

Math Curriculum Map: Foundations of Mathematics

Unit 1:	Quarter:	Time Frame:
Whole Numbers	1	6 days
Essential Questions:		
- How can I read, write, and round whole numbers to a given place? - How can I use correct order of operations to evaluate numerical expressions?		
Key Concepts:	Key Vocabulary:	
Identify place value, read and write whole numbers, round whole numbers, rewrite exponential expressions, compute numerical expressions with exponents, use correct order of operations, solve whole number applications with a problem-solving process	whole numbers, number line, place value, round whole numbers, exponent, power, factor, factored form, mathematical operations, order of operations (PEMDAS), solution work flow, complete solution, disjointed solution, problem solving process	
Priority Standards:	Supporting Standards:	
MCCCD 1: Perform order of operations when working with whole numbers, fractions, decimals, integers, and rational numbers. MCCCD 2: Estimate and round. MCCCD 3: Identify properties of real numbers. MCCCD 4: Evaluate arithmetic expressions involving exponents and square roots. MCCCD 13: Model and solve real world problems.	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.4 – Model with mathematics. MP.5 – Use appropriate tools strategically. MP.6 – Attend to precision. MP.7 – Look for and make use of structure. MP.8 – Look for and express regularity in repeated reasoning.	

Unit 2:		Quarter:	Time Frame:
Fractions		1	20 days
Essential Questions:			
• How can I factor numbers? • How can I describe and identify fractions? • How can I convert between improper fractions and mixed numbers? • How can I simplify and compare fractions? • How can I graph fractions on a number line? • How can I perform operations with fractions and mixed numbers?			
Key Concepts:		Key Vocabulary:	
find all factors of a number, prime factorization, least common multiple (LCM) of two numbers, recognize a fraction as part of a whole, identify fractions represented by shading, convert between improper fractions and mixed numbers, find equivalent fractions, simplest form, compare fractions, graph fractions on a number line, simplify fractions with “1” in the numerator/denominator, simplify fractions with “0” in the numerator/denominator, solve applications with fractions and operations with fractions, add and subtract fractions with like denominators, add and subtract fractions with unlike denominators, add and subtract mixed numbers, explain the difference between common denominator (CD)-least common multiple (LCM)-least common denominator (LCD), use correct order of operations when performing operations with fractions, multiply fractions, divide fractions, compute special cases with fractions (multiply or divide by 0)		factors, prime number, composite number, prime factorization, exponential form, factored form, least common multiple (LCM), fraction, numerator, denominator, proper fraction, improper fraction, mixed number, quotient, remainder, fraction, unit fraction, common denominator, least common denominator (LCD), least common multiple (LCM), mathematical operations, PEMDAS, multiply fractions, of, divide fractions, reciprocal, exponent, evaluate, order of operations, PEMDAS, multiplication by zero, division by zero	
Priority Standards:		Supporting Standards:	

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| <ul style="list-style-type: none"> ● MCCCD 1: Perform order of operations when working with whole numbers, fractions, decimals, integers, and rational numbers. ● MCCCD 2: Estimate and round. ● MCCCD 3: Identify properties of real numbers. ● MCCCD 4: Evaluate arithmetic expressions involving exponents and square roots. ● MCCCD 13: Model and solve real world problems. | <ul style="list-style-type: none"> ● 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.4 – Model with mathematics. ● MP.5 – Use appropriate tools strategically. ● MP.6 – Attend to precision. ● MP.7 – Look for and make use of structure. ● MP.8 – Look for and express regularity in repeated reasoning. |
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Unit 3:		Quarter:	Time Frame:
Decimals		1	6 days
Essential Questions:			
- How can I read, write, and round decimal numbers? - How can I convert between fractions and decimals? - How can I compare and order fractions and decimals? - How can I solve applications involving decimals?			
Key Concepts:		Key Vocabulary:	
Identify decimal place value, write decimals in words, round decimals, convert between fractions and decimals, simplify decimals with a calculator, solve money problems, order decimals and fractions (least to greatest), solve applications involving decimals		decimals/decimal numbers, decimal point, decimal place values, rounding decimals, mathematical operations, order of operations (PEMDAS), money decimals, ordering decimals	
Priority Standards:		Supporting Standards:	
MCCCD 1: Perform order of operations when working with whole numbers, fractions, decimals, integers, and rational numbers. MCCCD 2: Estimate and round. MCCCD 3: Identify properties of real numbers. MCCCD 4: Evaluate arithmetic expressions involving exponents and square roots. MCCCD 13: Model and solve real world problems.		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.4 – Model with mathematics. MP.5 – Use appropriate tools strategically. MP.6 – Attend to precision. MP.7 – Look for and make use of structure. MP.8 – Look for and express regularity in repeated reasoning.	

