Grade, Subject: 4th Grade, Mathematics

Unit: Module 1: Place Value, Rounding, and Algorithms for Addition and Subtraction	**__X__ Essential _____ Important _____ Compact**
Big Idea(s): Mathematical relationships among numbers can be represented, compared, and communicated. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.	**Standards of Mathematical Practice:** MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.5 Use appropriate tools strategically.

PA Core Content Standards/Anchors (or National 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.

Essential Questions:	**Understanding:**
How are numbers written and read within 1 million? How is place value understanding used to compare, round, and compose and decompose numbers?	Students will know that… ● Every digit in a number has a value based on its place in the number. ● Each place is based on a power of ten and is 10 times more than the place to its right, and that every place has its own unique name. ● The place value of digits in numbers can be used to compare and order numbers or represent numbers in different ways. ● Estimation, rounding, and inverse operations are tools that can be used to check whether or not an answer is reasonable. ● Addition is an operation used to compose numbers. There are properties that are always true when adding. ● Subtraction is an operation used to decompose numbers.

Knowledge:		**Do/Skills:**
Commutative Property	Identity Property	Students will be able to… ● Read and write multi-digit numbers using base ten numerals, number names, and expanded form. ● Compare numbers based on meanings of the digits. ● Use place value understanding to round multi-digit numbers to any place value using real world applications. ● Solve multi-step word problems using addition and using rounding to assess reasonableness. ● Solve two-step word problems using subtraction.
Round	Front end estimation	
Inverse Operations	Compatible numbers	
Power of Ten	Standard Form	
Written form	Expanded Form	
Greater Than	Less Than	
Equal To, The Same		
Vocabulary:		**Core Resources:**
Addends	Sum	Eureka Math (Great Minds)
Difference	Renaming	
Regrouping	Estimate	
Common Assessments:		**Supplemental Resources:**
G4M1 Topic A Quiz		**Zearn** (site that reinforces Eureka Math)
G4M1 Topic B Quiz		**Embarc** (site devoted to instructional materials for Eureka)
G4M1 MOMA		
G4M1 Topic D/E Quiz		
G4M1 EOMA		

Grade, Subject: 4th Grade, Mathematics	
Unit: Module 2: Unit Conversions and Problem Solving with Metric Measurement	**__X__ Essential _____ Important _____ Compact**
Big Idea(s): Measurement attributes can be quantified and estimated using customary and non-customary units of measure.	**Standards of Mathematical Practice:** MP1 - Make sense of problems and persevere in solving them. MP7 - Look for and make use of structure. MP8 - Look for and express regularity in repeated reasoning.
PA Core Content Standards/Anchors (or National Standards): **CC.2.4.4.A.1 -** Solve problems involving measurement and conversions from a larger unit to a smaller unit.	
Essential Questions:	**Understanding:**

How does understanding the relationship between metric units and place value help to solve and reason about single and multi-step word problems?	Students will know that… ● Place value serves as a natural guide for moving between larger and smaller units in the metric system. ● By choosing to convert mixed units to a single unit before or after the computation is reasonable.
Knowledge: Convert Mixed Units Simplifying Strategy Compare	**Do/Skills:** Students will be able to… ● Express metric length, mass, and capacity measurements in terms of a smaller unit. ● Model and solve addition and subtraction word problems involving length, mass, and capacity. ● Solve problems by converting between units and by using simplifying strategies or algorithms. ● Know and relate metric units to place value units in order to express measurement in different units.
Vocabulary: Kilometer Milliliter Algorithm Distance Kilogram Liter Centimeter Mass Inequalities Capacity Equivalent Length Meter	**Core Resources:** Eureka Math (Great Minds)
Common Assessments: G4M2 Topic A Quiz G4M2 EOMA	**Supplemental Resources:** **Zearn** (site that reinforces Eureka Math) **Embarc** (site devoted to instructional materials for Eureka)

Grade, Subject: 4th Grade, Mathematics	
Unit: Module 3: Multi-Digit Multiplication and Division	**__X__ Essential _____ Important _____ Compact**
Big Idea(s): ● When multiplying and dividing, patterns and structures can be generalized.	**Standards of Mathematical Practice:** MP2 - Reason abstractly and quantitatively.

