



# Cherokee High School Algebra 1 Syllabus



**Course Title:** Honors Algebra 1, Intermediate Algebra 1, Algebra 1

**Course Description:**

Algebra 1 is designed to help students acquire a basic knowledge of the fundamentals of Algebra. This course develops basic algebraic skills, which prepare students to successfully complete other math courses, such as Geometry and Algebra II. Some of the topics studied are operations on real numbers, simplifying expressions, absolute value, solving linear equations and inequalities, regression and curve fitting, exponential functions, modeling, graphing, translations and transformations, solving systems of equations and inequalities, ratios and proportions, quadratic functions, and statistics.

Honors Algebra 1 is a one-semester course.

Intermediate Algebra 1A and Algebra 1 are a two-semester course.

**Materials Needed for Class:**

*3 Ring Notebook (at least 1 inch)*

*Pencils with erasers*

*Various colored pens/pencils*

*Ruler*

*OPTIONAL: Calculator TI-84 Plus \*\*\*There will be a digital version of this calculator you can download onto your laptop\*\*\**

**Class Rules:**

*Be here* – Algebra builds on every lesson – each day you miss, is a day you are further behind.

*Be respectful* – of classmates, teacher, yourself, and all property. Respect teaching time and learning time.

*Be responsible* – bring materials to class, every day. Use time wisely. Keep up with your absent work.

**Grading Percentages (subject to change):**

Daily Grades (60%)

Quizzes (20%)

Tests (20%)

**Consequences for Disruptive Behavior (subject to change):**

**1<sup>st</sup> Offense** – Warning

**2<sup>nd</sup> Offense** – Additional Algebra Assignment

**3<sup>rd</sup> Offense** – Parent Contact

*Direct Defiance/Disrespect will immediately result in a parent contact and/or principal referral.*

**Contacting Your Teacher:**

Every teacher will be available for contact on school days from the hours of 8am - 3pm.

Students are asked to communicate directly with their teacher during class times scheduled for the semester.

Listed below are all of the Algebra 1 Teacher Emails and extension numbers:

Kristen Richards - [kristen.richards@hck12.net](mailto:kristen.richards@hck12.net) ext. 5047

Diana Johnson - [diana.garber@hck12.net](mailto:diana.garber@hck12.net) ext. 5097

Jacob Lovelace - [jacob.lovelace@hck12.net](mailto:jacob.lovelace@hck12.net) ext. 5068

Dr. Scott Trent - [scott.trent@hck12.net](mailto:scott.trent@hck12.net) ext. 5099

You may also reach us by phone at **423-272-6507** on Mondays - Fridays from 8am - 3pm. Please use the extension numbers listed above.

**Link to Online Resources:**

[Hawkins County Schools Website](#)

[Cherokee High School Website](#)

[Mrs. Richards' Teacher Page](#)

[Mrs. Garber-Johnson's Teacher Page](#)

[Dr. Trent's Teacher Page](#)

[Mr. Lovelace's Teacher Page](#)

[Hawkins County Board of Education Policy 4.400](#)

## 1st Nine Weeks

Unit 1: ALGEBRA I BASICS SKILLS					
Days	Lesson #	Lesson Title	Standard(s)	Major Topics/Concepts	Unit 1 Tasks/Resources
1	1.1	Interpret Parts of Algebraic Expressions	A-SSE.1.1a	Identify a variable, term, constant, and coefficient.	<a href="#">eReader Gift Card Task</a>
1	1.2	Simplifying Expressions	A-SSE.B.3	Use the Commutative, Associative, and Distribute Properties to simplify expressions. Combine like terms.	<a href="#">Brandon's Band Task</a>
0.5	1.3	Math Literacy	A-SSE.A.1b N-Q.A.2	Translating verbal phrases into algebraic expressions.	
0.5	1.4	Order of Operations	n/a	Use the order of operations to simplify expressions	
1	1.5	Simplifying Expressions	A-SSE.B.3	Use the Commutative, Associative and Distributive Properties to simplify expressions	
1	1.6	Rational and Irrational Numbers	N.RN.B.3	Explain rational and irrational numbers and understand the results of operations with rational and irrational numbers.	
0.5	1.7	Cartesian Coordinates	n/a	Graph ordered pairs. Label the four quadrants. Write ordered pairs from a graph.	
Unit 2: EQUATIONS AND INEQUALITIES					
Days	Lesson #	Lesson Title	Standard(s)	Major Topics/Concepts	Unit 2 Tasks/Resources
2	2.1	Solving One-Step and Two-Step Equations with Applications	A-REI.A.1; also N-Q.A.2	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution.	<a href="#">Disc Jockey Task</a>

