of measures of variability to compare random samples and draw conclusions about populations.

Module 18 Vocabulary

box plot	a graph that shows how data are distributed by using the median, quartiles, least value, and greatest value; also called a box-and-whisker plot
interquartile range (IQR)	the difference of the third (upper) and first (lower) quartiles in a data set, representing the middle half of the data
lower quartile	the median of the lower half of the data
mean absolute deviation (MAD)	the mean distance between each data value and the mean of the data set
measure of variability	a single value used to describe how the values in a data set are spread out
range	in statistics, the difference between the greatest and least values in a data set
upper quartile	the median of the upper half of the data

Lesson 18.1 Explore Patterns of Data
Build Conceptual Understanding – 1 Day

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

Mathematics Standards
Summarize numerical data sets in relation to their context, such as by: Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.

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 use a dot plot or histogram to describe the overall patterns in a data set, including clusters, gaps, peaks, and symmetry.

Learning Objective
Describe overall patterns in a data set.

Language Objective
Use the terms *gap*, *cluster*, *peak*, and *symmetry* to explain the overall shape of the data distribution.

Lesson Materials
Number Lines (Teacher Resource Masters), two-color counters

Lesson 18.2 Display Data in Box Plots
Connect Concepts and Skills – 2 Days

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

Mathematics Standards
Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

Mathematical Practices and Processes
• Model with mathematics.
• Attend to precision.
• Look for and make use of structure.

I Can Objective
I can make a box plot for a set of numerical data.

Learning Objective
Use box plots to display data.

Language Objective
Use the terms *lower quartile*, *median*, and *upper quartile* to describe data in box plots.

Vocabulary
New: box plot, lower quartile, upper quartile

Lesson Materials
Number Lines (Teachers Resource Masters)

Lesson 18.3 Find Mean Absolute Deviation

Apply and Practice – 1 Day

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

Mathematics Standards

Summarize numerical data sets in relation to their context, such as by: Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.

Mathematical Practices and Processes

• Attend to precision.

I Can Objective

I can compute the MAD of a data set and use the MAD to describe data.

Learning Objective

Determine and use the mean absolute deviation of a set of data values.

Language Objective

Describe the *mean absolute deviation* as a measure of variability that describes a data set in mathematical and real-world problems.

Vocabulary

New: mean absolute deviation (MAD)

Lesson Materials

Number Lines (Teachers Resource Masters)

Lesson 18.4 Explore Measures of Variability

Apply and Practice – 1 Day

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

Mathematics Standards

Summarize numerical data sets in relation to their context, such as by: Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.

Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

Summarize numerical data sets in relation to their context, such as by: Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

Mathematical Practices and Processes

• Reason abstractly and quantitatively.

I Can Objective

I can interpret range, IQR, and MAD of a data set.

Learning Objective

Summarize a set of data using range, interquartile range, and mean absolute deviation.

Language Objective

Use the terms *range*, *mean absolute deviation*, *interquartile range*, *measure of center*, *measure of variability*, and the concepts associated with these terms to describe real-world data sets.

Vocabulary

New: interquartile range (IQR), measure of variability, range

Lesson 18.5 Describe Distributions
Apply and Practice – 1 Day

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

Mathematics Standards
Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.

Summarize numerical data sets in relation to their context, such as by: Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

Mathematical Practices and Processes
• Reason abstractly and quantitatively.

I Can Objective
I can choose an appropriate display for a data set and compute the measures of center and variability.

Learning Objective
Describe the distribution of a data set collected to answer a statistical question.

Language Objective
Describe why certain data is best displayed using certain displays, such as box plots, dot plots, or histograms. Use the terms *gap*, *cluster*, *peak*, and *symmetry* to explain the overall shape of the data in a distribution. Use the terms *measure of center* and *measure of variability* to support conclusions drawn from data distributions.