

Course Name: Algebra 1 CP/Honors

Curriculum Proposal Date: October 10, 2022

Curriculum Developed by:

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	ALGEBRA 1 - SOLVING ONE-VARI	ABLE EQUATIONS
STAGE 1 DESIRED RESULTS		
	Context and relevance for studer	nt learning
Standards	Ті	ransfer
CC.2.2.HS.D.7 Create and graph equations or inequalities to describe numbers or relationships.	 Students will be able to independently use their learning to keep considering Model and solve real world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations (CC.2.2.7.B.3) Use reasoning to solve equations and justify the solution method (CC.2.2.HS.D.9) Write expressions in equivalent forms to solve problems (CC.2.2.HS.D.2) 	
CC.2.2.HS.D.8 Apply	М	leaning
inverse operations to solve equations or formulas for a given variable. CC.2.2.HS.D.9 Use reasoning to solve equations and justify	 UNDERSTANDINGS Students will understand that The rules and relationships of arithmetic and algebra are useful for writing equivalent forms of expressions and solving equations. Algebraic properties and processes are used to solve equations. 	ESSENTIAL QUESTIONS Students will keep considering How can equations be used to represent relationships and solve problems?
the solution method.	Acquisition	
CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.	 Students will know Meaning of a variable Inverse operations Algebraic Properties Absolute value One solution, no solution, Infinitely many solutions 	 Students will be skilled at Write and solve one-variable equations. Interpret solutions in the context of the problem.

