

PITTSGROVE TOWNSHIP SCHOOL DISTRICT



Course Name: Algebra 1 CP	Grade Level(s): 9
Department: Math	Credits: 5
BOE Adoption Date: June 2012	Revision Date(s): August 2019

Course Description

This course covers all basic components of Algebra including concepts in variables, algebraic manipulations, polynomials, factoring algebraic expressions, study of linear, and exponential functions, systems of equations, as well as exponential and quadratic functions. Simplifying radical expressions, absolute value equations, and irrational numbers will also be discussed. Some statistics, probability and Discrete Math will also be studied to prepare students for the Algebra 1 PARCC. This is a full year, two-part course. Instruction is designed for those students who need a review of math operations with whole numbers, fractions, decimals, and percents; integers; variables; solving equations and inequalities; and polynomials.

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.

6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning

Mission Statement

The Pittsgrove Township School District believes in growing all learners to thrive. The district offers an intellectually rigorous, dynamic curriculum aligned to state and national standards coupled with research-based practices in classrooms. The Pittsgrove Township School District strives to highlight critical thinking, problem-solving, intercultural literacy, digital literacy, collaboration, innovation, and a growth mindset as part of the instructional core of learning. The district provides high quality resources to provide young people the knowledge they need to approach the future as leaders and learners.

Curriculum & Instruction Goals

1. To ensure students are college and career ready upon graduation
2. To vertically and horizontally align curriculum PreK-12 to ensure successful transition of students at each grade level
3. To identify individual student strengths and weaknesses utilizing various assessment measures (formative, summative, alternative, etc.) so as to differentiate instruction while meeting the rigor of the applicable content standards
4. To improve student achievement as assessed through multiple measures including, but not limited to, state testing, local assessments, and ongoing progress monitoring

How to Read this Document

This curricular document contains both a *pacing guide* and *curriculum units* . The pacing guide serves to communicate an estimated timeframe as to *when* critical knowledge and skills will be taught throughout the year. The pacing, however, may differ slightly depending upon the unique needs of each learner. The *curriculum units* contain more detailed information as to the content, goals, objectives, instructional strategies, resources, and assessments.

NJ Administrative Code and Statutes Key
<p>^=Amistad Law O=Diversity & Inclusion Law <>=Holocaust + =LGBT and Disabilities Law *=AAPI (Asian American and Pacific Islanders) \$=Financial Literacy Use this key to understand where the NJ mandates are being implemented in the K-12 curriculum units.</p>

Pacing Guide

Course Title:

Prerequisite(s):

Unit Title	Duration/ Month(s)	Related Standards	Learning Goals	Critical Knowledge and Skills
Unit 1: Linear equations and expressions	1 week September/ February	<p>Power Standards : NJSLS.A-SSE.A NJSLS.A-CED.A NJSLS.A-REI.A NJSLS.A-REI.B NJSLS.A-REI.D NJSLS.F-IF.A NJSLS.F-IF.B NJSLS.S-ID.C NJSLS.F-IF.C.</p> <p>Supporting Standards: NJSLS.A-SSE.A.1 NJSLS.A-CED.A.1 NJSLS.A-CED.A.2 NJSLS.A-CED.A.4 NJSLS.A-REI.A.1 NJSLS.A-REI.B.3 NJSLS.A-REI.D.10 NJSLS.A-REI.D.11 NJSLS.A-CED.A.2 NJSLS.F-IF.A.1 NJSLS.F-IF.A.2</p>	Students will be able to evaluate expressions, construct algebraic equations and solve equations.	<p>Students will be able to solve equations.</p> <p>Students will be able to create and solve equations based on word problems and real world situations.</p> <p>Students will be able to graph a linear function using a table, slope-intercept form, standard form, point-slope form, intercepts and slope.</p> <p>Students will be able to graph a linear function using a graphing calculator.</p> <p>Students will understand that slope is a rate of change.</p> <p>Students will be able to define and apply the concepts of domain and range in the context of linear functions.</p>

		<p>NJSLS.F-IF.B.4 NJSLS.F-IF.B.5 NJSLS.F-IF.B.6 NJSLS.S-ID.C.7 NJSLS.S-ID.C.8 NJSLS.S-ID.C.9 NJSLS.F-IF.C.7 NJSLS.F-IF.C.9</p>		
<p>Unit 2: Solving and Graphing Linear Inequalities</p>	<p>3 weeks Sept - Oct February/March</p>	<p>Power Standards: NJSLS.A-CED.A NJSLS.A-REI.D NJSLS.S-ID.A</p> <p>Supporting Standards: NJSLS.A-CED.A.1 NJSLS.A-CED.A.3 NJSLS.A-REI.D.12 NJSLS.S-ID.A.1</p>	<p>Students will understand how to apply inequalities to everyday situations and students will be able to write, graph and solve multi-step and compound inequalities.</p> <p>Students will be able to graph all forms of linear inequalities using a variety of methods and select the best method for each given situation.</p> <p>Students will be able to create inequalities based on linear relationships and understand their significance and how they relate to real-world application.</p>	<p>Students will be able to solve and graph one-variable inequalities.</p> <p>Students will be able to graph two variable linear inequalities using a table, slope-intercept form, standard form, point-slope form, intercepts, and slope.</p> <p>Students will be able to write, graph, and solve inequalities from real world scenarios using graphing strategies.</p> <p>Students will be able to graph linear inequalities using a graphing calculator.</p> <p>Students will be able to solve and graph absolute value equations.</p>
<p>Unit 3: Systems of Linear Functions and Systems of</p>	<p>3 weeks October/March</p>	<p>Power Standards: NJSLS.A-CED.A NJSLS.A-REI.D</p>	<p>Students will be able to solve a system of linear equations or inequalities using a variety of</p>	<p>Students will be able to solve a system of equations using graphing.</p>

