Course Title: 4th grade Mathematics
Board Approval Date: July 16, 2022
Revisited: August 15, 2022
Reviewed Annually
Credit / Hours:

This course focuses on mastery of the PA Core Academic Standards for Mathematics. As each student progresses through this course they will participate in a systematic study of: establishing routines, place value, multidigit addition and subtraction, multiplication and geometry, fractions

Learning Activities:

- Large group instruction
- Small group teacher directed

- *Everyday Mathematics / Common Core State Standards Edition* (McGraw Hill, 2015) (Teacher manual and student activity manipulatives)
- *EM Online* (Instructional Resources through Everyday Math) (Teacher and student accounts)
- Schoology
- *Discovery Education*
- *Brain Pop & Brain Pop Jr.*
- *Learn Zillion, Khan Academy, Reflex, other additional digital applications*
- *Youtube videos*
- *IXL*

- Formative Assessments (digital and paper)

Course: Fourth Grade Mathematics

	Course Unit (Topic)	**Length of Instruction (Days/Periods)**
1.	Place Value; Multidigit Addition and Subtraction	22 days
2.	Multiplication and Geometry	22 days
3.	Fractions and Decimals	22 days
4.	Multidigit Multiplication	22 days
5.	Fraction and Mixed Number Computations; Measurement	22 days
6.	Division; Angles	22 days
7.	Multiplication of a Fraction by a whole Number; Measurement	22 days

Curriculum: CCSD CURRICULUM PENNSYLVANIA
Course: 4th Grade Math Date: June 20, 2022

Topic: Unit 1 Place Value; Multi-Digit Addition and Subtraction Days: 22
Subject(s): 4th Grade Math Grade(s): 4th

Know:	Understand:	Do:
Digits Places Standard form Expanded form Rounding Approximate Millions Estimation Front –end rounding Close-to estimation Number Model Unknown quantity Partial Sums addition Column Addition US traditional Addition Place Value Mathematical Structure Pattern Counting Up Trade – First Subtraction US Traditional Subtraction Regroup Measurement Scale Convert Point Line Segment End Point Line Ray Parallel Line Intersect Parallel Line Segment Plane Parallel Ray Angle Vertex Right Angle Perpendicular Obtuse Angle Acute Angle Right Triangle Trapezoid Kite Polygon Perimeter Formula	Understanding place value to develop multidigit addition and subtraction algorithms. Understanding properties to identify and construct geometric figures	- Write numbers in expanded form and compare numbers through the hundred-thousands. -Interpret procedures to round numbers through hundred-thousands. -Analyze and interpret place value information. - Differentiate between and apply methods of estimation - Solve multistep number stories involving addition and subtraction - Apply the U.S. traditional algorithm for addition - Analyze and revise solutions and similarities between codes and base-10 place value - Apply the U.S. traditional algorithm for subtraction - Convert between yards, feet, and inches - Classify points, lines segments, lines, and rays based on properties - Identify and create angles, triangles, and quadrilaterals based on properties - Create a formula for finding the perimeter of a rectangle **Standards** CC.2.1.4.B.1 Apply place value concepts to show an understanding of multi-digit whole numbers. CC.2.1.4.B.2 Use place value understanding and properties of operations to perform multi- digit

Length Width		arithmetic. CC.2.2.4.A.1 Represent and solve problems involving the four operations CC.2.2.4.A.4 Generate and analyze patterns using one rule CC.2.4.4.A.1 Solve problems involving measurement and conversions from a larger unit to a smaller unit CC.2.3.4.A.1 Draw lines and angles and identify these in two-dimensional figures. CC.2.3.4.A.2 Classify two-dimensional figures by properties of their lines and angles.

Curriculum: CCSD CURRICULUM PENNSYLVANIA
Course: 4th Grade Math Date: June 20, 2022

Topic: Unit 2: Multiplication and Geometry Days: 22
Subject(s): 4th Grade Math Grade(s): 4th

Know:	Understand:	Do:
Rectangular array Row Column Square array Square number Composite unit Formula Factor Product Factor pair Divisibility Multiple Prime number Composite number Argument Comparison statement Quantity Multiplicative comparison statement Multiplicative relationship Additive comparison Acute triangle Obtuse triangle Right triangle Equilateral triangle Isosceles triangle Properties Scalene triangle Attribute Adjacent Line symmetry Line of symmetry Symmetrical Function machine Input Output Rule	Understanding how to differentiate and apply various components of multiplication. Understanding properties to classify shapes and develop formulas for finding the area of a rectangle.	-Create patterns using rectangular arrays and square numbers -Calculate the area of a rectangle using a formula -Identify factor pairs for a given value -Differentiate between factors and multiples -Classify numbers as prime or composite -Develop a logical argument using knowledge of multiplication facts -Analyze and revise conclusions based on multiplication reasoning -Convert units of time to smaller units of time and solve number stories -Create and interpret statements and equations for multiplication comparisons -Solve number stories involving comparisons in multiplication -Classify triangles by properties of angles -Classify quadrilaterals by their geometric properties -Identify lines of symmetry in a variety of shapes -Develop a rule to analyze patterns

