

Wyoming Department of Education

Required Virtual Education Course Syllabus

Washakie County School District # 1

Program Name	Washakie #1 Online	Content Area	MA
Course ID	WOL-MA2	Grade Level	2
Course Name	WOL-2 Math Plus – Orange	# of Credits	NA
SCED Code	NA	Curriculum Type	K-12 Fuel Education

COURSE DESCRIPTION

MATH PLUS ORANGE (Grade 2)

This research-based course focuses on computational fluency, conceptual understanding, and problem solving. The 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 focuses primarily on number concepts, place value, and addition and subtraction of numbers through 1,000. Special emphasis is given to problem solving, inverse operations, properties of operations, decomposition of numbers, and mental math. Students study money, time, and measurement; geometric figures; analyzing and displaying data with new representations; and determining the range and mode of data. Early concepts about multiplication, division, and fractions are introduced.

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD#	<u>BENCHMARK (Standard/Indicator) Use the Standards and Benchmarks as Spreadsheets</u>
2.OA.1	Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
2.OA.2	Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.
2.OA.3	Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.
2.OA.4	Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.
2.NBT.1	Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: a. 100 can be thought of as a bundle of ten tens — called a “hundred.” b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).
2.NBT.2	Count within 1000; skip-count by 5s, 10s, and 100s.
2.NBT.3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
2.NBT.4	Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons.
2.NBT.5	Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
2.NBT.6	Add up to four two-digit numbers using strategies based on place value and properties of operations.
2.NBT.7	Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.
2.NBT.8	Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.
2.NBT.9	Explain why addition and subtraction strategies work, using place value and the properties of operations. (Explanations may be supported by drawings or objects.)
2.MD.1	Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD#	<u>BENCHMARK (Standard/Indicator) Use the Standards and Benchmarks as Spreadsheets</u>
2.MD.2	Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
2.MD.3	Estimate lengths using units of inches, feet, centimeters, and meters.
2.MD.4	Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.
2.MD.5	Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.
2.MD.6	Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ... , and represent whole-number sums and differences within 100 on a number line diagram.
2.MD.7	Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
2.MD.8	Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ (dollars) and ¢ (cents) symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?
2.MD.9	Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.
2.MD.10	Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.
2.G.1	Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. (Sizes are compared directly or visually, not compared by measuring.)
2.G.2	Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.
2.G.3	Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

Scope and Sequence

UNIT OUTLINE	STANDARD#	OUTCOMES OBJECTIVES/ STUDENT CENTERED GOALS
Numbers Through 500	2.NBT.1	<p>Unit 1: Numbers Through 500 Summary</p> <ul style="list-style-type: none"> In this unit, students will investigate different ways to represent numbers. They will work with these representations: <ul style="list-style-type: none"> concrete models numerals number words Students will use models to build numbers through 500 while focusing on counting, reading, and writing numbers.
Time and Money	2.MD.7 2.MD.8	<p>Unit 2: Time and Money Summary</p> <ul style="list-style-type: none"> Students begin by learning how to tell when the time is exactly or about a quarter past, half past or quarter 'til the hour. They learn about relationships between units of time and compare them using an equivalency chart. They learn the following units of time relationships: <ul style="list-style-type: none"> 60 seconds = 1 minute 60 minutes = 1 hour 24 hours = 1 day 7 days = 1 week 52 weeks = 1 year 12 months = 1 year They then learn about A.M. and P.M. and learn how to find elapsed time in hours.
Add, Subtract, Number Composition	2.NBT.5 2.NBT.7 2.NBT.8	<p>Unit 3: Add, Subtract, Number Composition</p> <ul style="list-style-type: none"> Use concrete objects or sketches to model and solve addition or subtraction computation problems with sums or minuends up

