

PITTSGROVE TOWNSHIP SCHOOL DISTRICT



Course Name: Algebra 1 Honors	Grade Level(s): 9
Department: Math	Credits: 5
BOE Adoption Date:	Revision Date(s): July 2022

Course Description

This course covers all basic components of Algebra including concepts in variables, algebraic manipulations, polynomials, factoring algebraic expressions, the 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 AlgebraNJSLA 1 NJSLA.

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: Algebra 1 Honors

Prerequisite(s): Pre-Algebra or 8th Grade Math

Unit Title	Duration/ Month(s)	Related Standards	Learning Goals	Critical Knowledge and Skills
Unit 1: Linear equations and expressions	September/February Length: 1 week	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. 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 NJSLS.F-IF.B.4	<p>Students will be able to evaluate expressions, construct algebraic equations and solve equations.</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 understand and apply algebraic vocabulary.</p>	<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>

		NJSLS.F-IF.B.5 NJSLS.F-IF.B.6		
Unit 2: Solving and Graphing Linear Inequalities	September/February Length: 2 weeks	Subject Area: NJSLS.A-CED.A.1 NJSLS.A-CED.A.3 NJSLS.A-REI.D.12 NJSLS.S-ID.A.1 Mathematical Practices: NJSLS.MP.1 NJSLS.MP.2 NJSLS.MP.4 NJSLS.MP.5 NJSLS.MP.6 NJSLS.MP.7 NJSLS.MP.8	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. 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. Students will be able to create inequalities based on linear relationships and understand their significance and how they relate to real-world application.	Students will be able to solve and graph one-variable inequalities. Students will be able to graph two variable linear inequalities using a table, slope-intercept form, standard form, point-slope form, intercepts, and slope. Students will be able to write, graph, and solve inequalities from real world scenarios using graphing strategies. Students will be able to graph linear inequalities using a graphing calculator.
Unit 3: Systems of Equations and Inequalities	October/March Length: 3 weeks	Subject Area: NJSLS.A-CED.A.3 NJSLS.A-REI.D.12 NJSLS.A-REI.C.5 NJSLS.A-REI.C.6 Mathematical Practices: NJSLS.MP.1 NJSLS.MP.2	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	Students will be able to solve a system of equations using graphing. Students will be able to solve a system of equations using substitution. Students will be able to solve a system of equations using elimination.

		<p>NJSLS.MP.4 NJSLS.MP.6 NJSLS.MP.7 NJSLS.MP.8</p>	<p>inequalities.</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>October/November March/April</p> <p>Length: 3 weeks</p>	<p>Subject Area: NJSLS.A-APR.A.1 NJSLS.A-SSE.A.2</p> <p>Mathematical Practices: NJSLS.MP.1</p>	<p>Students will be able to use properties of exponents, and write rules for and graph exponential functions.</p>	<p>Students will learn and use properties of exponents involving products and quotients.</p> <p>Students will apply the product of powers property, the power of a power property, the power of a product property, the quotient of powers property, and the power of a quotient property, as well as, use zero and negative exponents.</p> <p>Students learn how to read, write, and compute with numbers in scientific notation.</p> <p>Students will graph and write rules</p>

				<p>for exponential functions, including exponential growth and exponential decay functions.</p> <p>Students will be introduced to arithmetic and geometric sequences.</p>
<p>Unit 5: Polynomials and Factoring</p>	<p>November/December April/May</p> <p>Length: 3-4 weeks</p>	<p>Subject Area: 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 NJSLS.F-IF.C.8 NJSLS.F-IF.C.9 NJSLS.F-BF.B.3</p> <p>Mathematical Practices: NJSLS.MP.1 NJSLS.MP.2 NJSLS.MP.4 NJSLS.MP.5 NJSLS.MP.6 NJSLS.MP.7 NJSLS.MP.8</p>	<p>Students will learn to add, subtract, multiply, and factor polynomials.</p> <p>Students will find roots of a polynomial equations and zeros of polynomial functions.</p>	<p>Students will identify, classify, add, subtract, and multiply polynomials. They will use the vertical and horizontal formats to find sums and differences.</p> <p>Students will use the distributive property, tables of products, and patterns (including the FOIL pattern, the square of a binomial, and the sum and difference pattern) to find products.</p> <p>Students will write polynomials to describe and solve real-world problems and solve polynomial equations.</p> <p>Students factor polynomials and use factoring to solve equations, to find the zeros of functions, and to find the roots of equations.</p> <p>Students will factor polynomials completely using a variety of</p>