“What’s My Rule?”		**Standards** CC.2.1.4.B.2 Use place value understanding and properties of operations to perform multi- digit arithmetic. CC.2.2.4.A.4 Generate and analyze patterns using one rule. CC.2.1.4.B.1 Apply place value concepts to show an understanding of multi-digit whole numbers. CC.2.4.4.A.1 Solve problems involving measurement and conversions from a larger unit to a smaller unit. CC.2.2.4.A.2 Develop and/or apply number theory concepts to find factors and multiples. CC.2.2.4.A.1 Represent and solve problems involving the four operations. CC.2.3.4.A.1 Draw lines and angles and identify these in two-dimensional figures. CC.2.3.4.A.2 Classify two-dimensional figures by properties of their lines and angles. CC.2.3.4.A.3 Recognize symmetric shapes and draw lines of symmetry.

Curriculum: CCSD CURRICULUM PENNSYLVANIA
Course: 4th Grade Math Date: June 20, 2022

Topic: Unit 3: Fractions and Decimals Days: 22
Subject(s): 4th Grade Math Grade(s): 4th

Know:	Understand:	Do:
Equivalent fractions Whole Unit Denominator Numerator Unit interval Equivalent Fractions Rule Reasoning Benchmark Mathematical Model Strategy Common denominator Common numerator Tenths Hundredths Centimeter Meter Metric Millimeter	Understand how to apply concepts of fractions and decimals in order to interpret information.	-Demonstrate fraction equivalence by solving number stories involving equally shared quantities -Recognize and generate equivalent fractions -Use a number line to recognize and generate equivalent fractions -Apply a rule to determine equivalent fractions -Compare fractions with different numerators and denominators and justify reasoning -Analyze fraction models and revise for accuracy -Use the properties of fractions to make comparisons -Apply strategies to order fractions -Determine the relationship between fractions and decimals -Illustrate decimals with base-10 blocks -Read and write decimal numbers to hundredths -Use decimals to compare metric measurements -Convert values of metric measurement

		-Compare decimals using >, <, and = symbols **<u>Standards</u>** CC.2.1.4.B.1 Apply place value concepts to show an understanding of multi-digit whole numbers. CC.2.1.4.C.1 Extend the understanding of fractions to show equivalence and ordering. CC.2.4.4.A.1 Solve problems involving measurement and conversions from a larger unit to a smaller unit. CC.2.2.4.A.2 Develop and/or apply number theory concepts to find factors and multiples. CC.2.1.4.B.2 Use place value understanding and properties of operations to perform multi- digit arithmetic. CC.2.2.4.A.4 Generate and analyze patterns using one rule. CC.2.2.4.A.1 Represent and solve problems involving the four operations. CC.2.1.4.C.3 Connect decimal notation to fractions, and compare decimal fractions (base 10 denominator, e.g. ,19/100). CC.2.3.4.A.2 Classify two-dimensional figures by properties of their lines and angles. CC.2.3.4.A.1 Draw lines and angles and identify these in two-dimensional figures.

Curriculum: CCSD CURRICULUM PENNSYLVANIA
Course: 4th Grade Math Date: June 20, 2022

Topic: Unit 4 Multidigit Multiplication Days: 22
Subject(s): 4th Grade Math Grade(s): 4th

Know:	Understand:	Do:
Adjacent Commutative Property Decompose Distributive Property Extended multiplication facts Gram Kilogram Lattice multiplication Liter Mass Milliliter Partial-products multiplication Partition Ream Rectilinear figure rubric	Understand the basic principles of multidigit multiplication by extending multiplication skills and apply multiple algorithms. Understand the knowledge of multiplication to find the areas of rectangles and to convert units of measurement.	- A rule for solving multiplication problems involving multiples of 10? -Estimates and evaluate if answers are reasonable -Apply partitioning rectangles, solve multiplication problems - Convert capacity from liters to milliliters - Multiply with the partial products algorithm - Convert values from Grams to Kilogram - Apply mathematical operations to solve multi-step number stories involving money - Apply partial product multiplication to multiply 2-digit by 2-digit numbers - Implement the traditional multiplication algorithm to solve problems - Calculate area of rectangles and rectilinear figures using multi-digit computation. - Solve multistep multiplication problems and use estimates to assess the reasonableness of an answer - Implement the lattice multiplication algorithm to solve problem **Standards** CC.2.1.4.B.1 Apply place value concepts to show an understanding of multi-digit whole

		numbers. CC.2.1.4.B.2 Use place value understanding and properties of operations to perform multi- digit arithmetic. CC.2.2.4.A.1 Represent and solve problems involving the four operations. CC.2.3.4.A.2 Classify two-dimensional figures by properties of their lines and angles. CC.2.4.4.A.1 Solve problems involving measurement and conversions from a larger unit to a smaller unit.

