



Wyoming Department of Education Required Virtual Education Course Syllabus

Park County School District #1

Course Information

Program Name	Park #1 Online
Course ID	OL2420 A
Course Name	Math – 06 A
SCED Code	02036
Content Area	Math
Grade Level	6
# of Credits	0.5
Curriculum Type	District Developed

Please give a concise description of this course including the purpose and what students will demonstrate and/or gain from this course.

Unit 1: Ratios and Proportional Relationships

In this unit students use reasoning about multiplication and division to solve ratio and rate problems about quantities. By viewing equivalent ratios and rates as deriving from, and extending, pairs of rows (or columns) in the multiplication table, and by analyzing simple drawings that indicate the relative size of quantities, students connect their understanding of multiplication and division with ratios and rates. Thus students expand the scope of problems for which they can use multiplication and division to solve problems, and they connect ratios and fractions. Students solve a wide variety of problems involving ratios and rates.

Unit 2: The Number System

Students extend their previous understandings of number and the ordering of numbers to the full system of rational numbers, which includes negative rational numbers, and in particular negative integers. They reason about the order and absolute value of rational numbers and about the location of points in all four quadrants of the coordinate plane. Students use the meaning of fractions, the meanings of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for dividing fractions make sense. Students use these operations to solve problems.

Unit 3: Expressions and Equations

In this unit, students understand the use of variables in mathematical expressions. They write expressions and equations that correspond to given situations, evaluate expressions, and use expressions and formulas to solve problems. Students understand that expressions in different forms can be equivalent, and they use the properties of operations to rewrite expressions in equivalent forms. Students know that the solutions of an equation are the values of the variables that make the equation true. Students use properties of operations and the idea of maintaining the equality of both sides of an equation to solve simple one-step equations. Students construct and analyze tables, such as tables of quantities that are in equivalent ratios, and they use equations (such as $3x = y$) to describe relationships between quantities.

Wyoming Content and Performance Standards

Standard	BENCHMARK (Standard/Indicator) Use the Standards and Benchmarks as Spreadsheets
6.RP	Ratios and Proportional relationships
6.RP.A.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
6.RP.A.2	Understand the concept of a unit rate a/b associated with a ratio $a:b$ with b not equal to 0, and use rate language in the context of a ratio relationship.
6.RP.A.3	Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.
6.RP.A.3.a	Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
6.RP.A.3.b	Solve unit rate problems including those involving unit pricing and constant speed.
6.RP.A.3.c	Find a percent of a quantity as a rate per 100; solve problems involving finding the whole, given a part and the percent.
6.RP.A.3.d	Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
6.NS	The Number System
6.NS.A.1	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.
6.NS.B.1	Fluently divide multi-digit numbers using the standard algorithm.
6.NS.B.2	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
6.NS.B.3	Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.
6.NS.C.1	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.
6.NS.C.2	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.
6.NS.C.2.a	Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$, and that 0 is its own opposite.
6.NS.C.2.b	Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.
6.NS.C.2.c	Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.
6.NS.D.1	Understand ordering and absolute value of rational numbers.
6.NS.D.1.a	Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.
6.NS.D.1.b	Write, interpret, and explain statements of order for rational numbers in real-world contexts.
6.NS.D.1.c	Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.

Wyoming Content and Performance Standards

6.NS.D.1.d	Distinguish comparisons of absolute value from statements about order.
6.NS.E.1	Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.
6.EE	Expressions and Equations
6.EE.A.1	Write and evaluate numerical expressions involving whole-number exponents.
6.EE.A.2	Write, read, and evaluate expressions in which letters stand for numbers.
6.EE.A.2.a	Write expressions that record operations with numbers and with letters standing for numbers.
6.EE.A.2.b	Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity.
6.EE.A.2.c	Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).
6.EE.A.3	Apply the properties of operations to generate equivalent expressions.
6.EE.A.4	Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).
6.EE.A.5	Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
6.EE.A.6	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
6.EE.A.7	Solve real-world and mathematical problems by writing and solving equations
6.EE.A.8	Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem.
6.EE.A.9	Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

Scope and Sequence

Unit Outline	Standard #	Outcomes Objectives/Student Centered Goals
Unit 1		
Ratios and Rates	6.RP.A.1	Understand the concept of a ratio
	6.RP.A.2	Understand the concept of a unit rate
	6.RP.A.3	Use ratio and rate reasoning to solve real-world problems
Fractions, Decimals, and Percent's	6.NS.B.1	Interpret and compute quotients of fractions
	6.NS.B.2	Fluently divide multi-digit numbers using the standard algorithm

Scope and Sequence

	6.NS.B.3	Fluently add, subtract, multiply, and divide multi-digit decimals
	6.NS.B.4	Find the greatest common factor and the least common multiple
Unit 2		
Compute with Multi-Digit Numbers	6.NS.C.5	Understand that positive and negative numbers are used together
	6.NS.C.6	Understand a rational number as a point on the number line
	6.NS.C.6.a	Recognize opposite signs of numbers on a number line
	6.NS.C.6.b	Ordered pairs as locations in quadrants of the coordinate plane
	6.NS.C.6.c	Find and position integers on horizontal or vertical number line diagram
Understand absolute value of rational numbers	6.NS.C.7.a	Interpret statements of inequality
	6.NS.C.7.b	Write, interpret, and explain statements of order for rational numbers
	6.NS.C.7.c	Understand the absolute value of a rational number
	6.NS.C.7.d	Distinguish comparisons of absolute value from statements about order
Unit 3		
Expressions	6.EE.A.1	Write and evaluate numerical expressions
	6.EE.A.2	Write, read, and evaluate expressions in which letters stand for numbers
	6.EE.A.2.c	Evaluate expressions at specific values of their variables
	6.EE.A.3	Apply the properties of operations to generate equivalent expressions
	6.EE.A.4	Identify when two expressions are equivalent
Equations	6.EE.B.5	Understand solving an equation or inequality as a process
	6.EE.B.6	Use variables to represent numbers and write expressions
	6.EE.B.7	Solve real-world problems by writing and solving equations
	6.EE.B.8	Write an inequality of the form $x > c$ or $x < c$
	6.EE.C.9	Use variables to represent two quantities