

# Wyoming Department of Education Required Virtual Education Course Syllabus

## BIG HORN COUNTY SCHOOL DISTRICT #1

Program Name	WYCA	Content Area	Mathematics
Course ID	CAMA79187	Grade Level	9, 10, 11, 12
Course Name	Pre-Algebra A	# of Credits	0.5
SCED Code	02051G0.5012	Curriculum Type	Connections Academy

### COURSE DESCRIPTION

*This is the first of two courses that comprise Pre-Algebra. In this course, the student will be introduced to basic algebraic principles. The student will review properties of expressions and integers. The student will solve one-step equations and inequalities with positive and negative integers, decimals, fractions, and exponents. Then, the student will explore problems involving decimals and fractions and learn to apply the rules of divisibility to solving expressions. Finally, the student will apply their knowledge of algebra to solve real-world ratio, proportion, and percent problems. The semester ends with lessons devoted specifically to test-taking skills and strategies, which reinforce the skills taught throughout the semester.*

### WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD#	BENCHMARK
N.RN.1	Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those
N.RN.3	Explain why the sum or product of rational numbers is rational; that the sum of a rational number and an irrational number is irrational;
N.Q.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in
N.Q.2	Define appropriate quantities for the purpose of descriptive modeling.*
N.Q.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.*
A.SSE.1	Interpret expressions that represent a quantity in terms of its context.*
A.SSE.1a	Interpret parts of an expression, such as terms, factors, and coefficients.*
A.CED.1	Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*
A.CED.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.*
A.REI.1	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

### SCOPE AND SEQUENCE

UNIT OUTLINE	STANDARD#	OUTCOMES
<p><b>Unit 1: Focus on Success in Algebra Readiness</b> In this unit, you will review the foundational concepts necessary for algebra and mathematical reasoning including integer operations and use of variables to represent unknown quantities. Emphasis will be placed upon achieving mastery of integer operations and the skill of rewriting a subtraction expression as addition of an opposite integer.</p>	A.CED.1; A.REI.1	<ul style="list-style-type: none"> <li>•Apply the order of operations and number properties</li> <li>•Use appropriate operations to solve problems involving integers</li> <li>•Rewrite equations replacing subtraction with addition involving an integer</li> </ul>
<p><b>Unit 2: Integers and Algebraic Expressions</b> This unit will focus on the use of fractions and exponents. In this unit, you will order rational numbers, convert between decimals and fractions, and perform operations using fractions and mixed numbers. In addition, you will learn to use a formula and to evaluate a power. At the conclusion of this unit, you will complete a portfolio project using fractions to adjust portions for more or fewer people in a healthy recipe of your choosing.</p>	N.RN.1; N.RN.3;	<ul style="list-style-type: none"> <li>•Perform operations using positive and negative rational numbers</li> <li>•Predict the size and sign of a product relative to its multiplicand and multiplier</li> <li>•Identify and use powers, including numbers in scientific notation</li> </ul>
<p><b>Unit 3: Rational Numbers</b> Previously in your studies, you worked with a set of numbers called the rationals. In this unit, you will begin to work with another set of numbers called the irrationals. By the end of this unit, you will be able to estimate the value of an irrational number by comparing it to one or two rational numbers. You will also use irrational numbers to approximate the length of lines by applying the Pythagorean Theorem. Finally, you will use a coordinate plane to create symmetrical figures.</p>	N.RN.3, N.Q.1	<ul style="list-style-type: none"> <li>•Identify the differences between rational and irrational numbers and use rational numbers to estimate and order irrational numbers</li> <li>•Estimate the value of a square root</li> <li>•Use the Pythagorean Theorem to find the lengths of sides of a right triangle</li> </ul>

<p><b>Unit 4: Real Numbers and the Coordinate Plane</b>  This unit will focus on ratios and proportions. You will use ratios to compare two things, and then use those ratios to solve proportions. There will be a portfolio project for this unit, using a real-world scenario. You will take detailed measurements of your bedroom and create a to-scale map using appropriate measurements.</p>	<p>N.Q.1; N.Q.2; N.Q.3;</p>	<ul style="list-style-type: none"> <li>•Identify and simplify ratios to solve proportions</li> <li>•Perform unit conversions and dilations</li> <li>•Use proportions in real-world applications, including scale models and indirect measurements</li> </ul>
<p><b>Unit 5: Applications of Proportions</b>  In this unit, you will learn that a percent is a ratio comparing a number to one hundred. You will then use percents to find and compare amounts of increase or decrease and to calculate new prices based on markup, discount, and sales tax. The portfolio project at the end of this unit will require you to find products online and calculate a new price based upon a percent discount and state sales tax.</p>	<p>N.Q.1; A.SSE.1; A.CED.1; A.CED.3</p>	<ul style="list-style-type: none"> <li>•Determine a quantity as a percent of a whole, a total based upon the percent amount of a portion, and the percent of a portion based upon its total</li> <li>•Use percents to find an amount of increase or decrease</li> </ul>
<p><b>Unit 6: Applications of Percents</b>  In this unit, you will use algebraic skills to solve for an unknown quantity in an equation or inequality. You will start with two-step equations and work your way through multiple-step equations to solving equations with variables on both sides of the equal sign.</p>	<p>A.SSE.1; A.SSE.1a</p>	<ul style="list-style-type: none"> <li>•Combine like terms in a mathematic expression</li> <li>•Balance equations and inequalities using inverse operations</li> <li>•Solve equations and inequalities for a variable</li> </ul>
<p><b>Unit 7: Equations and Inequalities</b>  In this unit, you will use algebraic skills to solve for an unknown quantity in an equation or inequality. You will start with two-step equations and work your way through multiple-step equations to solving equations with variables on both sides of the equal sign.</p>		<ul style="list-style-type: none"> <li>•Combine like terms in a mathematic expression</li> <li>•Balance equations and inequalities using inverse operations</li> <li>•Solve equations and inequalities for a variable</li> </ul>