				techniques.
Unit 6: Quadratic Equations and Functions	December May Length: 4 weeks	Subject Area: NJSLS.F-IF.7.a NJSLS.A.REI.4.b NJSLS.A.REI.4.a NJSLS.F.LE.1.a NJSLS.A.REI.7 Mathematical Practices: NJSLS.MP.1 NJSLS.MP.2 NJSLS.MP.4 NJSLS.MP.5 NJSLS.MP.6 NJSLS.MP.7 NJSLS.MP.8	Students will graph, write, and solve quadratic equations. Students will write quadratic models for data and compare them with linear and exponential models.	Students will graph quadratic functions and compare them to the parent graph. Students will find the axis of symmetry, the vertex, and minimum or maximum values. Students will solve quadratic equations by factoring, graphing, using square roots, completing the square, and using the quadratic function. Students use the discriminant to determine the number and type of solutions of the quadratic equation. Students will determine whether a linear, exponential, or quadratic function best models a set of data.
Unit 7: Radicals and Geometry Connections	January June Length: 2-3 weeks	Subject Area: NJSLS.A.REI.2 NJSLS.F-IF.7.b Mathematical Practices: NJSLS.MP.1 NJSLS.MP.2 NJSLS.MP.4	Students will work with radical functions, expressions, and equations. Students will apply the Pythagorean theorem and the midpoint and distance formulas.	Students will graph square root functions. Students will simplify radical expressions, including rationalizing the denominator. Students will add, subtract, and multiply radicals.

		NJSLS.MP.5 NJSLS.MP.6 NJSLS.MP.7 NJSLS.MP.8		<p>Students will solve radical equations, including equations with extraneous solutions.</p> <p>Students will apply the Pythagorean theorem and its converse, as well as, the distance and midpoint formulas to solve problems.</p>
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Instructional Unit Map			
Course Title: Algebra 1 Honors			
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	Learning Goals	<p>Students will be able to evaluate expressions, construct algebraic equations and solve equations.</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>NJSLS.F-IF.A - Understand the concept of a function and use function notation</p> <p>NJSLS.F-IF.B - Interpret functions that arise in applications in terms of the context</p> <p>NJSLS.S-ID.C - Interpret linear models</p> <p>NJSLS.F-IF.C - Analyze functions using different representations</p> <p>range. If f is a function and x is 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>Students will be able to understand and apply algebraic vocabulary.</p>
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	<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> <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,</p>		
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	numerically in tables, or by verbal descriptions).		
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 • Boot Camp Packets • Quizizz 	<ul style="list-style-type: none"> • Boot Camp Walk Around • Test 	<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 Google Form • Quizizz • Getting to know you graphing and solving activity 		
Instructional Strategies/Student Activities	<ul style="list-style-type: none"> • Direct Instruction • Guided Practice • Cooperative learning (group work) • Communicators • Modeling • Learning Centers • Guided notes 		

	<ul style="list-style-type: none"> ● Student Choice Menu project ● Exit tickets ● Walk arounds/ Scavenger hunts ● Quizizz 			
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 ● Scavenger Hunts 	<ul style="list-style-type: none"> ● Challenge problems and puzzles ● Flexible grouping ● Peer teaching ● 3 Act Tasks ● Desmos
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 ● Google classroom - notes/assignments posted 		<ul style="list-style-type: none"> ● Desmos ● Quizizz ● Menu Projects 	

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 review answer keys on Google classroom before test R - Central Park Desmos R - Polygraph Desmos S, A, and M - Khan Academy A and R - Quizizz	
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 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	Textbook and workbook Ch. 3-5 NJCTL	