Unit 4:		Quarter:	Time Frame:
Percents		1	6 days
Essential Questions:			
- How can I convert between fractions, decimals, and percents? - How can I solve equations of the forms $x=a*b$ and $a*x = b$? - How can I create and solve percent equations? - How can I solve applications involving percent including percent changes, discounts, and simple interest?			
Key Concepts:		Key Vocabulary:	
convert between fractions-decimals-percents, solving equations, percent equations (three types), real-world applications (sales tax, gratuity, simple interest, percent changes, discounts, etc.)		percent, variable, percent equations (three types), percent increase/decrease, percent discount, simple interest, principal, interest rate	
Priority Standards:		Supporting Standards:	
MCCCD 2: Estimate and round. MCCCD 5: Convert between decimals, fractions, and percents. MCCCD 6: Solve application problems using proportions and percents. MCCCD 13: Model and solve real world problems.		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.4 – Model with mathematics. MP.5 – Use appropriate tools strategically. MP.6 – Attend to precision. MP.7 – Look for and make use of structure. MP.8 – Look for and express regularity in repeated reasoning.	

Unit 5:		Quarter:	Time Frame:
Ratios, Rates, & Proportions		2	7 days
Essential Questions:			
- How can I write and simplify ratios and rates? - How can I compute unit rates? - How can I solve proportions using cross-products? - How can I solve applications using proportional reasoning?			
Key Concepts:		Key Vocabulary:	
write and simplify ratios and rates, compute unit rates, solve proportions using cross-products, solve applications		ratio, rate, unit rate, proportion, cross-product, cross-product method, proportional reasoning	
Priority Standards:		Supporting Standards:	
MCCCD 2: Estimate and round. MCCCD 5: Convert between decimals, fractions, and percents. MCCCD 6: Solve application problems using proportions and percents. MCCCD 13: Model and solve real world problems.		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.4 – Model with mathematics. MP.5 – Use appropriate tools strategically. MP.6 – Attend to precision. MP.7 – Look for and make use of structure. MP.8 – Look for and express regularity in repeated reasoning.	

Unit 6:		Quarter:	Time Frame:
Statistics		2	6 days
Essential Questions:			
- How can I define and compute measures of central tendency? - How can I define and compute weighted averages? - How can I discuss data variability and compute the range of a data set? - How can I describe the effect of outliers on data sets? - How can I use tables and graphs to interpret and analyze data?			
Key Concepts:		Key Vocabulary:	
compute measures of central tendency (mean, median, mode), compute weighted averages, range, variability of data, data sets including outliers, using tables and graphs to interpret and analyze data		average, measures of central tendency, mean, median, mode, weighted average, variation, range, outlier	
Priority Standards:		Supporting Standards:	
MCCCD 2: Estimate and round. MCCCD 7: Construct and interpret line, bar, and circle graphs. MCCCD 8: Determine and interpret the mean, median, and mode for sets of data. MCCCD 13: Model and solve real world problems.		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.4 – Model with mathematics. MP.5 – Use appropriate tools strategically. MP.6 – Attend to precision. MP.7 – Look for and make use of structure. MP.8 – Look for and express regularity in repeated reasoning.	

Unit 7:		Quarter:	Time Frame:
One, Two, and Three-Dimensional Measurements		2	19 days
Essential Questions:			
• How can I perform conversions of U.S. customary and mixed units? • How can I add and subtract U.S. units of measure? • How can I perform conversions within the metric system? • How can I convert between U.S. customary and metric measurements? • How can I compute perimeter, circumference, and area of shapes? • How can I compute perimeter and area of non-standard shapes? • How can I solve applications involving perimeter, circumference and area? • How can I compute the volume of different shapes? • How can I solve problems involving similar triangles? • How can I find square roots and determine if roots are perfect squares? • How can I use the Pythagorean Theorem to solve problems?			
Key Concepts:		Key Vocabulary:	
one-step and multi-step conversions (U.S. units), convert using U.S. mixed units, add and subtract U.S. units, metric conversions, converting between U.S. and metric measurements, compute perimeter of different shapes, compute circumference of circles, explain the difference between rounded form and exact form, compute distance around closed objects of unusual shape, solve applications using perimeter/circumference, compute area of different shapes, area of non-standard shapes, applications involving area/perimeter, compute volume of different shapes, solve application problems involving volume, determine missing side lengths in similar triangles, application problems with similar triangles, square roots and perfect squares, Pythagorean Theorem		U.S. system of measure, U.S. units and abbreviations, U.S. unit conversions, U.S. mixed units, metric system, metric units and abbreviations, metric unit conversions, U.S./metric conversions, perimeter, triangle, rectangle, square, circumference, circle, exact form, rounded form, pi, diameter, radius, unit square, area, height of a triangle, cube, unit cube, volume, rectangular solid, can/cylinder, sphere, angle, similar triangle, square root, perfect square, right triangle, hypotenuse, Pythagorean Theorem	
Priority Standards:		Supporting Standards:	