Curriculum: CCSD CURRICULUM PENNSYLVANIA
Course: 4th Grade Math Date: June 20, 2022

Topic: Unit 5 Fraction and Mixed-Number Computation; Measurement Days: 22
Subject(s): 4th Grade Math Grade(s): 4th

Know:	Understand:	Do:
Arc Clockwise Counterclockwise Decomposing Degree Fraction addition Equations Full-turn Half-turn Like denominators Mirror image Mixed number Quarter -turn Reflex angle Rotation Straight angle Unit fraction Whole	Understand the whole in a fraction as well as adding and subtracting fractions and mixed numbers. Understand the collection and computation of data to create a line plot and then use the date to gather information. Understand the concept of rays and their connection to unit iteration for angles.	-Decompose fractions into sums of fractions with the same denominator -Find the whole when given a fractional part of a region - Add fractions (of the same whole, with like denominators) to solve number stories -Apply multiple strategies to add mixed numbers with like denominators - Add unlike fractions with tenths and hundredths - Subtract fractions with like denominators - Apply strategies to subtract mixed numbers - Record data on a line plot and analyze the data to answer questions - Analyze rotation, iteration of measurement units, and angle measures - Measure and describe angles using degrees - Identify line symmetry and classify the properties of symmetric shapes

		- Solve multistep multiplication stories and display answers with appropriate number models and units **Standards** CC.2.1.4.C.1 Extend the understanding of fractions to show equivalence and ordering. CC.2.1.4.B.1 Apply place value concepts to show an understanding of multi-digit whole numbers. CC.2.1.4.B.2 Use place value understanding and properties of operations to perform multi- digit arithmetic. CC.2.2.4.A.1 Represent and solve problems involving the four operations. CC.2.1.4.C.3 Connect decimal notation to fractions, and compare decimal fractions (base 10 denominator, e.g. ,19/100). CC.2.4.4.A.1 Solve problems involving measurement and conversions from a larger unit to a smaller unit. CC.2.4.4.A.4 Represent and interpret data involving fractions using information provided in a line plot CC.2.4.4.A.6 Measure angles and use properties of adjacent angles to solve problems. CC.2.3.4.A.1 Draw lines and angles and identify these in two-dimensional figures. CC.2.3.4.A.3 Recognize symmetric shapes and draw lines of symmetry.

Curriculum: CCSD CURRICULUM PENNSYLVANIA
Course: 4th Grade Math Date: June 20, 2022

Topic: Unit 6 Division; Angles Days: 22
Subject(s): 4th Grade Math Grade(s): 4th

Know:	Understand:	Do:
Dividend Divisor Quotient Extended Division Facts Remainder Partial Quotient Half-dozen At least At most Remainder Weight Ton (T) Pound (lb) Ounce (oz) Reflex angle Half-circle protractor Base line Supplementary angles Complementary angles Full-circle protractor	Understand the relationship between multiplication and division. Understand how a protractor can be used to measure and construct angles.	- Create a rule for extending division facts - Apply area to find missing side lengths of rectangles - Apply the concept of multiplies to solve division stories - Apply the partial –quotients algorithm to solve division problems - Convert customary measurement for weight - Explore and apply the different methods to express and interpret remainders - Utilize measurement tools to measure angles and create angles with a particular measurement - Apply knowledge of adjacent angles to find missing values - Apply knowledge of adding and subtracting fractions and mixed numbers with like

		denominators to solve numbers - Use whole-number multiplication to multiply fractions by whole numbers **Standards:** CC.2.1.4.B.2 Use place value understanding and properties of operations to perform multi- digit arithmetic. CC.2.2.4.A.2 Develop and/or apply number theory concepts to find factors and multiples CC.2.1.4.B.1 Apply place value concepts to show an understanding of multi-digit whole numbers. CC.2.1.4.C.2 Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. CC.2.1.4.C.3 Connect decimal notation to fractions, and compare decimal fractions (base 10 denominator, e.g. ,19/100). CC.2.4.4.A.1 Solve problems involving measurement and conversions from a larger unit to a smaller unit. CC.2.2.4.A.1 Represent and solve problems involving the four operations. CC.2.1.4.C.1 Extend the understanding of fractions to show equivalence and ordering. CC.2.2.4.A.4 Generate and analyze patterns using one rule.

