Cambria Heights School District Curriculum

Course Name	Mathematics
Grade Level	Third Grade

Unit 1	Number and Operations: M03.A-T.1 Use place value understanding and properties of operations to perform multi-digit arithmetic.
Time Frame	**4-5 Weeks**

Key Concepts	Essential Questions	PA Core Standard (Descriptor)	Eligible Content (Grades 3-5)	Terminology
Round two and three digit numbers **Place Values** **Add two and three digit numbers** **Subtract two and three digit numbers** **Multiply one digit by two digit multiples of 10** **Place numbers in order**	How do you round two digit numbers to the nearest tens and hundreds? How do you round three digit numbers to the nearest tens and hundreds? How do you add two and three digit numbers with or without regrouping? How do you subtract two and three digit numbers with or without regrouping? How do you multiply one digit numbers by two digit multiples of 10? How do you put numbers in order from least to greatest and greatest to least?	**M03.A-T.1.1** Apply place value strategies to solve problems.	**M03.A-T.1.1.1** Round two- and three-digit whole numbers to the nearest ten or hundred, respectively. **M03.A-T.1.1.2** Add two- and three-digit whole numbers (limit sums from 100 through 1,000), and/or subtract two- and three-digit numbers from three-digit whole numbers. **M03.A-T.1.1.3** Multiply one-digit whole numbers by two-digit multiples of 10 (from 10 through 90). **M03.A-T.1.1.4** Order a set of whole numbers from least to greatest or greatest to least (up through 9,999; limit sets to no more than four numbers).	Place Value Rounding Addends Sum Factor Product Least Greatest

Unit 2	Numbers and Operations – Fractions- Develop an understanding of fractions as numbers.			
Timeframe	**5-6 Weeks**			
Key Concepts	**Essential Questions**	**PA Core Content Standard**	**Eligible Content**	**Terminology**
Fractions **Fractions on a number line** **Equivalent fractions** **Comparing fractions**	How do you write fractions to represent parts of a whole? How do you represent fractions on a number line? How do you make fractions equivalent? How do you show whole numbers as fractions? How do you compare two fractions with the same denominator?	**M03.A-F.1.1** Develop and apply number theory concepts to compare quantities and magnitudes of fractions and whole numbers.	**M03.A-F.1.1.1** Demonstrate that when a whole or set is partitioned into y equal parts, the fraction 1/y represents 1 part of the whole and/or the fraction x/y represents x equal parts of the whole (limit the denominators to 2, 3, 4, 6, and 8; limit numerators to whole numbers less than the denominator; no simplification necessary). **M03.A-F.1.1.2** Represent fractions on a number line (limit the denominators to 2, 3, 4, 6, and 8; limit numerators to whole numbers less than the denominator; no simplification necessary). **M03.A-F.1.1.3** Recognize and generate simple equivalent fractions (limit the denominators to 1, 2, 3, 4, 6,and 8; limit numerators to whole numbers less than the denominator). **M03.A-F.1.1.4** Express whole numbers as fractions, and/or generate fractions that are equivalent to whole numbers (limit the denominators to 1, 2, 3, 4, 6, and 8). **M03.A-F.1.1.5** Compare two fractions with the same denominator (limit the denominators to 1, 2, 3, 4, 6, and 8), using the symbols >, =, or <, and/or justify the conclusions.	Fractions Numerator Denominator Whole number Equivalent fractions Greater than Less than Equal to

