	Algebra I Prioritized Curriculum	Essential	Important	Compact
M.O.A1.2.1	formulate algebraic expressions for use in equations and inequalities that require planning to accurately model real-world problems.	X		
M.O.A1.2.2	create and solve multi-step linear equations, absolute value equations, and linear inequalities in one variable, (with and without technology); apply skills toward solving practical problems such as distance, mixtures or motion and judge the reasonableness of solutions.	X		
M.O.A1.2.3	evaluate data provided, given a real-world situation, select an appropriate literal equation and solve for a needed variable.		X	
M.O.A1.2.4	develop and test hypotheses to derive the laws of exponents and use them to perform operations on expressions with integral exponents.	X		
M.O.A1.2.5	analyze a given set of data and prove the existence of a pattern numerically, algebraically and graphically, write equations from the patterns and make inferences and predictions based on observing the pattern.	X		
M.O.A.1.2.6	determine the slope of a line through a variety of strategies (e.g. given an equation or graph).	X		
M.O.A1.2.7	analyze situations and solve problems by determining the equation of a line given a graph of a line, two points on the line, the slope and a point, or the slope and y intercept.	X		
M.O.A1.2.8	identify a real life situation that involves a constant rate of change; pose a question; make a hypothesis as to the answer; develop, justify, and implement a method to collect, organize, and analyze related data; extend the nature of collected, discrete data to that of a continuous linear function that describes the known data set; generalize the results to make a conclusion; compare the hypothesis and the conclusion; present the project numerically, analytically, graphically and verbally using the predictive and analytic tools of algebra (with and without technology).	X		
M.O.A1.2.9	create and solve systems of linear equations graphically and numerically using the elimination method and the substitution method, given a real-world situation.	X		
M.O.A1.2.10	simplify and evaluate algebraic expressions • add and subtract polynomials • multiply and divide binomials by binomials or monomials	X		

M.O.A1.2.11	create polynomials to represent and solve problems from real-world situations while focusing on symbolic and graphical patterns.		X	
M.O.A1.2.12	use area models and graphical representations to develop and explain appropriate methods of factoring.		X	
M.O.A1.2.13	simplify radical expressions • through adding, subtracting, multiplying and dividing • exact and approximate forms		X	
M.O.A1.2.14	choose the most efficient method to solve quadratic equations by • graphing (with and without technology), • factoring • quadratic formula and draw reasonable conclusions about a situation being modeled.	X		
M.O.A1.2.15	describe real life situations involving exponential growth and decay equations including $y=2^x$ and $y=(½)^x$; compare the equation with attributes of an associated table and graph to demonstrate an understanding of their interrelationship.			X
M.O.A1.2.16	simplify and evaluate rational expressions • add, subtract, multiply and divide • determine when an expression is undefined.		X	
M.O.A1.2.17	perform a linear regression (with and without technology), • compare and evaluate methods of fitting lines to data. • identify the equation for the line of regression, • examine the correlation coefficient to determine how well the line fits the data • use the equation to predict specific values of a variable.	X		
M.O.A1.2.18	compute and interpret the expected value of random variables in simple cases using simulations and rules of probability (with and without technology).			X
M.O.A1.2.19	gather data to create histograms, box plots, scatter plots, and normal distribution curves and use them to draw and support conclusions about the data.		X	
M.O.A1.2.20	design experiments to model and solve problems using the concepts of sample space and probability distribution.			X
M.O.A1.2.21	use multiple representations, such as words, graphs, tables of values and equations, to solve practical problems; describe advantages and disadvantages of the use of each representation.	X		

