Grade Curriculum Map
Instructional Plan for Math 7
Robert J. Buss
St. Paul's Lutheran School
Revised: July 2020

Grade 7 Curriculum
Instructional Plan for Math 7
Written by Robert J. Buss
July 2019

Grade Curriculum Map
Instructional Plan for Math 7
Robert J. Buss
St. Paul's Lutheran School
Revised: July 2020

	Content Type	Objectives	Standards	Assessment	Materials

A U G U S T & S E P T E M B E R	• 24
	• Unit 1 Basic Skills
		Problem Solving Strategies
		Multi-step Problems
		Factoring
		Fracrtions
		Using a COnversion Factor
		Decimals
		Ratios
		Setting Up a Proportion
			• M.7.NS.A.1
			  o Apply and extend previous understandings of addition and subtraction to add and subtract rational
			  o numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
			  o a. Describe situations in which opposite quantities combine to make 0. Show that a number and
			  o its opposite have a sum of 0 (are additive inverses).
			  o b. Understand p + q as the number located a distance |q| from p, in the positive or negative
			  o direction depending on whether q is positive or negative. Show that a number and its opposite
			  o have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing realworld contexts.
			  o c. Understand subtraction of rational numbers as adding the additive inverse, p - q = p + (-q).
			• Show that the distance between two rational numbers on the number line is the absolute
			• value of their difference, and apply this principle in real-world contexts.
			• d. Apply properties of operations as strategies to add and subtract rational numbers.
			• M.7.NS.A.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
			• b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then - (p/q) = (-p)/q = p/(-q). Interpret quotients of rational numbers by describing real-world contexts. c. Apply properties of operations as strategies to multiply and divide rational numbers. d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats
				• formative quizzes,
				• in class boards work and seatwork
				• think pair share/partner problems
				• daily homework
				• chapter test
					Saxon math Speed Drill Tests A-H
					
					Abeka Pre-Algebra
					
					p 1-46

Grade Curriculum Map
Instructional Plan for Math 7
Robert J. Buss
St. Paul's Lutheran School
Revised: July 2020

	Content Type	Objectives	Standards	Assessment	Materials
			• M.7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers. Computations with rational numbers extend the rules for manipulating fractions to complex fractions.		
O C T O B E R	• 20 • Unit 2 Measurement	• IInear Measurement • Measures of Capacity • Measures of weight • Measures of Time • Using a map and calculating a map scale distance • Measure of speed • BIblical Measures • Compound Measures and regrouping	• M.7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. M.7.EE.A.2 Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05."	• formative quizzes, • in class boards work and seatwork • think pair share/partner problems • daily homework • chapter test	Saxon math Speed Drill Tests A-H Abeka Pre-Algebra p 7794

Grade Curriculum Map
Instructional Plan for Math 7
Robert J. Buss
St. Paul's Lutheran School
Revised: July 2020

N O V E M B E R	• 19 • Unit 3 the Metric System	• Linear Measures • Measures of Capacity • Measures of Mass • Measures of Area and Volume • Metric-English Relationship • Temperature	•	• formative quizzes, • in class boards work and seatwork • think pair share/partner problems • daily homework • chapter test • 2 chapter tests	Saxon math Speed Drill Tests A-H Abeka Pre-Algebra p 98-104
D E C E M B E R	• 15 • Unit 4 Algebra	• Intro to Algebra and Terms • Exponents • Combining Like Terms • Simplifying ALgebraic Expressions • Monomials • Equations • Graphing Problems • Positive and Negative Numbers	• M.8.NS.A.1 Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and use patterns to rewrite a decimal expansion that repeats into a rational number. • M.8.NS.A.2 Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., $\pi\pi2$).	• formative quizzes, • in class boards work and seatwork • think pair share/partner problems • daily homework • chapter test • Chapter Test	Saxon math Speed Drill Tests A-H Abeka Pre-Algebra p 109-170

Grade Curriculum Map
Instructional Plan for Math 7
Robert J. Buss
St. Paul's Lutheran School
Revised: July 2020

