

William G. Rohrer Middle School Course Overview

Subject: Mathematics

Course: Math 6

Summary: Math 6 focuses on four critical areas: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing an understanding of statistical thinking.

Unit Title	Student Learning Targets	Standards	Resources	Assessment
Unit 1: The Real Number System	Learners will demonstrate the ability to: <ul style="list-style-type: none"> ● Describe quantities using positive and negative numbers ● Locate rational numbers on the number line ● Graph positive and negative rational numbers ● Determine the absolute value of a quantity ● Order rational numbers ● Find the distance between points in the coordinate plane ● Draw polygons by graphing points in the coordinate plane ● Apply knowledge of rational numbers to solve real-world and mathematical problems 	<p>6.NS.5 – Understand that positive and negative numbers are used together to describe quantities having opposite directions or values.</p> <p>6.NS.6 – Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axis familiar from previous grades to represent points on the line and in the plane with negative coordinates.</p> <p>6.NS.7 – Understand ordering and absolute value of rational numbers.</p> <p>6.NS.8 – Solve real-world and mathematical problems by graphing points in all four</p>	iPads Color Tiles Double Sided Counters Program Resources	Standard Check(s) Mastery Assessment(s)

		<p>quadrants on the coordinate plane. Include use of coordinates and absolute value to find distance between points with the same first coordinate or the same second coordinate.</p> <p>6.G.3 – Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.</p>		
<p>Unit 2: Operations with Rational Numbers</p>	<p>Learners will demonstrate the ability to:</p> <ul style="list-style-type: none"> ● Divide multi-digit numbers ● Add multi-digit decimals ● Subtract multi-digit decimals ● Multiply multi-digit decimals ● Divide multi-digit decimals ● Find the greatest common factor of two whole numbers ● Find the least common multiple of two numbers 	<p>6.NS.2 – Fluently divide multi-digit numbers using the standard algorithm.</p> <p>6.NS.3 - Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.</p> <p>6.NS.4 – Find the greatest common factor of two whole numbers less than our equal to 100 and the least common multiple of two numbers less than or equal to 12.</p>	<p>iPads</p> <p>Program Resources</p>	<p>Standard Check(s)</p> <p>Mastery Assessment(s)</p>

Unit 3: Ratio and Proportion	Learners will demonstrate the ability to: <ul style="list-style-type: none"> ● Divide fractions ● Interpret the quotient of two fractions ● Solve real-world and mathematical problems by dividing fractions ● Use ratios to describe the relationship between two quantities ● Express ratio relationships as rates ● Identify unit rates ● Apply knowledge of ratios and rates to solve real-world and mathematical problems 	6.NS.1 – Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions. 6.RP.1 – Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. 6.RP.2 - Understand the concept of a unit rate $\frac{a}{b}$ associated with a ratio $a: b$ where $b \neq 0$, and use rate language in the context of a ratio relationship. 6.RP.3 – Use ratio and rate reasoning to solve real-world and mathematical problems.	iPad Program Resources	Standard Check(s) Mastery Assessment(s)
Unit 4: Numerical and Algebraic Expressions	Learners will demonstrate the ability to: <ul style="list-style-type: none"> ● Simplify numerical expressions using the order of operations ● Simplify Algebraic expressions by combining like terms ● Determine if two expressions are equivalent 	6.EE.3 – Apply the properties of operations to generate equivalent expressions 6.EE.4 – Identify when two expressions are equivalent	iPad Program Resources	Standard Check(s) Mastery Assessment(s)
Unit 5: Algebraic Equations	Learners will demonstrate the ability to: <ul style="list-style-type: none"> ● Write equations to model real-world problems 	6.EE.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	iPad Program Resources	Standard Check(s) Mastery Assessment(s)

	<ul style="list-style-type: none"> ● Identify the independent variable and dependent variables in a relationship between two quantities ● Analyze relationships using tables ● Analyze relationships using graphs 	<p>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.</p>		
<p>Unit 6: Statistics and Probability</p>	<p>Learners will demonstrate the ability to:</p> <ul style="list-style-type: none"> ● Develop statistical questions ● Use statistical questions to gather data ● Describe data by its center, spread, and overall shape ● Calculate measures of center ● Calculate measures of variation ● Describe data sets using measures of center ● Describe data sets using measures of variation ● Compare data sets using measures of center and measures of variation ● Display numerical data in line plots, histograms, and box plots ● Summarize numerical data based on a given real-world situation 	<p>6.SP.1 – Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.</p> <p>6.SP.2 – Understand that a set of data collected to answer a statistical question has a distribution, which can be described by its center, spread, and overall shape.</p> <p>6. SP.3 – 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 its values vary with a single number.</p> <p>6. SP. 4 – Display numerical data in plots on a number line, including dot plots, histograms, and box plots.</p>	<p>iPad</p> <p>Program Resources</p>	<p>Standard Check(s)</p> <p>Mastery Assessment(s)</p>

		6.SP.5 –Summarize numerical data sets in relation to their context.		
Unit 7: Geometry	<p>Learners will demonstrate the ability to:</p> <ul style="list-style-type: none"> ● Calculate the area of triangles, quadrilaterals, and polygons ● Compose and decompose irregular shapes into triangles and rectangles to calculate area ● Calculate the volume of rectangular prisms ● Create nets of three dimensional figures ● Use nets to calculate surface area ● Apply knowledge of area, volume, and surface area to solve real-world and mathematical problems. 	<p>6.G.1 – Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.</p> <p>6.G.2 – Find the volume of a right rectangular prism with fractional edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formula $A = lwh$ and $V = Bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.</p> <p>6.G.4 – Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find surface area of these figures. Apply these techniques in the context of</p>	<p>iPad</p> <p>Geometry Software</p> <p>Program Resources</p>	<p>Standard Check(s)</p> <p>Mastery Assessment(s)</p>

		solving real-world and mathematical problems.		
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