<p>Inequalities</p>		<p>NJSLS.A-REI.C</p> <p>Supporting Standards: NJSLS.A-CED.A.3 NJSLS.A-REI.D.12 NJSLS.A-REI.C.5 NJSLS.A-REI.C.6</p>	<p>methods, identify different types of solutions, and identify the best method in a given situation.</p> <p>Students will understand how to model, translate, and solve real world situation problems using systems of equations and inequalities.</p>	<p>Students will be able to solve a system of equations using substitution.</p> <p>Students will be able to solve a system of equations using elimination.</p> <p>Students will be able to solve and identify the solution to a system of linear inequalities.</p> <p>Students will be able to write and solve systems of equations from real world scenarios using graphing strategies.</p> <p>Students will be able to graph and solve systems of equations using a graphing calculator.</p> <p>Students will be able to solve and graph absolute value equations.</p>
<p>Unit 4: Exponents and Exponential Functions</p>	<p>3 weeks Oct - Nov. March-April</p>	<p>Power Standards: NJSLS.A-APR.A NJSLS.A-SSE.A</p> <p>Supporting Standards: NJSLS.A-APR.A.1 NJSLS.A-SSE.A.2</p>	<p>Students will be able to perform mathematical operations using monomials and polynomials, including those with exponents.</p> <p>Students will understand how to model and solve scientific and business problems involving exponential growth and decay.</p>	<p>Students will be able to simplify algebraic expressions using all rules of exponents.</p> <p>Students will be able to graph an exponential function.</p> <p>Students will construct exponential growth and decay models when</p>

				<p>given a variety of business and scientific scenarios.</p> <p>Students will solve word problems based on exponential growth and decay in real world situations.</p>
<p>Unit 5: Polynomials</p>	<p>5 weeks Nov. - Dec. April - May</p>	<p>Power Standard: NJSLS.A-APR.A NJSLS.A-SSE.A</p> <p>Supporting Standard: NJSLS.A-APR.A.1 NJSLS.A-SSE.A.2</p>	<p>Students will be able to perform mathematical operations using monomials and polynomials, including those with exponents.</p> <p>Students will understand how to apply mathematical rules to monomials and polynomials.</p>	<p>Students will be able to simplify algebraic expressions using all rules of exponents.</p> <p>Students will be able to add, subtract and multiply polynomials.</p> <p>Students will be able to divide monomials.</p>
<p>Unit 6: Factoring and Quadratic Functions</p>	<p>3 week Dec. - Jan May - June</p>	<p>Power Standards: NJSLS.A-REI.B NJSLS.F-IF.B NJSLS.A-SSE.B NJSLS.A-APR.B NJSLS.F-IF.C NJSLS.F-BF.B</p> <p>Supporting Standards: NJSLS.A-REI.B.4 NJSLS.F-IF.B.4 NJSLS.F-IF.B.5 NJSLS.A-SSE.B.3 NJSLS.A-APR.B.3 NJSLS.F-IF.C.7</p>	<p>Students will be able to manipulate expressions using various factoring methods.</p> <p>Students will be able to solve quadratic equations using factoring, completing the square, graphing and graphing calculators.</p> <p>Students will be able to graph quadratic equations.</p> <p>Students will understand how to develop strategies to solve science-based word problems using</p>	<p>Students will be able to add, subtract and multiply polynomials.</p> <p>Students will be able to divide monomials.</p> <p>Students will be able to factor two, three and four term polynomials using different strategies.</p> <p>Students will be able to solve quadratic equations using factoring, completing the square, graphing, and graphing calculators.</p>

		<p>NJSLS.F-IF.C.8 NJSLS.F-IF.C.9 NJSLS.F-BF.B.3</p>	<p>quadratic functions.</p>	<p>Students will be able to explain the relevance of the solutions of quadratic functions.</p> <p>Students will be able to identify the different types of solutions for quadratic functions.</p> <p>Students will graph quadratic equations.</p> <p>Students will derive quadratic equations and graphs from real world situations to help find solutions to the scenarios.</p>
<p>Unit 7: Radical and Radical Expressions</p>	<p>January/ June 2 weeks</p>	<p>Power Standards: NJSLS.N.RN.A NJSLS.A.REI.A NJSLS.F.BF.A NJSLS.F.IF.C NJSLS.F.BF.B NJSLS.F.LE.A</p> <p>Supporting Standards: NJSLS.N.RN.A.1 NJSLS.N.RN.A.2 NJSLS.A.REI.A.1 NJSLS.A.REI.A.2 NJSLS.F.BF.A.1 NJSLS.F.IF.C.7 NJSLS.F.BF.B.3 NJSLS.F.BF.B.4</p>	<p>The students will be able to extend the properties of exponents to rational exponents.</p> <p>The students will be able to solve simple radical and rational equations in one variable, and give examples showing how extraneous solutions may arise.</p> <p>The students will be able to combine standard function types using arithmetic operations.</p>	<p>Students will be able to simplify nth roots Students will be able to multiply and divide radical expressions</p> <p>Students will be able to add and subtract radical expressions</p> <p>Students will be able to multiply and divide binomial radical expressions</p> <p>Students will be able to simplify expressions with rational exponents</p> <p>Students will be able to solve radical equations</p>

		NJSLS.F.LE.A.4		Students will be able to add, subtract, multiply, and divide functions
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Instructional Unit Map					
Course Title: Algebra 1 CP					
Unit Title	Unit 1: Linear equations and expressions			Start Date:	September/February
				Length of Unit:	1 week
Content Standards <i>What do we want them to know, understand, & do?</i>	Power Standards : NJSLS.A-SSE.A - Interpret the structure of expressions NJSLS.A-CED.A - Create equations that describe numbers or relationships NJSLS.A-REI.A - Understand solving equations as a process of reasoning and explain the reasoning NJSLS.A-REI.B - Solve equations and inequalities in one variable NJSLS.A-REI.D - Represent and solve equations and inequalities graphically NJSLS.F-IF.A - Understand the concept of a function and use function notation NJSLS.F-IF.B - Interpret functions that arise in applications in terms of	Learning Goals	Students will be able to evaluate expressions, construct algebraic equations and solve equations.		

	<p>the context</p> <p>NJSLS.S-ID.C - Interpret linear models</p> <p>NJSLS.F-IF.C - Analyze functions using different representations</p> <p>Supporting Standards:</p> <p>NJSLS.A-SSE.A.1 - Interpret expressions that represent a quantity in terms of its context</p> <p>NJSLS.A-CED.A.1 - Create equations and inequalities in one variable and use them to solve problems.</p> <p>NJSLS.A-CED.A.2 - Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.</p> <p>NJSLS.A-CED.A.4 - Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.</p> <p>NJSLS.A-REI.A.1 - 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.</p> <p>NJSLS.A-REI.B.3 - Solve linear equations and inequalities in one</p>		
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variable, including equations with coefficients represented by letters.

NJSLS.A-REI.D.10 - Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).

NJSLS.A-REI.D.11 - 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 solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.

