Wyoming Department of Education Required Virtual Education Course Syllabus

Washakie County School District # 1

Program Name	Washakie No. 1 Online	Content Area	MA
Course ID	W02051G0.5022	Grade Level	9-12
Course Name	Pre-Algebra - Semester 2	# of Credits	0.5
SCED Code	02051G0.5022	Curriculum Type	K12 Inc

COURSE DESCRIPTION

In this course, students learn computational and problem-solving skills and the language of algebra. Students translate word phrases and sentences into mathematical expressions; analyze geometric figures; solve problems involving percentages, ratios, and proportions; graph different kinds of equations and inequalities; calculate statistical measures and probabilities; apply the Pythagorean theorem; and explain strategies for solving real-world problems. The textbook provides students with a ready reference and explanations that supplement the online material. Online lessons provide demonstrations of concepts, as well as interactive problems with contextual feedback.

WYOMING CONTENT AND PERFORMANCE STANDARDS	
STANDARD#	BENCHMARK (Standard/Indicator) Use the Standards and Benchmarks as Spreadsheets
A.REI.10	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).
F.IF.1	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then f(x) denotes the output of f corresponding to the input x. The graph of f is the graph of the equation y = f(x).
F.IF.2	Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
F.IF.7a	Graph linear and quadratic functions and show intercepts, maxima, and minima.*
G.GMD.3	Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.*
G.GPE.7	Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.*
G.SRT.2	Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
G.SRT.8	Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
N.Q.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.*
N.RN.1	Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. For example, we define 5^(1/3) to be the cube root of 5 because we want [5^(1/3)]^3 = 5^[(1/3) x 3] to hold, so [5^(1/3)]^3 must equal 5.
S.CP.7	Apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in terms of the model.*
S.IC.1	Understand statistics as a process for making inferences about population parameters based on a random sample from that population.*
S.IC.2	Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0. 5. Would a result of 5 tails in a row cause you to question the model?*
S.IC.3	Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.*
S.ID.1	Represent data with plots on the real number line (dot plots, histograms, and box plots).*
S.ID.3	Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).*
S.ID.6a	Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.*

SCOPE AND SEQUENCE		
UNIT OUTLINE	STANDARD#	OUTCOMES OBJECTIVES/STUDENT CENTERED GOALS
Unit 1: Ratio, Proportion, and Percent Lesson 1: Semester Introduction Lesson 2: Ratio, Part 1 Lesson 3: Ratio, Part 2 Lesson 4: Proportion, Part 1 Lesson 5: Proportion, Part Lesson 6: Discuss: Ratio and Proportion Lesson 7: Your Choice Lesson 8: Percents, Fractions, and Decimals, Part 1 Lesson 9: Percents, Fractions, and Decimals, Part 2 Lesson 10: Similarity and Scale Lesson 11: Your Choice Lesson 12: Working with Percent Lesson 13: Percent of Increase and Decrease Lesson 14: Simple Interest Lesson 15: Unit Review Lesson 16: Unit Test	G-SRT.2	Write a ratio as a fraction in lowest terms. Write a simplified ratio for a word problem. Write a ratio for a word problem. Write a ratio as a rate. Write a ratio as a unit rate. Find equivalent ratios for a given ratio. Determine whether two ratios are proportional. Solve a proportion. Solve a word problem involving proportions. Write a ratio as a unit rate. Solve a proportion. Solve a word problem involving proportions. Express a fraction as a decimal. Express a decimal as a fraction or a mixed number. Express a fraction as a decimal, and a decimal as a fraction or a mixed number. Convert a decimal to a percent. Convert a percent to a decimal. Convert a decimal to a percent, and a percent to a decimal. Convert a fraction to a percent. Convert a percent to a fraction. Convert a fraction to a percent, and a percent to a fraction. Solve word problems involving percents. Write a ratio as a fraction in lowest terms. Find equivalent ratios for a given ratio. Determine whether two ratios are proportional. Solve a proportion. Express a fraction as a decimal. Convert a decimal to a percent. Determine whether two figures are similar and find a missing length in a pair of similar figures. Solve a percent of a whole problem. Solve word problems involving percent of a whole. Solve a word problem involving percent of a whole, percent increase or decrease, and simple interest. Find a percent of increase or decrease. Solve a word problem involving percent of increase or decrease. Solve a word problem involving percent of a whole, percent increase or decrease, and simple interest. Solve a word problem that involves simple interest. Solve a word problem involving percent of a whole, percent increase or decrease, and simple interest.
Unit 2: Analytic Geometry Lesson 1: Points on the Plane Lesson 2: Two-Variable Equations, Part 1 Lesson 3: Two-Variable Equations, Part 2 Lesson 4: Linear Equations and Intercepts, Part 1 Lesson 5: Your Choice Lesson 6: Linear Equations and Intercepts, Part 2 Lesson 7: Slope, Part 1 Lesson 8: Slope, Part 2 Lesson 9: Your Choice Lesson 10: Problem Solving Lesson 11: Functions, Part 1 Lesson 12: Functions, Part 2 Lesson 13: Unit Review Lesson 14: Unit Test	A-REI.10 F-IF.1 F-IF.2 F.IF.7a	Find coordinates for a point in a plane. Graph an ordered pair in a coordinate plane. Graph an ordered pair on a coordinate plane. Determine the axis or quadrant for a given point. Determine whether an ordered pair is a solution of a linear equation in two variables. Identify the dependent and independent variables for a problem situation. Find intercepts of a given linear graph. Find intercepts for a linear equation. Use intercepts to graph a linear equation. Use intercepts to write an equation for a given linear graph. Find the slope of a line when given two points on the line. Find the slope of a line when given two points on the line or when given the equation of the line.