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	2.NBT.9	<p>through 500 with and without regrouping.</p> <ul style="list-style-type: none"> Decompose numbers to solve subtraction problems, such as $213 - 12 = 200 + 13 - 12$. Explain the meaning of the equals sign. Use regrouping to find the difference of two whole numbers with the minuend up through 500. Demonstrate that a number can be composed of other numbers in various ways. Find the sum of two whole numbers with sums up through 500.
Inverse Operations: Add and Subtract	2.OA.1 2.OA.2 2.NBT.6 2.NBT.7 2.NBT.8 2.NBT.9	<p>Unit 4: Inverse Operations: Add and Subtract Summary</p> <ul style="list-style-type: none"> Students will begin by observing and using models to explore how addition and subtraction are related, that they are inverse operations. They will use fact family triangles to show the inverse relationship between addition and subtraction. They will later use this knowledge to solve missing addend or missing subtrahend problems. Students will learn strategies for using mental math to calculate sums and differences of 2-digit numbers and are able to share the strategies they are using. They will explore strategies for computing sums and differences of numbers through 500, and will be able to explain the strategies they use.
Measurement	2.MD.1 2.MD.3 2.MD.4 2.MD.5	<p>Unit 5: Measurement Summary</p> <ul style="list-style-type: none"> After measuring length with nonstandard units, students are introduced to a ruler as a tool for measuring length with inches and then with centimeters. They will learn to use the ruler and other objects (1-inch tiles and centimeter cubes) to measure the length of objects. Then they will learn to estimate measurements and to recognize when a measurement estimate is reasonable. They will use different measurement units (nonstandard and standard) to compare the length of objects, finding that measurements should be in the same unit for easy comparing. Students will also learn to add and subtract measurements of the same unit. Students will learn about capacity and use a standard measuring cup to measure and compare volumes of objects.
Add or Subtract: Problem Solving	2.OA.21 2.NBT.7	<p>Unit 6: Add or Subtract: Problem Solving Summary</p> <ul style="list-style-type: none"> Students will begin by using models and sketches to solve problem solving situations that involve addition. They will solve problems in which they are combining groups, including some with missing addends. They will use models to help represent regrouping while working the problem solving situations. Students will then move on to solving problems that involve subtraction using models and sketches, and then by writing number sentences. The problems include: <ul style="list-style-type: none"> ➤ combine problems where two quantities are combined to get a total;

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		<ul style="list-style-type: none"> ➢ compare problems where two quantities are compared to find the difference; ➢ change problems where one quantity changes by having some added to it or taken away from it; ➢ and equalize problems where one quantity is changed to equal another quantity.
Problem Solving: Reason and Connect	2.OA.1	<p>Unit 7: Problem Solving: Reason and Connect Summary</p> <ul style="list-style-type: none"> • Students learn about solving story problems. • They write and solve number sentences to answer story problems that involve addition or subtraction. • They analyze a problem to check for errors and determine if the answer is correct. • They explain and justify solutions to story problems and learn that there can be more than one way to find the answer. • They compare story problems and learn to recognize story problems that are solved the same way. • They also write and solve their own story problems.
Semester Review and Checkpoint		<p>Unit 8: Semester Review and Checkpoint</p> <ul style="list-style-type: none"> • Summary Semester review and checkpoint for first half of grade 02
Numbers Through 1,000	2.NBT.1 2.NBT.3 2.NBT.4	<p>Unit 9: Numbers Through 1,000 Summary</p> <ul style="list-style-type: none"> • This unit focuses on counting, representing, comparing, and ordering numbers from 500 through 1,000. • Although students can count aloud and write numbers, they now extend their understanding by modeling greater numbers with base-10 blocks and learning to read and write number words, using their number and symbol card deck. • Students learn to see the connections between the number 325, the number words three hundred twenty-five, and the representation of the number in expanded form ($325 = 3$ hundreds + 2 tens + 5 ones or $325 = 300 + 20 + 5$). • As students work with these representations, they develop a deeper understanding of how our base-10 number system works. • Fully understanding the number system builds confidence and skills that will help them solve problems involving greater numbers. • The understanding of multiple representations of numbers and place value also leads students to create strategies for comparing numbers through 1,000 and for properly using the greater-than ($>$), less-than ($<$), and equal-to ($=$) symbols. • During this unit, watch for mistakes as students count. • Have students count forward and backward, starting with numbers greater than 500 up through 1,000. • Make sure they count at least 10 numbers and cross over multiples of ten or one hundred
Plane and Solid Figures	2.G.1 2.G.2	<p>Unit 10: Plane and Solid Figures</p> <ul style="list-style-type: none"> • Take geometric figures apart to form other geometric figures. • Classify plane figures according to similarities and differences, such as triangle, square, rectangle, circle, oval. • Classify solid figures according to the number and shape of faces and the number of edges, such as sphere, pyramid, cube, rectangular prism.