		CC.2.4.4.A.6 Measure angles and use properties of adjacent angles to solve problems. CC.2.3.4.A.1 Draw lines and angles and identify these in two-dimensional figures.

Curriculum: CCSD CURRICULUM PENNSYLVANIA
Course: 4th Grade Math Date: June 20, 2022

Topic: Unit 7 Multiplication of a Fraction by a Whole Number; Measurement Days: 22
Subject(s): 4th Grade Math Grade(s): 4th

Know:	Understand:	Do:
Cup Gallon Pint Quart Rectangular numbers	Understand multiplying fractions by whole numbers and the application of this knowledge to real life scenarios.	- Convert between cups, pints, quarts, and gallons - Apply strategies to multiply unit and non-unit fractions by whole numbers - Apply strategies to multiply mixed numbers by whole numbers - Represent fractions as multiples of a unit fraction - Apply strategies to multiply fractions by whole numbers - Estimate, find, and assess the reasonableness of answers to multistep division number stories - Apply division strategies to solve various measurement problems - Generate and analyze patterns in rectangular numbers - Apply strategies to solve multistep number stories involving fractions - Convert fractions and decimals **Standards** CC.2.1.4.C.3 Connect decimal notation to fractions, and

		compare decimal fractions (base 10 denominator, e.g. ,19/100). CC.2.4.4.A.1 Solve problems involving measurement and conversions from a larger unit to a smaller unit. CC.2.1.4.B.2 Use place value understanding and properties of operations to perform multi- digit arithmetic. CC.2.1.4.C.1 Extend the understanding of fractions to show equivalence and ordering. CC.2.1.4.C.2 Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. CC.2.2.4.A.1 Represent and solve problems involving the four operations. CC.2.1.4.B.1 Apply place value concepts to show an understanding of multi-digit whole numbers. CC.2.4.4.A.6 Measure angles and use properties of adjacent angles to solve problems. CC.2.2.4.A.2 Develop and/or apply number theory concepts to find factors and multiples. CC.2.2.4.A.4 Generate and analyze patterns using one rule. CC.2.4.4.A.4 Represent and interpret data involving fractions using information provided in a line plot.

Curriculum: CCSD CURRICULUM PENNSYLVANIA
Course: 4th Grade Math Date: June 20, 2022

Topic: Unit 8 Fractions Operation; Applications Days: 20
Subject(s): 4th Grade Math Grade(s): 4th

Know:	Understand:	Do:
Equivalent name Fluid ounce Generalization	Understand the application in real-life situations of acquired knowledge; fractions, number concepts, patterns and geometry.	-Apply mathematical understanding to solve challenging multistep number stories - Apply understanding of the additive nature of angle measures to real-life situations - Create symmetric shapes and patterns - Create line plots - Apply algorithms for addition and subtraction of mixed numbers to answer questions regarding data - Apply a perimeter formula for rectangles in real-world and mathematical problems involving fractions and mixed numbers - Convert decimals to fractions - Apply an area formula for rectangles in real-world and mathematical problems involving fractions and mixed numbers - Apply multiplication processes to solve word problems involving fractions and whole numbers - Convert liquid measurement - Apply understanding of place value and properties of operations to solve puzzles

		- Find equivalent names for numbers **Standards** CC.2.1.4.C.2 Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. CC.2.2.4.A.1 Represent and solve problems involving the four operations. C.2.1.4.B.2 Use place value understanding and properties of operations to perform multi- digit arithmetic. CC.2.1.4.C.1 Extend the understanding of fractions to show equivalence and ordering. CC.2.4.4.A.6 Measure angles and use properties of adjacent angles to solve problems. CC.2.3.4.A.1 Draw lines and angles and identify these in two-dimensional figures. CC.2.4.4.A.1 Solve problems involving measurement and conversions from a larger unit to a smaller unit. CC.2.1.4.C.3 Connect decimal notation to fractions, and compare decimal fractions (base 10 denominator, e.g. ,19/100). CC.2.3.4.A.3 Recognize symmetric shapes and draw lines of symmetry.

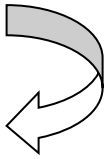
		CC.2.3.4.A.2 Classify two-dimensional figures by properties of their lines and angles. CC.2.4.4.A.4 Represent and interpret data involving fractions using information provided in a line plot CC.2.1.4.B.1 Apply place value concepts to show an understanding of multi-digit whole numbers.

Key Learning: Students will explore place-value concepts for multidigit whole numbers. They will use U.S. traditional addition and subtraction to add and subtract multidigit whole numbers.