				Construct a viable argument to justify a solution method.
2	2.2	Solving Multi-Step Equations	A-REI.A.1; also N-Q.A.2	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.
		Unit 2 Quiz A (Lessons 2.1 & 2.2)		
3	2.3	Solving for a Variable with Applications	A-CED.A.4, also A-REI.B.2	Rearrange formulas to highlight a quantity of interest, using the reasoning as in solving an equation.
1.5	2.4	Dimensional Analysis	N-Q.A.2; also N-Q.A.1	Identify, interpret, and justify appropriate quantities for the purpose of descriptive modeling.
		Unit 2 Quiz B (Lessons 2.1 to 2.4)		
1.5	2.5	Solving and Graphing Inequalities	A-REI.A.1	Represent constraints by inequalities and interpret solutions as viable or nonviable options in a modeling context.
		Unit 2 Quiz C (Lesson 2.5)		
1.5	2.6	Application of Inequalities	A-CED.A.3; also A-CED.A.1, A-REI.B.2	Represent constraints by inequalities and interpret solutions as viable or nonviable options in a modeling context.

1.5		Unit 2 Review			
1		Unit 2 Test			

### Unit 3: FUNCTIONS

Days	Lesson #	Lesson Title	Standard(s)	Major Topics/Concepts	Unit 3 Tasks/Resources
1	3.1	Relations	F-IF.A.1	Find the domain and range of a relation.	<a href="#">Downloads Task</a>
1	3.2	Identifying Functions	F-IF.A.1	Identify whether a relation is a function or not.	
1	3.3	Function Notation	IF-IF.A.2; also F-IF.A.1	Use function notation. Evaluate functions for inputs in a function's domain.	
		Unit 3 Quiz A (Lessons 3.1 to 3.3)			
2	3.4	Modeling with Functions	IF-IF.A.2; also F-IF.A.1, A-CED.A.2	Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	
1		Unit 3 Review			
1		Unit 3 Test			

### Unit 4: LINEAR FUNCTIONS

Days	Lesson #	Lesson Title	Standard(s)	Major Topics/Concepts	Unit 4 Tasks/Resources
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0.5	4.1	Understanding Linear Functions	F-LE.A.1b, also F-LE.A.1a, F-LE.A.2, A-REI.D.5, F-IF.C.6a	Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.	<a href="#">Speeding Ticket Task</a>
2.5	4.2	Arithmetic Sequences	F-LE.A.2, F-BF.A.1a	Construct arithmetic sequences, given a graph, a description of a relationship, or two input-output pairs. Determine an explicit expression, a recursive process, or steps for calculation from a context.	
2	4.3	Interpreting Rate of Change and Slope	F-IF.B5, also F-LE.B.4	Calculate and interpret the average rate of change of a function estimate the rate of change from a graph.	
		Unit 4 Quiz A (Lessons 4.1 to 4.3)			
2	4.4	Using Intercepts	F-IF.C.6a, also F-IF.B.3, F-LE.B.4	Graph linear functions and show intercepts.	
2	4.5	Modeling Linear Relationships	A-CED.A.3, also S-ID.C.5, N-Q.A.1, N-Q.A.2	Represent constraints by equations or inequalities and by systems of equations and/or inequalities Identify, interpret, and justify appropriate quantities for the purpose of descriptive modeling.	
		Unit 4 Quiz B (Lessons 4.1 to 4.5)			

