Franklin Special School District
Grade 6 Honors Mathematics
2022-2023

COURSE SYLLABUS

1st Quarter Standards/Objectives		
RP.A1	**Ratios and Proportional Relationships**	● Understand the concept of a ratio as a way of expressing relationships between quantities. ● Write a ratio to describe the relationship between two quantities. ● Use ratio language, to describe the relationship between two quantities.
6.RP.A.2	**Ratios and Proportional Relationships**	● Understand the concept of a unit rate. ● Use rate and unit rate language. ● Find rates and unit rate.
6.RP.A.3	**Ratios and Proportional Relationships**	● Use ratio and rate reasoning to solve problems. ● Use a table to find equivalent ratios. ● Use a tape diagram and double number line diagram to find equivalent ratios. ● Use an equation to find equivalent ratios.
6.RP.A.3a	**Ratios and Proportional Relationships**	● Use a table to find equivalent fractions. ● Find missing value in equivalent ratio tables. ● Plot the pairs of values in a table on a coordinate plane. ● Use a table and graph to reason about equivalent ratios. ● Use a table and graph to compare ratios.

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1st Quarter Standards/Objectives		
6.RP.A.3b	**Ratios and Proportional Relationships**	● Solve unit rate problems about unit pricing. ● Solve unit rate problems involving constant speed
6.RP.A.3c	**Ratios and Proportional Relationships**	● Find the percent of a quantity. ● Know that a percent is a rate per 100. ● Find the whole given a percent and a part. ● Find the part given the percent.
6.RP.A.3d	**Ratios and Proportional Relationships**	● Use ratio reasoning to convert measurement units within the same system and between different systems.
6.NS.A.1	**The Number System**	● Use a model to show division of fractions. ● Use an understanding of multiplication of fractions to explain division of fractions. ● Compute quotients of fractions using algorithm. ● Compute quotients of fractions using equations.
6.NS.B.2	**The Number System**	● Fluently divide multi-digit numbers using the standard algorithm. (4-digit by 2-digit) ● Understand how to set up a problem based on the context of the problem. ● Be able to interpret what the quotient represents. ● Recognize that what is known or not known is based on the type of division needed (partitive: Total/number of groups = size of groups; quantitative or measurement: Total/size of group = number of groups).

1st Quarter Standards/Objectives		
6.NS.B.3	**The Number System**	● Understand the role of place value in the operations of addition and subtraction. ● Identify when it is appropriate to use the standard algorithm. ● Estimate sums and differences before using the standard algorithm, and use these sums and differences to check reasonableness of answers. ● Add and subtract multi-digit decimals. ● Model the operations of addition and subtraction with manipulatives, diagrams, and story contexts for multi-digit decimals. ● Fluently multiply and divide multi-digit decimals using the standard algorithm for each operation. ● Understand the role of place value in the operations of multiplication and division. ● Identify when it is appropriate to use the standard algorithm. ● Use estimation to approximate products and quotients to check for reasonableness of answers. ● Model the operations of multiplication and division with manipulatives, diagrams and story contexts for multi-digit decimals.
6.NS.B.4	**The Number System**	● Understand that the greatest common factor (GCF) and least common multiple (LCM) are ways to discuss number relationships in multiplication and division. ● Use the distributive property to express a sum of two numbers with a common factor as a multiple of a sum of two whole numbers with no common factor. ● Find the GCF of two whole numbers less than or equal to 100 and the LCM of two whole numbers less than or equal to 12.

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1st Quarter Standards/Objectives	
Topics covered: ● Ratios ● Understand Unit Rate ● Equivalent Ratios ● Solve Problems with Unit Rate ● Solve Problems with Percent ● Understand Division with Fractions ● Divide with Fractions	**Major assignments:** 1) Unit 1 Assessment
1ST Quarter Notes:	

2nd Quarter Standards/Objectives		
6.NS.C.5	**The Number System**	● Relate positive and negative numbers to the real-world.
6.NS.C.6	**The Number System**	● Understand integers and other rational numbers as points on a number line. ● Understand the sign of a number indicates its direction from zero on a vertical or horizontal number line.
6.NS.C.6a	**The Number System**	● Understand the sign of a number indicates its direction from zero on a vertical or horizontal number line. ● Recognize that the opposite of an opposite of a number is the number itself; 0 is its own opposite. ● Recognize opposite signs of numbers represent locations on opposite sides of 0 on the number line.
6.NS.C.6b	**The Number System**	● Understand the signs of numbers in an ordered pair indicates a location in a specific quadrant on the coordinate plane. ● Recognize when two ordered pairs differ only by signs, it indicates a reflection across one or both axes.
6.NS.C.6c	**The Number System**	● Find and position rational numbers on a vertical or horizontal number line. ● Find and plot pairs of integers on a number line or coordinate plan

