

## ***Algebra 1 – Hadley Curriculum Map 2014***

***(Based on PARCC Model Curriculum from The Charles A. Dana Center at the University of Texas)***

Unit A – Welcome to Algebra. The purpose of this unit is to clearly establish goals, define student expectations and review classroom procedures while introducing the Standards of Mathematical Practice.			
<b>Learning Target</b>	<b>Days</b>	<b>CCSSM</b>	<b>Relevant Projects</b>
Survive and Embrace Day 1	2	Standards of Mathematical Practices	Are We There Yet and Who Am I Folder Activity
Patterns and Algebra	1	Standards of Mathematical Practices	NCTM Japan Lesson
Group Problem Solving Norms	1	Standards of Mathematical Practices	POW on Football and Bowling

Unit 1 – Solving Linear Equations -- The goal of this unit is to review key concepts of equations and prepare the foundation skills for future units.			
<b>Learning Target</b>	<b>Days</b>	<b>CCSSM</b>	<b>Relevant Projects</b>
Solving Simple Equations	1	CED.A.1, REI.A.1, REI.B.3	Perfect Chocolate Milk Mix from Yummy Math
Solving Multi-Step Equations	2	Q.A,1, CED.A.1, REI.B.3	Are You Faster than Project Using NFL Films
Solving Equations with Variables on Both Sides	3	CED.A.1, REI.8.3	What’s Cheaper Unit Analysis Project (blood); MARS Solving Linear Equations in Two Variables
Solving Absolute Value Equations	2	CED.A.1, REI.8.3	Weather Extremes yummymath
Transforming Equations and Formulas	2	CED.A.4	

Unit 2 – Solving Linear Inequalities -- The goal of this unit is to review key concepts on inequalities and prepare the foundation skills for future units.

<b>Learning Target</b>	<b>Days</b>	<b>CCSSM</b>	<b>Relevant Projects</b>
Graphing Inequalities	1	CED.A.1	Introduce DESMOS
Solving Inequalities with Addition/Subtraction	1	CED.A.1, REI.8.3	NCTM Triangle Inequality
Solving Inequalities with Multiplication/Division	1	CED.A.1, REI.8.3	MARS Defining Regions Using Inequalities
Solving Multi-Step Inequalities	1	CED.A.1, REI.8.3	
Solving Compound Inequalities	2	CED.A.1, REI.8.3	
Solving Absolute Value Inequalities	2	CED.A.1, REI.8.3	

Unit 3 – Graphing Linear Functions – Students learn function notation and how to graph specific types of functions.

<b>Learning Target</b>	<b>Days</b>	<b>CCSSM</b>	<b>Relevant Projects</b>
Functions	2	IF.A.1	Eric the Sheep Project
Linear Functions	2	CED.A.2, REI.D.10, IF.B.5, IF.C.7a, LE.A.1b	NCTM Barbie Bungee Project
Function Notation	2	CED.A.2, IF.A.1, IF.A.2, IF.C.7a, IF.C.9	
Graphing in Standard Form	1	CED.A.2, IF.C.7a	Graphing Stories from Dan Meyer
Graphing in Slope Intercept Form	2	CED.A.2, IF.B.4, IF.C.7a, LE.B.5	Graphing Stories
Transforming Graphs	2	IF.C.7a, BF.B.3	
Graphing Absolute Value Functions	2	CED.A.2, REI.D.10, IF.C.7b, BF.B.3	

Unit 4 – Writing Linear Functions – Students build upon their skills from the prior unit by exploring how to translate functions into specific types of linear equations. They also see how imperfect data, can be approximated by linear functions.

<b>Learning Target</b>	<b>Days</b>	<b>CCSSM</b>	<b>Relevant Projects</b>
Writing Equations in Slope Intercept Form	2	CED.A.2, BF.A.1a, LE.A.1b, LE.A.2	Slope Rope Project
Writing Equations in Point Slope Form	1	CED.A.2, BF.A.1a, LE.A.1b, LE.A.2	
Writing Equations for Parallel / Perpendicular	3	CED.A.2, LE.A.2	Design a City Project Using a Grid Map
Scatter Plots and Lines of Best Fit	2	LE.B.5, ID.B.6, ID.C.7	Jet Plane Project
Analyzing Lines of Best Fit	2	LE.B.5, ID.B.6, ID.C.7	Do Teams That Spend yummymath
Arithmetic Sequences	2	IF.A.1, BF.A.1a, BF.A.2, LE.A.2	
Piecewise Functions	2	CED.A.2, REI.D.10, IF.C.7b	

Unit 5 – Solving Systems of Linear Equations – Students continue and build upon their work begun with CCSSM Grade 8 and extend their skills to linear inequalities.

