Algebra I Curriculum
Gasconade County R-2 School District

Grade Level: 9 - 12 **Subject:** Math -- Algebra 1

Month	Unit	Mathematics Missouri Learning Standards	Key Mathematics and Academic Vocabulary	MathLinks to New MLS	Essential Questions
August	Unit 1	SSE A 1 SSE A 2 REI A1 NQ B3 a NQ B5 NQ B3 b NQ B3 c NQ B4	algebraic expression variables term factors power product exponent base equivalent expressions reciprocals distributive property like terms simplest form coefficient	Item Specification Reports 6-12 Missouri Learning Standards 7-12 Math Glossary Missouri EOC Math Reference Sheet End of Course Blueprints MAP Grade Level Blueprints	The student will be able to interpret parts of an expression, such as terms, factors, and coefficients. The student will be able to use the structure of an expression to identify ways to rewrite it. The student will be able to identify equivalent equations. The student will be able to label quantities with appropriate terms such as rates, time, length, area and capacity with the appropriate level of accuracy. The student will be able to convert units.

September		IF B4 IF A1 a IF A1 b IF A2 IF C7	coordinate system ordered pair x-coordinate y-coordinate relation mapping domain range independent variable dependent variable function discrete function continuous function vertical line test function notation nonlinear function intercepts y-intercept x-intercept line symmetry extrema relative minimum relative maximum end behavior		The student will relate the domain and range of a function to its graph. The student will represent a function using function notation, and understand that f(x) denotes the elements of the range of a function f that correspond to the elements of the domain. The student will understand that the input and output values of a function correspond to (x,y) values on the Cartesian coordinate plane. The student will use function notation to evaluate functions for inputs in their domains. The student will understand the key features of a graph.

October	U2 Unit 3	CED A1 REI A1 NQ B3 a NQ B3 b CED A4(2-7) CED A2 REI C6 IF A1 b IF C7 IF B5 LQE A1a CED A2 IF C7 BF A1 IF C7 IF B4	formula multi step equation consecutive integers absolute value ratio proportion rate scale scale model literal equations dimensional analysis unit analysis linear equation standard form constant x-intercept y-intercept linear function parent function zeros rate of change slope slope-intercept form constant function vertex domain range translation		The student will create equations and inequalities with one variable and use them to solve problems. The student will solve multi-step equations. The student will compare ratios, and create and solve proportions. The student will solve equations for given variables, and use formulas to solve real-world problems. The student will identify through graphing and algebraically, linear equations, intercepts, and zeros. The student will graph linear equations. The student will use rate of change to solve problems. The student will find the slope of a line. The student will write and graph linear equations in slope-intercept form, and use to model real-world data. The student will identify the effects of transformations from a given parent function (linear, quadratic, & exponential).

November	UNIT 4	LQE B4 LQE B5 LQE B6 IF C7 IF B6 IF B5 NQ B3 d LQE A3 CED A2	sequence terms of a sequence arithmetic sequence common difference piecewise function constraint linear extrapolation standard form point-slope form		The student will recognize arithmetic sequence and relate it to linear functions. The student will identify and graph piecewise-defined functions. The student will write an equation of a line in slope-intercept form given the slope and one point, or given two points. The students will use appropriate scales for the x & y axes. The student will write equations of lines in standard form and point-slope form.
December		IF B5 IF B3	parallel lines perpendicular lines		The student will write an equation of the line that passes through a given point, and is parallel or perpendicular to a given line.

January	UNIT 5 6.6	DS A1 DS A4 b DS A5 a DS A5 b DS A6 DS A8 DS A4 a DS A5 a DS A7 CED A1 REI A1 CED A3 REI C7 REI C8	bivariate data scatter plot correlation association line of fit linear interpolation correlation causation best-fit line linear regression correlation coefficient residual median-fit line boundary		The student will investigate relationships between quantities by using points on scatter plots, and use lines of fit to make and evaluate predictions. The student will determine whether a data set or situation illustrates correlation or causation. The student will write equations of best-fit lines using linear regression, and write equations of median-fit lines. The student will solve linear inequalities more than one operation and/or using the Distributive Property The student will graph linear inequalities on the coordinate plane. The student will solve inequalities by graphing.
February	UNIT 6	REI B3 IF C9	systems of equations consistent		The student will determine the number of solutions a system of linear equations has. The student will solve systems of equations by