Unit 3	Operations and Algebraic Thinking- Solve problems involving measurement and estimation of intervals of time, money, liquid volumes, masses, and lengths of objects.			
Timeframe	5-6 Weeks			
Key Concepts				
Multiplication Division	**Essential Questions** What strategies can you use to find and describe the products of 0-10? What strategies can you use to find and describe the quotients of 0-10?	**PA Core Content Standard** **M03.B-O.1.1** Understand various meanings of multiplication and division.	**Eligible Content** **M03.B-O.1.1.1** Interpret and/or describe products of whole numbers (up to and including 10 x 10). **M03.B-O.1.1.2** Interpret and/or describe whole-number quotients of whole numbers (limit dividends through 50,and limit divisors and quotients through 10).	**Terminology** Product Factors Division Dividend Divisor Quotient
Multiplication Division Word Problems	How do you use your multiplication and division knowledge to solve word problems? How can you use arrays and equal groups to solve multiplication and division word problems? How do you find the unknown number in a multiplication or division equation?	**M03.B-O.1.2** Solve mathematical and real world problems using multiplication and division, including determining the missing number in a multiplication and/or division equation.	**M03.B-O.1.2.1** Use multiplication (up to and including 10 x 10) and/or division (limit dividends through 50, and limit divisors and quotients through 10) to solve word problems in situations involving equal groups, arrays, and/or measurement quantities. **M03.B-O.1.2.2** Determine the unknown whole number in a multiplication (up to and including 10 x 10) or division (limit dividends through 50, and limit divisors and quotients through 10) equation relating three whole numbers.	Inverse operation Multiplication Product Factors Equal groups Array Division Dividend Divisor Quotient Equation
Properties of Multiplication	How can you use the commutative property of multiplication to help you solve an equation? How can you use the associative property of multiplication to help you solve an equation?	**M03.B-O.2.1** Use properties to simplify and solve multiplication problems.	**M03.B-O.2.1.1** Apply the commutative property of multiplication (not identification or definition of the property). **M03.B-O.2.1.2** Apply the associative property of multiplication (not identification or definition of the property).	Commutative property of multiplication Associative property of multiplication
Multiplication and Division fact families	problem solving	How can you show the relationship between multiplication and division with fact family equations? How do you use the four operations	**M03.B-O.2.2** Relate division to a missing number multiplication equation.	and estimation strategies
Two-step		to solve two-step word	**M03.B-O.3.1** Use operations, patterns,	

M03.B-O.2.2.1
Interpret and/or model division as a multiplication equation with an unknown factor.

M03.B-O.3.1.1
Solve two-step word problems using the four operations

Equation
Unknown factor Fact families

Order of operations
Equation

Key Concepts	Essential Questions	PA Core Content Standard	Eligible Content	Terminology
Order of operations **Assessing reasonableness** **Formulating and solving algebraic equations** **Identifying arithmetic patterns** **Matching symbols to a story** **Identifying the missing symbol**	problems? How do you create equations with a symbol to show two-step word problems? How do you check to make sure that your answer makes sense? How do you use the order of operations rules to help you solve two-step equations? How do you use the properties of the operations to help identify arithmetic patterns? How do you match a story to a set of symbols and numbers? How do you find the missing symbol for solving an equation?	to solve problems (may include word problems).	(expressions are not explicitly stated). Limit to problems with whole numbers and having whole-number answers. **M03.B-O.3.1.2** Represent two-step word problems using equations with a symbol standing for the unknown quantity. Limit to problems with whole numbers and having whole-number answers. **M03.B-O.3.1.3** Assess the reasonableness of answers. Limit problems posed with whole numbers and having whole-number answers. **M03.B-O.3.1.4** Solve two-step equations using order of operations (equation is explicitly stated with no grouping symbols). **M03.B-O.3.1.5** Identify arithmetic patterns (including patterns in the addition table or multiplication table) and/or explain them using properties of operations. **M03.B-O.3.1.6** Create or match a story to a given combination of symbols (+, −, x, ÷, <, >, =) and numbers. **M03.B- O.3.1.7** Identify the missing symbol (+, −, x, ÷, <, >, =) that makes a number sentence true.	Two-step word problem Unknown quantity Reasonableness Symbol Pattern Equation Addition table Multiplication table Math story

Unit 4 Measurement and Data- Solve problems involving measurement and estimation of intervals of time, money, liquid volumes, masses, and lengths of objects.				
Timeframe	**5-6 Weeks**			
Key Concepts	**Essential Questions**	**PA Core Content Standard**	**Eligible Content**	**Terminology**
Telling Time	How do you tell or show time to the nearest minute?	**M03.D-M.1.1** Determine or calculate time and elapsed time.	**M03.D-M.1.1.1** Tell, show, and/or write time (analog) to the nearest minute.	Minute Hour Second Analog