NJSLS.A-CED.A.2 - Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

NJSLS.F-IF.A.1 - Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is

	<p>an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.</p> <p>NJSLS.F-IF.A.2 - Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context</p> <p>NJSLS.F-IF.B.4 - For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship</p> <p>NJSLS.F-IF.B.5 - Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.</p> <p>NJSLS.F-IF.B.6 - 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</p> <p>NJSLS.S-ID.C.7 - Interpret the slope and the intercept (constant term) of a linear model in the context of the data.</p>		
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	<p>NJSLS.S-ID.C.8 - Compute and interpret the correlation coefficient of a linear fit.</p> <p>NJSLS.S-ID.C.9 - Distinguish between correlation and causation.</p> <p>NJSLS.F-IF.C.7 - Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.</p> <p>NJSLS.F-IF.C.9 - Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).</p>		
Essential Questions	<ul style="list-style-type: none"> • How do we utilize equations to solve problems? • How do you graph linear equations? • What types of relationships can be modeled by linear graphs? • How can we model real world situations by graphing linear functions? 		
Assessments <i>How will we know they have gained the knowledge & skills?</i>	Formative	Summative	Alternative
	<ul style="list-style-type: none"> • Communicators • Warm up problems • Exit tickets • Choral and Individual responses to questioning verbally and on the smartboard • Graded homework • Kahoot 	<ul style="list-style-type: none"> • Cumulative review activity 	<ul style="list-style-type: none"> • Menu Project (Ch. 3-5)

Unit Pre-Assessment(s) <i>What do they already know?</i>	<ul style="list-style-type: none"> ● Teacher generated warm up ● Data from Pre Test ● Kahoot ● Warm up problems 			
Instructional Strategies/Student Activities	<ul style="list-style-type: none"> ● Direct Instruction ● Guided Practice ● Cooperative learning (group work) ● Communicators ● Modeling ● Learning Centers ● Guided notes ● Student Choice Menu project ● Exit tickets ● Walk arounds/ Scavenger hunts 			
Instructional/Assessment Scaffolds <i>(Modifications /Accommodations) – planned for prior to instruction</i>	English Language Learners Special Education Learners Struggling Learners Advanced Learners			
	<ul style="list-style-type: none"> ● Word Wall ● Oral Directions (repeat if necessary) ● Preferred Seating ● Calculator ● Graphic Organizer ● Manipulatives ● “Classroom Buddy” ● Key terms highlighted ● Immediate feedback ● Test retakes 	<ul style="list-style-type: none"> ● Class Agenda ● Word Wall ● Oral Directions (repeat if necessary) ● Preferred Seating ● Calculator ● Graphic organizer ● Manipulatives 	<ul style="list-style-type: none"> ● Chunk long-term assignments ● Provide extra time ● Class agenda/planner ● Manipulatives ● Graphic Organizer ● Guided notes ● Self Correcting activities 	<ul style="list-style-type: none"> ● Challenge problems and puzzles ● Flexible grouping ● Peer teaching ● 3 Act Tasks ● Desmos

		<ul style="list-style-type: none"> • Guided notes • Extra time • Test retakes 		
Differentiated Instructional Methods: <i>(Multiple means for students to access content and multiple modes for student to express understanding)</i>	Access (Resources and/or Process)		Expression (Products and/or Performance)	
	<ul style="list-style-type: none"> • Khan Academy (videos, examples, practice problems) • Unit conferences - progress reports 		<ul style="list-style-type: none"> • Desmos • Kahoot 	
Vocabulary <i>Highlight key vocabulary (both Tier II and Tier III words)</i>	Tier II: constants, variables, formulas, function, slope, x & y- axis, origin, rate of change, quadrant, direct variation, linear, function, parallel Tier III: coefficients, inverse operations, literal equation, X & Y - intercepts, slope intercept form, standard form, ordered pair			
Integration of Technology SAMR	S and A - Google form for quiz, exit ticket, or warm up S - Student will check answer keys on Google classroom before test R - Central Park Desmos R - Polygraph Desmos S, A, and M - Khan Academy A and R - Kahoot			
Interdisciplinary Connections NJ Student Learning Standards	ELA: NJLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text. Technology:			

	<p>NJ SLS 8.1.8.A.5 Select and use appropriate tools and digital resources to accomplish a variety of tasks and to solve problems.</p> <p>NJ SLS 8.1.P.C.1 Collaborate with peers by participating in interactive digital games or activities.</p> <p>21st Century Life and Careers:</p> <p>CRP2. Apply appropriate academic and technical skills.</p> <p>CRP4. Communicate clearly and effectively and with reason.</p> <p>CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</p>	
<p>21st Century Themes/Skills P21 Framework</p>	<p>Themes Skills</p>	
	<p>Financial, Economic, Business and Entrepreneurial Literacy: Knowing How to Make Appropriate Personal Economic Choices \$</p>	<p>Critical Thinking and Problem Solving</p> <p>Life and Career Skills \$</p> <p>Technologies Literacy: Communication & Collaboration</p>
<p>Resources/Materials</p>	<p>Resources:</p> <p>Textbook and workbook - Ch. 3, 4, and 5</p> <p>NJCTL https://njctl.org/courses/math/algebra-i/equations-algebra-i/</p> <p>Google forms</p> <p>Desmos</p> <p>Kahoot</p> <p>Material:</p> <p>Guided notes</p> <p>Chromebooks</p> <p>Graphic Organizer</p>	

Instructional Unit Map

Course Title: Algebra 1 CP

Unit Title	Unit 2: Solving and Graphing Linear Inequalities	Start Date:	Sept. - Oct. Feb. - March
		Length of Unit:	3 weeks
Content Standards <i>What do we want them to know, understand, & do?</i>	<p>Power Standards: NJSLS.A-CED.A - Create equations that describe numbers or relationships NJSLS.A-REI.D - Represent and solve equations and inequalities graphically NJSLS.S-ID.A - Summarize, represent, and interpret data on a single count or measurement variable</p> <p>Supporting Standards: NJSLS.A-CED.A.1 - Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. NJSLS.A-CED.A.3 - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and</p>	Learning Goals	<p>Students will understand how to apply inequalities to everyday situations and students will be able to write, graph and solve multi-step and compound inequalities.</p> <p>Students will be able to graph all forms of linear inequalities using a variety of methods and select the best method for each given situation.</p> <p>Students will be able to create inequalities based on linear relationships and understand their significance and how they relate to real-world application.</p>