ALGEBRA 1 - LINEAR EQUATION STAGE 1 DESIRED RESULT Context and relevance for student learni Students will be able to independently use their learning to keep constrained CC.2.2.8.B.2 Understand Students will be able to independently use their learning to keep constrained proportional Model and solve real world and mathematical problems by us representations (CC.2.2.7.B.3) elationships, lines, and Use reasoning to solve equations and justify the solution metil Write expressions in equivalent forms to solve problems (CC.2.2.8.B.3 Analyze Model and solve real world and mathematical problems (CC.2.2.8.B.3 Analyze and solve linear equations and pairs of simultaneous linear graphically. (CC.2.2.HS.D.10) Meaning UNDERSTANDINGS Students will understand that and solve linear UNDERSTANDINGS Students Students will understand that C.2.2.HS.C.3 Write Students will understand that Students functions or sequences Linear equations are mathematical relationships that can be represented and analyzed using words, tables, graphs, and equations. C.2.2.HS.C.5 Construct Students will know Linear equations as graphs, equations, table	Sing Sidering ing and connecting numerical, algebraic, and/or graphical nod (CC.2.2.HS.D.9) 2.2.HS.D.2) :ems of equations/inequalities algebraically and
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CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities.inequalities can represent mathematical situations and structures in many equivalent forms.ILinear equations are mathematical relationships that can be represented and analyzed using words, tables, graphs, and equations.ICC.2.2.HS.C.5 Construct and compare linear, quadratic, and exponential models to solve problems.Students will knowStuderCC.2.2 HS.D.7 CreateIPositive Slope, Negative Slope, Zero Slope, Undefined SlopeICC.2.2 HS.D.7 CreateStandard Form, Slope-Intercept Form, and Point-Slope Form of Linear EquationsI	How do we use linear models to answer questions in
CC.2.2.HS.C.3 Write and structures in many equivalent forms. Image: Construct functions or sequences functions or sequences Linear equations are mathematical relationships that model relationships that can be represented and analyzed using words, tables, graphs, and equations. Image: Construct function fu	real-world contexts?
functions or sequences that model relationships between two quantities.Linear equations are mathematical relationships that can be represented and analyzed using words, tables, graphs, and equations.Image: Comparison of comparison o	How do we use algebraic and/or graphical processes to
that model relationships between two quantities.that can be represented and analyzed using words, tables, graphs, and equations.CC.2.2.HS.C.5 Construct and compare linear, quadratic, and exponential models to solve problems.Students will knowCC.2.2 HS D 7 CreateStandard Form, Slope-Intercept Form, and Point-Slope Form of Linear Equations	solve problems?
between two quantities. tables, graphs, and equations. CC.2.2.HS.C.5 Construct and compare linear, quadratic, and exponential models to solve problems. Students will know Studer Quadratic, and exponential models to solve problems. Rate of change Image: Comparison of the comparison of	How do you write, solve, graph, and interpret linear
CC.2.2.HS.C.5 Construct Students will know Students and compare linear, Linear equations as graphs, equations, tables, set of 1 quadratic, and Rate of change 1 exponential models to Positive Slope, Negative Slope, Zero Slope, 1 solve problems. Standard Form, Slope-Intercept Form, and 1 CC.2.2 HS D.7 Create Point-Slope Form of Linear Equations 1	equations to model relationships between quantities?
CC.2.2.HS.C.5 Construct Students will know Students will know and compare linear, Linear equations as graphs, equations, tables, set of Image: Coordinates quadratic, and Rate of change Image: Coordinates exponential models to Positive Slope, Negative Slope, Zero Slope, Image: Coordinates solve problems. Standard Form, Slope-Intercept Form, and Image: Coordinates CC.2.2 HS D.7 Create Point-Slope Form of Linear Equations	
and compare linear, Coordinates quadratic, and Rate of change exponential models to Positive Slope, Negative Slope, Zero Slope, solve problems. Standard Form, Slope-Intercept Form, and CC 2 2 HS D 7 Create Point-Slope Form of Linear Equations	ts will be skilled at
quadratic, and Image Image exponential models to Image Image solve problems. Image Image Image	A1.1.2.1.1 VVrite, solve, and/or apply a linear equation
exponential models to solve problems. Image Image Image CC 2 2 HS D 7 Create Image Image Image Image	(including problem situations).
solve problems. Image: Construct Stope, Acguite Stope, Zero Stope, Zero Stope, Stope, Stope, Stope, Zero Stope, ZeroStope, ZeroS	iustify any step in an equation-solving process. Note:
CC 2 2 HS D 7 Create	Linear equations only.
CC 2 2 HS D 7 Create Point-Slope Form of Linear Equations	A1.1.2.1.3 Interpret solutions to problems in the context
	of the problem situation. Note: Linear equations only.
	A1.2.1.1.1 Analyze a set of data for the existence of a
and graph equations or	pattern and represent the pattern algebraically and/or
inequalities to describe	graphically
numbers or	A1.2.1.2.1 Create, interpret, and/or use the equation,
relationships.	graph, or table of a linear function.
	A1.2.1.2.2 Iranslate from one representation of a linear
CC.2.2.HS.D.8 Apply	the set of
inverse operations to	function to another (i.e., graph, table, and equation).
numbers or relationships.	graphically A1.2.1.2.1 Create, interpret, and/or use the equation, graph, or table of a linear function. A1.2.1.2.2 Translate from one representation of a linear

solve equations or		slope and a point on the line. Note: Linear equations may
formulas for a given		be in point-slope, standard, and/or slope-intercept form.
variable.		A1.2.2.1.4 Determine the slope and/or y-intercept represented by a linear equation or graph.
CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and		A1.2.2.1.1 Identify, describe, and/or use constant rates of change. A1.2.2.1.2 Apply the concept of linear rate of change (slope) to solve problems.
graphically.		

