CRLS Mathematics Department

Algebra I Curriculum Map/Pacing Guide

Understanding Goals/ Essential Questions	# of Blocks CP	# of Blocks HN	Students will be able to...	Resources/Assessments book	Resources/Assessments other
	170	96			
Quarter I start (CP & HN)					
Unit 1: Number Sense and Operations	24	11	Totals Always Include 2 blocks for Review & Test	PH 2004 Algebra I	Algebra I Activity Binder, District Google Documents site
			Operating with Real Numbers:		
How are different types of numbers related to each other?	*5*	*2*	• *compute fluently with Integers*	Chapter 1	Travel Project, "Shopping Day" Coupon Activity, "No matter what shape your fractions are in" http://www.math.rice.edu/~lanius/patterns
How are operations related to each other?			• *identify and use the Order of Operations on real numbers.*	1.2	Multiplication Chart Comparison (CME p. 9)
	5	*2*	• *compute fluently with Rational Numbers (fractions, decimals, and percents)*	pp 725-728	CME Algebra I (Chapter 1)
			• *use different pictorial representations when operating with numbers*	1.1, 1.4-1.6	
			• *apply number theory concepts, including prime factorization and relatively prime numbers, to the solution of problems*	pp 720-722	
How can we recognize, investgate, extend, and describe patterns?	5	2	• *recognize, extend, and describe patterns*	1.1, 5.6, 8.6, p 716	

Understanding Goals/ Essential Questions	# of Blocks CP	# of Blocks HN	Students will be able to...	Resources/Assessments book	Resources/Assessments other
			Properties of Real Numbers:		
Unit 1: Number Sense and Operations (continued)	*3*	*1*	• *use appropriate vocabulary and mathematical symbols to identify numbers, operations, and properties: natural (counting) numbers, whole numbers, integers, rational numbers, and inverse operations*	1.3	
			• *diagram the hierarchy of real numbers*	1.3	
			• *identify and use Associative, Commutative, and Distributive Properties*	1.7, 1.8	
			• *identify and use the identity and inverse properties for addition and multiplication, the multiplication properties of zero and negative one*	1.4 - 1.6, 1.8	
			• *use different pictorial representations when operating with numbers*	1.1, 1.4-1.6	
			Exponent Properties:		
	4	*2*	• *know when to add, subtract, or multiply exponents, and apply understanding of zero and negative exponents (using numbers only)*	8.1, 8.3-8.5	
			• *understand the existence of square roots (nth roots) of positive real numbers for any positive integer n*	10.3	
			• *use scientific notation*	8.2	
			• *find the approximate value of square (and cube roots) without the use of a calculator*	10.3	
			• *use estimation to judge the reasonableness of results of computations and of solutions to problems involving real numbers*		

Algebra I Curriculum Map/Pacing Guide

Understanding Goals/ Essential Questions	# of Blocks CP	# of Blocks HN	Students will be able to...	Resources/Assessments book	Resources/Assessments other
Unit 2: Polynomials I	12	4	Totals Always Include 2 blocks for Review & Test	PH 2004 Algebra I	Algebra I Activity Binder, District Google Documents site
How do you use your understanding of the real number system and operations to carry out procedures and simplify polynomial expressions?	*10*	*2*	• *understand and use appropriate vocabulary: variable, constant, coefficient, equation, expression, simplify, solve, like terms, term, add the opposite, divide by the coefficient, and multiply by the reciprocal*	1.1	Algebra Survival Guide, CME Algebra 1 (Chapter 2)
			• *evaluate a variable expression by substituting in given values*		
			• *write a one variable expression given a situation*	1.1	Writing expressions: Dominoes (Google "Joe has 12 baseball cards")
			• *understand and use appropriate vocabulary: polynomials, monomials, binomials, trinomials, factor, and greatest common factor (GCF)*	9.1, 9.2	
			• *connect and use the Commutative, Associative, and Distributive properties from real numbers to expressions*	9.1-9.3	
			• *add and subtract polynomial expressions using horizontal and vertical (column) formats*	9.1	
			• *find the perimeter of a figure where the side length is an expression*		p 352 question # 9
			• *connect whole number multiplication to polynomial multiplication*	9.3	
			• *use a pictorial representation of the concept of area as a product of two positive numbers*		
			• *apply the laws of exponents*		
			• *interpret and model pictorial representations*		