## 2nd Nine Weeks

Unit 4: LINEAR FUNCTIONS					
Days	Lesson #	Lesson Title	Standard(s)	Major Topics/Concepts	Unit 4 Tasks/Resources
2	4.6	Using Functions to Solve One Variable Equations	A-REI.D.6	Explain why the $x$ -coordinates of the points where the graphs of the equations $y=f(x)$ and $y=g(x)$ intersect are the solutions of the equation $f(x)=g(x)$ ; find the approximate solutions using technology.	
		Unit 4 Quiz C (Lessons 4.1 to 4.6)			
2	4.7	Transforming Linear Functions	F-BF.B2, also A.CED.A.2, F-LE.B.4	Identify the effect on the graph of replacing $f(x)$ by $f(x)+k$ , $kf(x)$ , and $f(x+k)$ for specific values of $k$ (both positive and negative).	
3	4.8	Linear Inequalities in Two Variables	A-REI.D.7; also A-CED.A.3	Graph the solutions to a linear inequality in two variables as a half plane.	
2		Unit 4 Review			
1		Unit 4 Test			
Unit 5: POLYNOMIALS					
Days	Lesson #	Lesson Title	Standard(s)	Major Topics/Concepts	Unit 5 Tasks/Resources
0.5	5.1	Understanding Polynomial Expressions	A-SSE.A.1a; also A-SSE.A.1b, A-SSE.A.2, A-APR.A.1, A-CED.A.1	Interpret parts of expression, such as terms, factors, and coefficients.	
1	5.2	Adding and Subtracting Polynomial Expressions	A-APR.A.1; also A-SSE.A.1, A-CED.A.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition and subtraction.	
1	5.3	Multiplying Polynomial Expressions by Monomials	A-APR.A.1; also A-SSE.A.1, A-CED.A.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of multiplication.	
		Unit 5 Quiz A			

2	5.4	Multiplying Polynomial Expressions	A-APR.A.1; also A-SSE.A.1, A-CED.A.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of multiplication.	
2	5.5	Special Products of Binomials	A-APR.A.1; also A-SSE.A.1, A-CED.A.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of multiplication.	
1	5.6	Multiplying Polynomials - Mixing it Up	A-APR.A.1; also A-SSE.A.1, A-CED.A.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of multiplication.	
		Unit 5 Quiz B			
2	5.7	Polynomial Expressions Real World Applications	A-SSE.A.1.a, A-APR.A.1; also A-SSE.A.1, A-SSE.A.2, A.-CED.A.1	Understand that polynomials form a system of analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication.	
1		Unit 5 Review			
1		Unit 5 Test			

### Unit 6: QUADRATIC FUNCTIONS

Days	Lesson #	Lesson Title	Standard(s)	Major Topics/Concepts	Unit 6 Tasks/Resources
1	6.1	Understanding Quadratic Functions	F-BF.B.3; also F-IF.A.2, F-IF.B.4, F-IF.C.7a	Identify the effect on the graph of replacing $f(x)$ by $f(kx)$ for specific values of $k$ (both positive and negative).	<a href="#">Amusement Park Task</a>
3	6.2	Graphing Quadratic Functions in Standard Form	F-BF.B.3; also F-IF.A.2, F-IF.B.4, F-IF.C.7a	Identify the effect on the graph of replacing $f(x)$ by $f(x)+k$ , $kf(x)$ , $f(kx)$ , and $f(x+k)$ for specific values of $k$ (both positive and negative).	<a href="#">Quadratics through Angry Birds Task</a>
3	6.3	Graphing Quadratic Functions in Vertex Form	F-BF.B.3; also F-IF.A.2, F-IF.B.4, F-IF.C.7a	Identify the effect on the graph of replacing $f(x)$ by $f(x)+k$ , $kf(x)$ , $f(kx)$ , and $f(x+k)$ for specific values of $k$ (both positive and negative).	<a href="#">Bottle Rocket Task</a>
		Quiz A			
1	6.4	Interpreting Vertex Form and Standard Form	F-BF.B.3, F-IF.B.4	For a function that models a relationship between two quantities, interpret key features of graphs.	