STAGE 1 DESIRED RESULTS		
Standarda	Context and relevance for student learning	
CC.2.2.HS.D.7 Create and graph equations or inequalities to describe numbers or relationships. CC.2.2.8.B.3 Analyze	 Students will be able to independently use their learning Model and solve real world and mathematical prigraphical representations (CC.2.2.7.B.3) Use reasoning to solve equations and justify the Write expressions in equivalent forms to solve price Represent, solve, and interpret equations/inequations/inequations 	g to keep considering oblems by using and connecting numerical, algebraic, and/or solution method (CC.2.2.HS.D.9) roblems (CC.2.2.HS.D.2) lities and systems of equations/inequalities algebraically and
and solve linear	M	leaning
equations and pairs of simultaneous linear equations. CC.2.2.HS.D.10 Represent, solve, and interpret	 UNDERSTANDINGS Students will understand that Systems of linear equations can be used to model problems. 	 ESSENTIAL QUESTIONS Students will keep considering How can systems of equations be used to represent situations and solve problems? How do we use algebraic and/or graphical processes to solve real-life linear systems of equations?
equations/inequalities	Ac	quisition
and systems of equations/inequalities algebraically and graphically.	 Students will know Graphing, substitution, elimination methods for solving systems of equations. Advantages and disadvantages of methods to solving systems of equations One solution, no solution, infinitely many solutions 	 Students will be skilled at A1.1.2.2.1 Write and/or solve a system of linear equations (including problem situations) using graphing, substitution, and/or elimination. Note: Limit systems to two linear equations. A1.1.2.2.2 Interpret solutions to problems in the context of the problem situation. Note: Limit systems to two linear equations.

ALGEBRA 1 - ONE-VARIABLE INEQUALITIES

	STAGE 1 DESIRED RESULI	S
	Context and relevance for student learni	ng
Standards	Transfer	
CC.2.2.HS.D.7 Create	Students will be able to independently use their learning to keep cons	sidering
and graph equations or	Model and solve real world and mathematical problems by using and connecting numerical, algebraic, and/or graphical	
inequalities to describe	representations (CC.2.2.7.B.3)	
numbers or	Use reasoning to solve equations and justify the solution met	hod (CC.2.2.HS.D.9)
relationships.	Write expressions in equivalent forms to solve problems (CC.	.2.2.HS.D.2)
	Choose a level of accuracy appropriate to limitations on meas	surement when reporting quantities. (CC.2.2.HS.F.5)
CC.2.2.HS.D.10		
Represent, solve, and	Meaning	
interpret	UNDERSTANDINGS ESSEM	VTIAL QUESTIONS
equations/inequalities	Students will understand that Studen	nts will keep considering
and systems of	lacksquare The rules and relationships of arithmetic and $lacksquare$	How can inequalities be used to represent relationships
equations/inequalities	algebra are useful for writing equivalent forms of	and solve problems?
algebraically and	and solving inequalities.	
graphically.	Algebraic properties and processes are used to	
	solve inequalities.	
	Inequalities have an infinite number of solutions	
	and can be represented on a number line.	
Acquisition		n
	Students will know Studen	nts will be skilled at
	Meaning of a variable	A1.1.3.1.1 Write or solve compound inequalities and/or
	Inverse operations	graph their solution sets on a number line (may include
	Algebraic Properties	absolute value inequalities).
	Compound Inequalities	A1.1.3.1.2 Identify or graph the solution set to a linear
	Absolute value inequalities	inequality on a number line.
	Graphing solutions	A1.1.3.1.3 Interpret solutions to problems in the context
	Dividing or multiplying by a negative and its effect	of the problem situation. Note: Linear inequalities only.
	on the inequality	

	STAGE 1 DESIRED R	ESULTS
Standards	Context and relevance for student learning	
CC.2.2.HS.D.7 Create and graph equations or inequalities to describe numbers or relationships.	 Students will be able to independently use their learnin Model and solve real world and mathematical prographical representations (CC.2.2.7.B.3) Use reasoning to solve equations and justify the Choose a level of accuracy appropriate to limitat (CC.2.2.HS.F.5) 	g to keep considering roblems by using and connecting numerical, algebraic, and/or solution method (CC.2.2.HS.D.9) ions on measurement when reporting quantities.
CC.2.2.HS.D.10	N	leaning
Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.	 UNDERSTANDINGS Students will understand that The rules and relationships of arithmetic and algebra are useful for writing equivalent forms of and solving linear inequalities. Algebraic properties and processes are used to solve linear inequalities. Linear inequalities have an infinite number of solutions and can be represented on a coordinate plane using symbols and shading. 	 ESSENTIAL QUESTIONS Students will keep considering How can linear inequalities be used to represent relationships and solve problems?
	Ac	quisition
	 Students will know Graphing solutions Boundaries Solid lines, dotted lines Direction of shading Solutions and not solutions 	 Students will be skilled at A1.1.3.1.2 Identify or graph the solution set to a linear inequality on a number line. A1.1.3.1.3 Interpret solutions to problems in the context of the problem situation. Note: Linear inequalities only. Translate from one representation of a linear inequality to another