	Content Type	Objectives	Standards	Assessment	Materials
J A N U A R Y	21 - Unit 5 Scientific Notation	- Large Numbers - Small Numbers	- M.8.EE.A.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, 32 x 3-5 = 3-3 = 1/33 = 1/27. - M.8.EE.A.2 Use square root and cube root symbols to represent solutions to equations of the form x2 = p and x3 = p, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational. - M.8.EE.A.3 Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as 3 x 108 and the population of the world as 7 x 109, and determine that the world population is more than 20 times larger. - M.8.EE.A.4 Perform operations with numbers expressed in scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology and comparing magnitude of numbers.	- formative quizzes, - in class boards work and seatwork - think pair share/partner problems - daily homework - chapter test - Semester Review - Chapter Test	Saxon math Speed Drill Tests A-H Abeka Pre-Algebra p 181-199
F E B R U A R Y	18 - Unit 6 Graphs, Statistics, and Probability	- Graphs, - Statistics - Scale Drawings - Probability	- M.7.SP.A.1 Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences. - M.7.SP.A.2 Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. - M.7.SP.B.3 Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. - M.7.SP.B.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. - M.7.SP.C.5 Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of	- formative quizzes, - in class boards work and seatwork - think pair share/partner problems - daily homework - chapter test	Saxon math Speed Drill Tests A-H Abeka Pre-Algebra p 14989-223

			the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event. • M.7.SP.C.6 Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. • Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. a. Develop a uniform probability • model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. • M.7.SP.C.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. Wisconsin Standards for Mathematics 119 b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event. c. Design and use a simulation to generate frequencies for compound events.		

Grade Curriculum Map
Instructional Plan for Math 7
Robert J. Buss
St. Paul's Lutheran School
Revised: July 2020

	Content Type	Objectives	Standards	Assessment	Materials

M A R C H	• 17
	• Unit 7 Business Mathematics
		• Income
		• Making a table
		• Taxes
		• Budgeting
		• Checking account
		• Borrowing Money
		• Investments
		   o interest over time
		   o I=PRT
		   o compound interest
		   o credit cards
		• Insurance
		   o homeowners
		   o automobile
		   o life
		   o health
			• M.7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
			• M.7.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.
			• b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem
				• formative quizzes,
				• in class boards work and seatwork
				• think pair share/partner problems
				• daily homework
				• chapter test
					Saxon math Speed Drill Tests A-H
					
					Abeka Pre-Algebra
					
					p 232-282

A P R I L	• 20
	• Unit 8 Geometry
		• Intro to Plane Geometry
		• Angles
		• Circles
		• Construction
		• Triangles
		• Perimeter
		• Circumference
		• Problem Solving Strategies
		   o area
		   o into to solid geometry
		   o surface area
		   o volume
		• Pythagorean Rule
		   o drawing a geometric model
		   o using trigonometric ratio
		• Using Trigonometric Ratios
			• M.7.G.A.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
			• M.7.G.A.2 Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
			• M.7.G.A.3 Describe the two-dimensional figures that result from slicing three dimensional figures parallel to the base, as in plane sections of right rectangular prisms and right rectangular pyramids.
			• M.7.G.B.4 Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
			• M.7.G.B.5 Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
				• formative quizzes,
				• in class boards work and seatwork
				• think pair share/partner problems
				• daily homework
				• chapter test
					Saxon math Speed Drill Tests A-H
					
					Abeka Pre-Algebra
					
					p 291-356

Grade Curriculum Map
Instructional Plan for Math 7
Robert J. Buss
St. Paul's Lutheran School
Revised: July 2020

			● M.7.G.B.6 Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.		

Grade Curriculum Map
Instructional Plan for Math 7
Robert J. Buss
St. Paul's Lutheran School
Revised: July 2020

	Content Type	Objectives	Standards	Assessment	Materials
M A Y	● 24 ● Going Further into Algebra	● Simplifying Irrationals ● Multiplying Polynomials by Monomials ● Dividing Polynomials by Monomials ● Multiplying Polynomials by Polynomials	●	● formative quizzes, ● in class boards work and seatwork ● think pair share/partner problems ● daily homework ● chapter test	Saxon math Speed Drill Tests A-H Abeka Pre-Algebra p 356-391