1	6.5	Average Rate of Change for Quadratics	F-IF.B.6	Calculate and interpret rate of change of a function over a specific interval. Estimate the rate of change from a graph.	
1		Unit 6 Review			
1		Unit 6 Test			

### 3rd Nine Weeks

Unit 7: SOLVING QUADRATIC FUNCTIONS					
Days	Lesson #	Lesson Title	Standard(s)	Major Topics/Concepts	Unit 7 Tasks/Resources
3	7.1	Factoring Quadratic Expressions $x^2+bx+c$	A-SSE.B.3a; also A-SSE.A.2, A-REI.B.3b	Factor a quadratic expression to reveal the zeros of the function it defines.	<a href="#">Vegetable Garden Task</a>
2	7.2	Solving Quadratics by Factoring $x^2+bx+c$	A-SSE.B.3a; also A-SSE.A.2, A-REI.B.3b	Factor a quadratic expression to reveal the zeros of the function it defines.	
		Unit 7 Quiz A			<a href="#">Quadratic Formula Task</a>
2	7.3	Factoring Quadratic Expressions $ax^2+bx+c$	A-SSE.B.3b; also A-SSE.A.2, A-SSE.B.3a	Solve quadratic equations by factoring, as appropriate to the initial form of the equation.	
2	7.4	Solving Quadratics by Factoring $ax^2+bx+c$	A-SSE.B.3b; also A-SSE.A.2, A-SSE.B.3a	Solve quadratic equations by factoring, as appropriate to the initial form of the equation.	
0.5		Unit 7 Quiz B			
1.5	7.5	Using Special Factors to Solve Quadratics	A-SSE.B.3a; also A-SSE.A.2, A-REI.B.3b	Factor a quadratic expression to reveal the zeros of the function it defines.	
1	7.6	Using Square Roots to Solve Quadratics	A-REI.B.3b	Solve quadratic equations by taking square roots.	
2	7.7	Completing the Square to Solve Quadratics	A-SSE.B.3b; also A-SSE.A.2, A-SSE.B.3a, A-REI.B.3b, A-REI.B.3a, F-IF.C.78a	Complete the square in a quadratic expression in the form $Ax^2+Bx+C$ where $A=1$ to reveal the maximum or minimum value of the function.	

3	7.8	Using the Quadratic Formula to Solve Quadratics	A-REI.B.3b	Solve quadratic equations using the Quadratic Formula.  Recognize when the Quadratic Formula gives complex solutions.	
0.5		Unit 7 Quiz C			
1.5	7.9	Applications of Quadratic Functions	A-REI.B.3b	Apply solutions to quadratic functions to real world applications.	
2		Unit 7 Review			
1		Unit 7 Test			