STAGE 1 DESIRED RESULTS			
	Context and relevance for student learning		
Standards	Transfer		
CC.2.2.HS.D.7 Create and graph equations or inequalities to describe numbers or relationships.	 Students will be able to independently use their learning to keep considering Model and solve real world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations (CC.2.2.7.B.3) Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. (CC.2.2.HS.F.5) 		
CC.2.2.HS.D.10	M	leaning	
Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.	 UNDERSTANDINGS Students will understand that Systems of linear inequalities can be used to model problems. 	 ESSENTIAL QUESTIONS Students will keep considering How can systems of inequalities be used to represent situations and solve problems? How do we use algebraic and/or graphical processes to solve real-life systems of linear inequalities situations? 	
	Ac	quisition	
	 Students will know Graphing solutions of systems Multiple boundaries Overlapping and no overlap and what that means for the solution set 	 Students will be skilled at A1.1.3.2.1 Write and/or solve a system of linear inequalities using graphing. Note: Limit systems to two linear inequalities. A1.1.3.2.2 Interpret solutions to problems in the context of the problem situation. Note: Limit systems to two linear inequalities. 	

STAGE 1 DESIRED RESULTS		
	Context and relevance for stude	nt learning
Standards		Transfer
CC.2.2.8.C.1 Define, evaluate, and compare functions. CC.2.2.8.C.2 Use concepts of functions to model relationships between quantities. CC.2.2.HS.C.1 Use the concept and notation of functions to interpret and apply them in terms of their context. CC.2.2.HS.C.2 Graph and analyze functions and use their properties to make connections between the	 Students will be able to independently use their le CC.2.2.7.B.3 Model and solve real-world a algebraic, and/or graphical representations CC.2.1.HS.F.3 Apply quantitative reasoning data displays. UNDERSTANDINGS Students will understand that The notation of a function and what it represents Functions can be represented in multiple ways (table, graphing, mapping diagram, 	 earning to keep considering ind mathematical problems by using and connecting numerical, g to choose and interpret units and scales in formulas, graphs, and ESSENTIAL QUESTIONS Students will keep considering How can functions describe and represent real-world situations? How can functions model, predict and solve problems?
different representations. CC.2.2.HSC.3 Write functions or	list of ordered pairs)	
sequences that model relationships		
between two quantities. CC.2.2.HS.C.4 Interpret the effects transformations have on functions and find the inverses of functions. CC.2.2.HS.C.6 Interpret functions in terms of the situations they model. CC.2.4.HS.B.2 Summarize, represent, and interpret data on two categorical and quantitative variables.	 Students will know How to identify the domain and range in multiple representations (table, graphing, mapping diagram, list of ordered pairs) Evaluate in function notation Relation vs. function Function vs. not a function Linear vs. nonlinear Discrete vs. continuous Function notation Increasing, decreasing, and constant 	 Students will be skilled at A.1.2.1.1.1 Analyze a set of data for the existence of a pattern and represent the pattern algebraically and/or graphically. A.1.2.1.1.2 Determine whether a relation is a function, given a set of points or a graph. A.1.2.1.1.3 Identify the domain or range of a relation (may be presented as ordered pairs, a graph, or a table). Representing a relation and/or function in various forms Write and/or represent a function based on a real-life situation Inputting values and getting outputs and vice versa