<b>Learning Target</b>	<b>Days</b>	<b>CCSSM</b>	<b>Relevant Projects</b>
Solving Systems by Graphing	1	CED.A.3, REI.C.6	
Solving Systems by Substitution	1	CED.A.3, REI.C.6	
Solving Systems by Elimination	2	CED.A.3, REI.C.6	Cell Phone Plans yummymath
Solving Special Systems (No and Infinitely Many)	1	CED.A.3, REI.C.6	
Solving Equations by Graphing	1	CED.A.3, REI.D.11	
Graphing Linear Inequalities	1	CED.A.3, REI.D.12	
Systems of Linear Inequalities	1	CED.A.3, REI.D.12	

Unit 6 – Exponential Functions and Sequences – This unit explores exponential functions and introduces geometric and recursive sequences.			
<b>Learning Target</b>	<b>Days</b>	<b>CCSSM</b>	<b>Relevant Projects</b>
Properties of Exponents	1	RN.A.2	Negative Exponents, Ugh yummymath
Radicals and Rational Exponents	2	RN.A.1, RN.A.2	
Exponential Functions	2	CED.A.2, IF.B.4, IF.C.7e, IF.C.9, BF.A.1a, BF.B.3	
Exponential Growth and Decay	2	SSE.B.3c, CED.A.2, IF.C.7e, IF.C.8b, BF.A.1a	Become a Banker Project
Solving Exponential Equations	2	CED.A.1, REI.A.1, REI.D.11	NCTM Money Projects
Geometric Sequences	2	IF.A.3, BF.A.2, LE.A.2	Madoff Ponzi Scheme Modeling Project
Recursive Sequences	2	IF.A.3, BF.A.1a, BF.A.2	

Unit 7 – Polynomial Equations and Factoring – This unit provides students with the skills to multiply, add and subtract polynomials in addition to factoring of polynomials.			
<b>Learning Target</b>	<b>Days</b>	<b>CCSSM</b>	<b>Relevant Projects</b>
Adding and Subtracting Polynomials	1	APR.A.1	Poly Bowl Game
Multiplying Polynomials	1	APR.A.1	Factor Box Approach
Special Products of Polynomials	1	APR.A.1	
Solving Polynomial Equations in Factored Form	2	APR.B.3, REI.B.4b	
Simple Factoring (coefficient is 1)	1	SSE.A.2, SSE.B.3a	
Complex Factoring (coefficient other than 1)	2	SSE.A.2, SSE.B.3a	
Factoring Special Products	2	SSE.A.2, SSE.B.3a	
Factoring by Grouping	2	SSE.A.2, SSE.B.3a	

Unit 8 – Graphing Quadratic Functions – This unit introduces students to graphing of both simple and complex quadratic functions and compares them to linear and exponential functions.			
Learning Target	Days	CCSSM	Relevant Projects
Graphing $ax^2$	1	CED.A.2, IF.C.7a, BF.B.3	Parabola Scavenger Hunt Project
Graphing $ax^2 + c$	1	CED.A.2, IF.C.7a, BF.B.3	Pipe Cleaner Activity
Graphing $ax^2 + bx + c$	3	CED.A.2, IF.C.7a, BF.B.3	DESMOS Man (Nguyen), NCTM Egg Launch, Throwing Up yummymath
Graphing Vertex Form	2	CED.A.2, IF.B.4, IF.C.7a, BF.A.1a	MARS Sorting Functions
Using Intercept Form	1	SSE.B.3a, APR.B.3, CED.A.2	
Comparing Linear, Exponential and Quadratic Functions	2	IF.B.6, BF.A.1a, LE.A.3	Is College Affordable yummymath

Unit 9 – Solving Quadratic Equations – This unit provides students with specific tools for solving quadratic equations and emphasizes real life applications of quadratics.			
Learning Target	Days	CCSSM	Relevant Projects
Properties of Radicals	2	RN.A.2, RN.B.3	
Solving Quadratic Equations by Graphing	2	REI.D.11, IF.C.7a	Jeremy Lin Parabola Project
Solving Quadratic Equations with Square Roots	1	CED.A.1, CED.A.4, REI.B.4b	
Solving Quadratic Equations Using Completing the Square	2	SSE.8.3b, CED.A.1, RED.B.4, IF.C.8	
Solving Quadratic Equations Using the Quadratic Formula	3	CED.A.1, REI.B.4	Quadratic Formula Karaoke Project; Braking Distance from illustrative math

Solving Non Linear Systems of Equations	2	REI.C.7, REI.D.11	
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Unit 10 – Radical Functions and Equations – Students build upon their knowledge of functions by graphing square and cube root functions and also solving radical equations.

Learning Target	Days	CCSSM	Relevant Projects
Graphing Square Root Functions	2	CED.A.2, IF.B.4, IF.B.6, IF.C.7b	
Graphing Cube Root Functions	1	CED.A.2, IF.B.4, IF.B.6, IF.C.7b	MARS Cubic Graphs
Solving Radical Equations	2	CED.A.1	
Inverse Functions	2	BF.8.4a	

Unit 11 – Data Analysis – This unit provides students with skills to analyze and assess both a series of data and patterns of data.

Learning Target	Days	CCSSM	Relevant Projects
Measures of Central Tendency	2	ID.A.3	MARS Bird Eggs, American Idol yummath
Box and Whisker Plots	2	ID.A.1, ID.A.3	MARS Muddying the Waters
Shapes of Distributions	2	ID.A.1, ID.A.2, ID.A.3	Super Bowl Scores yummath
Two Way Tables	2	ID.B.5	Best Movies yummath
Choosing Data Displays	2	ID.A.1	

Unit Z – Assessments and More – This is not a unit, but an attempt to quantify the impact of National Assessments (MAP), State Assessments (PARCC/ISAT), local summative assessments (mid term and final) and performance tasks. Performance Tasks are formative assessments and the goal is two per unit.

Learning Target	Days	CCSSM	
NWEA MAP (3 times annually)	9		
High School Midterm and Final	4		
State Assessments	2		

Quizzes and Performance Tasks	22		Formative in nature