	<p>interpret solutions as viable or nonviable options in a modeling context.</p> <p>NJSLS.A-REI.D.12 - Graph the solutions to a linear inequality in two variables as a half plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.</p> <p>NJSLS.S-ID.A.1 - Represent data with plots on the real number line (dot plots, histograms, and box plots)</p>					
<p>Essential Questions</p>	<ul style="list-style-type: none"> ● How can we graph a linear inequality? ● How do you solve systems of linear equations by graphing? ● How can I use linear inequalities to solve real-world problems? 					
<p>Assessments <i>How will we know they have gained the knowledge & skills?</i></p>	<table border="1" style="width: 100%; background-color: black; color: white;"> <thead> <tr> <th style="width: 33%; text-align: center;">Formative</th> <th style="width: 33%; text-align: center;">Summative</th> <th style="width: 33%; text-align: center;">Alternative</th> </tr> </thead> </table>			Formative	Summative	Alternative
Formative	Summative	Alternative				
	<ul style="list-style-type: none"> ● Communicators ● Warm up problems ● Exit tickets ● Choral and Individual responses to questioning verbally and on the smartboard ● Graded homework ● Kahoot 	<ul style="list-style-type: none"> ● Chapter 6 Test ● Chapter 6 Quiz ● Extended Constructed Responses ● Projects 	<ul style="list-style-type: none"> ● Menu Project Ch. 6 			

Unit Pre-Assessment(s) <i>What do they already know?</i>	<ul style="list-style-type: none"> • Teacher generated warm up • Data from Pre Test • Kahoot • Warm up problems 			
Instructional Strategies/Student Activities	<ul style="list-style-type: none"> • Direct Instruction • Guided Practice • Cooperative learning (group work) • Communicators • Modeling • Learning Centers • Guided notes • Student Choice Menu project • Exit tickets • Walk arounds/ Scavenger hunts 			
Instructional/Assessment Scaffolds <i>(Modifications /Accommodations) – planned for prior to instruction</i>	English Language Learners Special Education Learners Struggling Learners Advanced Learners			
	<ul style="list-style-type: none"> • Word Wall • Oral Directions (repeat if necessary) • Preferred Seating • Calculator • Graphic Organizer • Manipulatives • “Classroom Buddy” • Key terms highlighted • Immediate feedback • Test retakes 	<ul style="list-style-type: none"> • Class Agenda • Word Wall • Oral Directions (repeat if necessary) • Preferred Seating • Calculator • Graphic organizer • Manipulatives 	<ul style="list-style-type: none"> • Chunk long-term assignments • Provide extra time • Class agenda/planner • Manipulatives • Graphic Organizer • Guided notes • Self Correcting activities 	<ul style="list-style-type: none"> • Challenge problems and puzzles • Flexible grouping • Peer teaching • 3 Act Tasks • Desmos

		<ul style="list-style-type: none"> • Guided notes • Extra time • Test retakes 		
Differentiated Instructional Methods: <i>(Multiple means for students to access content and multiple modes for student to express understanding)</i>	Access (Resources and/or Process)		Expression (Products and/or Performance)	
	<ul style="list-style-type: none"> • Khan Academy (videos, examples, practice problems) • Unit conferences - progress reports 		<ul style="list-style-type: none"> • Desmos • Kahoot 	
Vocabulary <i>Highlight key vocabulary (both Tier II and Tier III words)</i>	Tier II: Solutions, linear Tier III: Inequalities, compound inequalities, absolute value inequalities,			
Integration of Technology SAMR	S and A - Google form for quiz, exit ticket, or warm up S - Student will check answer keys on Google classroom before test R - Central Park Desmos R - Polygraph Desmos S, A, and M - Khan Academy A and R - Kahoot			
Interdisciplinary Connections NJ Student Learning Standards	ELA: NJLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text. Technology: NJ SLS 8.1.8.A.5 Select and use appropriate tools and digital resources to accomplish a variety of tasks and to solve			

	<p>problems. NJ SLS 8.1.P.C.1 Collaborate with peers by participating in interactive digital games or activities.</p> <p>21st Century Life and Careers: CRP2. Apply appropriate academic and technical skills. CRP4. Communicate clearly and effectively and with reason. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</p>	
21st Century Themes/Skills P21 Framework	<div style="display: flex; justify-content: space-between;">ThemesSkills</div>	
	Financial, Economic, Business and Entrepreneurial Literacy: Knowing How to Make Appropriate Personal Economic Choices \$	Critical Thinking and Problem Solving Life and Career Skills \$ Technologies Literacy: Communication & Collaboration
Resources/Materials	<p>Resources: Textbook and workbook - Ch. 6 NJCTL https://njctl.org/courses/math/algebra-i/solving-and-graphing-linear-inequalities/ Google forms Desmos Kahoot</p> <p>Material: Guided notes Chromebooks Graphic Organizer</p>	

Instructional Unit Map

Course Title: Algebra 1 CP

Unit Title	Unit 3: Systems of Linear Functions and Systems of Inequalities		Start Date:	October / March
			Length of Unit:	3 weeks
Content Standards <i>What do we want them to know, understand, & do?</i>	Power Standards: NJSLS.A-CED.A - Create equations that describe numbers or relationships NJSLS.A-REI.D - Represent and solve equations and inequalities graphically NJSLS.A-REI.C - Solve systems of equations Supporting Standards: NJSLS.A-CED.A.3 - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. NJSLS.A-REI.D.12 - Graph the solutions to a linear inequality in two variables as a half plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding	Learning Goals	Students will be able to solve a system of linear equations or inequalities using a variety of methods, identify different types of solutions, and identify the best method in a given situation. Students will understand how to model, translate, and solve real world situation problems using systems of equations and inequalities.	

