HAZLETON AREA SCHOOL DISTRICT

GRADE 4

Math Curriculum

Place Value					
Timeline 3 Weeks	**Topic**	**PA Standards**	**PA Eligible Content**	**Concepts and Competencies The learner will:**	**Tier 2 & 3 Vocabulary**
	Whole Place Value	**Standard:** CC.2.1.4.B.1 Apply place-value concepts to show an understanding of multi-digit whole numbers	• M04.A-T.1.1.1 • M04.A-T.1.1.2 • M04.A-T.1.1.3 • M04.A-T.1.1.4	• Demonstrate an understanding that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. • Read and write whole numbers in expanded, standard, and word form through 1,000,000. • Compare two multi-digit numbers through 1,000,000 based on meanings of the digits in each place, using >, =, and < symbols. • Round multi-digit whole numbers to any place.	• Digit • Place value • Expanded, standard, and word form • Period • Estimate • round • Inverse Operation • Parenthesis ( ) • Unknown ☐ • Whole-Number • Even and Odd Number • < is less than • = is equal to • > is greater than • Least • Greatest • Compare

Operations with Whole Numbers					
Timeline 9 Weeks	**Topic**	**PA Standards**	**PA Eligible Content**	**Concepts and Competencies** **The learner will:**	**Tier 2 & 3 Vocabulary**
	Addition and Subtraction	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 Use the four operations with whole numbers to solve problems	• M04.A-T.2.1.1 • M04.A-T.2.1.3 • M04.B-O.1.1.4 • M04.B-O.1.1.3	• Add and subtract multi-digit whole numbers. • Estimate the answer to addition and subtraction problems using whole numbers through six digits. • Identify the missing symbol (+, –, =, <, and >) that makes a number sentence true. • Solve multi-step word problems posed with whole numbers using addition and subtraction. Represent these problems using equations with a symbol or letter standing for the unknown quantity.	• Difference • Sum • Number Sentence • Equation • Fact Family • Regroup • Variable • Add • In All • Total • Increase • Both • How Many • Combined • Altogether • Take Away • Difference • How Many More • How Many Less • Fewer • Minus • Making Change • Decrease

	Multiplication	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 Use the four operations with whole numbers to solve problems	• M04.A-T.2.1.2 • M04.A-T.2.1.4 • M04.B-O.1.1.1 • M04.B-O.1.1.2 • M04.B-O.1.1.4	• Multiply a whole number of up to four digits by a one-digit whole number and multiply 2 two-digit numbers. • Estimate the answer to a multiplication problem using whole numbers through six digits. • Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative. • Multiply or divide to solve word problems involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison. Example: Know that 3 × 4 can be used to represent that Student A has 4 objects and Student B has 3 times as many objects not just 3 more objects. • Identify the missing symbol (+, –, ×, =, <, and >) that	• Associative property (grouping) • Commutative property (order) • Identity Property (zero) • Factor • Product • Array • Equal Groups • Repeated Addition • Multiply • Multiplication • Multiples • area

			• M04.B-O.1.1.3	makes a number sentence true. • Solve multi-step word problems posed with whole numbers using addition, subtraction, and multiplication. Represent these problems using equations with a symbol or letter standing for the unknown quantity.	
	Division	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.	• M04.A-T.2.1.2 • M04.A-T.2.1.4 • M04.B-O.1.1.4 • M04.B-O.1.1.3	• Divide up to four-digit dividends by one-digit divisors with answers written as whole-number quotients and remainders. • Estimate the answer to division problems using whole numbers through six digits. • Identify the missing symbol (+, –, ×, ÷, =, <, and >) that makes a number sentence true. • Solve multi-step word problems posed with whole numbers using the four operations. Answers will be either whole numbers or have	• Dividend • Inverse Operation • Divisor • Quotient • Repeated Subtraction • Difference • Separate • Fact Family • Remainder • Share equally • Divide • Groups of • Each • How Many more

				remainders that must be interpreted yielding a final answer that is a whole number. Represent these problems using equations with a symbol or letter standing for the unknown quantity.	