● The use of multiplication and division in real world situations enable understanding of scale, area, and perimeter.	MP4 - Model with mathematics. MP5 - Use appropriate tools strategically. MP8 - Look for and express regularity in repeated reasoning.

PA Core Content Standards/Anchors (or National 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.1 - Represent and solve problems involving the four operations.
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.1 - Solve problems involving measurement and conversions from a larger unit to a smaller unit.

Essential Questions:	**Understanding:**
● What are inverse relationships? ● What is the similarity between multiplication and addition? ● What does multiplication mean? ● What effect does multiplication have on a number? ● What does it mean to divide? ● What does the divisor represent in a real life application? Dividend? Quotient? ● What is the similarity between division and subtraction?	Students will know that… ● There are formulas for area and perimeter and what those formulas are. ● There are patterns when multiplying by 10, 100, and 1000. ● There are several methods to multiply three- and four-digit numbers. ● Remainders provide information. ● Prime and composite numbers have certain properties. ● Division and the associative property can be used to find factors and observe patterns. ● There is a connection of the area model of division to the long division algorithm for three- and four-digit dividends.
Knowledge: ● Associative Property ● Distributive Property ● Composite Numbers ● Formula ● Prime Numbers ● Algorithm ● Area ● Perimeter ● Multiplication ● Long Division ● Partial Product ● Area Model	**Do/Skills:** Students will be able to… ● Use place value understanding and visual representations to solve multiplication and division problems with multi-digit numbers. ● Reason about various methods and models to solve problems with multi-digit factors and dividends. ● Solve problems using the formulas for area and perimeter. ● Create diagrams to represent problems and write equations with symbols for unknown quantities. ● Multiply up to four digits by a single-digit factor. ● Multiply two digits by a two-digit factor. ● Use the partial products method, the standard algorithm and the area model that are connected by the distributive property. ● Solve multi-step multiplication word problems. ● Interpret the remainder within division problems both in word problems and in a long division algorithm. ● Use the area model, decomposition, and the standard division algorithm to

	solve division problems without and with remainders. ● Recognize patterns of divisibility as they test for primes and find factors and multiples.
Vocabulary: Divisible Divisor Dividend Quotient Multiply Factor Product Remainder Array Distribute Equation Multiple	**Core Resources:** Eureka Math (Great Minds)
Common Assessments: G4M3 Topic A/B Quiz G4M3 MOMA G4M3 Topic E/F Quiz G4M3 Topic G Quiz G4M3 EOMA	**Supplemental Resources:** **Zearn** (site that reinforces Eureka Math) **Embarc** (site devoted to instructional materials for Eureka)

Grade, Subject: 4th Grade, Mathematics	
Unit: Module 4: Angle Measure and Plane Figures	**__X__ Essential _____ Important _____ Compact**
Big Idea(s): ● Measurement tools play an important role in numerical reasoning. ● Specific attributes are assigned to two-dimensional figures based on decomposition and composition as well as symmetry.	**Standards of Mathematical Practice:** MP2 - Reason abstractly and quantitatively. MP3 - Construct viable arguments and critique the reasoning of others. MP5 - Use appropriate tools strategically. MP6 - Attend to precision.
PA Core Content Standards/Anchors (or National Standards): **CC.2.3.4.A.1 -** Draw and identify lines and angles, and classify shapes by properties of their lines and angles. **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. **CC.2.4.4.A.6 -** Measure angles and use properties of adjacent angles to solve problems.	

Essential Questions:

- What are the relationships between points, lines, line segments, rays, and angles?
- How are angles created, measured, and named?
- How are triangles and quadrilaterals classified and named?
- How are two-dimensional figures compared and analyzed according to their properties?

Understanding:

Students will know that…

- Other angles are compared to right angles to determine their classification.
- Protractors are used to draw and measure angles.
- Lines of symmetry are found all around us.