	<p>half-planes.</p> <p>NJSLS.A-REI.C.5 - Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.</p> <p>NJSLS.A-REI.C.6 - Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.</p>		
Essential Questions	<ul style="list-style-type: none"> • What can we do with a system of equations/inequalities that we cannot do with a single equation/inequality? • What is the most appropriate method of solving systems of equations given various scenarios? • What types of solutions are possible for systems of equations and inequalities? 		
Assessments <i>How will we know they have gained the knowledge & skills?</i>	Formative	Summative	Alternative
	<ul style="list-style-type: none"> • Communicators • Warm up problems • Exit tickets • Choral and Individual responses to questioning verbally and on the smartboard • Graded homework • Kahoot 	<ul style="list-style-type: none"> • Chapter 7 Test • Chapter 7 Quiz • Extended Constructed Response • Projects 	<ul style="list-style-type: none"> • Chapter 7 Menu Project
Unit Pre-Assessment(s) <i>What do they already know?</i>	<ul style="list-style-type: none"> • Teacher generated warm up • Data from Pre Test • Kahoot • Warm up problems 		

Instructional Strategies/Student Activities	<ul style="list-style-type: none"> ● Direct Instruction ● Guided Practice ● Cooperative learning (group work) ● Communicators ● Modeling ● Learning Centers ● Guided notes ● Student Choice Menu project ● Exit tickets ● Walk arounds/ Scavenger hunts 			
Instructional/Assessment Scaffolds <i>(Modifications /Accommodations) – planned for prior to instruction</i>	English Language Learners Special Education Learners Struggling Learners Advanced Learners			
	<ul style="list-style-type: none"> ● Word Wall ● Oral Directions (repeat if necessary) ● Preferred Seating ● Calculator ● Graphic Organizer ● Manipulatives ● “Classroom Buddy” ● Key terms highlighted ● Immediate feedback ● Test retakes 	<ul style="list-style-type: none"> ● Class Agenda ● Word Wall ● Oral Directions (repeat if necessary) ● Preferred Seating ● Calculator ● Graphic organizer ● Manipulatives ● Guided notes ● Extra time ● Test retakes 	<ul style="list-style-type: none"> ● Chunk long-term assignments ● Provide extra time ● Class agenda/planner ● Manipulatives ● Graphic Organizer ● Guided notes ● Self Correcting activities 	<ul style="list-style-type: none"> ● Challenge problems and puzzles ● Flexible grouping ● Peer teaching ● 3 Act Tasks ● Desmos
Differentiated	Access (Resources and/or Process)		Expression (Products and/or Performance)	

Instructional Methods: <i>(Multiple means for students to access content and multiple modes for student to express understanding)</i>	<ul style="list-style-type: none"> ● Khan Academy (videos, examples, practice problems) ● Unit conferences - progress reports 	<ul style="list-style-type: none"> ● Desmos ● Kahoot
Vocabulary <i>Highlight key vocabulary (both Tier II and Tier III words)</i>	Tier II: Elimination, substitution, dependent system, independent system Tier III: Systems of linear equations and inequalities	
Integration of Technology SAMR	S and A - Google form for quiz, exit ticket, or warm up S - Student will check answer keys on Google classroom before test R - Polygraph (systems) Desmos S, A, and M - Khan Academy A and R - Kahoot	
Interdisciplinary Connections NJ Student Learning Standards	ELA: NJLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text. Technology: NJ SLS 8.1.8.A.5 Select and use appropriate tools and digital resources to accomplish a variety of tasks and to solve problems. NJ SLS 8.1.P.C.1 Collaborate with peers by participating in interactive digital games or activities. 21st Century Life and Careers: CRP2. Apply appropriate academic and technical skills.	

	CRP4. Communicate clearly and effectively and with reason. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.	
21 st Century Themes/Skills P21 Framework	Themes	
	Skills	
	Financial, Economic, Business and Entrepreneurial Literacy: Knowing How to Make Appropriate Personal Economic Choices \$	Critical Thinking and Problem Solving Life and Career Skills \$ Technologies Literacy: Communication & Collaboration
Resources/Materials	Resources: Textbook and workbook - Ch. 7 NJCTL https://njctl.org/courses/math/algebra-i/systems-of-linear-equations/ Google forms Desmos Kahoot Material: Guided notes Chromebooks Graphic Organizer	

Instructional Unit Map			
Course Title: Algebra 1 CP			
Unit Title	Unit 4: Exponents and Exponential Functions	Start Date:	Oct. - Nov.

			March - April
		Length of Unit:	3 weeks
Content Standards <i>What do we want them to know, understand, & do?</i>	Power Standards: NJSLS.A-APR.A - Perform arithmetic operations on polynomials NJSLS.A-SSE.A - Interpret the structure of expressions Supporting Standards: NJSLS.A-APR.A.1 - Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials. NJSLS.A-SSE.A.2 - Use the structure of an expression to identify ways to rewrite it.	Learning Goals	Students will be able to perform mathematical operations using monomials and polynomials, including those with exponents. Students will understand how to model and solve scientific and business problems involving exponential growth and decay.
Essential Questions	<ul style="list-style-type: none"> • How do you use properties of exponents involving products? • How do you use zero and negative exponents? • How do I model real world growth and decay using exponential functions? 		
Assessments <i>How will we know they have gained the knowledge & skills?</i>	Formative	Summative	Alternative
	<ul style="list-style-type: none"> • Communicators • Warm up problems • Exit tickets • Choral and Individual responses to questioning verbally and on the smartboard 	<ul style="list-style-type: none"> • Chapter 8 Test • Chapter 8 Quiz • Extended Constructed Responses • Projects 	<ul style="list-style-type: none"> • Menu Project Ch. 8

	<ul style="list-style-type: none"> ● Graded homework ● Kahoot 			
Unit Pre-Assessment(s) <i>What do they already know?</i>	<ul style="list-style-type: none"> ● Teacher generated warm up ● Data from Pre Test ● Kahoot ● Warm up problems 			
Instructional Strategies/Student Activities	<ul style="list-style-type: none"> ● Direct Instruction ● Guided Practice ● Cooperative learning (group work) ● Communicators ● Modeling ● Learning Centers ● Guided notes ● Student Choice Menu project ● Exit tickets ● Walk arounds/ Scavenger hunts 			
Instructional/Assessment Scaffolds <i>(Modifications /Accommodations) – planned for prior to instruction</i>	English Language Learners	Special Education Learners	Struggling Learners	Advanced Learners
	<ul style="list-style-type: none"> ● Word Wall ● Oral Directions (repeat if necessary) ● Preferred Seating ● Calculator ● Graphic Organizer ● Manipulatives ● “Classroom Buddy” 	<ul style="list-style-type: none"> ● Class Agenda ● Word Wall ● Oral Directions (repeat if necessary) ● Preferred Seating ● Calculator 	<ul style="list-style-type: none"> ● Chunk long-term assignments ● Provide extra time ● Class agenda/planner ● Manipulatives ● Graphic Organizer ● Guided notes ● Self Correcting activities 	<ul style="list-style-type: none"> ● Challenge problems and puzzles ● Flexible grouping ● Peer teaching ● 3 Act Tasks ● Desmos

