

**COURSE: Math A1 – 15:1**  
**GRADE LEVEL: 9**

MAIN/GENERAL TOPIC:	SUB-TOPIC:	ESSENTIAL QUESTIONS:	WHAT THE STUDENTS WILL KNOW OR BE ABLE TO DO:	SKILLS:	WHEN STUDENT DOES IT:	ASSESSMENTS:
NUMBER THEORY	<ul style="list-style-type: none"> <li>Real Numbers</li> </ul>	<ul style="list-style-type: none"> <li>Are all #'s the same?</li> <li>How many #'s are there?</li> </ul>	<ul style="list-style-type: none"> <li>Explain Real Numbers</li> <li>Identify Rational vs. Irrational #'s</li> <li>Identify Integer vs. Whole vs. Counting Numbers</li> <li>Set Builder Notation</li> </ul>	<ul style="list-style-type: none"> <li>Differentiate between various types of numbers</li> </ul>	September	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Number Lines</li> </ul>	<ul style="list-style-type: none"> <li>Does every # have a place on the number line?</li> </ul>	<ul style="list-style-type: none"> <li>Locate points on number line</li> <li>Compare values on number line</li> </ul>	<ul style="list-style-type: none"> <li>Show where numbers fall on the number line</li> </ul>	September	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Scientific Notation</li> </ul>	<ul style="list-style-type: none"> <li>Why do we use scientific notation?</li> </ul>	<ul style="list-style-type: none"> <li>Correctly use scientific numbers for both large and small numbers</li> <li>Multiply/divide numbers written in scientific notation</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate understanding of scientific notation</li> </ul>	September	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Absolute Value and Signed Numbers</li> </ul>	<ul style="list-style-type: none"> <li>What is the absolute value of -5?</li> <li>Is +2 smaller or larger than -10?</li> </ul>	<ul style="list-style-type: none"> <li>Add/subtract</li> <li>Multiply/divide</li> <li>Understand order</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate ability to understand and use absolute value and signed numbers</li> </ul>	September	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
OPERATIONS AND PROPERTIES	<ul style="list-style-type: none"> <li>Conversions, Equivalencies and Reduction</li> </ul>	<ul style="list-style-type: none"> <li>How can you find equivalent numbers?</li> <li>How and why do you reduce fractions?</li> </ul>	<ul style="list-style-type: none"> <li>Convert fractions, decimals, and percents</li> <li>Reduce fractions</li> </ul>	<ul style="list-style-type: none"> <li>Understand how to convert and reduce fractions</li> </ul>	October	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Operations with Fractions</li> </ul>	<ul style="list-style-type: none"> <li>How do I solve fraction problems with a calculator?</li> </ul>	<ul style="list-style-type: none"> <li>Addition, subtraction, multiplication, and division of fractions with a calculator</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate use of calculator to solve fractions</li> </ul>	October	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>

