

Wyoming Department of Education Required Virtual Education Course Syllabus

Campbell County School District # 1

Program Name	Campbell County Virtual School	Content Area	MA
Course ID	MA4V	Grade Level	4
Course Name	Math Plus Red	# of Credits	
SCED Code		Curriculum Type	K12 Inc

COURSE DESCRIPTION

MATH PLUS RED (4)

This research based course focuses on computational fluency, conceptual understanding, and problem solving. This engaging course features new graphics, learning tools, and games; adaptive activities that help struggling students master concepts and skills before moving on; and more support for Learning Coaches to guide their students to success. This course continues to emphasize the understanding of numbers and operations. There is a focus on computational fluency in addition, subtraction, multiplication, and division of whole numbers. The course enhances fluency of operations through application in the solving of measurement, geometry, and data analysis problems using mathematical problem-solving techniques. Students make connections between fraction and decimal representation of numbers. Students study equivalences and relationships between fractions and decimals on the number line and with other models. Students develop algebraic thinking as they work with variables and formulas to solve multistep word problems and as they study patterns and rules. They extend their knowledge of geometry through more in-depth classification of shapes and work with lines, angles, and rotations and the connection of geometric concepts to measurement and problem solving. This course includes standards-based tasks, digital literacy skills, and assessment questions.

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD#	BENCHMARK (Standard/Indicator) Use the Standards and Benchmarks as Spreadsheets
MA.4.OA.1	Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and
MA.4.OA.2	Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a
MA.4.OA.3	Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations,
MA.4.OA.4	Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors.
MA.4.OA.5	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in
MA.4.NBT.1	Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its
MA.4.NBT.2	Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-
MA.4.NBT.3	Use place value understanding to round multi-digit whole numbers to any place.
MA.4.NBT.4	Fluently add and subtract multi-digit whole numbers using the standard Full algorithm.
MA.4.NBT.5	Multiply a whole number of up to four digits by a one-digit whole number, and multiply two -digit numbers, using strategies
MA.4.NBT.6	Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on
MA.4.NF.1	Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the
MA.4.NF.2	Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or
MA.4.NF.3	Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.
MA.4.NF.4	Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
MA.4.NF.5	Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two
MA.4.NF.6	Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as $62/100$; describe a length as 0.62
MA.4.NF.7	Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two
MA.4.MD.1	Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within
MA.4.MD.2	Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and
MA.4.MD.3	Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a
MA.4.MD.4	Make a line plot to display a data set of measurements in fractions of a unit ($1/2, 1/4, 1/8$). Solve problems involving addition
MA.4.MD.5	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts
MA.4.MD.6	Measure angles in whole-number degrees using a protractor. Sketch angles of
MA.4.MD.7	Recognize angle measure as additive. When an angle is decomposed into non- overlapping parts, the angle measure of the
MA.4.G.1	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence
MA.4.G.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence
MA.4.G.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

