

Grade Curriculum Map
Instructional Plan for Math
Robert J. Buss
St. Paul's Lutheran School
Revised: June 2020

**Grade 6 Curriculum
Instructional Plan for Math 6
Submitted by Robert J. Buss
Written: July 2018**

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	Content Type	Objectives	Standards	Assessment	Materials
A U G U S T & S E P T E M B E R	<ul style="list-style-type: none"> 24 	<ul style="list-style-type: none"> Place value of whole numbers and decimals Maintaining skills in fundamental operations Story problems/Problemsolving strategies Roman numerals 	<p>Apply and extend previous understandings of numbers to the system of rational numbers.</p> <ul style="list-style-type: none"> 6.NS.C.5 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.6 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.6.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.6.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.6.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. 	<ul style="list-style-type: none"> Biweekly quizzes Biweekly tests 4 weekly skills development exercises Daily Homework Speed Drills for Saxon Math (A-H) <p>Chapter Review Chapter Test</p>	<p>Abeka "Basic Math" lessons 1-22</p> <p>Saxon Math Speed Drills A-H</p>
O C T O B E R	<ul style="list-style-type: none"> 20 	<ul style="list-style-type: none"> Rounding off English and metric measures Converting measures within the same system and solving measurement equations Employing algebraic equations related to real life: mortgage, insurance, payroll, etc. 	<ul style="list-style-type: none"> 6.NS.C.7 Understand ordering and absolute value of rational numbers. 6.NS.C.7.A Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret $-3 > -7$ as a statement that -3 is located to the right of -7 on a number line oriented from left to right. 6.NS.C.7.B Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write $-3^{\circ}\text{C} > -7^{\circ}\text{C}$ to express the fact that -3°C is warmer than -7°C. 	<ul style="list-style-type: none"> Biweekly quizzes Biweekly tests 4 weekly skills development exercises Daily Homework Speed Drills for Saxon Math (A-H) <p>Chapter Review Chapter Test</p>	<p>Abeka "Basic Math" lessons 23-42</p> <p>Saxon Math Speed Drills A-H</p>

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N O V E M B E R	<ul style="list-style-type: none"> 19 	<p>Numbers</p> <ul style="list-style-type: none"> Place value: <ul style="list-style-type: none"> Whole numbers to the 100 billions' place Decimals to the millionths' place Writing numbers to the 100 billions' place Roman numerals: <ul style="list-style-type: none"> Value of I, V, X, L, C, D, M Basic and complex rules for forming Roman numerals Use of dash to increase value one thousand times Terms: <ul style="list-style-type: none"> Notation, numeration Prime number, composite number Comparing Rounding to nearest billion Prime numbers: Eratosthenes sieve Composite numbers Estimating: divisor, quotient Rounding: whole numbers, money, decimals, timed mastery Irrational numbers 	<p>Apply and extend previous understandings of multiplication and division to divide fractions by fractions.</p> <ul style="list-style-type: none"> 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. For example, create a story context for $(2/3) \div (3/4)$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$ is $2/3$. (In general, $(a/b) \div (c/d) = ad/bc$.) How much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $3/4$-cup servings are in $2/3$ of a cup of yogurt? How wide is a rectangular strip of land with length $3/4$ mi and area $1/2$ square mi?. <p>Compute fluently with multi-digit numbers and find common factors and multiples.</p> <ul style="list-style-type: none"> 6.NS.B.2 Fluently divide multi-digit numbers using the standard algorithm. 6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. 6.NS.B.4 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. For example, express $36 + 8$ as $4(9 + 2)$. 	<ul style="list-style-type: none"> Biweekly quizzes Biweekly tests 4 weekly skills development exercises Daily Homework Speed Drills for Saxon Math (A-H) <p>Chapter Review Chapter Test</p>	<p>Abeka "Basic Math" lessons 43-62</p> <p>Saxon Math Speed Drills A-H</p>
D E C E M B E R	<ul style="list-style-type: none"> 15 	<ul style="list-style-type: none"> Addition families 1–18: Mental arithmetic: problems combining addition, subtraction, multiplication, and division up to 16 numbers Checking by addition and casting out 9s Addends: column addition Averaging Fractions with common and uncommon denominators Measures Decimals with annexing zeros Compound measures Subtraction Subtraction families 1–18: mixed order Mental arithmetic: problems combining subtraction, addition, multiplication, and division up to 16 numbers 	<ul style="list-style-type: none"> Understand ratio concepts and use ratio reasoning to solve problems. 6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes." 6.RP.A.2 Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar." "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger."¹ 6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of 	<ul style="list-style-type: none"> Biweekly quizzes Biweekly tests 4 weekly skills development exercises Daily Homework Speed Drills for Saxon Math (A-H) <p>Chapter Review Chapter Test</p>	<p>Abeka "Basic Math" lessons 63-78</p> <p>Saxon Math Speed Drills A-H</p>