	<ul style="list-style-type: none"> ● Key terms highlighted ● Immediate feedback ● Test retakes 	<ul style="list-style-type: none"> ● Graphic organizer ● Manipulatives ● Guided notes ● Extra time ● Test retakes 		
Differentiated Instructional Methods: <i>(Multiple means for students to access content and multiple modes for student to express understanding)</i>	Access (Resources and/or Process)		Expression (Products and/or Performance)	
	<ul style="list-style-type: none"> ● Khan Academy (videos, examples, practice problems) ● Unit conferences - progress reports 		<ul style="list-style-type: none"> ● Desmos ● Kahoot 	
Vocabulary <i>Highlight key vocabulary (both Tier II and Tier III words)</i>	Tier II: Scientific notation, exponent, compound interest Tier III: Exponential function, exponential growth, exponential decay			
Integration of Technology SAMR	S and A - Google form for quiz, exit ticket, or warm up S - Student will check answer keys on Google classroom before test R - Exponent Card sort Desmos S, A, and M - Khan Academy A and R - Kahoot			
Interdisciplinary Connections NJ Student Learning Standards	ELA: NJLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text. Technology:			

	<p>NJ SLS 8.1.8.A.5 Select and use appropriate tools and digital resources to accomplish a variety of tasks and to solve problems.</p> <p>NJ SLS 8.1.P.C.1 Collaborate with peers by participating in interactive digital games or activities.</p> <p>21st Century Life and Careers:</p> <p>CRP2. Apply appropriate academic and technical skills.</p> <p>CRP4. Communicate clearly and effectively and with reason.</p> <p>CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</p>	
<p>21st Century Themes/Skills P21 Framework</p>	<p style="text-align: center;">Themes</p> <p>Financial, Economic, Business and Entrepreneurial Literacy: Knowing How to Make Appropriate Personal Economic Choices \$</p>	<p style="text-align: center;">Skills</p> <p>Critical Thinking and Problem Solving</p> <p>Life and Career Skills \$</p> <p>Technologies Literacy: Communication & Collaboration</p>
<p>Resources/Materials</p>	<p>Resources:</p> <p>Textbook and workbook - Ch. 8</p> <p>NJCTL https://njctl.org/courses/math/algebra-i/exponential-functions/</p> <p>Google forms</p> <p>Desmos</p> <p>Kahoot</p> <p>Material:</p> <p>Guided notes</p> <p>Chromebooks</p> <p>Graphic Organizer</p>	

Instructional Unit Map

Course Title: Algebra 1 CP

Unit Title	Unit 5: Polynomials		Start Date:	Nov. - Dec. April. - May
			Length of Unit:	5 weeks
Content Standards <i>What do we want them to know, understand, & do?</i>	<p>Power Standard: NJSLS.A-APR.A - Perform arithmetic operations on polynomials NJSLS.A-SSE.A - Interpret the structure of expressions</p> <p>Supporting Standard: NJSLS.A-APR.A.1 - Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials. NJSLS.A-SSE.A.2 - Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.</p>	Learning Goals	<p>Students will be able to perform mathematical operations using monomials and polynomials, including those with exponents.</p> <p>Students will understand how to apply mathematical rules to monomials and polynomials.</p>	
Essential Questions	<ul style="list-style-type: none"> ● How can we determine the size of a polynomial by the number of terms and degree? ● Why should we factor? ● How do you add and subtract polynomials? 			

Assessments					
<i>How will we know they have gained the knowledge & skills?</i>	Formative		Summative		Alternative
	<ul style="list-style-type: none"> ● Communicators ● Warm up problems ● Exit tickets ● Choral and Individual responses to questioning verbally and on the smartboard ● Graded homework ● Kahoot 		<ul style="list-style-type: none"> ● Chapter 9 Test ● Chapter 9 Quiz ● Extended Constructed Responses ● Projects 		<ul style="list-style-type: none"> ● Menu Project Ch. 9
Unit Pre-Assessment(s) <i>What do they already know?</i>	<ul style="list-style-type: none"> ● Teacher generated warm up ● Data from Pre Test ● Kahoot ● Warm up problems 				
Instructional Strategies/Student Activities	<ul style="list-style-type: none"> ● Direct Instruction ● Guided Practice ● Cooperative learning (group work) ● Communicators ● Modeling ● Learning Centers ● Guided notes ● Student Choice Menu project ● Exit tickets ● Walk arounds/ Scavenger hunts 				
Instructional/Assessment Scaffolds <i>(Modifications)</i>	English Language Learners Special Education Learners Struggling Learners Advanced Learners				

<p><i>/Accommodations) – planned for prior to instruction</i></p>	<ul style="list-style-type: none"> ● Word Wall ● Oral Directions (repeat if necessary) ● Preferred Seating ● Calculator ● Graphic Organizer ● Manipulatives ● “Classroom Buddy” ● Key terms highlighted ● Immediate feedback ● Test retakes 	<ul style="list-style-type: none"> ● Class Agenda ● Word Wall ● Oral Directions (repeat if necessary) ● Preferred Seating ● Calculator ● Graphic organizer ● Manipulatives ● Guided notes ● Extra time ● Test retakes 	<ul style="list-style-type: none"> ● Chunk long-term assignments ● Provide extra time ● Class agenda/planner ● Manipulatives ● Graphic Organizer ● Guided notes ● Self Correcting activities 	<ul style="list-style-type: none"> ● Challenge problems and puzzles ● Flexible grouping ● Peer teaching ● 3 Act Tasks ● Desmos
<p>Differentiated Instructional Methods: <i>(Multiple means for students to access content and multiple modes for student to express understanding)</i></p>	<p>Access (Resources and/or Process)</p> <ul style="list-style-type: none"> ● Khan Academy (videos, examples, practice problems) ● Unit conferences - progress reports 		<p>Expression (Products and/or Performance)</p> <ul style="list-style-type: none"> ● Desmos ● Kahoot 	
<p>Vocabulary <i>Highlight key vocabulary (both Tier II and Tier III words)</i></p>	<p>Tier II: Factoring, linear, constant</p> <p>Tier III: Monomial, polynomial, binomial, trinomial</p>			