SCOPE AND SEQUENCE

UNIT OUTLINE	STANDARD#	OUTCOMES OBJECTIVES/STUDENT CENTERED GOALS

Whole Number Sense	MA.4.OA.3 MA.4.NBT.1 MA.4.NBT.2 MA.4.NBT.3	Unit 1: Whole Number Sense Round whole numbers through 1,000,000. Identify the place value for each digit in whole numbers through 1,000,000.
Whole Number Operations	MA.4.OA.1 MA.4.OA.3 MA.4.OA.4 MA.4.NBT.4 MA.4.NBT.5 MA.4.NBT.6	Unit 2: Whole Number Operations Explain and apply standard step-by-step approaches for multiplication. Explain and apply standard step-by-step approaches for addition. Explain and apply standard step-by-step approaches for division of a multidigit number by a 1- or 2-digit divisor. Determine the prime factorization of a composite number. Explain and apply standard step-by-step approaches for subtraction. Use an inverse relationship to simplify a computation or check a result. Estimate sums and differences on a number line. Define and identify a prime number. Solve a story problem involving two or more operations.
Applications of Operations	MA.4.OA.2 MA.4.OA.3 MA.4.NBT.5	Unit 3: Applications of Operations Solve a story problem involving whole numbers. Determine the reasonableness of an answer using estimation, rounding, or mental computation. Use parentheses and the order of operations to write or evaluate an expression. Represent a multistep word problem as an equation, using a letter to represent the unknown. Solve multistep word problems using whole numbers. Demonstrate how and when to use the distributive property. Check the computation of a solution to a story problem. Solve a story problem involving rate. Use an inverse relationship to simplify a computation or check a result.
Lines, Angles, and Rotations	MA.4.MD.5 MA.4.MD.6 MA.4.MD.7 MA.4.G.1	Unit 4: Lines, Angles, and Rotations Identify, measure, and draw angles with appropriate math tools. Identify lines that are parallel or intersecting. Given a diagram with a pair of adjacent angles, add or subtract to find an unknown angle measure. Identify lines that are perpendicular. State and recognize the definitions of a right angle, an acute angle, an obtuse angle, and a straight angle. Recognize that 90° , 180° , 270° , and 360° are associated respectively with a $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, and full turn. Recognize that for an angle decomposed into two nonoverlapping angles, the sum of the angle measures of the parts is equal to the angle measure of the whole.
Fraction Sense	MA.4.NF.1 MA.4.NF.2 MA.4.NF.3 MA.4.NF.4	Unit 5: Fraction Sense Recognize and determine equivalent fractions. Explain why two given fractions are equivalent. Identify the fraction represented by a part of a whole figure. Compare two fractions with different numerators and different denominators using the symbols $>$, $=$, or $<$; limited to fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100. Demonstrate how fractions and whole numbers can be plotted on a number line. Explain and give examples of different interpretations of fractions. Represent a fraction with a sketch. Explain why $\frac{a}{a} = 1$. Find a fraction between two numbers.

Measurement	MA.4.MD.1 MA.4.MD.2	Unit 6: Measurement Solve a measurement-conversion problem by using multiplication or division. Estimate the length of a line segment to the nearest inch or centimeter. Solve a story problem involving equal measures.
Semester Review and Checkpoint		Unit 7: Semester Review and Checkpoint Check the computation of a solution to a story problem. Represent a fraction with a sketch. Recognize and determine equivalent fractions. Identify the appropriate Fahrenheit or Celsius temperature for a given practical setting. Solve and simplify a problem that involves addition or subtraction of fractions with unlike denominators. Compare decimal numbers. Identify and explain when rounding is useful. Compute the sum or difference of positive decimal numbers. Identify fraction and decimal-number equivalents for halves and fourths. Explain and apply standard step-by-step approaches for subtraction. Identify lines that are parallel or intersecting. Demonstrate understanding of relative angle measures. Read a thermometer that measures temperature in Fahrenheit degrees. Simplify factors in fraction multiplication problems in which numerators and denominators have common factors. Multiply a fraction by a whole number to solve a story problem. Round a decimal number. Identify and explain why given figures are congruent. Estimate sums and differences on a number line. Define and identify a prime number. Use parentheses and the order of operations to write or evaluate an expression. Solve a measurement-conversion problem by using multiplication or division. Order three or more decimal numbers.
Fraction Operations	MA.4.NF.3 MA.4.NF.4 MA.4.NF.5 MA.4.MD.4	Unit 8: Fraction Operations Multiply a fraction by a whole number to solve a story problem. Represent a fraction as a multiple of ; limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. Use operations on fractions to solve problems involving information presented in line plots. Use objects or sketches to solve a story problem that involves addition or subtraction of fractions. Add two fractions with respective denominators of 10 and 100. Simplify factors in fraction multiplication problems in which numerators and denominators have common factors. Represent a fraction as a sum of fractions with the same denominator; limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. Write equations to demonstrate that whole numbers can be factored in multiple ways. Multiply a fraction by a whole number; limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. Create a line plot to display a set of measurements in fractions of a unit. Recognize and determine equivalent fractions.