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		Determine whether an ordered pair is a solution of a linear equation in two variables. Identify the dependent and independent variables for a problem situation. Use intercepts to graph a linear equation. Use intercepts to write an equation for a given linear graph. Find the slope of a line when given two points on the line. Graph an ordered pair on a coordinate plane. Find the slope of a line when given an equation. Find intercepts of a given linear graph or linear equation. Find the slope of a line when given two points on the line or when given the equation of the line. Use interpolation to make inferences about linear data. Solve a word problem involving slope. Use interpolation and extrapolation to make inferences about linear data. Use extrapolation to make inferences about linear data. Determine the domain and range for a function presented as a table or a set of ordered pairs. Determine whether a relation is a function when given a graph or set of ordered pairs. Determine whether a relation is a function when given a graph or a set of ordered pairs. Evaluate a function for a given value. Review the concepts and skills learned in the unit.
Unit 3: Perimeter and Area Lesson 1: Types of Polygons Lesson 2: Perimeter Lesson 3: Areas of Rectangles and Triangles Lesson 4: Discuss: Measurement Lesson 5: Your Choice Lesson 6: Special Quadrilaterals Lesson 7: Areas of Special Quadrilaterals Lesson 8: Your Choice Lesson 9: Circumference, Part 1 Lesson 10: Circumference, Part 2 Lesson 11: Areas of Circles, Part 1 Lesson 12: Areas of Circles, Part 2 Lesson 13: Unit Review Lesson 14: Unit Test	N-Q.3	Classify a polygon as equilateral, equiangular, both, or neither. Plot and connect points on a coordinate plane and classify the resulting polygon. Name a polygon by its number of sides. Write a formula to find the perimeter of a polygon. Find the perimeter of a polygon. Find the perimeter of a figure made up of rectangles or triangles or both. Find the area of a rectangle. Find the area of a triangle. Use area to find a missing length. Use area to find a missing side length of a triangle or quadrilateral. Find the area of a rectangle. Find the perimeter of a rectangle. Identify properties of a quadrilateral. Classify a figure as a special type of quadrilateral. Plot given vertices and identify the type of quadrilateral they form. Classify a polygon as equilateral, equiangular, both, or neither. Plot and connect points on a coordinate plane and classify the resulting polygon. Find the perimeter of a polygon. Find the area of a rectangle. Find the area of a triangle. Classify a figure as a special type of quadrilateral. Find the area of a parallelogram. Find the area of a trapezoid. Use area to find a missing side length of a quadrilateral. Find the exact circumference of a circle with a given radius or diameter. Use an approximation for pi to estimate the circumference of a circle. Find the circumference or area of a circle using pi or an approximation for pi.