Unit Essential Question:

How do you utilize place value to develop multidigit addition and subtraction algorithm?

How do you use properties to identify and construct geometric figures?



Concept: Place Value	**Concept:** Addition and Subtraction	**Concept:** Converting U.S Customary Units of Measurement
Lesson Essential Questions: 1-1: How do you identify place value in whole numbers through hundred-thousands? 1-2: How do you record numbers in expanded form and compare numbers through the hundred-thousands? 1-3: How do you round numbers through the hundred-thousands? 1-4: How do you use place value to analyze and interpret information? 1-5: How do you differentiate between and apply methods of estimation?	**Lesson Essential Questions:** 1-6: How do you solve multistep number stories involving addition and subtraction? 1-7: How do you apply the U.S. traditional algorithm for addition? 1-9: How do you apply the U.S. traditional algorithm for subtraction?	**Lesson Essential Questions:** 1-10: How do you convert between yards, feet, and inches?

1-8: How do you solve a problem about codes based on place-value structures? 1-8: How do you analyze and revise solutions and similarities between codes and base-10 place value?		
Vocabulary: 1-1: digits, places, standard form 1-2: expanded form 1-3: rounding, approximate 1-4: millions 1-5: estimation, front-end estimation, close-to estimation 1-8: place value, mathematical structure, pattern	**Vocabulary:** 1-6: number model, unknown quantity 1-7: partial-sums addition, column addition, U.S. traditional addition 1-9: counting up, trade-first subtraction, U.S. traditional subtraction, regroup	**Vocabulary:** 1-10: measurement scale, convert
Concept: Geometry	**Concept:**	**Concept:**
Lesson Essential Questions: 1-11: How do you classify points, line segments, lines, and rays based on properties? 1-12: How do you identify and create angles, triangles, and quadrilaterals based on properties? 1-13: How do you utilize a formula for finding the perimeter of a rectangle?	**Lesson Essential Questions:**	**Lesson Essential Questions:**
Vocabulary: 1-11: point, line segment, endpoint, line, ray, parallel line, intersect,	**Vocabulary:**	**Vocabulary:**

parallel line segment, plane, parallel ray 1-12: angle, vertex, right angle, perpendicular, obtuse angle, acute angle, right triangle, trapezoid, kite, polygon		

Additional Information/Resources:

Refer to Everyday Mathematics Teacher's Lesson Guide Volume 1

Everyday Math ConnectED Website

Key Learning: Students will explore various applications for multiplication. They will classify shapes by properties and develop formulas for finding the area of a rectangle.

Unit Essential Question:
How do you differentiate and apply various components of multiplication?
How do you classify shapes by properties and develop formulas for finding the area of a rectangle?

Concept: Multiplication	**Concept:** Geometry	**Concept:** Factors/Multiples
Lesson Essential Questions: 2-1: How do you create patterns using rectangular arrays and square numbers? 2-6: How do you develop a logical argument using knowledge of multiplication facts? 2-6: How do you analyze and revise conclusions based on multiplication reasoning? 2-8: How do you create and interpret statements and equations for multiplication comparisons?	**Lesson Essential Questions:** 2-2: How do you calculate the area of a rectangle using a formula? 2-10: How do you classify triangles by properties of angles? 2-11: How do you classify quadrilaterals by their geometric properties? 2-12: How do you identify lines of symmetry in a variety of shapes?	**Lesson Essential Questions:** 2-3: How do you identify factor pairs for a given value? 2-4: How do you differentiate between factors and multiples? 2-5: How do you classify numbers as prime or composite?

2-9: How do you solve number stories involving comparisons in multiplication?		
Vocabulary: 2-1: rectangular array, row, column, square array, square number 2-6: conjecture, argument 2-8: comparison statement, quantity, multiplicative comparison statement, multiplicative relationship 2-9: additive comparison	**Vocabulary:** 2-2: composite unit, formula 2-10: acute triangle, obtuse triangle, right triangle, equilateral triangle, isosceles triangle, properties, scalene triangle 2-11: attribute, adjacent 2-12: line symmetry, line of symmetry, symmetrical	**Vocabulary:** 2-3: factor, product, factor pair, divisibility 2-4: multiple 2-5: prime number, composite number