Knowledge:

Adjacent angles
Complementary angles
Interior of an angle
Length of an arc
Straight angle
Angle
Vertical angles
Decompose
Collinear
Figure
Intersecting lines
Right angle
Supplementary angles
Triangle
Polygon
Sum

Do/Skills:

Students will be able to…

- Identify, define and draw lines and angles.
- Measure and draw angles.
- Recognize lines of symmetry of two-dimensional figures.
- Create a symmetrical figure.
- Analyze and classify triangles based on attributes.
- Classify quadrilaterals based on attributes.

Vocabulary:

Acute triangle
Arc
Degree
Isosceles triangle
Line of symmetry
Obtuse angle
Parallel
Point
Ray
Scalene triangle
Quadrilateral
Rhombus
Trapezoid
Equilateral triangle
Vertex
Diagonal
Line
Line segment
Obtuse triangle
Perpendicular
Protractor
Right triangle
Parallelogram
Rectangle
Square

Core Resources:

Eureka Math (Great Minds)

Common Assessments:

G4M4 MOMA
G4M4 EOMA

Supplemental Resources:

Zearn (site that reinforces Eureka Math)

Embarc (site devoted to instructional materials for Eureka)

<table>
<tr><td colspan="2"><u>Grade, Subject</u>: 4th Grade, Mathematics</td></tr>
<tr><td><u>Unit:</u> Module 5: Fraction Equivalence, Ordering, and Operations</td><td>__X__ Essential _____ Important _____ Compact</td></tr>
<tr><td><u>Big Idea(s):</u>
Fractions are numbers that play an important role in many areas of our lives.
The basic operations of whole numbers can be applied to other numbers.</td><td><u>Standards of Mathematical Practice:</u>

MP2 - Reason abstractly and quantitatively.

MP3 - Construct viable arguments and critique the reasoning of others.

MP4 - Model with mathematics.

MP7 - Look for and make use of structure.</td></tr>
<tr><td colspan="2"><u>PA Core Content Standards/Anchors (or National Standards)</u>:
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.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.2.4.4.A.4 - represent and interpret data involving fractions using information provided in a line plot.</td></tr>
<tr><td><u>Essential Questions</u>:
How are fractions decomposed to show equivalence?
Why is the use of benchmark fractions important in comparing fractions?
How are fractions added and subtracted?
How is repeated addition used to solve multiplication of fractions?</td><td><u>Understanding:</u>
Students will know that…
Fraction equivalence can be extended to mixed numbers.
There are a variety of models that can show the comparison of fractions and mixed numbers.
Benchmark fractions can be used to generalize and reason about the relative size of fractions and mixed numbers.
Basic operations can be used for fractions and mixed numbers
Using repeated addition of a unit fractions is the same as multiplying that unit fraction by a whole number.
Two different fractions can represent the same portion of a whole.
Comparing fractions can only be done when referring to the same whole.</td></tr>
</table>

Knowledge:	**Do/Skills:**
● Benchmark fractions ● Common denominators ● Fraction greater than 1 ● Line plot ● Mixed number ● Compose ● Decompose ● Equivalent fractions ● Unit and Non-Unit fraction	Students will be able to… ● Decompose fractions as a sum of unit fractions ● Show the equivalence of two fractions. ● Use benchmarks to compare fractions ● Add and subtract two fractions ● Solve word problems involving addition and subtraction of fractions. ● Extend fraction equivalence to fractions greater than 1. ● Solve word problems with line plots. ● Add and subtract mixed numbers. ● Find the product of a whole number and a mixed number using the distributive property. ● Solve multiplicative comparison word problems involving fractions.
Vocabulary: Fraction Multiple Denominator Numerator Whole Comparing	**Core Resources:** Eureka Math (Great Minds)
Common Assessments: G4M5 Topic A Quiz G4M5 Topic B/C Quiz G4M5 MOMA G4M5 Topic E G4M5 EOMA	**Supplemental Resources:** **Zearn** (site that reinforces Eureka Math) **Embarc** (site devoted to instructional materials for Eureka)

Elizabethtown Area School District Curriculum

Pending Board Approval

Grade, Subject: 4th Grade, Mathematics	
Unit: Module 6: Decimal Fractions	**__X__ Essential _____ Important _____ Compact**
Big Idea(s): All numbers written in the base-ten number system with place value units that are powers of 10 are decimal numbers. Metric measurement uses decimals as its reporter.	**Standards of Mathematical Practice:** MP2 - Reason abstractly and quantitatively.