2nd Quarter Standards/Objectives		
6.NS.C.7	**The Number System**	● Write, interpret, and explain statements of order for rational numbers. ● Understand absolute value of a rational number as the distance from 0 on the number line. ● Interpret absolute value as the magnitude of the number from 0 in a real-world situation. ● Distinguish comparisons of absolute value from statements about order.
6.NS.C.7a	**The Number System**	● Interpret statements of inequality as relating to the position of rational numbers on a number line
6.NS.C.7b	**The Number System**	● Write, interpret, and explain statements of order for rational numbers.
6.NS.C.7c	**The Number System**	● Understand the absolute value of rational number as its distance from 0 on the number line. ● Distinguish comparisons of absolute value from statements about order.
6.NS.C.8	**The Number System**	● Identify the origin and four quadrants of the coordinate plane. Plot ordered pairs in all quadrants. ● Use the signs of coordinates to locate points in quadrants. Recognize that if the coordinates only differ by the signs, the points are reflections across one or both axes. ● Use coordinates and absolute values to find distances between points. ● Solve real-world problems by graphing points in all quadrants.

2nd Quarter Standards/Objectives		
6.EE.A.1	**Expressions and Equations**	● Write numerical expressions involving whole-number exponents. ● Evaluate numerical expressions involving whole-number exponents.
6.EE.A.2	**Expressions and Equations**	● Write algebraic expressions. ● Read algebraic expressions. ● Evaluate algebraic expressions.
6.EE.A.2a	**Expressions and Equations**	● Write expressions that record operations with numbers and with variables.
6.EE.A.2b	**Expressions and Equations**	● Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient)
6.EE.A.2c	**Expressions and Equations**	● Evaluate expression at specific value of their variables. ● Use expressions that come from formulas used in real world problems.
6.EE.A.3	**Expressions and Equations**	● Apply the properties of operations (including, but not limited to, commutative, associative, and distributive properties) to create equivalent expressions.

2nd Quarter Standards/Objectives		
6.EE.A.4	**Expressions and Equations**	● Recognize and generate equivalent expressions. ● Substitute values into expressions to prove equivalency.
6.EE.A.5	**Expressions and Equations**	● Understand the differences between equations and inequalities. ● Know that inequalities represent a range of possible value rather than a single solution. ● Use substitution to determine whether a given number in a specific set makes an equation or inequality true.
6.EE.B.6	**Expressions and Equations**	● Use variables to represent numbers and write expressions when solving real world or mathematical problems ● Understand that a variable can represent an unknown number or any number in a specific set.
6.EE.B.7	**Expressions and Equations**	● Solve real world and mathematical problems by writing and solving one-step equations
6.EE.B.8	**Expressions and Equations**	● Write an inequality that represents real-world mathematical problems containing a constraint or a condition (). ● Recognize that a variable can stand for an infinite number of solutions when used in inequalities.
6.EE.C.9	**Expressions and Equations**	● Use variables to represent two quantities in a real world problem that change in relationship to one another

2nd Quarter Standards/Objectives		
6.EE.C.9a	**Expressions and Equations**	● Write and equation to express one quantity thought of as the dependent variable, in terms of the other quantity, through of as the independent variable.
6.EE.C.9b	**Expressions and Equations**	● Analyze the relationship between the dependent and independent variables using graphs and tables and relate these to the equation.
Topics covered: ● Divide Multi-Digit Numbers ● Add and Subtract Decimals ● Multiply and Divide Decimals ● Common Factors and Multiples ● Understand Positive and Negative Numbers ● The Coordinate Plane ● Numerical Expressions with Exponents ● Algebraic Expressions		**Major assignments:** 1) Unit 2 Assessment

3rd Quarter Standards/Objectives		
6.G.A.1	**Geometry**	● Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing or decomposing into triangles and other shapes. ● Know and apply these techniques in the context of solving real world and mathematical problems.
6.G.A.2	**Geometry**	● Measuring with fractional units requires relating volume to multiplication with fractions. ● Use these formulas: V = lwh and V=Bh. ● Prove that the volume works by creating diagrams of prisms with unit fraction edge lengths, and showing how unit fraction cubes pack them.
6.G.A.3	**Geometry**	● Understand that a line segment from one coordinate pair to another represents a distance. ● Understand that if two coordinates have the same x- or y-value they are on the same line. ● Find the distance between two points on the coordinate plane. ● Plot points in all four quadrants of the Cartesian coordinate plane. ● Plot a polygon in the Cartesian coordinate plane with given coordinates.
6.G.A.4	**Geometry**	● Represent three dimensional figures using nets made up of rectangles and triangles. ● Use nets to find the surface area of figures ● Apply these techniques in the context of solving real world and mathematical problems.