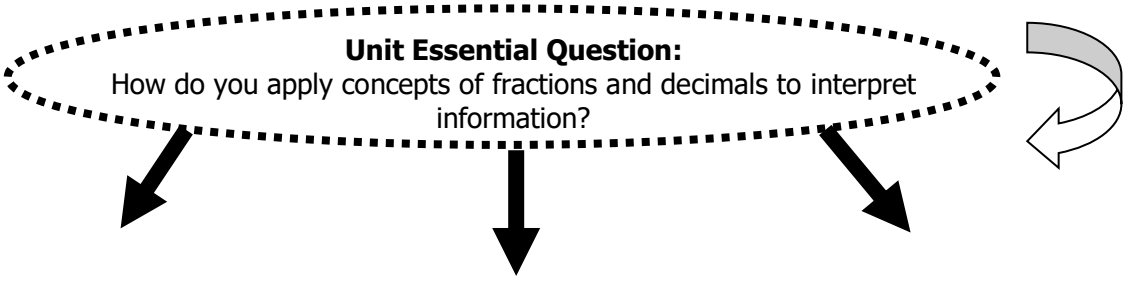
Concept: Converting Units of Time	**Concept:** Number Patterns	**Concept:**
Lesson Essential Questions: 2-7: How do you convert units of time to smaller units of time and solve number stories?	**Lesson Essential Questions:** 2-13: How do you develop a rule to analyze patterns?	**Lesson Essential Questions:**
Vocabulary: 2-7: none	**Vocabulary:** 2-13: function machine, input, output, rule, "What's My Rule?"	**Vocabulary:**

Additional Information/Resources:

Refer to Everyday Mathematics Teacher's Lesson Guide Volume 1

Everyday Math ConnectED Website

Key Learning: Students explore fraction equivalence and compare and order fractions using different representations. They will extend their understanding of fractions to decimals, comparing and ordering decimals using the same methods as for comparing fractions.



Concept: Equivalent Fractions	**Concept:** Compare Fractions	**Concept:** Decimals
Lesson Essential Questions: 3-1: How do you demonstrate fraction equivalence by solving number stories involving equally shared quantities? 3-2: How do you recognize and generate equivalent fractions? 3-3: How do you use a number line to recognize and generate equivalent fractions? 3-4: How do you apply a rule to determine equivalent fractions?	**Lesson Essential Questions:** 3-5: How do you compare fractions with different numerators and denominators and justify their reasoning? How do you analyze fraction models and revise for accuracy? 3-6: How do you compare fractions with like and unlike denominators? 3-7: How do you use strategies to order fractions and place them on number lines?	**Lesson Essential Questions:** 3-8: What is the relationship between fractions and decimals? 3-9: How do you model decimals with base-10 blocks? 3-10: How do you read and write decimal numbers to hundredths? 3-11: How do you use decimals to compare metric measurements? 3-12: How do you convert values of metric measurement?

		3-13: How do you compare decimals using >, <, and = symbols?
Vocabulary: 3-1: equivalent fractions 3-2: whole, unit, denominator, numerator 3-3: unit interval 3-4: Equivalent Fractions Rule	**Vocabulary:** 3-5: reasoning, benchmark, mathematical model, strategy 3-6: benchmark, common denominator, common numerator 3-7: none	**Vocabulary:** 3-8: none 3-9: tenths, hundredths 3-10: none 3-11: centimeter, meter, metric 3-12: millimeter

Key Learning: Students are introduced to the basic principles of multidigit multiplication by focusing on extending multiplication skills and exploring the partial-products method. They use their knowledge of multiplication to find the areas of rectangles and to convert units of measurement.

Additional Information/Resources:

Unit Essential Question:

How do you extended multiplication skills and apply multiple algorithms to solve multidigit multiplication problems?

How do you apply knowledge of multiplication to find the areas of rectangle and convert units of measurement?

Concept: Multiplication	**Concept:** Multiplication Algorithms	**Concept:** Multistep Problems and Open Response

Lesson Essential Questions:	**Lesson Essential Questions:**	**Lesson Essential Questions:**
4-1: How do you find a rule for solving multiplication problems involving multiples of 10? 4-2: How do you make estimates and evaluate if answers are reasonable? 4-10: How do you apply the basic principles of multiplication with multidigit numbers? 4-11: How do you find the area of rectangles and rectilinear figures using multidigit computation?	4-3: How do you solve multiplication problems by partitioning rectangles? 4-6: How do you multiply using the partial products algorithm? 4-9: How do you multiply 2-digit by 2-digit numbers using partial product multiplication? How do you solve multiplication problems using the traditional algorithm? 4-13: How do you multiply multidigit numbers using lattice multiplication?	4-5: How do you use multiplication and division to solve an open response math problem? 4-8: How do you solve multi-step number stories involving money? 4-12: How do you solve multistep multiplication problems and use estimates to assess reasonable ness of your answers?
Vocabulary:	**Vocabulary:**	**Vocabulary:**
4-1: extended multiplication facts 4-2: none 4-10: Commutative Property 4-11: adjacent, rectilinear figure	4-3: partition, decompose, Distributive Property 4-6: partial-products multiplication 4-9: none 4-13: lattice multiplication	4-5: ream, rubric 4-8: none 4-12: none

Concept:
Conversions

Lesson Essential Questions:

4-4: How do you convert capacity from liters to milliliters?