	ALGEBRA 1 - REAL NUMB	ER SYSTEM
STAGE 1 DESIRED RESULTS		
	Context and relevance for stude	nt learning
Standards	Ti Chudanta will be able to independently yes their learnin	ransfer
CC.2.1.8.E1 Distinguish between rational and	 Write expressions in equivalent forms to solve problems (CC.2.2.HS.D.2) Use estimation to solve problems (A1.1.1.4.1) 	
using their	M	leaning
using their properties. CC.2.1.8.E4 Estimate irrational numbers by comparing them to rational numbers.	 UNDERSTANDINGS Students will understand that Numbers can be represented in multiple forms (e.g. integers, fractions, decimals, percents, square roots, and exponents) The real number system is the basis of on which arithmetic and algebra are built 	 ESSENTIAL QUESTIONS Students will keep considering What is the real number system and how does it apply to algebra?
properties of rational		
and irrational numbers to solve real-world or mathematical problems.	Students will know Real Number vs Complex Number systems Rational vs Irrational numbers Perfect squares Order numbers from least to greatest Compare real numbers	 Students will be skilled at A1.1.1.1.1 Compare and/or order any real numbers. Note: Rational and irrational may be mixed. A1.1.1.1.2 Simplify square roots (e.g., √24 = 2√6).

ALGEBRA 1 - EXPONENTS		
STAGE 1 DESIRED RESULTS		
	Context and relevance for stude	nt learning
Standards	Т	ransfer
	Students will be able to independently use their learning	g to keep considering
CC.2.1.HS.F1 Apply	Write expressions in equivalent forms to solve pressions	roblems (CC.2.2.HS.D.2)
and extend the		
properties of	М	eaning
exponents to solve	UNDERSTANDINGS	ESSENTIAL QUESTIONS
problems with rational	Students will understand that	Students will keep considering
exponents.	Exponents can be used to rewrite numbers and	How can mathematical processes result in a
	expressions	simplified expression?
CC.2.2.8.B.1 Apply		
concepts of radicals	Ac	quisition
and integer exponents	Students will know	Students will be skilled at
to generate equivalent	Exponent Properties	A1.1.1.2.1 Find the Greatest Common Factor (GCF)
expressions.	Negative exponents	and/or the Least Common Multiple (LCM) for sets of
	Zero power	monomials.
	How to identify a base and an exponent	A1.1.1.3.1 Simplify/evaluate expressions involving
	Least common multiple	properties/laws of exponents, roots, and/or absolute
	Rational exponents	values to solve problems. Note: Exponents should
		be integers from –10 to 10.
		Using rational exponents to convert and simplify
		expressions

ALGEBRA 1 - POLYNOMIALS AND FACTORING		
STAGE 1 DESIRED RESULTS		
	Context and relevance for stude	nt learning
Standards		Transfer
Standards CC.2.1.6.E.3 Develop and/or apply number theory concepts to find common factors and multiples. CC.2.2.HS.D.1 Interpret the structure of expressions to represent a quantity in terms of its context. CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems. CC.2.2.HS.D.3 Extend the knowledge of arithmetic operations and apply to polynomials. CC.2.2.HS.D.5 Use polynomial identities to solve problems	 Students will be able to independently use their Write expressions in equivalent forms to UNDERSTANDINGS Students will understand that Factors allow options in solving polynomials. Properties of real numbers apply to polynomials. Students will know How to completely factor expressions (GCF, difference of perfect squares, trinomials where a=1 and/or combination of the factoring types) Simplify polynomial expressions by adding, subtracting and multiplying Algebraic factors 	Transfer c learning to keep considering solve problems (CC.2.2.HS.D.2) Meaning ESSENTIAL QUESTIONS Students will keep considering How can polynomials be simplified and applied to solve problems? How do I factor a non-linear expression? Xequisition Students will be skilled at A1.1.1.2.1 Find the Greatest Common Factor (GCF) and/or the Least Common Multiple (LCM) for sets of monomials. A1.1.1.5.1 Add, subtract, and/or multiply polynomial expressions (express answers in simplest form). Note: Nothing larger than a binomial multiplied by a trinomial. A1.1.1.5.2 Factor algebraic expressions, including difference of squares and trinomials. Note: Trinomials are limited to the form ax2 + bx + c where a is equal to 1 after factoring out all
		 where a is equal to 1 after factoring out all monomial factors A1.1.1.5.3 Simplify/reduce a rational algebraic expression.