	<p>Google forms Desmos Quizizz</p> <p>Material: Guided notes Chromebooks Graphic Organizer</p>
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Instructional Unit Map				
Course Title: Algebra 1 Honors				
Unit Title	Unit 2: Solving and Graphing Linear Inequalities		Start Date:	September/February
			Length of Unit:	2 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</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>equations arising from linear and quadratic functions, and simple rational and exponential functions.</p> <p>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.</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 you use a number line to represent solutions of an inequality? ● How can you use an inequality to describe a real-life statement? 			
<p>Assessments <i>How will we know they have gained the knowledge & skills?</i></p>	<p style="text-align: center;">Formative</p>	<p style="text-align: center;">Summative</p>	<p style="text-align: center;">Alternative</p>	
<ul style="list-style-type: none"> ● Communicators ● Warm up problems ● Exit tickets ● Choral and Individual responses 		<ul style="list-style-type: none"> ● Solving and graphing inequalities Quiz ● Ch. 6 Test 	<ul style="list-style-type: none"> ● Menu project (Ch. 6) ● Desmos - numberline collector 	

	<p>to questioning verbally and on the smartboard</p> <ul style="list-style-type: none"> ● Graded homework ● Absolute Value Inequalities Card Sort ● Quizizz ● Compound Inequality Math Lib 			
Unit Pre-Assessment(s) <i>What do they already know?</i>	<ul style="list-style-type: none"> ● Warm up problems ● Exit ticket ● Solving equation skill from Boot Camp Test 			
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 ● Absolute Value Inequalities Card Sort ● Quizizz ● Compound Inequality Math Lib 			
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 ● Scavenger Hunts 	<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>		<p>Expression (Products and/or Performance)</p>	
<p>Vocabulary <i>Highlight key vocabulary (both Tier II and Tier III words)</i></p>	<p>Tier II: Solutions, linear, solution set</p> <p>Tier III: Inequalities, compound inequalities, absolute value inequalities, interval notation</p>		<ul style="list-style-type: none"> ● Desmos ● Quizizz ● Menu Projects 	

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 - Desmos Point Collector S, A, and M - Khan Academy A and R - Quizizz</p>	
Interdisciplinary Connections NJ Student Learning Standards	<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: 9.2.12.CAP.4: Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment. \$</p>	
21st Century Themes/Skills P21 Framework	<p style="text-align: center;">Themes</p>	<p style="text-align: center;">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>
Resources/Materials	<p>Resources: Textbook and workbook - Ch. 6 NJCTL https://njctl.org/courses/math/algebra-i/solving-and-graphing-linear-inequalities/ Google forms</p>	

	Desmos Quizizz Material: Guided notes Chromebooks Graphic Organizer
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Instructional Unit Map				
Course Title: Algebra 1 Honors				
Unit Title	Unit 3: Systems of Equations and 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	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>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.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>			
<p>Essential Questions</p>	<ul style="list-style-type: none"> ● How do we solve a system of equations or inequality? ● 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? ● Can a system of linear equations have no solution? Can a system of linear equations have many solutions? 			
<p>Assessments <i>How will we know they have gained the</i></p>	<p>Formative</p>	<p>Summative</p>	<p>Alternative</p>	

<i>knowledge & skills?</i>	<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 ● Graphing vs. Substitution Partner Activity ● Systems of inequalities Task Cards ● Quizizz 	<ul style="list-style-type: none"> ● Graphing, Substitution, and Elimination Quiz ● Ch. 7 Test 	<ul style="list-style-type: none"> ● Menu project (Ch. 7)
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 ● Quizizz 		
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 ● Quizizz ● Graphing vs. Substitution Partner Activity 		

	<ul style="list-style-type: none"> ● Systems of inequalities Task Cards 			
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 ● Scavenger Hunts 	<ul style="list-style-type: none"> ● Challenge problems and puzzles ● Flexible grouping ● Peer teaching ● 3 Act Tasks ● Desmos
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 ● Google classroom - notes/assignments posted 		<ul style="list-style-type: none"> ● Desmos ● Quizizz 	
Vocabulary <i>Highlight key vocabulary (both Tier II and Tier III words)</i>	Tier II: Solution, Elimination, substitution, dependent system, independent system Tier III: Systems of linear equations and inequalities			

Integration of Technology SAMR	<p>S and A - Google form for quiz, exit ticket, or warm up</p> <p>S - Student will check answer keys on Google classroom before test</p> <p>R - Polygraph (systems) Desmos</p> <p>S, A, and M - Khan Academy</p> <p>A and R - Quizizz</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: 9.2.12.CAP.21: Explain low-cost and low-risk ways to start a business. 9.2.12.CAP.22: Compare risk and reward potential and use the comparison to decide whether starting a business is feasible.</p>	
21st Century Themes/Skills P21 Framework	<p style="text-align: center;">Themes</p>	<p style="text-align: center;">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>