Algebra I Curriculum Map/Pacing Guide					page 4 of 14
Understanding Goals/ Essential Questions	**# of Blocks CP**	**HN**	**Students will be able to...**	**Resources/Assessments book**	**other**
Unit 3: Making Connections to Data Analysis, Statistics & Probability I	6	4	Totals Always Include 2 blocks for Review & Test	PH 2004 Algebra I	Algebra I Activity Binder, District Google Documents site
How do you use different graphical representations to display, analyze, and interpret data?	*4*	*2*	• *understand and use appropriate vocabulary: mean, median, mode, range, and average*	2.7	Height Project, TI-83+ statistics functions
			• *make predictions and verify conclusions*		
			• *describe and explain how the relative sizes of a sample and the population affect the validity of predictions from a set of data*		
How do you determine which average typifies a data set?			• *calculate and interpret mean, median, mode, and range (difference between the high and low values)*	2.7	
How do understand and apply basic concepts of probability to solve problems?			• *use tree diagrams, tables, organized lists, basic combinatorics ("fundamental counting principle"), and area models to compute probabilities for simple compound events*	4.5	
CRLS Mathematics Department					

Algebra I Curriculum Map/Pacing Guide					page 5 of 14
Understanding Goals/ Essential Questions	**# of Blocks CP**	**HN**	**Students will be able to...**	**Resources/Assessments book**	**other**
Quarter II start (CP)/Quarter I middle (HN)					
Unit 4: Polynomials II	7		Totals Always Include 2 blocks for Review & Test	PH 2004 Algebra I	Algebra I Activity Binder, District Google Documents site

How do you use your understanding of the real number system and operations to carry out procedures to simplify polynomial expressions?	*5*		• *understand and use appropriate vocabulary: variable, constant, coefficient, equation, expression, simplify, like terms, and term*	See Unit 2	Algebra Survival Guide, CME Algebra 1 (Chapter 2)
			• *evaluate a variable expression by substituting in given values*		
			• *write a multi-variable expression given a situation*		Q2 Open Response #21 (Walking Problem)
			• *connect and use the Commutative, Associative, and Distributive Properties from real numbers to expressions*		
			• *find the perimeter of a figure where the side length is an expression*		
CRLS Mathematics Department					
Algebra I Curriculum Map/Pacing Guide					
Understanding Goals/ Essential Questions	**# of Blocks CP**	**HN**	**Students will be able to...**	**Resources/Assessments book**	**other**
Unit 5: Solving Linear Equations	22	9	Totals Always Include 2 blocks for Review & Test	PH 2004 Algebra I	Algebra I Activity Binder, District Google Documents site
How do you use linear equations to represent real-life situations?			• *understand and use appropriate vocabulary: equation, simplify, solve, like terms, term, add the opposite, divide by the coefficient, and multiply by the reciprocal*	Chapter 2	CME Algebra 1 (Chapter 2)
How do you determine solutions to linear problems using algebraic methods?	*10*	*2*	• *solve equations up to two-step equations*	2.1, 2.2	Groundworks (activities with objects on a balance)
	7	*3*	• *solve equations requiring simplification e.g. involving variables on both sides and/or using the Distributive Property*	2.3, 2.4	Q2 Open Response #22 (Solving Proportions/Cross Products)

			• *solve equations involving rates and proportions*	2.5, 4.1, 4.2	
	3	*2*	• *solve equations with absolute value expression only on one side*	3.6	
			• *represent equations in one variable using a visual representation*		
			• *describe, complete, extend, analyze, generalize, and create a variety of patterns of linear relationships from tables, graphical displays, and symbolic representations*		

Understanding Goals/ Essential Questions	# of Blocks CP	# of Blocks HN	Students will be able to...	Resources/Assessments book	Resources/Assessments other
Unit 6: Solving Linear Inequalities	15	5	Totals Always Include 2 blocks for Review & Test	PH 2004 Algebra I	Algebra I Activity Binder, District Google Documents site
How do you use linear inequalities to represent real-life situations?	*5*	*1*	• *understand the meaning of the solution of a linear inequality*	3.1	
			• *graph solution of the inequality*	3.1-3.6	TI 83+ inequality graphing function (shade above/below)
	8	*2*	• *solve inequalities (including absolute value)*	3.2-3.6	TI 83+ absolute value graphing function (shade above/below)