Integration of Technology SAMR	<p>S and A - Google form for quiz, exit ticket, or warm up S - Student will check answer keys on Google classroom before test R - Factoring Card Sort S, A, and M - Khan Academy A and R - Kahoot</p>					
Interdisciplinary Connections NJ Student Learning Standards	<p>ELA: NJSLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.</p> <p>Technology: NJ SLS 8.1.8.A.5 Select and use appropriate tools and digital resources to accomplish a variety of tasks and to solve problems. NJ SLS 8.1.P.C.1 Collaborate with peers by participating in interactive digital games or activities.</p> <p>21st Century Life and Careers: CRP2. Apply appropriate academic and technical skills. CRP4. Communicate clearly and effectively and with reason. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</p>					
21st Century Themes/Skills P21 Framework	<table border="1"> <thead> <tr> <th data-bbox="457 935 1222 1008">Themes</th> <th data-bbox="1222 935 1925 1008">Skills</th> </tr> </thead> <tbody> <tr> <td data-bbox="457 1008 1222 1243"> Financial, Economic, Business and Entrepreneurial Literacy: Knowing How to Make Appropriate Personal Economic Choices \$ </td> <td data-bbox="1222 1008 1925 1243"> Critical Thinking and Problem Solving Life and Career Skills \$ Technologies Literacy: Communication & Collaboration </td> </tr> </tbody> </table>		Themes	Skills	Financial, Economic, Business and Entrepreneurial Literacy: Knowing How to Make Appropriate Personal Economic Choices \$	Critical Thinking and Problem Solving Life and Career Skills \$ Technologies Literacy: Communication & Collaboration
Themes	Skills					
Financial, Economic, Business and Entrepreneurial Literacy: Knowing How to Make Appropriate Personal Economic Choices \$	Critical Thinking and Problem Solving Life and Career Skills \$ Technologies Literacy: Communication & Collaboration					
Resources/Materials	<p>Resources: Textbook and workbook - Ch. 9 NJCTL https://njctl.org/courses/math/algebra-i/polynomials/</p>					

	<p>Google forms Desmos Kahoot</p> <p>Material: Guided notes Chromebooks Graphic Organizer</p>
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Instructional Unit Map			
Course Title: Algebra 1 CP			
Unit Title	Unit 6: Factoring and Quadratic Functions	Start Date:	Dec. - Jan. May - June
		Length of Unit:	3 weeks
Content Standards <i>What do we want them to know, understand, & do?</i>	<p>Power Standards: NJSLS.A-REI.B - Solve equations and inequalities in one variable NJSLS.F-IF.B - Interpret functions that arise in applications in terms of the context NJSLS.A-SSE.B - Write expressions in equivalent forms to solve problems NJSLS.A-APR.B - Understand the relationship between zeros and factors of polynomials NJSLS.F-IF.C - Analyze functions</p>	Learning Goals	<p>Students will be able to manipulate expressions using various factoring methods.</p> <p>Students will be able to solve quadratic equations using factoring, completing the square, graphing and graphing calculators.</p> <p>Students will be able to graph quadratic equations.</p> <p>Students will understand how to develop strategies to solve science- based word problems using quadratic functions.</p>

	<p>using different representations NJSLS.F-BF.B - Build new functions from existing functions</p> <p>Supporting Standards: NJSLS.A-REI.B.4 - Solve quadratic equations in one variable. NJSLS.F-IF.B.4 - For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. NJSLS.F-IF.B.5 - Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. NJSLS.A-SSE.B.3 - Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression NJSLS.A-APR.B.3 - Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial. NJSLS.F-IF.C.7 - Graph functions expressed symbolically and show key features of the graph, by hand</p>		
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	<p>in simple cases and using technology for more complicated cases.</p> <p>NJSLS.F-IF.C.8 - Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.</p> <p>NJSLS.F-IF.C.9 - Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).</p> <p>NJSLS.F-BF.B.3 - Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology.</p>								
Essential Questions	<ul style="list-style-type: none"> ● How do you graph a quadratic function? ● What do the solutions to a quadratic function mean? ● How is a quadratic function different from a linear function? ● How can factoring be used to model real-life applications? 								
Assessments <i>How will we know they have gained the knowledge & skills?</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: black; color: white;"> <th style="width: 33%; text-align: center;">Formative</th> <th style="width: 33%; text-align: center;">Summative</th> <th style="width: 33%; text-align: center;">Alternative</th> </tr> </thead> <tbody> <tr> <td data-bbox="457 1230 982 1380"> <ul style="list-style-type: none"> ● Communicators ● Warm up problems ● Exit tickets </td> <td data-bbox="982 1230 1514 1380"> <ul style="list-style-type: none"> ● Chapter 10 Test ● Chapter 10 Quiz ● Extended Constructed Responses </td> <td data-bbox="1514 1230 1932 1380"> <ul style="list-style-type: none"> ● Menu Project Ch. 10 </td> </tr> </tbody> </table>			Formative	Summative	Alternative	<ul style="list-style-type: none"> ● Communicators ● Warm up problems ● Exit tickets 	<ul style="list-style-type: none"> ● Chapter 10 Test ● Chapter 10 Quiz ● Extended Constructed Responses 	<ul style="list-style-type: none"> ● Menu Project Ch. 10
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	<ul style="list-style-type: none"> ● Choral and Individual responses to questioning verbally and on the smartboard ● Graded homework ● Kahoot 	<ul style="list-style-type: none"> ● Projects 		
Unit Pre-Assessment(s) <i>What do they already know?</i>	<ul style="list-style-type: none"> ● Teacher generated warm up ● Data from Pre Test ● Kahoot ● Warm up problems 			
Instructional Strategies/Student Activities	<ul style="list-style-type: none"> ● Direct Instruction ● Guided Practice ● Cooperative learning (group work) ● Communicators ● Modeling ● Learning Centers ● Guided notes ● Student Choice Menu project ● Exit tickets ● Walk arounds/ Scavenger hunts 			
Instructional/Assessment Scaffolds <i>(Modifications /Accommodations) – planned for prior to instruction</i>	English Language Learners	Special Education Learners	Struggling Learners	Advanced Learners
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Vocabulary <i>Highlight key vocabulary (both Tier II and Tier III words)</i>	Tier II: Vertex, solution, minimum, maximum Tier III: Quadratic, axis of symmetry, zeros of a function, parabola, discriminate, quadratic formula			
Integration of Technology SAMR	S and A - Google form for quiz, exit ticket, or warm up S - Student will check answer keys on Google classroom before test R - Basketball Activity Desmos S, A, and M - Khan Academy A and R - Kahoot			

<p>Interdisciplinary Connections NJ Student Learning Standards</p>	<p>ELA: NJLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.</p> <p>Technology: NJ SLS 8.1.8.A.5 Select and use appropriate tools and digital resources to accomplish a variety of tasks and to solve problems. NJ SLS 8.1.P.C.1 Collaborate with peers by participating in interactive digital games or activities.</p> <p>21st Century Life and Careers: CRP2. Apply appropriate academic and technical skills. CRP4. Communicate clearly and effectively and with reason. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</p>					
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<p>Resources/Materials</p>	<p>Resources: Textbook and workbook - Ch. 10 NJCTL https://njctl.org/courses/math/algebra-i/quadratic-equations/ Google forms Desmos Kahoot</p> <p>Material: Guided notes Chromebooks</p>					