Resources/Materials	<p>Resources: Textbook and workbook - Ch. 7 NJCTL https://njctl.org/courses/math/algebra-i/systems-of-linear-equations/ Google forms Desmos Quizizz</p> <p>Material: Guided notes Chromebooks Graphic Organizer</p>
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Instructional Unit Map							
Course Title: Algebra 1 Honors							
Unit Title	Unit 4: Exponents and Exponential Functions		<table border="1"> <tr> <td style="background-color: #e0e0e0;">Start Date:</td> <td>October/November March/April</td> </tr> <tr> <td style="background-color: #e0e0e0;">Length of Unit:</td> <td>3 weeks</td> </tr> </table>	Start Date:	October/November March/April	Length of Unit:	3 weeks
Start Date:	October/November March/April						
Length of Unit:	3 weeks						
Content Standards <i>What do we want them to know, understand, & do?</i>	<p>Power Standards: NJSLS.A-APR.A - Perform arithmetic operations on polynomials NJSLS.A-SSE.A - Interpret the structure of expressions</p> <p>Supporting Standards: NJSLS.A-APR.A.1 - Understand</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 model and solve scientific and business problems involving exponential growth and decay.</p>				

	<p>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.</p> <p>NJSLS.A-SSE.A.2 - Use the structure of an expression to identify ways to rewrite it.</p>		
<p>Essential Questions</p>	<ul style="list-style-type: none"> ● How do you use properties of exponents involving products? ● How do you use zero and negative exponents? ● What are some of the characteristics of the graph of an exponential function? ● How do I model real world growth and decay using exponential functions? 		
<p>Assessments <i>How will we know they have gained the knowledge & skills?</i></p>	<p style="text-align: center;">Formative</p> <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 ● Exponent Triple - google sheets activity ● Exponential function word problem riddle activity ● Exponent card sort desmos ● Quizizz 	<p style="text-align: center;">Summative</p> <ul style="list-style-type: none"> ● Quiz - laws of exponents 8.1 - 8.3 ● Ch. 8 Test 	<p style="text-align: center;">Alternative</p> <ul style="list-style-type: none"> ● Menu project (Ch. 8)

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 ● Quizizz 			
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 ● Quizizz ● Exponent Triple - google sheets activity ● Exponential function word problem riddle activity ● Exponent card sort desmos 			
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 ● 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"> ● Key terms highlighted ● Immediate feedback ● Test retakes 	<ul style="list-style-type: none"> ● Guided notes ● Extra time ● Test retakes 	<ul style="list-style-type: none"> ● Scavenger Hunts 	
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 ● Google classroom - notes/assignments posted 		<ul style="list-style-type: none"> ● Desmos ● Quizizz 	
Vocabulary <i>Highlight key vocabulary (both Tier II and Tier III words)</i>	Tier II: Power, Base, Scientific notation, Exponent, Compound Interest Tier III: Exponential Function, Exponential Growth, Exponential Decay, Asymptote			
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 - Quizizz			
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.			

	<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: 9.2.12.CAP.16: Explain why taxes are withheld from income and the relationship of federal, state, and local taxes (e.g., property, income, excise, and sales) and how the money collected is used by local, county, state, and federal governments.</p>	
21st 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	<p>Resources: Textbook and workbook - Ch. 8 NJCTL https://njctl.org/courses/math/algebra-i/exponential-functions/ Google forms Desmos Quizizz</p> <p>Material: Guided notes Chromebooks Graphic Organizer</p>	

Instructional Unit Map

Course Title: Algebra 1 Honors

Unit Title	Unit 5: Polynomials and Factoring		Start Date:	November/December April/May
			Length of Unit:	3-4 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	Students will learn to add, subtract, multiply, and factor polynomials. Students will find roots of polynomial equations and zeros of polynomial functions.	
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? 			