Fayette County Schools
Mathematics Learning Map

Algebra I — 1st Nine Weeks

Unit EQ	How can the meaning, utility, and reasonableness of the results of symbol manipulations be judged?		Why is it important to generalize patterns using explicitly defined and recursively defined functions?	
Benchmark CSO's	M.O.A.1.2.1 formulate algebraic expressions for use in equations and inequalities that require planning to accurately model real-world problems.	M.O.A.1.2.2 create and solve multi-step linear equations, absolute value equations, and linear inequalities in one variable, (with and without technology); apply skills toward solving practical problems such as distance, mixtures or motion and judge the reasonableness of solutions.	M.O.A.1.2.5 analyze a given set of data and prove the existence of a pattern numerically, algebraically, and graphically, write equations from the patterns and make inferences and predictions based on observing the pattern.	M.O.A1.2.21 Use multiple representations, such as words, graphs, tables of values and equations, to solve practical problems; describe advantages of the use of each representation.
Standards Based Math Unit	Carnegie Learning Algebra I Chapters 1and 4	Carnegie Learning Algebra I Chapters 1, 3, 4	Carnegie Learning Algebra I Chapters 1	Carnegie Learning Algebra I Chapters 1and 3
	Online Algebra I: Units 1, 3 Teach21 Unit Plans			
21st Century Online Resources	*WVDE Algebra Online* *Instructional Guide for Algebra I: Equations and Inequalities* http://wveis.k12.wv.us/Teach21/public/Iguide		techSteps – Algebra I (Activity Library: Linear Graphing & Solve Inequalities by Graphing)	
Lesson EQ's	1. How are algebraic symbols used to represent and communicate mathematical situations found in the real world? 2. How is equality preserved when solving an equation?	1. How is solving linear inequalities similar to solving linear equalities? 2. What are the characteristics of an absolute value equation?		

Unit Vocabulary:

Carnegie Learning (Chapter 1):

Term	Pattern	Sequence	Power	Base
Expression	Variable	Evaluate	Coefficient	n^{th} Term
Exponent	Algebraic Equation	Solution	Bounds	
independent variable	dependent variable	Point of Intersection		

Carnegie Learning (Chapter 3):

Equivalent Equations	Inverse Operations	Commission	Integer	Origin
Cartesian Coordinate System	x-coordinate	y-coordinate		

Carnegie Learning (Chapter 4):

Inequality	Compound Inequality	Relation	Range	Set Notation
Function	Domain	Like Terms	Rational Number	Closure
Irrational Number	Absolute Value	Tolerance		

Online Algebra I Unit 1:

like terms	equations	x-axis	literal equation	formula
linear	absolute value	constant	algebraic expression	square root
commutative property	associative property	distributive property	inverse operations	inequality

Online Algebra Unit 3:

coordinate graphs	line of best fit	line of regression	irrational number	linear
relationships	rational number			

Fayette County Schools
Mathematics Learning Map

Algebra I — 2nd Nine Weeks

Unit EQ	How are equations used to accurately model and solve real-world problems?			What are the benefits of using models and technology to model mathematical situations?		
Benchmark CSO's	M.O.A.1.2.3 evaluate data provided, given a real-world situation, select an appropriate literal equation and solve for a needed variable.	M.O.A.1.2.6 determine the slope of a line through a variety of strategies (e.g. given an equation or graph).	M.O.A.1.2.7 analyze situations and solve problems by determining the equation of a line given a graph of a line, two points on the line, the slope and a point, or the slope and y-intercept.	M.O.A.1.2.8 identify a real life situation that involves a constant rate of change; pose a question; make a hypothesis as to the answer; develop, justify, and implement a method to collect, organize, and analyze related data; extend the nature of collected, discrete data to that of a continuous linear function that describes the known data set; generalize the results to make a conclusion; compare the hypothesis and the conclusion; present the project numerically, analytically, graphically and verbally using the predictive and analytic tools of algebra (with and without technology).	M.O.A.1.2.17 perform a linear regression (with and without technology), • compare and evaluate methods of fitting lines to data. • identify the equation for the line of regression, • examine the correlation coefficient to determine how well the line fits the data use the equation to predict specific values of a variable.	M.O.A.1.2.9 create and solve systems of linear equations graphically and numerically using the elimination method and the substitution method, given a real-world situation.