	6.1 6.2 6.3 6.4 6.5	LQE A3 REI C6 REI B4 CED A3 REI B4 REI B5 REI B4 REI B5 CED A3 IF C8	independent dependent inconsistent substitution elimination		graphing. The student will solve systems of equations by using substitution. The student will solve systems of equations by using elimination with addition. The student will apply systems of equations to solve real-world problem, and label answers with appropriate units.
March	UNIT 7 7.1 7.2 7.3	SSE A2 NQ A1 APR A1 SSE A2 NQ A1 NQ B5 NQ A1 NQ A2 SSE A2 CED A1	monomial constant properties of exponents *product, power, power of products properties of exponents *quotient, power of quotient, zero power, neg. exponent scientific notation rational exponents radicals exponential equations		The student will simplify monomials using the multiplication properties of exponents. The student will divide monomials using the properties of exponents. The student will simplify monomials containing negative and zero exponents. The student will evaluate and rewrite expressions involving rational exponents. The student will solve equations involving expressions with rational exponents. The student will identify parts of an expression such as terms, factors,

					and coefficients. The student will write polynomials in standard form. The student will add and subtract polynomials. The student will multiply a polynomial by a monomial. The student will solve equations involving the products of monomials and polynomials. The student will multiply binomials by using the FOIL method. The student will multiply polynomials by using the Distributive Property. The student will find square of sums and differences.
	UNIT 8 8.1	SSE A1	polynomial binomial trinomial degree standard form leading coefficient		
	8.2-3	SSE A2 APR A1	FOIL		The student will use the Distributive Property to factor polynomials. The student will factor polynomials by grouping. The student will factor trinomials with or without a leading coefficient.
	8.4	SSE A1 SSE A2	sum of square difference of square		
	8.5	APR A2	factoring GCF factor by grouping		
	8.6	SSE A2			

		REI A2c			
April	8.7	REI A2c SSE A2	difference of squares perfect square trinomials		The student will factor binomials that are difference of squares. The students will factor trinomials that are perfect squares.
	UNIT 9 9.1	SSE A3b CED A1 CED A2 IF C7 IF B5	quadratic functions standard form of a quadratic parabola line of symmetry vertex minimum/maximum		The student will analyze the characteristics of graphs of quadratic functions. The student will graph quadratic functions. The student will solve quadratic equations by graphing. The student will solve quadratic equations by using the Square Root Property.
	9.3	CED A2 REI A2c	root		The student will solve quadratic equations by factoring. The student will solve quadratic equations by completing the square. The student will identify key features of quadratic functions by writing quadratic equations in vertex form.
	9.4	SSE A2 SSE A3a	square root		The student will solve quadratic equations by using the Quadratic Formula.
	9.5	REI A2a REI A2c	complete the square		The student will graph exponential functions. The student will recognize that the data displayed has exponential behavior. The student will solve systems of linear and quadratic or linear and exponential equations by graphing or by using algebraic methods.
	9.6	REI A2b REI A2c	quadratic formula		

	7.5 9.7	LQE A1a LQE A1b LQE A3 REI B4 IF C9 LQE A2	exponential equations solve linear/quad systems solve linear/exp. systems		
May	10.1 10.2 10.3 10.6	DS A2 DS A3 DS A4a DS A1 DS A2 NQ B3d DS A4a DS A4b	quantitative data qualitative date mean median mode range scatter plot frequency table bar graph histogram box and whisker plot quartile interquartile range outlier variance distribution standard deviation two way frequency table relative frequency		The student will represent sets of data by using measures of center. The student will represent sets of data by using percentiles. The student will represent data with plots on the real number line (using dot plots, histograms, and box plots). The student will identify and interpret factors affecting variation. The students will analyze data sets using statistics. The student will interpret relative frequencies based on data in a two-way frequency table.