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		<ul style="list-style-type: none"> Put geometric figures together to form other geometric figures. Describe solid figures according to the number and shape of faces, such as sphere, pyramid, cube, rectangular prism. Identify and describe plane figures according to the number of sides and vertices, such as triangle, square, rectangle, circle, oval.
Add or Subtract Numbers Through 1,000	2.NBT.7	<p>Unit 11: Add or Subtract Numbers Through 1,000</p> <ul style="list-style-type: none"> Recognize and solve word problems involving numbers up to 1,000 in which two quantities are compared by the use of addition or subtraction. Write and solve addition or subtraction number sentences to represent problem-solving situations with sums and minuends up through 1,000. Recognize and solve word problems involving sums or minuends up through 1,000 in which one quantity changes by addition or subtraction. Justify the procedures selected for addition or subtraction problem-solving situations with sums or minuends up through 1,000. Recognize and solve word problems involving numbers up to 1,000 in which one quantity must be changed to equal another quantity. Demonstrate an understanding of connections between similar addition or subtraction problem-solving situations, involving sums and minuends up through 1,000. Recognize and solve word problems involving sums up through 1,000 in which two quantities are combined. Find the sum or difference of two whole numbers with sums and minuends up through 1,000. Recognize examples of problems that could be solved by addition or subtraction with regrouping. Check the accuracy of calculations from the context of addition or subtraction problem-solving situations with sums and minuends up through 1,000 with regrouping.
Multiplication and Number Patterns	2.OA.3 2.OA.4 2.NBT.2	<p>Unit 12: Multiplication and Number Patterns</p> <ul style="list-style-type: none"> Use concrete objects or sketches of arrays to model multiplication problems. Demonstrate automatic recall of multiplication facts for 5 through 10 \times 5. Use concrete objects or sketches to model and explain multiplication as repeated addition. Use grouping to solve simple multiplication problems. Determine a next term and extend a linear pattern, such as 3, 6, 9, ... as the wheels on 1 tricycle, 2 tricycles, 3 tricycles, and extending it to 12 wheels on 4 tricycles as an example. Solve problems involving simple number patterns. Recognize that the \times sign refers to multiplication. Describe linear patterns, such as 3, 6, 9, using the wheels on 1 tricycle, 2 tricycles, 3 tricycles as an example. Use counting by multiples of 2 to understand multiplication facts for 2. Use models and math symbols to represent multiplication. Use counting by multiples of 5 to understand multiplication facts for 5.

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		<ul style="list-style-type: none"> Demonstrate automatic recall of multiplication facts for 2 through 10 × 2. Use counting by multiples of 10 to understand multiplication facts for 10. Demonstrate automatic recall of multiplication facts for 10 through 10 × 10. Correctly use the symbol × for multiplication. Recognize and solve word problems involving sums or minuends up through 1,000 in which one quantity changes by addition or subtraction. Recognize and solve word problems involving numbers up to 1,000 in which two quantities are compared by the use of addition or subtraction. Recognize and solve word problems involving numbers up to 1,000 in which one quantity must be changed to equal another quantity. Recognize examples of problems that could be solved by addition or subtraction with regrouping. Demonstrate an understanding of connections between similar addition or subtraction problem-solving situations, involving sums and minuends up through 1,000. Justify the procedures selected for addition or subtraction problem-solving situations with sums or minuends up
Multiplication and Addition Properties		<p>Unit 13: Multiplication and Addition Properties</p> <ul style="list-style-type: none"> Demonstrate understanding of the associative properties of addition and multiplication. Demonstrate understanding that any number multiplied by 1 results in the same number ($n \times 1 = n$). Use models and math symbols to represent multiplication. Given a number of objects up through 20, show how those objects can be grouped and regrouped to illustrate the associative property. Use the commutative property in mental calculations. Demonstrate understanding of the rule for multiplying by zero. Use the commutative and associative properties to simplify expressions. Use the commutative property to check results. Use the associative property to check results. Use the associative property in mental calculations. Demonstrate understanding of the commutative properties of addition and multiplication. Demonstrate understanding that the order in which numbers are multiplied does not affect the product.
Introduction to Division		<p>Unit 14: Introduction to Division</p> <ul style="list-style-type: none"> Use equal sharing to do division problems. Correctly use the ÷ symbol. Use repeated subtraction to do division problems. Use forming equal groups with remainders to solve simple division problems. Recognize that the ÷ sign refers to division. Use models and math symbols to represent division.