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| <ul style="list-style-type: none"> ● MCCCD 2: Estimate and round. ● MCCCD 9: Read and interpret measurement scales. ● MCCCD 10: Identify and describe geometric figures including squares, rectangles, triangles, and circles. ● MCCCD 11: Solve application problems using geometric formulas. ● MCCCD 12: Convert within and between U.S. (Customary) and metric measurement systems. ● MCCCD 13: Model and solve real world problems. | <ul style="list-style-type: none"> ● 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.4 – Model with mathematics. ● MP.5 – Use appropriate tools strategically. ● MP.6 – Attend to precision. ● MP.7 – Look for and make use of structure. ● MP.8 – Look for and express regularity in repeated reasoning. |
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Unit 8:		Quarter:	Time Frame:
Signed Numbers		2	5 days
Essential Questions:			
- How can I place signed numbers on a number line? - How can I compare signed numbers? - How can I compute absolute value? - How can I perform operations with signed numbers? - How can I use order of operations with signed numbers?			
Key Concepts:		Key Vocabulary:	
place signed numbers on a number line, give meaning to signed numbers, compare signed numbers, compute absolute value, add-subtract-multiply-divide signed numbers, order of operations with signed numbers, application problems		signed numbers, integers, absolute value, opposite, order of operations, three signs of a fraction, combining signs	
Priority Standards:		Supporting Standards:	
MCCCD 1: Perform order of operations when working with whole numbers, fractions, decimals, integers, and rational numbers. MCCCD 2: Estimate and round. MCCCD 3: Identify properties of real numbers. MCCCD 4: Evaluate arithmetic expressions involving exponents and square roots. MCCCD 13: Model and solve real world problems.		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.4 – Model with mathematics. MP.5 – Use appropriate tools strategically. MP.6 – Attend to precision. MP.7 – Look for and make use of structure. MP.8 – Look for and express regularity in repeated reasoning.	

Unit 9:		Quarter:	Time Frame:
Arithmetic Review		3	7 days
Essential Questions:			
- How can I evaluate expressions using the order of operations? - How can I perform operations with fractions and signed numbers?			
Key Concepts:		Key Vocabulary:	
Order of Operations, Fractions, Operations on Fractions, Signed Numbers		Order of Operations (PEMDAS), Improper Fraction, Mixed Number, Numerator, Denominator, Simplest Form, Equivalent Fractions, Common Denominator, Reciprocal,	
Priority Standards:		Supporting Standards:	
- Perform order of operations when working with whole numbers, fractions, decimals, integers, and rational numbers. - Estimate and round. - Identify properties of real numbers. - Evaluate arithmetic expressions involving exponents and square roots. - Model and solve real world problems.		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.4 – Model with mathematics. MP.5 – Use appropriate tools strategically. MP.6 – Attend to precision. MP.7 – Look for and make use of structure. MP.8 – Look for and express regularity in repeated reasoning.	

Unit 10:		Quarter:	Time Frame:
Polynomials and Exponents		3	18 days
Essential Questions:			
- How can I simplify and evaluate algebraic expressions? - How can I perform operations with polynomials? - How can I evaluate expressions with integer exponents?			
Key Concepts:		Key Vocabulary:	
Evaluating Algebraic Expressions, Identifying Like Terms, Combining Like Terms, The Distributive Property, Simplifying Algebraic Expressions, Polynomials, Operations, on Polynomials, Multiplication of Polynomials, Properties of Exponents, Applications of Geometry, Division Properties of Exponents, Negative Exponents, Division of Polynomials, Scientific Notation		Terms, Constant Term, Factors, Coefficient, Polynomials, Monomial, Binomial, Trinomial, Degree, Leading Coefficient, Leading Term, Constant Term, The Multiplication Property of Exponents, Raising a Power to a Power, Raising a Product to a Power, The Distributive Property, Squaring a Binomial, The Division Property of Exponents, Raising a Quotient to a Power, Negative Exponents, Scientific Notations, Standard Form	
Priority Standards:		Supporting Standards:	
MCCCD 10: Simplify polynomial expressions. MCCCD 11: Perform operations on polynomials (add, subtract, multiply, divide, powers).		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.4 – Model with mathematics. MP.5 – Use appropriate tools strategically. MP.6 – Attend to precision. MP.7 – Look for and make use of structure. MP.8 – Look for and express regularity in repeated reasoning.	