Understanding Goals/ Essential Questions	# of Blocks CP	# of Blocks HN	Students will be able to...	Resources/Assessments book	Resources/Assessments other
Quarter III start (CP)/Quarter II start (HN)					
Unit 7: Introduction to the Coordinate Plane	10	3	Totals Always Include 2 blocks for Review & Test	PH 2004 Algebra I	Algebra I Activity Binder, District Google Documents site
	8	*1*	• *create a coordinate plane and label: x and y axes and quadrants I, II, III, & IV*	1.9	CME Algebra I (Chapter 3)
			• *identify and graph points on the coordinate plane*	1.9	
			• *apply the Distance Formula to find the distance between two points*	11.3	p 527 question # 39
			• *relate the Distance Formula to the Pythagorean Theorem*	11.3, 11.2	
			• *apply the Midpoint Formula to find the midpoint between two points*	11.3	
			• *relate qualitative graphs to real-life situations*	5.1, 6.1	Alba's Bike Ride (Activity Binder)
CRLS Mathematics Department					
Algebra I Curriculum Map/Pacing Guide					
Understanding Goals/ Essential Questions	# of Blocks CP	# of Blocks HN	Students will be able to...	Resources/Assessments book	Resources/Assessments other

Unit 8: Making Connections to Data Analysis, Statistics & Probability II	7	4	Totals Always Include 2 blocks for Review & Test	PH 2004 Algebra I	Algebra I Activity Binder, District Google Documents site
	5	2	• *understand and use appropriate vocabulary: correlation, trend, upper quartile (third quartile), lower quartile (first quartile), upper extreme, lower extreme, frequency, data, sample, outcome, event, and random*	p 735-740	TI-83+ box+whisker and statistics functions
How do you use different graphical representations to display, analyze, and interpret data?			• *construct and interpret histograms, pictographs, spreadsheets, bar graphs, circle graphs, line plot, frequency tables, stem-and-leaf plots, scatter plots, and box-and-whisker plots.*	p 735-742	Circle Graph Collection Project, TI-83+ box+whisker and statistics functions
How do you make generalizations and predications from data?			• *make predictions and verify conclusions*		p 323 question # 20, p 324 question # 23
			• *approximate the line of best fit (trend line) and describe the correlation as either positive, negative, or no correlation*	6.6	TI-83+ linear regression function

Understanding Goals/ Essential Questions	**# of Blocks CP**	**HN**	**Students will be able to...**	**Resources/Assessments book**	**other**

Unit 9: Functions	5	4	Totals Always Include 2 blocks for Review & Test	PH 2004 Algebra I	Algebra I Activity Binder, District Google Documents site
How are functions a special type of relation?	*3*	*2*	• *understand and use appropriate vocabulary: relation, function, input, output, domain, range, independent variable, and dependent variable*	5.2	Story graphs: http://www.blog.meyer.com/?p=213, CME Algebra I (Chapter 5)
			• *define a function*	5.2	
			• *identify a function from multiple representations: ordered pairs table, formula, description, and graphs including piece-wise*	5.2	Function Machines on-line
			• *students should be able to represent any function using a table, rule, or graph (and translate between the three)*	5.3	
			• *determine domain and range of a function*	5.2	
			• *identify dependent and independent variables of a function*	5.3	
			• *use the Vertical Line Test to determine if a relationship is a function*	5.2	
CRLS Mathematics Department					
Algebra I Curriculum Map/Pacing Guide					page 11 of 14
Understanding Goals/ Essential Questions	**# of Blocks CP**	**HN**	**Students will be able to...**	**Resources/Assessments book**	**other**

Unit 10: Graphing Linear Equations and Inequalities	20	10	Totals Always Include 2 blocks for Review & Test	PH 2004 Algebra I	Algebra I Activity Binder, District Google Documents site
How are functions a special type of relation?	*4*	*2*	• *understand the meaning of slope and y-intercept*	6.1	NCTM rise/run triangles, CME Algebra I (Chapter 4)
			• *understand and explain the difference between zero, positive, negative, and undefined slope*	6.1	
	10	*5*	• *identify and use Slope-Intercept form*	6.2	TI-83+ linear graphing functions, Graph on the floor activity
			• *identify and use Point-Slope form*	6.4	
			• *identify and use Standard form*	6.3	
	4		• *represent real-life situations using linear equations*	6.1-6.4	p 288 question #61, p 295 question # 58, p 296 question #66
			• *understand and apply the relationship of slope for parallel lines and perpendicular lines*	6.5	TI 83+ graphing multiple lines capabilities
		1	• *graph the solution of the linear inequalities in two variables*	7.5	