4-7: How do you convert values from grams to kilograms?

Vocabulary:

4-4: liter (L), milliliter (mL)

4-7: mass, gram (g), kilogram (kg)

Additional Information/Resources:

Refer to Everyday Math Mathematics Teacher's Lesson Guide Volume 1
Everyday Math ConnectED Website

Key Learning:
The student will explore the whole in fractions as well as adding and subtracting fractions and mixed numbers. Students will also answer questions about line plots and build on their knowledge of rays to explore unit iterations for angles.

Unit Essential Question:

How do you apply knowledge of fractions to add and subtract fractions and mixed numbers?
How do you interpret data to create a line plot and use computation skills to answer questions regarding data?
How do you apply knowledge of rays to explore unit iterations for angles?

Concept:	**Concept:**	**Concept:**
Decomposing and Partitioning Fractions	Adding and Subtracting Fractions	Mixed Numbers

Lesson Essential Questions: 5-1: How do you decompose fractions into sums of fractions with the same denominator? 5-2: How do you find the whole when given a fractional part of a region? 5-6: How do you partition a shape into parts based on a number story and write an equation to represent the partitioning?	**Lesson Essential Questions:** 5-3: How do you add fractions (of the same whole, with like denominators) to solve number stories? 5-5: How do you add unlike fractions with tenths and hundredths? 5-7: How do you subtract fractions with like denominators?	**Lesson Essential Questions:** 5-4: How do you use multiple strategies to add mixed numbers with like denominators? 5-8: How do you subtract mixed numbers?
Vocabulary: 5-1: unit fraction, decomposing, mixed number 5-2: whole 5-6: fraction addition equations	**Vocabulary:** 5-3: like denominators	**Vocabulary:** None

Concept: Line Plots	**Concept:** Geometry	**Concept:** Multiplication Number Stories
Lesson Essential Questions: 5-9: How do you record data on a line plot and answer questions regarding the data?	**Lesson Essential Questions:** 5-10: How do you apply knowledge of angles to explore rotation, iteration of measurement units, and angle measures? 5-11: How do you measure and describe angles using degrees?	**Lesson Essential Questions:** 5-13: How do you solve multistep multiplication stories and display answers with appropriate number models and units?

	5-12: How do you identify line symmetry and classify the properties of symmetric shapes?	
Vocabulary: None	**Vocabulary:** 5-10: rotation, clockwise, counterclockwise, full-turn, half-turn, quarter-turn, arc 5-11: degree, straight angle, reflex angle 5-12: mirror image	**Vocabulary:** None

Additional Information/Resources:

Refer to Everyday Mathematics Teachers Lesson Guide Volume 2
Everday Math ConnectEd Website

Key Learning:
The student will explore the relationship between multiplication and division and solve division number stories. They will also explore using protractors and how to use them to measure and construct angles.

Unit Essential Question:

How do you distinguish the relationship between multiplication and division?

How do you utilize a protractor to measure and construct angles?

Concept:	**Concept:**	**Concept:**
Division	Geometry and Measurement	Fractions

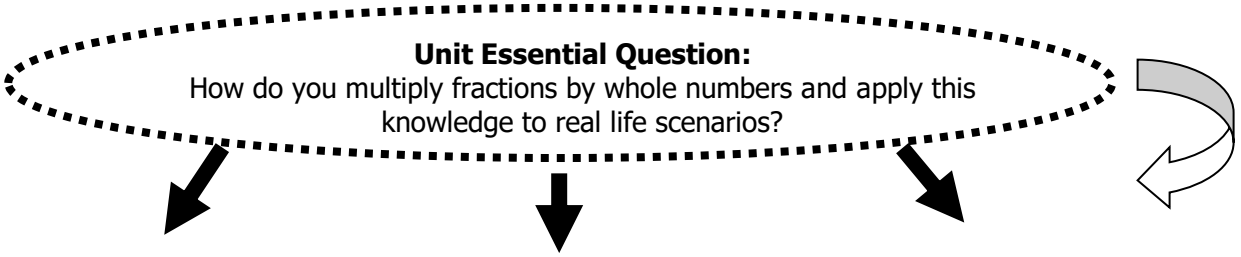
Lesson Essential Questions: 6-1: How do you create a rule for extending division facts? 6-3: How do you use multiples to solve division number stories? 6-4: How do you break multi-digit numbers into parts as a method of division? 6-5: How do you interpret remainders in division problems? 6-7: How do you break multi-digit numbers into parts as a method of division? 6-8: How do you use remainders in long division?	**Lesson Essential Questions:** 6-2: How do you find missing side lengths of rectangles? 6-6: How do you convert customary measurements for weight? 6-9: How do you use a measurement tool to measure angles and create angles with a given measurement? 6-10: How do you use a measurement tool to measure angles and create angles with a given measurement? 6-11: How do you use adjacent angles to find missing values?	**Lesson Essential Questions:** 6-12: How do you add and subtract fractions and mixed numbers with like denominators to solve number stories? 6-13: How do you use whole-number multiplication to multiply fractions by whole numbers?