Decimals and Equality with Fractions	MA.4.NF.5 MA.4.NF.6 MA.4.NF.7	<p>Unit 9: Decimals and Equality with Fractions Explain that a simple fraction and a decimal amount can represent the same quantity. Compare decimal numbers. Identify fraction and decimal-number equivalents for halves and fourths. Write decimal numbers in expanded form. Identify decimal place values through hundredths. Write tenths and hundredths in decimal and fraction notation and show that the representations are equivalent. Relate a decimal number to a fraction on a number line.</p>
Mathematical Reasoning	MA.4.OA.3 MA.4.MD.2	<p>Unit 10: Mathematical Reasoning Determine when and how to break a multistep story problem into simpler problems. Identify features of a pattern. Analyze a story problem by identifying the question, recognizing relevant information, sequencing and prioritizing information, and developing a solution strategy. Generate a number or shape pattern that follows a given rule. Express the solution to a story problem clearly and logically. Evaluate a strategy or strategies used in a story problem. Use estimation to predict a solution to a story problem and to verify the reasonableness of the calculated result. Explain mathematical reasoning in a story problem by using multiple representations.</p>
Geometry	MA.4.G.1 MA.4.G.2 MA.4.G.3	<p>Unit 11: Geometry Identify that the sum of the interior angles of any quadrilateral is 360° and solve related problems. Know how to define and sketch different quadrilaterals. Identify figures that have bilateral symmetry and draw the line or lines of symmetry. Define and sketch different types of triangles and identify their attributes. Identify and describe plane figures according to the number of sides and vertices, such as triangle, square, rectangle, circle, oval.</p>
Algebra Thinking	MA.4.OA.3 MA.4.OA.5	<p>Unit 12: Algebra Thinking Locate and plot points in Quadrant I of the coordinate plane. Use symbols to stand for variables in simple expressions or equations. Find the length of a horizontal line segment by finding the difference of the x-coordinates. Demonstrate that when equal quantities are added to equal quantities the resulting quantities are equal. Demonstrate that when equal quantities are multiplied by equal quantities the resulting quantities are equal. Find the length of a vertical line segment by finding the difference of the y-coordinates. Solve for one variable in a two-variable equation when the value of the other variable is given. Plot a linear relationship in the first quadrant of a coordinate plane. Solve word problems involving graphs of points on a coordinate plane. Use the situation presented in a problem to describe the meaning of each coordinate of an ordered pair displayed on a graph. Identify the parts of a coordinate graph, including x-axis, y-axis, x-coordinate, y-coordinate, ordered pair, and origin. Locate and plot points on a coordinate plane. Use a table to represent a linear relationship.</p>

<p>Perimeter and Area Formulas</p>	<p>MA.4.MD.3</p>	<p>Unit 13: Perimeter and Area Formulas Define and demonstrate understanding of the perimeter of any polygon. Use a formula to find the area of a rectangle, a square, or a figure that can be divided into rectangles or squares. Solve a story problem that requires finding rectangular area. Interpret and use formulas to answer questions about quantities and their relationships. Use a formula to find the perimeter of a rectangle or a square. Find the area of a rectangular shape and use the appropriate unit. Define and demonstrate understanding of the area of any plane figure. Demonstrate understanding that rectangles that have the same area can have different perimeters. Demonstrate understanding that rectangles that have the same perimeter can have different areas. Write tenths and hundredths in decimal and fraction notation and show that the representations are equivalent.</p>
<p>Semester Review and Assessment</p>		<p>Unit 14: Semester Review and Assessment Use the situation presented in a problem to describe the meaning of each coordinate of an ordered pair displayed on a graph. Recognize and determine equivalent fractions. Relate a decimal number to a fraction on a number line. Create a line plot to display a set of measurements in fractions of a unit. Use operations on fractions to solve problems involving information presented in line plots. Explain that a simple fraction and a decimal amount can represent the same quantity. Demonstrate that when equal quantities are multiplied by equal quantities the resulting quantities are equal. Plot a linear relationship in the first quadrant of a coordinate plane. Generate a number or shape pattern that follows a given rule. Use a table to represent a linear relationship.</p>