### Unit 8: GEOMETRIC SEQUENCES AND EXPONENTIAL FUNCTIONS

Days	Lesson #	Lesson Title	Standard(s)	Major Topics/Concepts	Unit 8 Tasks/Resources
2	8.1	Geometric Sequences	F.BF.A.1a, F.LE.A.2; also F.LE.A.3, F.BF.A.1	Construct geometric sequences, given a graph, a description of a relationship, or two input-output pairs. Determine an explicit expression or steps for calculation from a context.	<a href="#">Car Depreciation Task</a>
0.5		Unit 8 Quiz A			
2	8.2	Constructing Exponential Functions (If short on time...SKIP)	F-LE.A.2; also F-IF.A.2, F-IF.C.6a	Construct geometric sequences, given a graph, a description of a relationship, or two input-output pairs.	
2	8.3	Graphing Exponential Functions (If short on time...SKIP)	F-IF.C.6b; also F-IF.C.7a	Graph exponential functions, showing intercepts and end behavior.	
3	8.4	Exponential Equations and Models (VERY IMPORTANT LESSON)	F-IF.C.6a; also F-IF.B.4, F.BF.A.1a, F.LE.A.1c, F.LE.A.2	Graph exponential functions, showing intercepts and end behavior.	
1.5	8.5	Comparing Linear and Exponential Models	F.LE.A.1C; also F.LE.A.1a, F.LE.A.1b, F.LE.A.3	Recognize situations in which a quantity grows or decays by a constant percent rate relative to another.	

0.5		Unit 8 Quiz B			
1.5		Unit 8 Review			
1		Unit 8 Test			

### **4th Nine Weeks**

Unit 9: FAMILY OF FUNCTIONS					
Days	Lesson #	Lesson Title	Standard(s)	Major Topics/Concepts	Unit 9 Tasks/Resources
1	9.1	Family of Functions Introduction	F.IF.C.6a, F.IF.C.6b; also F.IF.B.3	Graph linear and quadratic functions and show intercepts, maxima, and minima. Graph square root, cube root, and absolute value functions.	<a href="#">Sorting Functions Task</a>
		Unit 9 Quiz A			
2	9.2	Transformations of Quadratic Functions	F-BF.B.2, also F-BF.A.1, F-BF.B.4, F-IF.B.3, F-IF.A.2	Identify the effect on the graph of replacing $f(x)$ by $f(x)+k$ and $f(x+k)$ for specific values of $k$ (both positive and negative).	
2	9.3	Transformations of Family of Functions	F-BF.B.2, also F-BF.A.1, F-BF.B.4, F-IF.B.3, F-IF.A.2	Identify the effect on the graph of replacing $f(x)$ by $f(x)+k$ and $f(x+k)$ for specific values of $k$ (both positive and negative).	
		Unit 9 Quiz B			
1	9.4	Average Rate of Change for Family of Functions	F.IF.A.2, F.IF.B.5	Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context. Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.	
2	9.5	Piecewise-Defined Functions	F.IF.C.6b; F.BF.A.1	Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	
1		Unit 9 Review			

1		Unit 9 Test				
<b>Unit 10: SYSTEM OF EQUATIONS &amp; INEQUALITIES</b>						
Days	Lesson #	Lesson Title	Standard(s)	Major Topics/Concepts	Unit 10 Task/Resources	
2	10.1	Systems of Linear Equations	A-REI.C.4	Solve systems of linear equations approximately with graphs. Solve systems of linear equations exactly focusing on pairs of linear equations in two variables.	<a href="#">The Cycle Shop Task</a>	
2	10.2	Linear Systems with No Solutions or Infinite Solutions	A-REI.C.4	Solve systems of linear equations exactly focusing on pairs of linear equations in two variables.		
2	10.3	Linear Systems: Real World Applications	A-CED.3	Represent constraints by systems of equations, and interpret solutions as viable or nonviable options in a modeling context.		
		Unit 10 Quiz A				
2	10.4	System of Linear Inequalities	A-REI.D.12; also A-CED.A.3	Graph the solution to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.		
2	10.5	System of Linear Inequalities: Real World Applications	A-CED.3	Represent constraints by systems of inequalities, and interpret solutions as viable or nonviable options in a modeling context.		
1		Unit 10 Review				
1		Unit 10 Test				
<b>Unit 11: PROBABILITY AND STATISTICS</b>						
Days	Lesson #	Lesson Title	Standard(s)	Major Topics/Concepts		Unit 11 Tasks/Resources
		Will be determined based on time left in class.			<a href="#">House Prices Task</a>	

**Tn Ready Algebra 1 test date to be determined**

**All standards for Algebra 1 and Blueprints for Assessment can be found at [TN Department of Education](#)**