Standards Based Math Unit	Carnegie Learning Algebra I - Chapter 5			Carnegie Learning Algebra I - Chapter 6		Carnegie Learning Algebra I Chapter7 (Sec. 1–8)
21st Century Online Resources		techSteps – Algebra I (Activity Library: Rise over Run)				
Lesson EQ's	1. How does solving a literal equation compare to solving an equation with one variable?	1. In what ways can the slope be calculated? 2. What is the relationship between tables of values (ordered pairs), line, and equations?	1. How can situations be analyzed by determining the equation of a line? 2. How can the equation of a line be determined without knowing the y-intercept? 3. How can the equation of a line be determined when two points are known? 4. How, without graphing, can it be determined that two equations represent the same line?	1. What are the steps in creating and presenting a project relating to rate of change?	1. What is a linear regression? 2. How can a correlation coefficient help determine how well the line fits the data?	1. What does it mean to solve a system of linear equations? 2. How can the meaning of the solution to systems of equations be determined?

Unit Vocabulary:

Carnegie Learning (Chapter 5):

Linear Equation	Linear Function	Function Notation	X-intercept	Y-intercept
Slope	Rate of Change	Slope-intercept Form	Point-slope Form	Standard Form
Literal Equation				

Carnegie Learning (Chapter 6):

Scatter Plot	Line of Best Fit	Correlation	Negative Correlation	Positive Correlation
Correlation Coefficient				

Carnegie Learning (Chapter 5):

Point of Intersection	Systems of Linear Equations		Reciprocals	Substitution Method
Inequality	Linear System			

Online Algebra I Unit 2:

origin	coordinate plane	x-coordinate	parallel lines	x-intercept
dependent variable	independent variable	quadrants (i, ii, iii, and iv)	coefficients	rate of change
parallel lines	slope	point-slope form	standard form	ordered pairs
y-coordinate				

Algebra I Online Unit 4:

intercepts	quadratic equations	vertex	binomial	trinomial
polynomial	coefficient	perfect squares	like terms	opposite
factors	simplify	dimensions	length	width
area of a rectangle	FOIL	GCF	roots	LCM
difference of squares	prime factors	monomial	like terms	opposite
negative	coefficients	variables	negative	punnet square
variables	distributive property	equivalence	perfect square trinomials	standard form
degree of a monomial	degree of a polynomial	leading coefficient		

Fayette County Schools
Mathematics Learning Map

Algebra I — 3rd Nine Weeks

Unit EQ	How can the laws of exponents be derived?	In what ways are radicals and rationals connected to various branches of mathematics and why is t important? How can each method of solving quadratic equations assist in drawing conclusions relating to a given situation?	
Benchmark CSO's	M.O.A.1.2.4 develop and test hypotheses to derive the laws of exponents and use them to perform operations on expressions wi integral exponents.	M.O.A.1.2.13 simplify and evaluate rational expressions add, subtract, multiply and divide determine when an expression is undefined.	M.O.A.1.2.14 choose the most efficient method to solve quadratic equations by • graphing (with and without technology) • factoring • quadratic formula and draw reasonable conclusions about a situation being modeled.
Standards Based Math Unit	Carnegie Learning Algebra I Chapter 9	Carnegie Learning Algebra I Chapters 8 and 9	
21st Century Online Resources			
Lesson EQ's	1. What are the basic laws of exponents?	1. 1. How are rational expressions simplified? 2. What makes a rational expression undefined?	1. How is a quadratic equation solved by graphing? 2. How are roots of a quadratic equation determined by examining the graph of the given equation? 3. How can factoring be used to solve a quadratic equation? 4. What is the quadratic formula and how can it be used to solve a quadratic equation?