	<ul style="list-style-type: none"> <li>Exponents</li> </ul>	<ul style="list-style-type: none"> <li>What does an exponent tell us to do?</li> </ul>	<ul style="list-style-type: none"> <li>Identify base, power, exponent</li> <li>Evaluate expressions that include exponents</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate understanding an proper use of exponents, bases and powers</li> </ul>	October	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Order of Operations</li> </ul>	<ul style="list-style-type: none"> <li>Does order matter in math?</li> </ul>	<ul style="list-style-type: none"> <li>Follow PEMDAS</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate understanding of order of operations</li> </ul>	November	<ul style="list-style-type: none"> <li></li> </ul>
	<ul style="list-style-type: none"> <li>Properties and Systems</li> </ul>	<ul style="list-style-type: none"> <li>What are the properties of operation?</li> </ul>	<ul style="list-style-type: none"> <li>Correctly identify properties of operations (commutative, associative, distributive, identity, inverse, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Identify different properties and recognize examples of each</li> </ul>	November	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Expressing (Evaluating)</li> </ul>	<ul style="list-style-type: none"> <li>Is it important to follow order of operations?</li> </ul>	<ul style="list-style-type: none"> <li>Use signed numbers and Order of Operations to evaluate expressions</li> </ul>	<ul style="list-style-type: none"> <li>Identify the difference between expressions and equations</li> </ul>	November	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
RADICALS	<ul style="list-style-type: none"> <li>Square Roots</li> </ul>	<ul style="list-style-type: none"> <li>What operations are similar between radicals and variables</li> </ul>	<ul style="list-style-type: none"> <li>Simplify radicals</li> <li>Find square roots in simplest form</li> <li>Add, subtract, multiply, and divide radicals</li> </ul>	<ul style="list-style-type: none"> <li>Identify the difference between radicals and variables</li> </ul>	December	<ul style="list-style-type: none"> <li></li> </ul>
ALGEBRA-MONOMIALS	<ul style="list-style-type: none"> <li>Variables</li> </ul>	<ul style="list-style-type: none"> <li>What is a variable?</li> </ul>	<ul style="list-style-type: none"> <li>Use variables in equations</li> <li>Explain algebraic terminology</li> </ul>	<ul style="list-style-type: none"> <li>Identify variables</li> </ul>	December	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Verbal Phrases</li> </ul>	<ul style="list-style-type: none"> <li>Twice a number means what?</li> </ul>	<ul style="list-style-type: none"> <li>Translate verbal phrase into algebraic language</li> </ul>	<ul style="list-style-type: none"> <li>Recognize basic terminology</li> </ul>	December	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>One and Two Step Equations</li> </ul>	<ul style="list-style-type: none"> <li>How do you solve equations?</li> </ul>	<ul style="list-style-type: none"> <li>Follow steps to solve one and two step equations</li> </ul>	<ul style="list-style-type: none"> <li>Identify steps to solve equations</li> </ul>	January	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>

	<ul style="list-style-type: none"> <li>Solving Equations (Strategies)</li> </ul>	<ul style="list-style-type: none"> <li>Is there more than one way to solve most problems?</li> </ul>	<ul style="list-style-type: none"> <li>Employ different strategies</li> <li>Choose appropriate strategies</li> <li>Combine strategies (i.e.; clear fractions, set to zero, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Recognize that there are different strategies to find the correct answer</li> </ul>	January	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
ALGEBRA-POLYNOMIALS	<ul style="list-style-type: none"> <li>Algebraic Expressions (Operations)</li> </ul>	<ul style="list-style-type: none"> <li>What is a like term?</li> </ul>	<ul style="list-style-type: none"> <li>Add/Subtract/Multiply/Divide monomials and polynomials</li> </ul>	<ul style="list-style-type: none"> <li>Identify like terms</li> </ul>	February	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Word Problems</li> </ul>	<ul style="list-style-type: none"> <li>How does using variables help us solve problems?</li> </ul>	<ul style="list-style-type: none"> <li>Translate verbal phrases into algebraic equations</li> <li>Use equations to solve problems</li> <li>Use "let" statements</li> </ul>	<ul style="list-style-type: none"> <li>Identify "let" statements from given word problems</li> </ul>	February	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
COORDINATE GEOMETRY (LINEAR FUNCTIONS)	<ul style="list-style-type: none"> <li>Open Sentences</li> </ul>	<ul style="list-style-type: none"> <li>Can we solve equations with two variables?</li> </ul>	<ul style="list-style-type: none"> <li>Understand equations with two variables have many solutions</li> <li>Determine solution set of two-variable problems</li> </ul>	<ul style="list-style-type: none"> <li>Identify steps to solving two-variable equations</li> </ul>	March	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Coordinate Plane</li> </ul>	<ul style="list-style-type: none"> <li>Are coordinate planes used in real-life?</li> </ul>	<ul style="list-style-type: none"> <li>Graph using x- and y- axis</li> <li>Understand meaning of input variable and output variable</li> </ul>	<ul style="list-style-type: none"> <li>Use calculator to graph given equations</li> </ul>	March	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Slope and Y-Intercept</li> </ul>	<ul style="list-style-type: none"> <li>What does the slope tell us?</li> <li>They y-intercept tells us what?</li> </ul>	<ul style="list-style-type: none"> <li>Identify lines having positive/negative/zero/undefined slopes</li> <li>Identify parts of the linear equation <math>y=mx + b</math></li> </ul>	<ul style="list-style-type: none"> <li>Identify and use formulas correctly</li> </ul>	March	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Equations of Lines</li> </ul>	<ul style="list-style-type: none"> <li>Can every line be shown by an equation?</li> </ul>	<ul style="list-style-type: none"> <li>Calculate equation of a line given 2 points or given 1 point and the slope</li> <li>Manipulate equations to get them into the form <math>y = mx + b</math></li> </ul>	<ul style="list-style-type: none"> <li>Identify and use formulas correctly</li> </ul>	March	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Graphing</li> </ul>	<ul style="list-style-type: none"> <li>How do we use the equation of a line to graph that line?</li> </ul>	<ul style="list-style-type: none"> <li>Graph lines with positive/negative/zero/undefined slope</li> <li>Identify slopes from visual representations of a line</li> </ul>	<ul style="list-style-type: none"> <li>Identify 4 types of lines and their slopes</li> </ul>	April	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>