Number Theory					
Timeline 1 week	**Topic**	**PA Standards**	**PA Eligible Content**	**Concepts and Competencies The learner will:**	**Tier 2 & 3 Vocabulary**
	Factors and Multiples	CC.2.2.4.A.2 Develop and/or apply number theory concepts to find factors and multiples.	• M04.B-O.2.1.1	• Find all factor pairs for a whole number in the interval 1 through 100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the interval 1 through 100 is a multiple of a given one- digit number. Determine whether a given whole number in the interval 1 through 100 is prime or composite.	• Factor Pair • Multiple • Prime • Composite

Analyze Patterns					
Timeline 2 Weeks	**Topic**	**PA Standards**	**PA Eligible Content**	**Concepts and Competencies The learner will:**	**Tier 2 & 3 Vocabulary**
	Patterns	CC.2.2.4.A.4 Generate and analyze patterns using one rule.	• M04.B-O.3.1.1 • M04.B-O.3.1.2 • M04.B-O.3.1.3	• . Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. • Determine the missing elements in a function table. • Determine the rule for a function given a table (limit to +,-, or x and to whole numbers)	• Pattern rule • Sequence • term

Equivalent Fractions and Ordering					
Timeline 1 Week	**Topic**	**PA Standards**	**PA Eligible Content**	**Concepts and Competencies The learner will:**	**Tier 2 & 3 Vocabulary**
	Fractions Equivalence and Ordering	CC.2.1.4.C.1 Extend the understanding of fractions to show equivalence and ordering.	• M04.A-F.1.1.1 • M04.A-F.1.1.2	• Recognize and generate equivalent fractions. • Compare two fractions with different numerators and different denominators using the symbols >, =, or < and justify the conclusions	• Equivalent fractions • Denominator • Numerator • Like denominators • Like numerators • Half • Third • Fourth • Fifth • Sixth • Eighth • Whole Number • Fraction of a whole • Fraction of a set • Partition • Fraction Bar

Operations with Fractions and Mixed Numbers					
Timeline 3 Weeks	**Topics**	**PA Standards Descriptor**	**PA Eligible Content**	**Concepts and Competencies The learner will:**	**Tier 2 & 3 Vocabulary**
	Add and Subtract fractions and Mixed Numbers	CC.2.1.4.C.2 Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.	• M04.A-F.2.1.1 • M04.A-F.2.1.2 • M04.A-F.2.1.3 • M04.A-F.2.1.4 • M04.A-F.2.1.5	• Add and subtract fractions with a common denominator. • Decompose a fraction or a mixed number into a sum of fractions with the same denominator, recording the decomposition by an equation. Justify decompositions. • Add and subtract mixed numbers with a common denominator. • Solve word problems involving addition and subtraction of fractions referring to the same whole or set and having like denominators. • Multiply a whole number by a unit fraction. Multiply a whole number by a non-unit fraction.	• Unit fraction • Addend • Difference • Sum • Mixed number • Whole number • Fraction • Simplify • Fraction Bars • Simplest Form

			• M04.A-F.2.1.6	• Solve word problems involving multiplication of a whole number by a fraction.	
	Multiply Fractions and Mixed Numbers	CC.2.1.4.C.2 Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.	• M04.A-F.2.1.5 • M04.A-F.2.1.6 • M04.A-F.2.1.7	• Multiply a whole number by a unit fraction. • Multiply a whole number by a non-unit fraction. • Solve word problems involving multiplication of a whole number by a fraction.	• Multiple • Equal groups • Numerator • Denominator • Simplify • Simplest Form • Whole Number • Mixed Number

Lines, Angles, and Two-Dimensional Figures					
Timeline 3 Weeks	**Topic**	**PA Standards**	**PA Eligible Content**	**Concepts and Competencies The learner will:**	**Tier 2 & 3 Vocabulary**
	Lines Angles, and two-dimensional figures Classification	CC.2.3.4.A.1 Draw lines and angles and identify these in two-dimensional. figures. C.2.3.4.A.2 Classify two-dimensional figures by properties of their lines and angles.	• M04.C-G.1.1.1 • M04.C-G.1.1.2	• Draw points, lines, line segments, rays, angles (right, acute, and obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. • Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size. Recognize right triangles as a category and identify right triangles.	• Endpoint • Line • Line segment • Point • Ray • Obtuse angle • Acute angle • right angle • parallel and perpendicular lines • scalene triangle • obtuse, right, and acute triangle • quadrilaterals (rhombus, parallelogram, trapezoid, square, rectangle) • attribute • vertex • sides