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		<ul style="list-style-type: none"> • Fractions with common and uncommon denominator • Decimals with annexing zeros • Compound measures Multiplication • Multiplication facts: 0–12 tables • Multiplying with up to a 3-digit multiplier (factor) • Checking by reversing factors and casting out 9s • Recognize symbol: • (raised dot) • Factoring <ul style="list-style-type: none"> ○ Finding common and greatest common factor ○ Prime factors: ○ Division by primes ○ Factoring tree ○ Least common multiple • Compound measures • Fractions: • Using cancellation • Multiplied by fractions, mixed or whole numbers • Decimals: <ul style="list-style-type: none"> ○ Multiplied by decimals or whole numbers ○ Multiplied by powers of ten 	<p>equivalent ratios, tape diagrams, double number line diagrams, or equations.</p> <ul style="list-style-type: none"> • 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. • 		
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J A N U A R Y	<ul style="list-style-type: none"> • 21 	<ul style="list-style-type: none"> • Division (cont.) <ul style="list-style-type: none"> ○ Divisors: Up to 4 digits ○ Dividends: Up to 7 digits ○ Remainders written as fractions ○ Checking by multiplication or casting out 9s • Averaging • Estimating quotients <ul style="list-style-type: none"> ○ Divisibility rules for dividing by 2, 3, 4, 5, 6, 9, 10 • Fractions <ul style="list-style-type: none"> ○ Dividing a whole number, mixed number, or fraction by a fraction or mixed number ○ Dividing a fraction or mixed number by a whole number • Decimals: <ul style="list-style-type: none"> ○ Dividing a decimal by a whole number ○ Eliminating decimal point in divisor ○ Annexing zeros to avoid remainders ○ Including zeros immediately to the right of decimal point in quotient • Dividing by powers of ten 	<p>Develop understanding of statistical variability.</p> <ul style="list-style-type: none"> • 6.SP.A.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages. • 6.SP.A.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. • 6.SP.A.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. • Summarize and describe distributions. • 6.SP.B.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots. • 6.SP.B.5 Summarize numerical data sets in relation to their context, such as by: <ul style="list-style-type: none"> ○ A Reporting the number of observations. ○ .B Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. ○ C Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. ○ D Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered. 	<ul style="list-style-type: none"> • Biweekly quizzes • Biweekly tests • 4 weekly skills development exercises • Daily Homework • Speed Drills for Saxon Math (A-H) <p>Chapter Review Chapter Test</p>	<p>Abeka "Basic Math" lessons 79-100</p> <p>Saxon Math Speed Drills A-H</p>