SCOPE AND SEQUENCE		
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		Find the perimeter of a figure that has part of a circle or parts of both circles and polygons. Solve a word problem involving the circumference of a circle. Solve a word problem involving the circumference or area of a circle. Find the perimeter or area of a figure that has part of a circle or both parts of a circles and polygons. Find the exact area of a circle with a given radius or diameter. Use an approximation for pi to estimate the area of a circle. Find the area of a figure that has part of a circle or parts of both circles and polygons. Solve a word problem involving the area of a circle. Solve a word problem involving the circumference or area of a circle. Find the perimeter or area of a figure that has part of a circle or both parts of a circles and polygons. Review the concepts and skills learned in the unit.
Unit 4: Square Roots and Right Triangles Lesson 1: Rational Square Roots Lesson 2: Irrational Square Roots, Part 1 Lesson 3: Irrational Square Roots, Part 2 Lesson 4: The Pythagorean Theorem, Part 1 Lesson 5: Your Choice Lesson 6: The Pythagorean Theorem, Part 2 Lesson 7: The Distance Formula Lesson 8: Special Types of Triangles, Part 1 Lesson 9: Special Types of Triangles, Part 2 Lesson 10: Unit Review Lesson 11: Unit Test	G-SRT.8 G-GPE.7 8.EE.A.1	Find square roots of a perfect square. Solve a simple equation with squares. Determine whether a square root is rational or irrational. Find consecutive integers between which a square root lies. Approximate a square root to the nearest tenth. Find consecutive integers between which a square root lies, and approximate its value to the nearest tenth. Write the square root of a positive whole number in simplified radical form. Solve a word problem involving square roots. Find square roots of a perfect square. Determine whether a square root is rational or irrational. Find consecutive integers between which a square root lies. Approximate a square root to the nearest tenth. Write the square root of a positive whole number in simplified radical form. Solve a word problem involving square roots. Identify the hypotenuse and legs of a right triangle. Use the Pythagorean theorem to find the length of a leg of a right triangle. Solve a simple equation with squares. Use the Pythagorean theorem to find the length of the hypotenuse of a right triangle. Identify Pythagorean triples. Solve a word problem involving right triangles. Use the Pythagorean Theorem to find an unknown length of a side of a right triangle and solve word problems. Find the distance between two points on a coordinate grid. Find the distance between two points on a coordinate plane. Find the perimeter of a figure on a coordinate plane. Use properties of isosceles and equilateral triangles to find missing measures. Use properties of 30-60-90 triangles to find missing values. Use properties of 45-45-90 triangles to find missing values. Solve a word problem involving a special right triangle. Use properties of special right triangles to find lengths of unknown sides and solve word problems. Review the concepts and skills learned in the unit.
Unit 5: Solid Figures Lesson 1: Volume and Capacity, Part 1 Lesson 2: Volume and Capacity, Part 2	N-Q.3 G-GMD.3	Find the volume of a cube. Interpret units in the context of the problem.