Understanding Goals/ Essential Questions	# of Blocks CP	# of Blocks HN	Students will be able to...	Resources/Assessments book	Resources/Assessments other

Quarter IV start (CP)/Quarter II middle (HN)

Unit 11: Systems of Two Equations	17	12	Totals Always Include 2 blocks for Review & Test	PH 2004 Algebra I	Algebra I Activity Binder, District Google Documents site
How do you use a system of linear equations to represent real-life situations involving two unknowns?			• *understand and use appropriate vocabulary: system of equations, inconsistent system, consistent and independent system, consistent and dependent system, solution of a system (no solution, one solution, and infinitely many solutions), break-even point, substitution, and elimination*	7.1-7.4	CME Algebra I (Chapter 4) Shopping Bag and Receipt Project Design Your Own Business Project p 365 question #5, p 366 question #6
	3	2	• *solve a system by graphing*	7.1	TI-83+ intersect function
	5	4	• *solve a system by the Substitution Method*	7.2	
	7	4	• *solve a system by the Elimination Method by addition and subtraction*	7.3	
			• *solve a system by the Elimination Method by multiplication*	7.3	
How do you determine the best method to solve a system of equations?			• *write and use systems of equations to model real-life application*	7.4	p 365 question # 4, p 366 question #18

Understanding Goals/ Essential Questions	# of Blocks CP	# of Blocks HN	Students will be able to...	Resources/Assessments book	Resources/Assessments other
Unit 12: Polynomials III	14	14	Totals Always Include 2 blocks for Review & Test	PH 2004 Algebra I	Algebra I Activity Binder, District Google Documents site

How do you use your understanding of the real number system and operations to carry out procedures to simplify and factor polynomial expressions?	2	2	• *understand and use appropriate vocabulary: Standard Form (descending order), polynomials, monomials, binomials, trinomials, degree, constant, linear, quadratic, cubic, factor, and greatest common factor (GCF)*	9.1, 9.2	Algebra Survival Guide, NCTM Polynomial Puzzles, CME Algebra I (Chapter 4)
			• *connect and use the Commutative, Associative, and Distributive Properties from real numbers to expressions*		
			• *add and subtract polynomial expressions using horizontal and vertical (column) formats*	9.1	
			• *identify the coefficients of a term or expression*		
			• *find the perimeter of a figure where the side length is an expression*		
	5	5	• *connect whole number multiplication to polynomial multiplication*	9.3	
			• *use a pictorial representation of the concept of area as a product of two positive numbers*	9.2	
			• *apply the laws of exponents*	9.2, 9.3	
			• *identify the special cases of multiplication of binomials*	9.4	
	5	5	• *divide polynomials by monomials*	12.5	
			• *identify and use the greatest common factor (GCF) to factor a polynomial expression*	9.2	
			• *interpret and model pictorial representations*	9.2, 9.3, 9.5	
			• *demonstrate the inverse relationship between multiplication binomials and factoring trinomials*	9.5	

Understanding Goals/ Essential Questions	**# of Blocks CP**	**HN**	**Students will be able to...**	**Resources/Assessments book**	**other**

Unit 13: Quadratics	11	16	Totals Always Include 2 blocks for Review & Test	PH 2004 Algebra I	Algebra I Activity Binder, District Google Documents site
Hwo do you use quadratic equations to represent real-life situations?	*9*	*14*	• *understand and use appropriate vocabulary: parabola, quadratic term, linear term, roots, y-intercepts, x-intercepts, zeros, real and imaginary roots, vertex, and Zero Factor Property*	10.1	NCTM Handshake Problem, CME Algebra I (Chapter 8), TI-83+ max, min & zeros functions
			• *solve quadratic equations by factoring and using the Zero Factor Property*	9.5, 10.5	
How do you determine solutions to quadratic problems using algebraic methods?			• *solve quadratic equations by using the Quadratic Formula*	10.7	
			• *graph quadratic equations*	10.2	TI-83+ graphing function
			• *identify vertex and axis of symmetry*	10.1, 10.2	TI-83+ max, min functions
			• *describe, complete, extend, analyze, generalize, and create a variety of patterns of quadratic relationships from tables, graphical displays, and symbolic representations*		Regression Project, YI-83+ quadratic regression function
			• *solve every day problems that can be modeled using quadratic functions*	10.1, 10.2, 10.4, 10.5	p 522 question #42, p 522 question #43, p 532 question #27
			• *apply appropriate tabular, graphical or symbolic methods to a solution*		TI-83+ table & graphing functions