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Data Representations and Analysis	2.MD.10	<p>Unit 15: Data Representations and Analysis</p> <ul style="list-style-type: none"> • Use pictures and picture graphs to represent data. • Use tally charts to represent data. • Systematically record numerical data. • Represent the same data set with more than one representation, such as a tally, picture graph, or bar graph. • Solve addition or subtraction problems by using data from charts, picture graphs, and number sentences. Identify the mode in a data set. • Determine the range for a set of data. • Ask and answer simple questions related to data representations. • Write numerals through 500.
Introduction to Fractions	2.G.3	<p>Unit 16: Introduction to Fractions</p> <ul style="list-style-type: none"> • Demonstrate how fractions and whole numbers can be plotted on a number line. • Demonstrate that a number can be composed of other numbers in various ways. • Recognize and name unit fractions from $1/12$ to $1/2$. • Use concrete objects or given drawings to compare unit fractions from $1/12$ to $1/2$. • Generate fraction representations (for example, show $2/3$ of a shape or $2/3$ of a set of objects or $2/3$ of an interval on a number line). • Demonstrate that a fraction can represent the relationship of equal parts to a whole or parts of a set. • Explain that when all fractional parts of a whole are included, such as $4/4$, the result is equal to one whole. • Identify a few simple equivalent fractions, such as $1/2 = 2/4$.
Semester Review and Checkpoint		<p>Unit 17: Semester Review and Checkpoint</p> <ul style="list-style-type: none"> • Identify and describe plane figures according to the number of sides and vertices, such as triangle, square, rectangle, circle, oval. • Count aloud whole numbers through 1,000. • Demonstrate an understanding of connections between similar addition or subtraction problem-solving situations, involving sums and minuends up through 1,000. • Recognize and solve word problems involving numbers up to 1,000 in which one quantity must be changed to equal another quantity. • Find the sum or difference of two whole numbers with sums and minuends up through 1,000. • Identify the place value for each digit in whole numbers through 1,000. • Write and solve addition or subtraction number sentences to represent problem-solving situations with sums and minuends up through 1,000. • Compare whole numbers up through 1,000 by using the symbols $<$, $=$, $>$. • Demonstrate that multidigit numbers represent groups of 100s, 10s, and ones. Read whole numbers through 1,000. • Classify solid figures according to the number and shape of faces and the number of edges, such as sphere, pyramid, cube, rectangular prism. • Take geometric figures apart to form other geometric figures. • Recognize and solve word problems involving numbers up to 1,000.

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		<p>in which two quantities are compared by the use of addition or subtraction.</p> <ul style="list-style-type: none"> • Use expanded forms to represent numbers through 1,000, such as $754 = 7$ hundreds + 5 tens + 4 ones. • Use concrete objects or sketches to model and explain multiplication as repeated addition. • Use models to represent numbers through 1,000. • Order three or more whole numbers through 1,000 by using the symbols $<$, $=$, $>$. • Classify plane figures according to similarities and differences, such as triangle, square, rectangle, circle, oval. • Recognize and solve word problems involving sums up through 1,000 in which two quantities are combined. • Recognize examples of problems that could be solved by addition or subtraction with regrouping. • Describe solid figures