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UNIT OUTLINE	STANDARD#	OUTCOMES OBJECTIVES/STUDENT CENTERED GOALS
Lesson 3: Volumes of Prisms and Cylinders, Part 1 Lesson 4: Volumes of Prisms and Cylinders, Part 2 Lesson 5: Discuss: Volume Lesson 6: Your Choice Lesson 7: Volume of Pyramids and Cones, Part 1 Lesson 8: Volume of Pyramids and Cones, Part 2 Lesson 9: Your Choice Lesson 10: Surface Area Lesson 11: Surface Areas of Prisms and Cylinders Lesson 12: Unit Review Lesson 13: Unit Test		Convert measures of volume in cubic centimeters to measures of capacity in mL or L. Find the capacity of a cube in mL or L. Find the volume of a right prism. Find the volume of a right prism. Find the exact volume of a cylinder. Use an approximation for pi to estimate the volume of a cylinder. Find the volume of a cube. Find the volume of a right prism. Find the exact volume of a cylinder. Find the volume of a right pyramid. Find the volume of a cube. Convert measures of volume in cubic centimeters to measures of capacity in mL or L. Find the capacity of a cube in mL or L. Find the volume of a right pyramid. Find the volume of a cylinder using pi or an approximation for pi. Find the volume of a prism. Find the volume of a cone using pi or an approximation for pi. Use an approximation for pi to estimate the volume of a cone. Find the exact volume of a cone. Find the surface area of figures made up of rectangular prisms. Find the lateral area of a rectangular prism. Find the lateral area and total surface area of a rectangular prism. Find the total surface area of a rectangular prism. Find the surface area of a cube. Find the surface area of a prism. Find the exact surface area of a cylinder. Use an approximation for pi to estimate the surface area of a cylinder. Find the surface area of a cylinder using pi or an approximation for pi. Review the concepts and skills learned in the unit.
Unit 6: Counting and Probability Lesson 1: Counting Principles Lesson 2: Permutations Lesson 3: Combinations Lesson 4: Your Choice Lesson 5: Probability Lesson 6: Mutually Exclusive Events Lesson 7: Samples and Prediction Lesson 8: Unit Review Lesson 9: Unit Test	S-IC.1 S-IC.2 S.IC.3 S.CP.7	Use the sum rule to find the number of ways a task can be done. Determine whether a situation is best modeled with the sum or product rule. Solve a word problem involving the sum or product rule. Use the sum and product rules to find the number of ways a task can be done. Solve a word problem involving the sum or product rules. Use the product rule to find the number of ways a task can be done. Evaluate a factorial expression. Evaluate a permutation expression. Solve word problems involving permutations. Solve word problems involving permutations or combinations. Evaluate a factorial, permutation, and combination expression. Use the sum and product rules to find the number of ways a task can be done. Solve word problems involving the sum or product rules. Solve word problems involving permutations or combinations. Evaluate a factorial, permutation, or combination expression. Evaluate a factorial, permutation, and combination expression. Solve word problems involving combinations. Determine whether a situation is best modeled with a permutation or a combination. Evaluate a combination expression.

SCOPE AND SEQUENCE		
UNIT OUTLINE	STANDARD#	OUTCOMES OBJECTIVES/STUDENT CENTERED GOALS
		Find the sample space for an experiment. Find the probability of an event when the outcomes are equally likely. List the sample space for an experiment. Identify a set of mutually exclusive events. Find the probability of a set of mutually exclusive events. Use random samples and repeated observations to estimate probability. Identify samples as biased or unbiased. Determine sources of bias in a sample procedure. Identify samples as biased or unbiased and determine sources of bias in a sample procedure. Review the concepts and skills learned in the unit.
Unit 7: Statistics Lesson 1: Graphs, Part 1 Lesson 2: Graphs, Part 2 Lesson 3: Measures of Center Lesson 4: Your Choice Lesson 5: Stem-and-Leaf Plots Lesson 6: Frequency Tables and Histograms Lesson 7: Box-and-Whisker Plots	S-ID.1 S-ID.3 S-ID.6a S.IC.1	Interpret a bar graph. Construct or interpret a bar graph. Construct a bar or circle graph for given data. Interpret a circle graph. Construct or interpret a circle graph. Interpret a broken-line graph. Construct or interpret a broken-line graph. Construct a broken-line graph or scatter plot. Interpret a scatter plot. Construct or interpret a scatter plot. Interpret a scatter plot. Interpret a bar graph. Interpret a broken-line graph. Interpret a circle graph. Solve problems using measures of central tendency. Compute the mean, median, and mode of a set of data. Compute the range, median, and quartiles for a given data set. Interpret a stem-and-leaf plot. Construct a stem-and-leaf plot from a set of data. Construct or interpret a stem-and-leaf plot. Compute the quartiles, range, and interquartile range for a set of data. Interpret a frequency table. Construct a frequency table for a set of data. Construct or interpret a frequency table for a set of data. Interpret a histogram. Construct or interpret a histogram. Construct a histogram for a set of data. Calculate the interquartile range for a set of data. Compute the quartiles, range, and interquartile range for a set of data. Construct a box-and-whisker plot from a set of data. Interpret a box-and-whisker plot. Construct or interpret a box-and-whisker plot. Review the concepts and skills learned in the unit.
Unit 8: Semester Review and Test Lesson 1: Semester Review Lesson 2: Your Choice Lesson 3: Your Choice Lesson 4: Semester Test		