Unit 11:		Quarter:	Time Frame:
Linear Equations		3	32 days
Essential Questions:			
- How can I solve multi-step equations in one variable? - How can I solve literal equations for different variables? - How can I solve linear equations and inequalities? - How can I graph linear equations on the coordinate plane?			
Key Concepts:		Key Vocabulary:	
Algebraic Equations, Solving One-Step Equations, Solving Two-Step Equations, Solving Multi-Step Equations, Applications of Solving Equations, Writing Equations, Proportions, Percent Equations, Percent Problems, Literal Equations, Linear Inequalities, Solving Linear Inequalities, Applications of Solving Inequalities, Compound Inequalities, Absolute Value Equations, The Cartesian Plane, Constructing Graphs from Data, Graphing Linear Equations, Intercepts, Horizontal and Vertical Lines		Equivalent Equations, Isolating the Variable, Proportions, Solutions, Parentheses, Brackets	
Priority Standards:		Supporting Standards:	
MCCCD 1: Solve linear equations. MCCCD 2: Graph linear functions given data tables or an equation. MCCCD 4: Determine and interpret the slope and intercepts of a linear equation or function. MCCCD 5: Determine and explain the relationship between the slopes of perpendicular and parallel lines. MCCCD 6: Given sufficient information or data, write a linear equation. MCCCD 8: Solve linear inequalities and graph solutions on the real number line and on the coordinate plane. MCCCD 12: Model and solve real-world problems using linear equations, proportions and systems of linear equations.		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.4 – Model with mathematics. MP.5 – Use appropriate tools strategically. MP.6 – Attend to precision. MP.7 – Look for and make use of structure. MP.8 – Look for and express regularity in repeated reasoning.	

Unit 12:		Quarter:	Time Frame:
Linear Functions		4	21 days
Essential Questions:			
- How can I identify and graph relations and functions? - How can I describe the domain and range of a function? - How can I write linear equations in slope-intercept form? - How can I use function notation to represent and evaluate linear relationships? - How can I write and graph linear inequalities?			
Key Concepts:		Key Vocabulary:	
Relations, Functions, Function Notation, Formulas is Function Notation, Domain and Range, Linear Functions, Graphing Linear Functions, Interpreting Slope of a Linear Function, The Equation of a Linear Function, Writing, Linear Equations in Slope-Intercept Form, Parallel and Perpendicular Lines, Applications of Slope-Intercept Form, General Form, Linear Inequalities, Graphing Linear Inequalities		Relation, Function, Table of Values, Ordered Pairs, The Vertical Line Test, Dependent and Independent Variables, Input and Output, Practical Domain and Range, Slope, Change in Output compared to Change in Input, Slope-Intercept Form, Parallel, Perpendicular	
Priority Standards:		Supporting Standards:	
MCCCD 2: Graph linear functions given data tables or an equation. MCCCD 3: Determine and interpret the domain and range of a function given its graph. MCCCD 4: Determine and interpret the slope and intercepts of a linear equation or function. MCCCD 5: Determine and explain the relationship between the slopes of perpendicular and parallel lines. MCCCD 6: Given sufficient information or data, write a linear equation. MCCCD 7: Use function notation to represent and evaluate linear relationships. MCCCD 12: Model and solve real-world problems using linear equations, proportions and systems of linear equations.		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.4 – Model with mathematics. MP.5 – Use appropriate tools strategically. MP.6 – Attend to precision. MP.7 – Look for and make use of structure. MP.8 – Look for and express regularity in repeated reasoning.	

Unit 13:		Quarter:	Time Frame:
Systems of Linear Equations		4	8 days
Essential Questions:			
- How can we solve systems of equations? - How can we identify the number of solutions in a system of equations?			
Key Concepts:		Key Vocabulary:	
Solution to a System of Equations, Applications of Systems, Solve Systems by: Graphing, Substitution, and Elimination (Addition Method)		Systems, One Unique Solution, No Solution, Infinitely Many Solutions	
Priority Standards:		Supporting Standards:	
MCCCD 1: Solve linear equations. MCCCD 2: Graph linear functions given data tables or an equation. MCCCD 4: Determine and interpret the slope and intercepts of a linear equation or function. MCCCD 5: Determine and explain the relationship between the slopes of perpendicular and parallel lines. MCCCD 6: Given sufficient information or data, write a linear equation. MCCCD 8: Solve linear inequalities and graph solutions on the real number line and on the coordinate plane. MCCCD 12: Model and solve real-world problems using linear equations, proportions and systems of linear equations.		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.4 – Model with mathematics. MP.5 – Use appropriate tools strategically. MP.6 – Attend to precision. MP.7 – Look for and make use of structure. MP.8 – Look for and express regularity in repeated reasoning.	