3rd Quarter Standards/Objectives		
6.SP.A.1	**Statistics and Probability**	● Understand that data generated from statistical questions will vary. ● Recognize that responses to statistical questions have variations that can be used to draw conclusions about the data set. ● Differentiate between a statistical and non-statistical question. ● Write simple statistical questions.
6.SP.A.2	**Statistics and Probability**	● Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center (mean, median, mode), spread, (range), and overall shape.
6.SP.A.3	**Statistics and Probability**	● Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how it is valued very with a single number.
6.SP.B.4	**Statistics and Probability**	● Display a single set of numerical data using dot plots (line plots), box plots, pie charts, and stem plots.
6.SP.B.5	**Statistics and Probability**	● Summarize numerical data sets in relation to their context.
6.SP.B.5a	**Statistics and Probability**	● Report the number of observations.
6.SP.B.5b	**Statistics and Probability**	● Describe the nature of the attribute being investigated, including how it was measured and its units of measurement.

3rd Quarter Standards/Objectives		
6.SP.B.5c	**Statistics and Probability**	● Give quantitative measure of center (median/mean) and variability (range) as well as describing any overall pattern with reference to context in which the data was gathered.
6.SP.B.5d	**Statistics and Probability**	● Choose the measure of center that best describes the data set based on shape of the data distribution.
BEGIN SEVENTH GRADE STANDARDS		
7.NS.A.1	**The Number System**	● Understand that the sum of a number and its opposite is zero in mathematical and real world situations. ● Understand the relationship between addition and subtraction. ● Represent p + q as the number located a distance from p on a number line. ● Subtract rational numbers by adding the additive inverse ● Use subtraction and absolute value to find the distance between two numbers on a number line. ● Find the distance between two points on a coordinate plane that have either the same x- or y- value. ● Add and subtract Integers. ● Represent addition and subtraction of integers on horizontal and/or vertical number lines. ● Apply properties of operations to add and subtract integers ● Connect adding and subtracting positive and negative fractions to what students already know about adding and subtracting fractions and adding and subtracting integers. ● Use a number line with easy fractions to connect to a distance model. ● Add and subtract positive and negative proper fractions. ● Add and subtract positive and negative improper fractions. ● Add and subtract positive and negative mixed numbers.

3rd Quarter Standards/Objectives		
7.NS.A.1a	**The Number System**	● Understand that the sum of a number and its opposite is zero in mathematical and real world situations.
7.NS.A.1b	**The Number System**	● Represent p + q (rational numbers) as the number located a distance |q| from p on a number line ● Show that a number and its opposite has a sum of zero (additive inverses) ● Interpret sums of numbers in real world situations.
7.NS.A.1c	**The Number System**	● Subtract rational numbers by adding the additive inverse ● Find the distance between two points on a coordinate plane that have either the same x- or y- value. ● Represent addition and subtraction of integers on horizontal and/or vertical number lines.
7.NS.A.1d	**The Number System**	● Add and subtract Integers ● Add and subtract positive and negative proper fractions and decimals.

3rd Quarter Standards/Objectives		
7.NS.A.2	**The Number System**	● Develop rules for multiplying and dividing integers using patterns. Identify equivalent numbers to show that $-(\frac{p}{q}) = \frac{(-p)}{q} = \frac{p}{(-q)}$ (using numbers, not variables). ● Multiply and divide integers resulting in integer answers. ● Convert a positive proper fraction to a terminating decimal. ● Convert a positive improper fraction to a whole number decimal using long division. ● Convert a positive proper fraction to a repeating decimal; use symbols for repeating decimals. ● Convert positive proper and improper fractions to repeating and non-repeating decimals. ● Connect multiplying and dividing positive and negative fractions to what students already know about multiplying and dividing fractions and multiplying and dividing integers. ● Multiply and divide rational numbers, with a focus on positive and negative proper and improper fractions, but also including multiplying and dividing integers by fractions and fractions by integers. ● Interpret products and quotients of rational numbers by describing real-world contexts.
7.NS.A.2a	**The Number System**	● Multiply integers resulting in integer answers. ● Connect multiplying positive and negative fractions to what students already know about multiplying fractions and multiplying and dividing integers. ● Multiply rational numbers, with a focus on positive and negative proper and improper fractions, but also including multiplying and dividing integers by fractions and fractions by integers.

3rd Quarter Standards/Objectives		
7.NS.A.2b	**The Number System**	● Identify equivalent numbers to show that $-(\frac{p}{q}) = \frac{(-p)}{q} = \frac{p}{(-q)}$ (using numbers, not variables). ● Divide integers resulting in integer answers. ● Connect dividing positive and negative fractions to what students already know about multiplying and dividing fractions and multiplying and dividing integers. ● Divide rational numbers, with a focus on positive and negative proper and improper fractions, but also including multiplying and dividing integers by fractions and fractions by integers.
7.NS.A.2c	**The Number System**	● Interpret products and quotients of rational numbers by describing real-world contexts.
Topics covered: The Number System ●		**Major assignments:** 1) Assessment