	MP4 - Model with mathematics. MP6 - Attend to precision. MP8 - Look for and express regularity in repeated reasoning.
PA Core Content Standards/Anchors (or National Standards): **CC.2.1.4.C.3 -** Connect decimal notation to fractions, and compare decimal fractions. **CC.2.4.4.A.1** - Solve problems involving measurement and conversions from a larger unit to a smaller unit.	
Essential Questions: How are tenths and hundredths used in measuring in the metric system? How are decimals and mixed numbers compared? How are word problems solved involving the addition of measurements in decimal form and money?	**Understanding:** Students will know that… ● Tenths and hundredths are fractions that are also decimals. ● Mixed numbers can use fractions and decimals. ● Decimal numbers can be compared and ordered. ● Decimal numbers can be converted into fraction form. ● Money amounts are decimal numbers.
Knowledge: ● Decimal expanded form ● Fraction expanded form	**Do/Skills:** Students will be able to… ● Use metric measurement to represent mixed numbers and decimals. ● Use place value to show mixed numbers. ● Represent and count hundredths. ● Model the equivalence of tenths and hundredths. ● Use understanding of fraction equivalence to investigate decimal numbers on the place value chart expressed in different units. ● Compare and order mixed numbers in various forms. ● Solve problems and word problems involving the addition of decimal numbers. ● Solve word problems involving money.
Vocabulary: Decimal Fraction Hundredth Tenth	**Core Resources:** Eureka Math (Great Minds)

Common Assessments: G4M6 MOMA G4M6 EOMA	**Supplemental Resources:** **Zearn** (site that reinforces Eureka Math) **Embarc** (site devoted to instructional materials for Eureka)

Grade, Subject: 4th Grade, Mathematics	
Unit: Module 7:Exploring Measurement with Multiplication	**__X__ Essential _____ Important _____ Compact**
Big Idea(s): Some attributes of objects are measurable and can be quantified using unit amounts.	**Standards of Mathematical Practice:** MP2 - Reason abstractly and quantitatively. MP3 - Construct viable arguments and critique the reasoning of others. MP7 - Look for and make use of structure. MP8 - Look for and express regularity in repeated reasoning.
PA Core Content Standards/Anchors (or National Standards): **CC.2.2.4.A.1 -** Represent and solve problems involving the four operations. **CC.2.4.4.A.1 -** Solve problems involving measurement and conversions from a larger unit to a smaller unit.	
Essential Questions: How can measurement conversion tables be used to help solve problems? Using measurement tools, how are multi-step word problems solved?	**Understanding:** Students will know that… ● Length, weight, capacity and time are measurement tools and are used to solve problems.
Knowledge: ● Variety of measurement tools ● Customary system of measurement ● Metric system of measurement ● Convert ● Interval ● Measurement	**Do/Skills:** Students will be able to… ● Create conversion tables for length, weight, capacity and time. ● Solve multi-step word problems using mixed units of measurement. ● Use measurement tools to convert mixed number measurement to smaller units.

Vocabulary:		
Cup	Gallon	Capacity
Metric Unit	Distance	Yard
Ounce	Pint	Equivalent
Pound	Quart	Foot
Gram	Hour	Inch
Length	Liter	Milliliter
Meter	Centimeter	Kilometer
Minute	Second	Weight

Core Resources:

Eureka Math (Great Minds)

Common Assessments:

G4M7 Topic A Quiz
G4M7 EOMA

Supplemental Resources:

Zearn (site that reinforces Eureka Math)

Embarc (site devoted to instructional materials for Eureka)