	<ul style="list-style-type: none"> • How can you recognize and factor special products? • How can you factor a polynomial completely? 		
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 • 9.1 - 9.3 scavenger hunt • Factoring 9.5 circuit training • Poly Want a Cracker full factoring review • Quizizz 	<ul style="list-style-type: none"> • 9.1 - 9.4 Quiz • Ch. 9 Test 	<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 • Quizizz 		
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 		

	<ul style="list-style-type: none"> ● Exit tickets ● Walk arounds/ Scavenger hunts ● Quizizz ● 9.1 - 9.3 scavenger hunt ● Factoring 9.5 circuit training ● Poly Want a Cracker full factoring review 			
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 ● Scavenger Hunts 	<ul style="list-style-type: none"> ● Challenge problems and puzzles ● Flexible grouping ● Peer teaching ● 3 Act Tasks ● Desmos
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 ● Google classroom - notes/assignments posted 		<ul style="list-style-type: none"> ● Desmos ● Quizizz 	

Vocabulary <i>Highlight key vocabulary (both Tier II and Tier III words)</i>	Tier II: Factoring, linear, constant, degree, roots, GCF (greatest common factor) Tier III: Monomial, polynomial, binomial, trinomial, standard form	
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 - Factoring Card Sort S, A, and M - Khan Academy A and R - Quizizz	
Interdisciplinary Connections NJ Student Learning Standards	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. 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 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	Textbook and workbook - Ch. 9 NJCTL https://njctl.org/courses/math/algebra-i/polynomials/	

	<p>Google forms Desmos Quizizz</p> <p>Material: Guided notes Chromebooks Graphic Organizer</p>
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Instructional Unit Map				
Course Title: Algebra 1 Honors				
Unit Title	Unit 6: Quadratic Equations and Functions		Start Date:	December May
			Length of Unit:	4 weeks
Content Standards <i>What do we want them to know, understand, & do?</i>	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	Learning Goals	<p>Students will graph, write, and solve quadratic equations.</p> <p>Students will write quadratic models for data and compare them with linear and exponential models.</p>	

	<p>NJSLS.F-IF.C - Analyze functions using different representations</p> <p>NJSLS.F-BF.B - Build new functions from existing functions</p> <p>Supporting Standards:</p> <p>NJSLS.A-REI.B.4 - Solve quadratic equations in one variable.</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.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</p> <p>NJSLS.A-APR.B.3 - Identify zeros of polynomials when suitable factorizations are</p>		
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	<p>available, and use the zeros to construct a rough graph of the function defined by the polynomial.</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.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? 		

	<ul style="list-style-type: none"> • How does the value of c affect the graph of $f(x) = ax^2 + c$? • 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>	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 • 10.1 - 10.2 application google form • Graphing Quadratic Scavenger Hunt • Complete the Square color by number • Quizizz 	<ul style="list-style-type: none"> • 10.1 - 10.6 Quiz • Ch. 10 Test 	<ul style="list-style-type: none"> • Menu project (Ch. 10)
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 • Quizizz 		
Instructional Strategies/Student Activities	<ul style="list-style-type: none"> • Direct Instruction • Guided Practice • Cooperative learning (group work) • Communicators 		

	<ul style="list-style-type: none"> ● Modeling ● Learning Centers ● Guided notes ● Student Choice Menu project ● Exit tickets ● Walk arounds/ Scavenger hunts ● Quizizz ● 10.1 - 10.2 application google form ● Graphing Quadratic Scavenger Hunt ● Complete the Square color by number 			
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 ● Scavenger Hunts 	<ul style="list-style-type: none"> ● Challenge problems and puzzles ● Flexible grouping ● Peer teaching ● 3 Act Tasks ● Desmos
Differentiated Instructional Methods: <i>(Multiple means for students to access)</i>	Access (Resources and/or Process)		Expression (Products and/or Performance)	

<p><i>content and multiple modes for student to express understanding)</i></p>	<ul style="list-style-type: none"> ● Khan Academy (videos, examples, practice problems) ● Unit conferences - progress reports ● Google classroom - notes/assignments posted 	<ul style="list-style-type: none"> ● Desmos ● Quizizz
<p>Vocabulary <i>Highlight key vocabulary (both Tier II and Tier III words)</i></p>	<p>Tier II: Vertex, solution, minimum, maximum, domain, range</p> <p>Tier III: Quadratic, axis of symmetry, zeros of a function, parabola, discriminate, quadratic formula, intercept form</p>	
<p>Integration of Technology SAMR</p>	<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 - Basketball Activity - Will it Hit the Hoop Desmos S, A, and M - Khan Academy A and R - Quizizz</p>	
<p>Interdisciplinary Connections NJ Student Learning Standards</p>	<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 Themes/Skills P21 Framework</p>	<p style="text-align: center;">Themes</p>	<p style="text-align: center;">Skills</p>
	<p>Financial, Economic, Business and Entrepreneurial Literacy: Knowing How to Make Appropriate Personal Economic Choices</p>	<p>Critical Thinking and Problem Solving Life and Career Skills \$ Technologies Literacy: Communication & Collaboration</p>