	Graphic Organizer
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Instructional Unit Map			
Course Title: Algebra 1 CP			
Unit Title	Unit 7: Radical and Radical Expressions		Start Date: January/ June Length of Unit: 2 weeks
Content Standards <i>What do we want them to know, understand, & do?</i>	Power Standards: NJSLS.N.RN.A - Extend the properties of exponents to rational exponents. NJSLS.A.REI.A - Understand solving equations as a process of reasoning and explain the reasoning NJSLS.F.BF.A - Build a function that models a relationship between two quantities NJSLS.F.IF.C - Analyze functions using different representations Supporting Standards: NJSLS.N.RN.A.1 - Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.	Learning Goals	<p>The students will be able to extend the properties of exponents to rational exponents.</p> <p>The students will be able to solve simple radical and rational equations in one variable, and give examples showing how extraneous solutions may arise.</p> <p>The students will be able to combine standard function types using arithmetic operations.</p>

	<p>NJSLS.N.RN.A.2 - Rewrite expressions involving radicals and rational exponents using the properties of exponents.</p> <p>NJSLS.A.REI.A.1 - 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.</p> <p>NJSLS.A.REI.A.2 - Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.</p> <p>NJSLS.F.BF.A.1 - Write a function that describes a relationship between two quantities.</p> <p>NJSLS.F.IF.C.7 - Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases</p>		
<p>Essential Questions</p>	<ul style="list-style-type: none"> ● Describe how combining radicals is the same as combining expressions with variables, and how it differs from working with variables. ● What must be true of radical expressions in order to add them but not multiply them? ● Why must you check answers in radical equations? ● How can knowing that roots and exponents are inverse help in solving radical equations? 		

Assessments <i>How will we know they have gained the knowledge & skills?</i>				
	Formative	Summative	Alternative	
Unit Pre-Assessment(s) <i>What do they already know?</i>	<ul style="list-style-type: none"> ● Teacher generated warm up ● Data from Pre Test ● Kahoot ● Warm up problems 			
Instructional Strategies/Student Activities	<ul style="list-style-type: none"> ● Direct Instruction ● Guided Practice ● Cooperative learning (group work) ● Communicators ● Modeling ● Learning Centers ● Guided notes ● Student Choice Menu project ● Exit tickets ● Walk arounds/ Scavenger hunts 			
Instructional/Assessment Scaffolds <i>(Modifications)</i>	English Language Learners	Special Education Learners	Struggling Learners	Advanced Learners

<p><i>/Accommodations) – planned for prior to instruction</i></p>	<ul style="list-style-type: none"> ● Word Wall ● Oral Directions (repeat if necessary) ● Preferred Seating ● Calculator ● Graphic Organizer ● Manipulatives ● “Classroom Buddy” ● Key terms highlighted ● Immediate feedback ● Test retakes 	<ul style="list-style-type: none"> ● Class Agenda ● Word Wall ● Oral Directions (repeat if necessary) ● Preferred Seating ● Calculator ● Graphic organizer ● Manipulatives ● Guided notes ● Extra time ● Test retakes 	<ul style="list-style-type: none"> ● Chunk long-term assignments ● Provide extra time ● Class agenda/planner ● Manipulatives ● Graphic Organizer ● Guided notes ● Self Correcting activities 	<ul style="list-style-type: none"> ● Challenge problems and puzzles ● Flexible grouping ● Peer teaching ● 3 Act Tasks ● Desmos
<p>Differentiated Instructional Methods: <i>(Multiple means for students to access content and multiple modes for student to express understanding)</i></p>	<p>Access (Resources and/or Process)</p> <ul style="list-style-type: none"> ● Khan Academy (videos, examples, practice problems) ● Unit conferences - progress reports 		<p>Expression (Products and/or Performance)</p> <ul style="list-style-type: none"> ● Desmos ● Kahoot 	
<p>Vocabulary <i>Highlight key vocabulary (both Tier II and Tier III words)</i></p>	<p>Tier II: radical equations, rational exponents, square root function,</p> <p>Tier III: extraneous solution, rationalizing the denominator</p>			

Integration of Technology SAMR	<p>S and A - Google form for quiz, exit ticket, or warm up S - Student will check answer keys on Google classroom before test R - Radicals - Desmos S, A, and M - Khan Academy A and R - Kahoot</p>					
Interdisciplinary Connections NJ Student Learning Standards	<p>ELA: NJSLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.</p> <p>Technology: NJ SLS 8.1.8.A.5 Select and use appropriate tools and digital resources to accomplish a variety of tasks and to solve problems. NJ SLS 8.1.P.C.1 Collaborate with peers by participating in interactive digital games or activities.</p> <p>21st Century Life and Careers: CRP2. Apply appropriate academic and technical skills. CRP4. Communicate clearly and effectively and with reason. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</p>					
21st Century Themes/Skills P21 Framework	<table border="1"> <thead> <tr> <th data-bbox="457 935 1222 1008">Themes</th> <th data-bbox="1222 935 1923 1008">Skills</th> </tr> </thead> <tbody> <tr> <td data-bbox="457 1008 1222 1243"> Financial, Economic, Business and Entrepreneurial Literacy: Knowing How to Make Appropriate Personal Economic Choices \$ </td> <td data-bbox="1222 1008 1923 1243"> Critical Thinking and Problem Solving Life and Career Skills \$ Technologies Literacy: Communication & Collaboration </td> </tr> </tbody> </table>		Themes	Skills	Financial, Economic, Business and Entrepreneurial Literacy: Knowing How to Make Appropriate Personal Economic Choices \$	Critical Thinking and Problem Solving Life and Career Skills \$ Technologies Literacy: Communication & Collaboration
Themes	Skills					
Financial, Economic, Business and Entrepreneurial Literacy: Knowing How to Make Appropriate Personal Economic Choices \$	Critical Thinking and Problem Solving Life and Career Skills \$ Technologies Literacy: Communication & Collaboration					
Resources/Materials	<p>Resources: Textbook and workbook - Ch. 11 Google forms</p>					

Desmos
Kahoot

Material:

Guided notes
Chromebooks
Graphic Organizer