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F E B R U A R Y	<ul style="list-style-type: none"> 18 	<ul style="list-style-type: none"> Fractions <ul style="list-style-type: none"> Types: Proper, mixed, improper Change to mixed number or whole number Change mixed number to an improper fraction Simplifying: reducing and making proper -Addition with common and uncommon denominators -Subtraction with common and uncommon denominators <ul style="list-style-type: none"> With borrowing -Multiplication: Using cancellation <ul style="list-style-type: none"> Multiplying a fraction with a whole or mixed number Multiplying two mixed numbers Equivalent fractions -Division: <ul style="list-style-type: none"> Of a whole number, mixed number, or fraction by a fraction or mixed number Of a fraction or a mixed number by a whole number Changing fractions to decimals; decimals to fractions Finding fractional part of whole Decimals <ul style="list-style-type: none"> Money Reading and writing: writing a fraction or decimal as a fraction Place value: <ul style="list-style-type: none"> To the thousandths' place To the millionths' place Addition and subtraction: annexing zeros 	<p>Solve real-world and mathematical problems involving area, surface area, and volume.</p> <ul style="list-style-type: none"> 6.G.A.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. 6.G.A.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems. 6.G.A.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. 6.G.A.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems. 	<ul style="list-style-type: none"> Biweekly quizzes Biweekly tests 4 weekly skills development exercises Daily Homework Speed Drills for Saxon Math (A-H) <p>Chapter Review Chapter Test</p>	<p>Abeka "Basic Math" lessons 101-119</p> <p>Saxon Math Speed Drills A-H</p>
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M A R C H	<ul style="list-style-type: none"> 17 	<p>Decimals (cont.)</p> <p>Multiplication:</p> <ul style="list-style-type: none"> By a whole number By another decimal When zeros are annexed <p>Division:</p> <ul style="list-style-type: none"> By a whole number Eliminating decimal point in divisor Annexing zeros to avoid remainders Comparing and repeating decimals <ul style="list-style-type: none"> Changing fractions to decimals and decimals to fractions <ul style="list-style-type: none"> Terminating decimals Repeating decimals Converting repeating decimals to fractions <p>Percent, Ratio, Proportion</p> <p>Recognize symbol: % (percent) Read and write: Percent as a fraction, decimal, ratio</p> <ul style="list-style-type: none"> Fraction as a percent Decimal as a percent <ul style="list-style-type: none"> Subtracting from 100% 	<ul style="list-style-type: none"> 6.NS.C.7.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. For example, for an account balance of -30 dollars, write $-30 = 30$ to describe the size of the debt in dollars. 6.NS.C.7.D Distinguish comparisons of absolute value from statements about order. For example, recognize that an account balance less than -30 dollars represents a debt greater than 30 dollars. 6.NS.C.8 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. Apply and extend previous understandings of arithmetic to algebraic expressions. 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. For example, express the calculation "Subtract y from 5" as $5 - y$. 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. For example, describe the expression $2(8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms. 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). For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = 1/2$. 	<ul style="list-style-type: none"> Biweekly quizzes Biweekly tests 4 weekly skills development exercises Daily Homework Speed Drills for Saxon Math (A-H) <p>Chapter Review Chapter Test</p>	<p>Abeka "Basic Math" lessons 120-137</p> <p>Saxon Math Speed Drills A-H</p>

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A P R I L	<ul style="list-style-type: none"> • 20 	<ul style="list-style-type: none"> • Finding percentage: <ul style="list-style-type: none"> ○ Of a whole number ○ When the percent ends in a fraction; percent is over 100% ○ By comparison when the percent is given as more or less than ○ Less than 1% • Estimating answers • Finding: Percent by comparison <ul style="list-style-type: none"> ○ Percent of increase or decrease ○ The rate of discount ○ Percent for circle graphs ○ Discounts ○ Amount of profit ○ Simple interest ○ The base • Ratio & Proportion: Reading and writing • Means, extremes, cross products, word problems 	<ul style="list-style-type: none"> • 6.RP.A.3.B Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed? • 6.RP.A.3.C Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); 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. • 	<ul style="list-style-type: none"> • Biweekly quizzes • Biweekly tests • 4 weekly skills development exercises • Daily Homework • Speed Drills for Saxon Math (A-H) <p>Chapter Review Chapter Test</p>	<p>Abeka "Basic Math" lessons 138-158</p> <p>Saxon Math Speed Drills A-H</p>
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M A Y	<ul style="list-style-type: none"> 24 	<ul style="list-style-type: none"> Basic banking: Interest, Checking Account basics, Deposit Slips 	<ul style="list-style-type: none"> 6.RP.A.3.C Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); 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. 	<ul style="list-style-type: none"> Biweekly quizzes Biweekly tests 4 weekly skills development exercises Daily Homework Speed Drills for Saxon Math (A-H) Chapter Review Chapter Test 	Abeka "Basic Math" lessons 159-178 Saxon Math Speed Drills A-H