Elapsed Time	How do you find elapsed time to the nearest minute?		**M03.D-M.1.1.2** Calculate elapsed time to the minute in a given situation	Elapsed time
Measuring/Estimating mass (standard and metric) **Measuring/Estimating liquid volume (standard and metric)**	How do you estimate and measure liquid volume in standard and metric units? How do you estimate and measure the mass of objects in standard and metric units?	**M03.D-M.1.2** Use the attributes of liquid volume, mass, and length of objects.	**M03.D-M.1.2.1** Measure and estimate liquid volumes and masses of objects using standard units (cups [c], pints [pt], quarts [qt], gallons [gal], ounces [oz.], and pounds [lb]) and metric units (liters [l], grams [g], and kilograms [kg]).	Mass Liquid volume Cups Pints Quarts Gallons Ounces Pounds Liters Grams Kilograms
One-step measurement word problems	How do you use the four operations to solve mass and liquid volume word problems?		**M03.D-M.1.2.2** Add, subtract, multiply, and divide to solve one-step word problems involving masses or liquid volumes that are given in the same units.	Mass Liquid volume Sum Difference Product Quotient Cups Pints Quarts Gallons Ounces Pounds Liters Grams Kilograms
Measuring length to nearest quarter inch and centimeter	How do you measure with a ruler to the nearest quarter inch? How do you measure with a ruler to the nearest centimeter?		**M03.D-M.1.2.3** Use a ruler to measure lengths to the nearest quarter inch or centimeter.	Quarter inch Centimeter Ruler
Comparing coin and bill combinations	How do you compare combinations of coins and dollar bills?	**M03.D-M.1.3** Count, compare, and make change using a collection of coins and one-dollar bills.	**M03.D-M.1.3.1** Compare total values of combinations of coins (penny, nickel, dime, quarter) and/or dollar bills less than $5.00.	Penny Nickel Dime Quarter Dollar bill
Making change	How do you make change?		**M03.D-M.1.3.2** Make change for an amount up to $5.00 with no more than $2.00 change given (penny, nickel, dime, quarter, and dollar).	Making change
Rounding to the nearest dollar	How do you round an amount of money to the nearest dollar?		**M03.D-M.1.3.3** Round amounts of money to the nearest dollar.	Rounding

Interpreting bar graphs Interpreting pictographs	How do you make a bar graph or pictograph and use the scale to accurately add data?	**M03.D-M.2.1** Organize, display, and answer questions based on data.	**M03.D-M.2.1.1** Complete a scaled pictograph and a scaled bar graph to represent a data set with several categories (scales limited to 1, 2, 5, and 10).	Scale Pictograph Bar graph Interpret Data
Word problems with bar graphs and pictographs	How do you use information in a bar graph or pictograph to solve one and two-step problems?		**M03.D-M.2.1.2** Solve one- and two-step problems using information to interpret data presented in scaled pictographs and scaled bar graphs (scales limited to 1, 2, 5, and 10).	Pictograph Bar graph Scale
Measuring to the nearest quarter and half inch Displaying data on a line plot	How do you measure length to the nearest half or quarter inch and display this data on a line plot?		**M03.D-M.2.1.3** Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Display the data by making a line plot, where the horizontal scale is marked in appropriate units—whole numbers, halves, or quarters.	Half inch Quarter inch Length Line Plot
Translating data to different types of graphs	How do you use the data from one graph to create another type of graph?		**M03.D-M.2.1.4** Translate information from one type of display to another. Limit to pictographs, tally charts, bar graphs, and tables.	Pictograph Tally chart Bar graph Table
Measuring area (by counting and multiplying)	How do you count unit squares to measure area?	**M03.D-M.3.1** Find the areas of plane figures.	**M03.D-M.3.1.1** Measure areas by counting unit squares (square cm, square m, square in., square ft, and non-standard square units).	Area Square units Centimeters Meters Inches Feet
Multiplying to find area Creating a representation of a rectangle with a given area	How do you multiply side lengths to find the areas of rectangles? How do you use the area of a rectangle to draw it?		**M03.D-M.3.1.2** Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real-world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.	Length Area
Measuring perimeter Comparing area and perimeter of polygons	How do you find the total perimeter or side lengths of polygons? How can two polygons have the same area and different perimeters or different areas and the same perimeter?	**M03.D-M.4.1** Find and use the perimeters of plane figures.	**M03.D-M.4.1.1** Solve real-world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, exhibiting rectangles with the same perimeter and different areas, and exhibiting rectangles with the same area and different perimeters. Use the same units throughout the problem.	Perimeter Area Length Polygon

Unit 5	Geometry- Reason with Shapes and their attributes			
Timeframe	**5-6 Weeks**			
Key Concepts	**Essential Questions**	**PA Core Content Standard**	**Eligible Content**	**Terminology**
Identifying the attributes of polygons Categorizing polygons (quadrilaterals in particular)	How do you find similarities between shapes and use these ideas to categorize them?	**M03.C-G.1.1** Analyze characteristics of polygons.	**M03.C-G.1.1.1** Explain that shapes in different categories may share attributes, and that the shared attributes can define a larger category.	Polygon Attribute Category
	How do you describe and identify quadrilaterals?		**M03.C-G.1.1.2** Recognize rhombi, rectangles, and squares as examples of quadrilaterals, and/or draw examples of quadrilaterals that do not belong to any of these subcategories.	Quadrilateral Rectangle Square Rhombus
Partition shapes into equal areas Naming parts as unit fractions of the whole	How do you break up shapes into parts with equal areas and name them as fractions?		**M03.C-G.1.1.3** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.	Unit fraction