Resources/Materials	<p>Resources: Textbook and workbook - Ch. 10 NJCTL https://njctl.org/courses/math/algebra-i/quadratic-equations/ Google forms Desmos Quizizz</p> <p>Material: Guided notes Chromebooks Graphic Organizer</p>
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Instructional Unit Map							
Course Title: Algebra 1 Honors							
Unit Title	Unit 7: Radicals and Geometry Connections		<table border="1"> <tr> <td style="background-color: #e0e0e0;">Start Date:</td> <td>January June</td> </tr> <tr> <td style="background-color: #e0e0e0;">Length of Unit:</td> <td>2-3 weeks</td> </tr> </table>	Start Date:	January June	Length of Unit:	2-3 weeks
Start Date:	January June						
Length of Unit:	2-3 weeks						
Content Standards <i>What do we want them to know, understand, & do?</i>	<p>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</p>	Learning Goals	<p>Students will work with radical functions, expressions, and equations.</p> <p>Students will apply the Pythagorean theorem and the midpoint and distance formulas.</p>				

	<p>reasoning</p> <p>NJSLS.F.BF.A - Build a function that models a relationship between two quantities</p> <p>NJSLS.F.IF.C - Analyze functions using different representations</p> <p>Supporting Standards:</p> <p>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.</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</p>		
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	<p>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>		
Essential Questions	<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
	<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 • Simplifying Radicals Reveal Puzzle • 11.1 - 11.3 Scavenger Hunt • Quizizz 	<ul style="list-style-type: none"> • 11.1 - 11.3 Quiz • Ch. 11 Test 	<ul style="list-style-type: none"> • Menu project (Ch. 11)

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 ● Quizizz 			
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 ● Quizizz ● Simplifying Radicals Reveal Puzzle ● 11.1 - 11.3 Scavenger Hunt 			
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 	<ul style="list-style-type: none"> ● Class Agenda ● Word Wall ● Oral Directions (repeat if necessary) ● Preferred Seating ● Calculator ● Graphic organizer ● Manipulatives ● Guided notes 	<ul style="list-style-type: none"> ● Chunk long-term assignments ● Provide extra time ● Class agenda/planner ● Manipulatives ● Graphic Organizer ● Guided notes ● Self Correcting activities ● Scavenger Hunts 	<ul style="list-style-type: none"> ● Challenge problems and puzzles ● Flexible grouping ● Peer teaching ● 3 Act Tasks ● Desmos

	<ul style="list-style-type: none"> ● Immediate feedback ● Test retakes 	<ul style="list-style-type: none"> ● 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 ● Google classroom - notes/assignments posted 		<ul style="list-style-type: none"> ● Desmos ● Quizizz 	
Vocabulary <i>Highlight key vocabulary (both Tier II and Tier III words)</i>	Tier II: radical equations, rational exponents, square root function, Tier III: extraneous solution, rationalizing the denominator			
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 - Radicals Card Sort - Desmos S, A, and M - Khan Academy A and R - Quizizz			
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.			

	<p>21st Century Life and Careers: 9.2.12.CAP.6: Identify transferable skills in career choices and design alternative career plans based on those skills.</p>	
<p>21st Century Themes/Skills P21 Framework</p>	<p>Themes</p>	<p>Skills</p>
	<p>Financial, Economic, Business and Entrepreneurial Literacy: Knowing How to Make Appropriate Personal Economic Choices</p>	<p>Critical Thinking and Problem Solving Life and Career Skills \$ Technologies Literacy: Communication & Collaboration</p>
<p>Resources/Materials</p>	<p>Resources: Textbook and workbook - Ch. 11 Google forms Desmos Quizizz</p> <p>Material: Guided notes Chromebooks Graphic Organizer</p>	