Unit Vocabulary:

Carnegie Learning (Chapter 8):

Evaluate	Quadratic Function	Parabola	Line of Symmetry
Vertex	Perfect Square	Principal Square Root	Intercepts
Quadratic Formula	Discriminant		

Carnegie Learning (Chapter 9):

Exponent	Scientific Notation	n^{th} Root	Rational Exponent
Index			

Fayette County Schools
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Algebra I — 4th Nine Weeks

Unit EQ	How do the four basic operations with polynomials relate to real-world situations?		In what ways are radicals and rationals connected to various branches of mathematics and why is this connection important? What are the benefits of using models and technology to model mathematical situations?		How do the laws of probability impact your life?		How can the method of gathering and displaying data influence the conclusions drawn?	How can you use tables and graphs to demonstrate an understanding of growth and decay in real-life situations?
Benchmark CSO's	**M.O.A.1.2.10** simplify and evaluate algebraic expressions • add and subtract polynomials multiply and divide binomials by binomials or monomials	**M.O.A.1.2.11** create polynomials to represent and solve problems from real-world situations while focusing on symbolic and graphical patterns.	**M.O.A.1.2.12** use area models and graphical representations to develop and explain appropriate methods of factoring.	**M.O.A.1.2.16** simplify radical expressions • through adding, subtracting, multiplying and dividing • exact and approximate forms.	**M.O.A.1.2.18** compute and interpret the expected value of random variables in simple cases using simulations and rules of probability (with and without technology)	**M.O.A.1.2.20** design experiments to model and solve problems using the concepts of sample space and probability distribution.	**M.O.A.1.2.19** gather data to create histograms, box plots, scatter plots and normal distribution curves and use them to draw and support conclusions about the data.	**M.O.A.1.2.15** describe real life situations involving exponential growth and decay equations including $y=2^x$ and $y=(½)^x$; compare the equation with attributes of an associated table and graph to demonstrate an understanding of their interrelationship.
Standards Based Unit	Carnegie Learning Algebra I Chapter 10				Carnegie Learning Algebra I Chapter 11 (Sec. 1-4, 8, 9)		Carnegie Learning Algebra I Chapter 12 (Sec. 1 – 4)	Carnegie Learning Algebra I Chapter 13 (Sec. 6, 7)
21st Century Online Resources		*WVDE Algebra Online* *Unit 4: A Standards-based Approach to Polynomial Operations and Factoring Using AlgeBlocks* Teach21 Unit Plans					techSteps – Algebra I: (Core Project – Box and Whisker Plots	

Lesson EQ's	1. Why is the concept of "opposite" important when adding polynomials with Lab Gear? 2. How does Lab Gear help develop the idea of like terms? 3. How does the area of a rectangle relate to the multiplication of polynomials? 4. How does area help us with understanding the product of polynomials?	1. How can mnemonics help when determining the product of polynomials? 2. What connections can be made between the genetic Punnett Square and the product of polynomials?	1. What connections exist among area dimensions of a rectangle, and the distributive property? 2. How are the greatest common factor and factoring by grouping related to factoring polynomials? 3. What impact does the "a" in $ax^2 + bx + c$ have on factoring the polynomial 4. How do the patterns guide in the factoring of special products?	1. How are radical expressions simplified? 2. How can it be determined that a radical expression is simplified?	1. How can simulations help interpret expected value? 2. What are the rules of probability and how are they used to compute and interpret expected value?	1. How can a sample space be identified? 2. How can probability distribution be modeled?	1. When is it best to use a histogram to display data? 2. When is it best to use a box plot to display data? 3. When is it best to use a normal distribution curves to display data? 4. What conclusions can be drawn from each of the graphs studied?	1. What are the forms of equations that model exponential growth and decay?

Vocabulary:

Carnegie Learning (Chapter 10):

Polynomial	Degree	Area Model	Linear Factor
Excluded Value	Restricting the Domain		

Carnegie Learning (Chapter 11):

Outcomes	Sample Space	Event	Probability
Probability of an Event	Complementary events	Theoretical Probabilities	Experimental Probability
Trial	Line Plot	Geometric Probability	Congruent
Fair Game			

Carnegie Learning (Chapter 12):

Stem-and-leaf Plot	Measure of Central Tendency	Sample Size
Quartile	Box-and-Whisker Plot	Outlier
Percentile	Interquartile Range	Sample Variance
Deviation		

Carnegie Learning (Chapter 13):

Exponential Function	Exponential Growth Model	Exponential Growth
Exponential Decay Model	Decay Rate	Decay Factor