	<ul style="list-style-type: none"> <li>Linear Relationships</li> </ul>	<ul style="list-style-type: none"> <li>Can we tell things about lines knowing their slopes?</li> </ul>	<ul style="list-style-type: none"> <li>Identify lines that are parallel/perpendicular/vertical/horizontal by their slope</li> </ul>	<ul style="list-style-type: none"> <li>Draw appropriate conclusions</li> </ul>	April	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Solving Sets of Linear Equations</li> </ul>	<ul style="list-style-type: none"> <li>Is graphing an algebraic mean for solving problems?</li> </ul>	<ul style="list-style-type: none"> <li>Solve systems of equations using addition/subtraction/graphing</li> <li>Understand trial and error is a valid process to solve equations</li> </ul>	<ul style="list-style-type: none"> <li>Use calculator correctly to solve equations</li> </ul>	April	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
INEQUALITIES	<ul style="list-style-type: none"> <li>Properties</li> </ul>	<ul style="list-style-type: none"> <li>What is an inequality?</li> <li>How is it different?</li> </ul>	<ul style="list-style-type: none"> <li>Identify inequalities in problems</li> <li>Use addition/subtraction/multiplication/division with equalities</li> </ul>	<ul style="list-style-type: none"> <li>Identify inequalities</li> </ul>	May	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Solution Sets</li> </ul>	<ul style="list-style-type: none"> <li>How many points satisfy inequalities</li> </ul>	<ul style="list-style-type: none"> <li>Determine solution sets of inequalities using properties</li> </ul>	<ul style="list-style-type: none"> <li>Identify steps to solve regular algebraic equations and apply</li> </ul>	May	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>
	<ul style="list-style-type: none"> <li>Graphing</li> </ul>	<ul style="list-style-type: none"> <li>How do you graph an inequality?</li> </ul>	<ul style="list-style-type: none"> <li>Use coordinate plane to show solution set of an inequality</li> <li>Understand meaning of a graph of an inequality</li> </ul>	<ul style="list-style-type: none"> <li>Use coordinate plane to show solution set of given inequality</li> </ul>	May	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Test</li> </ul>
	<ul style="list-style-type: none"> <li>Solving Sets of Inequalities</li> </ul>	<ul style="list-style-type: none"> <li>How do you show sets of inequalities when graphing?</li> </ul>	<ul style="list-style-type: none"> <li>Graph solution sets</li> <li>Solve compound inequalities</li> <li>Solve inequality word problems by addition &amp; multiplication</li> </ul>	<ul style="list-style-type: none"> <li>Correctly graph solution sets of solved inequalities</li> </ul>	June	<ul style="list-style-type: none"> <li>Homework</li> <li>Quizzes</li> <li>Tests</li> </ul>

**End of 9<sup>th</sup> Grade**