Additional Information/Resources:

Refer to Everyday Mathematics Teachers Lesson Guide Volume 2
Everyday Math ConnectEd Website

Vocabulary: 6-1: dividend, divisor, quotient, extended division facts 6-3: remainder 6-4: partial quotient 6-5: half-dozen, at least, at most, remainder 6-7: none 6-8: none	**Vocabulary:** 6-6: weight, ton (T), pound (lb), ounce (oz) 6-10: reflex angle, half-circle protractor, base line 6-11: supplementary angles, complementary angles, full-circle protractor	**Vocabulary:** None

Key Learning: Students will formalize their understanding of multiplying a fraction by a whole number and use this knowledge to solve problems in real-world scenarios.



Concept: Measurement/Data	**Concept:** Fractions and Mixed Numbers	**Concept:** Number Stories
Lesson Essential Questions:	**Lesson Essential Questions:**	**Lesson Essential Questions:**

7-1: How do you convert between cups, pints, quarts, and gallons? 7-8: How do you use division strategies to solve various measurement problems? 7-13: How do you record data on a line plot and answer questions regarding the data?	7-2: How do you multiply unit and non-unit fractions by whole numbers? 7-3: How do you represent fractions as multiples of a unit fraction? 7-4: How do you multiply fractions by whole numbers? 7-5: How do you multiply mixed numbers by whole numbers? 7-6: How do you use fraction tools to solve problems involving fractions?	7-7: How do you estimate, find, and assess the reasonableness of answers to multistep division number stories? 7-10: How do you solve multistep number stories involving fractions? 7-12: How do you convert between fractions and decimals to solve number stories?
<u>Vocabulary</u>: 7-1: cup, pint, quart, gallon 7-8: none 7-13: none	**<u>Vocabulary</u>:** 7-2: none 7-3: none 7-4: none 7-5: none 7-6: none	**<u>Vocabulary</u>:** 7-7: none 7-10: none 7-12: none

Concept: Patterns	**Concept**:	**Concept**:
Lesson Essential Questions: 7-9: How do you generate and analyze patterns in rectangular numbers?	**Lesson Essential Questions**:	**Lesson Essential Questions**:
Vocabulary: 7-9: rectangular numbers	**Vocabulary**:	**Vocabulary**:

Additional Information/Resources:

Refer to Everyday Mathematics Teacher's Lesson Guide Volume 2

Everyday Math ConnectED Website

Key Learning:
The student will apply their knowledge of fractions, number concepts, patterns, and geometry to different real-world scenarios.

Unit Essential Question:
How do you apply knowledge of fractions, number concepts, patterns, and geometry to real-life situations?

Concept: Computation	**Concept:** Geometry	**Concept:** Fractions
Lesson Essential Questions: 8-1: How do you apply knowledge of computation to solve multistep number stories? 8-12: How do you apply knowledge of place value and properties of operations to solve puzzles? 8-13: How do you find equivalent names for numbers?	**Lesson Essential Questions:** 8-2: How do you knowledge of angle properties to solve real-life problems and situations? 8-3: How do you find measures of angles and use those measures to find the measures of other angles? 8-4: How do you apply knowledge of line symmetry to create symmetric shapes and quilting patterns?	**Lesson Essential Questions:** 8-5: How do you create line plots and add and subtract mixed numbers to answer questions regarding data? 8-6: How do you compute with fractions and mixed numbers to apply a perimeter formula for rectangles? 8-7: How do you solve number stories by converting decimals to fractions? 8-8: How do you find the area of rectangles using fractions and mixed numbers? 8-9: How do you multiply fractions by whole numbers to solve number stories? 8-10: How do you convert liquid measurements and solve problems involving fractions? 8-11: How do you solve problems with fractions and conversion of units of measure?

Vocabulary:	**Vocabulary:**	**Vocabulary:**
8-1: None 8-12: None 8-13: equivalent name	None	8-10: fluid ounce (fl oz)

Additional Information/Resources:

Refer to Everyday Mathematics Teachers Lesson Guide Volume 2
Everyday Math ConnectEd Website