	Measure, Draw, solve problems involving unknown angles	CC.2.4.4.A.6 Measure angles and use properties of adjacent angles to solve problems.	M04.D-M.3.1.1 M04.D-M.3.1.2	• Measure angles in whole-number degrees using a protractor. With the aid of a protractor, sketch angles of specified measure. • Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems.	• Degrees • Protractor • Ray • Angle • endpoint

Symmetry					
Timeline 1 Week	**Topic**	**PA Standards**	**PA Eligible Content**	**Concepts and Competencies The learner will:**	**Tier 2 & 3 Vocabulary**
	Understand and Draw Symmetry	CC.2.3.4.A.3 Recognize symmetric shapes and draw lines of symmetry.	• M04.C-G.1.1.3	• Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into mirroring parts.	• Line of Symmetry • symmetrical

Converting, Area, and Perimeter					
Timeline 3 Weeks	**Topic**	**PA Standards**	**PA Eligible Content**	**Concepts and Competencies The learner will:**	**Tier 2 & 3 Vocabulary**
	Conversions- Large to Small unit	CC.2.4.4.A.1 Solve problems. involving measurement and conversions from a larger unit to a smaller unit.	• M04.D-M.1.1.1 • M04.D-M.1.1.2	• Know relative sizes of measurement units within one system of units including standard units • Use the four operations to solve word problems, intervals of time, liquid volumes, masses of objects; and problems that require expressing measurements given in a larger unit in terms of a smaller unit.	• Convert • Capacity • Cup (c) • Gallon (gal) • Pint (pt) • Quart (qt) • Gram (g) • Kilogram (kg) • Milliliter (mL) • Liter (L) • Centimeter (cm) • Feet (ft) • Yard (yd) • Mile (mi) • Meter (m) • Kilometer (km) • Millimeter (mm) • Ounces (oz) • Pound (lb) • Weight • Minutes (min) • Seconds (sec)

					• Hours (hrs) • Month (mo) • Year (yr) • Elapsed time • Time Interval
	Area and Perimeter		• M04.D-M.1.1.3	• Apply the area and perimeter formulas for rectangles in real-world and	• Formulas • Area • Perimeter • Length and width • Square units

Represent and Interpret Data					
Timeline 2 Weeks	**Topic**	**PA Standards**	**PA Eligible Content**	**Concepts and Competencies The learner will:**	**Tier 2 & 3 Vocabulary**
	Data Translate	CC.2.4.4.A.2 Translate information from one type of data display to another.	• M04.D-M.2.1.3	• Translate information from one type of display to another. (table, chart, bar graph, or pictograph)	• Data • Interpret • Line plot
	Data Interpret (Fractions), and Line Plot	CC.2.4.4.A.4 Represent and interpret data involving fractions using information provided in a line plot.	• M04.D-M.2.1.1 • M04.D-M.2.1.2	• Make a line plot to display a data set of measurements in fractions of a unit. • Solve problems involving addition and subtraction of fractions by using information presented in line plots.	• Data • Interpret • Line plot

Connecting Fractions and Decimals					
Timeline 2 Weeks	**Topic**	**PA Standards**	**PA Eligible Content**	**Concepts and Competencies The learner will:**	**Tier 2 & 3 Vocabulary**
	Connect and Compare fractions and decimals	CC.2.1.4.C.3 Connect decimal notation to fractions, and compare decimal fractions (base 10 denominator, e.g., 19/100).	• M04.A-F.3.1.1 • M04.A-F.3.1.2 • M04.A-F.3.1.3	• Add two fractions with respective denominators 10 and 100. • Use decimal notation for fractions with denominators 10 or 100. • Compare two decimals to hundredths using the symbols >, =, or <, and justify the conclusions.	• Tenths • Hundredths • Decimal • Decimal point • Cents ¢ • Dollars $