ALGEBRA 1 - STATISTICS

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards	Transfer
CC.2.4.HS.B.1 Summarize, represent, and interpret data on a single count or measurement variable. CC.2.4.HS.B.2 Summarize,	 Students will be able to independently use their learning to keep considering Use estimation to solve problems (A1.1.1.4.1) Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations (CC.2.2.7.B.3) Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays (CC.2.1.HS.F.3) Use units as a way to understand problems and to guide the solution of multi-step problems (CC.2.1.HS.F.4) Choose a level of accuracy appropriate to limitations on measurement when reporting quantities (CC.2.1.HS.F.5)
represent, and interpret	Meaning
data on two categorical and quantitative variables. CC.2.4.HS.B.3 Analyze linear models to make interpretations based on the data. CC.2.4.HS.B.4 Recognize and evaluate random	 UNDERSTANDINGS Students will understand that There are different methods to represent a set of one variable data. Scatterplots can represent a set of two variable data. Measures of center and spread can be used to understand a set of one variable data. Line of Best Fit can be used to interpolate and extrapolate data points ESSENTIAL QUESTIONS Students will keep considering How can you make and interpret different representations of data? How do we make predictions and informed decisions based on given numerical information?
processes underlying	Acquisition
statistical experiments.	 Students will know Mean, Median, Mode, Range, Quartile and Interquartile range Measures of Central Tendencies Appropriate location of a Line of Best Fit Correlation Circle, Line, Bar Graph, Scatterplots, Box-and-Whisker Plots, Stem-and-Leaf Plots, and other representations A12.3.2.2 Analyze data, make predictions, and/or answer questions based on displayed data (box-and-whisker plots, scatter plots, neasures of central tendency, or other representations). A1.2.3.1.1 Calculate and/or interpret the range, quartiles, and interquartile range of data. A1.2.3.2.3 Make predictions using the equations or graphs of best-fit lines of scatter plots. Finding a missing value given a mean

ALGEBRA 1 - PROBABILITY		
STAGE 1 DESIRED RESULTS		
Context and relevance for student learning		
Standards	Transfer	
CC.2.4.7.B.3	Students will be able to independently use their learning to keep considering	
Investigate chance	A1.1.1.4.1 Use estimation to solve problems.	
processes and	CC.2.2.7.B.3 Model and solve real-world and mathematical problems by using and connecting numerical,	
develop, use, and	algebraic, and/or graphical representations.	
evaluate probability		
models.	Meaning	
	UNDERSTANDINGS	ESSENTIAL QUESTIONS
CC.2.4.HS.B.4	Students will understand that	Students will keep considering
Recognize and	Probability models are useful tools for making	How can we base decisions on chance?
evaluate random	decisions and predictions.	How can probability be used to simulate events and
processes underlying	Experimental probability is different from	to predict future happenings?
statistical	theoretical probability.	
experiments.		
	Acquisition	
CC.2.4.HS.B.7 Apply	Students will know	Students will be skilled at
the rules of probability	Fraction, decimal and percent conversions	A.1.2.3.3.1 Find probabilities for compound events
to compute	Compound events	(e.g., find probability of red and blue, find probability
probabilities of	Probability models	of red or blue) and represent as a fraction, decimal,
compound events in a	Rules of probability	or percent.
uniform probability		
model.		