PITTSGROVE TOWNSHIP SCHOOL DISTRICT

Pittsgrove Township
School District
P.R.I.D.E. Patience Respect Integrity Diligence Empathy

Course Name: Algebra 1 A/B	**Grade Level(s): 9**
Department: Math	**Credits: 10**
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
^=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.**

Pacing Guide

Course Title: Algebra 1

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, Relationships, and Functions**	**September** (3 weeks)	**Power Standards:** NJSLS.A-SSE.A NJSLS.A - CED. A NJSLS.A.REI.A NJSLS.A.REI.B **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	Students will be able to evaluate expressions, construct algebraic equations and solve equations. Students will understand how to reason quantitatively with equations.	Students will be able to identify variables, coefficients and constants within an expression or equation. Students will be able to evaluate expressions. Students will be able to solve equations. Students will be able to create and solve equations based on word problems and real world situations.
Unit 2: **Graphing Linear Functions**	**Sept. - Oct.** **(**4 weeks)	**Power Standards:** NJSLS.A-REI.D NJSLS.A-CED NJSLS.F-IF.A NJSLS.S-ID.C NJSLS.F-BF.A **Supporting Standards:** NJSLS.A-REI.D.10	Students will be able to graph all forms of linear equations using a variety of methods and select the best method for each given situation. Students will be able to create equations based on linear relationships and understand their significance and how they relate to	Students will be able to graph a linear function using a table, slope-intercept form, standard form, point-slope form, intercepts and slope. Students will be able to write, graph, and solve equations from real world scenarios using graphing strategies including lines of best fit with

		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 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-BF.A.1 NJSLS.F-IF.C.7 NJSLS.F-IF.C.9 NJSLS.S-ID.B.6	real-world application. Students will be able to understand and apply algebraic vocabulary.	scatterplots. Students will be able to graph a linear function using a graphing calculator. Students will understand that slope is a rate of change.
Unit 3: **Writing Linear Functions**	**Oct. - Nov.** (5 weeks)	**Power Standards:** NJSLS.A-CED.A NJSLS.A-REI.D **Supporting Standards:** NJSLS.A-CED.A.1 NJSLS.A-CED.A.3 NJSLS.A-REI.D.12	Students will understand how to write linear equations given a variety of information. Students will be able to apply writing of functions to real world scenarios.	Students will be able to write the equation of a line given the slope and y-intercept, slope and a point, or two points. Students will be able to write the equation of a line given parallel and perpendicular lines. Students will be able to write equations of lines from real life situations.
Unit 4: Functions	**Nov. - Dec.** (2 weeks)	**Power Standards:** NJSLS.F-IF.A NJSLS.F-IF.B NJSLS.F-IF.C	Students will be able to evaluate functions and understand their significance in how they relate to real- world applications.	Students will identify the characteristics of a function.

		Supporting Standards: NJSLS.F-IF.A.1 NJSLS.F-IF.A.2 NJSLS.F-IF.B.4 NJSLS.F-IF.B.5 NJSLS.F-IF.C.9	Students will understand how to apply algebraic vocabulary to situations that involve functions.	Students will be able to evaluate functions using variables, constants, and expressions. Students will be able to define and apply the concepts of domain and range in the context of linear functions. Students will be able to apply function concepts to real world scenarios and create real world scenarios from function concepts.
Unit 5: **Solving and Graphing Linear Inequalities**	**December** (3 weeks)	**Power Standard:** NJSLS.A-CED.A NJSLS.A-REI.D NJSLS.S-ID.A **Supporting Standard:** NJSLS.A-CED.A.1 NJSLS.A-CED.A.3 NJSLS.A-REI.D.12 NJSLS.S-ID.A.1	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.

			Students will be able to understand and apply algebraic vocabulary.	
Unit 6: Systems of Linear Functions and Systems of Inequalities	**January** (4 weeks)	**Power Standards:** NJSLS.A-CED.A NJSLS.A-REI.D NJSLS.A-REI.C NJSLS.A-REI.C **Supporting Standards:** NJSLS.A-CED.A.3 NJSLS.A-REI.D.12 NJSLS.A-REI.C.5 NJSLS.A-REI.C.6	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.	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. Students will be able to solve and identify the solution to a system of linear inequalities. Students will be able to write and solve systems of equations from real world scenarios using graphing strategies. Students will be able to graph and solve systems of equations using a graphing calculator. Students will be able to solve and graph absolute value equations.
Unit 7:	**Feb. - March**	**Power Standards:**	Students will be able to perform	Students will be able to simplify

Exponents and Exponential Functions	(5 weeks)	NJSLS.A-APR.A NJSLS.A-SSE.A **Supporting Standards:** NJSLS.A-APR.A.1 NJSLS.A-SSE.A.2	mathematical operations using exponents. Students will understand how to model and solve scientific and business problems involving exponential growth and decay.	algebraic expressions using all rules of exponents. Students will be able to graph an exponential function. Students will construct exponential growth and decay models when given a variety of business and scientific scenarios. Students will solve word problems based on exponential growth and decay in real world situations.
Unit 8: Factoring and Quadratic Functions	**March - April** (5 weeks)	**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 **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 NJSLS.F-IF.C.8 NJSLS.F-IF.C.9 NJSLS.F-BF.B.3	Students will be able to manipulate expressions using various factoring methods. Students will be able to solve quadratic equations using factoring, completing the square, graphing and graphing calculators. Students will be able to graph quadratic equations. Students will understand how to develop strategies to solve science-based word problems using quadratic functions.	Students will be able to add, subtract and multiply polynomials. Students will be able to divide monomials. Students will be able to factor two, three and four term polynomials using different strategies. Students will be able to solve quadratic equations using factoring, completing the square, graphing, and graphing calculators. Students will be able to explain the relevance of the solutions of quadratic functions.

				Students will be able to identify the different types of solutions for quadratic functions. Students will graph quadratic equations. Students will derive quadratic equations and graphs from real world situations to help find solutions to the scenarios.
Unit 9: Polynomials	**May** (4 weeks)	**Power Standard:** NJSLS.A-APR.A NJSLS.A-SSE.A **Supporting Standard:** NJSLS.A-APR.A.1 NJSLS.A-SSE.A.2	Students will be able to perform mathematical operations using monomials and polynomials, including those with exponents. Students will understand how to apply mathematical rules to monomials and polynomials.	Students will be able to simplify algebraic expressions using all rules of exponents. Students will be able to add, subtract and multiply polynomials. Students will be able to divide monomials.
Unit 10 - Descriptive Statistics	**June** (2 weeks)	**Power Standard:** NJSLS.S-ID NJSLS.F-IF NJSLS.N.Q.A NJSLS.S-ID.A NJSLS.N-RN.B **Supporting Standard:** NJSLS.S-ID.5 NJSLS.S-ID.6	Students will understand the difference between correlation and causation and they will be able to interpret the correlation coefficient of a data set. Students will be able to find trends in data sets and be able to represent and describe data on a variety of data.	Students will be able to distinguish between correlation and causation. Students will be able to interpret the correlation coefficient of a data set and slope and intercept of a linear model using technology. Students will be able to represent and describe data on a scatterplot

		NJSLS.S-ID.7 NJSLS.S-ID.8 NJSLS.S-ID.9 NJSLS.F-IF.3 NJSLS.N.Q.A.2 NJSLS.N.Q.A.3 NJSLS.S-ID.A.2 NJSLS.S-ID.A.3 NJSLS.N-RN.B.3		using a line of best fit. Students will be able to find trends in data sets. Students will be able to create and interpret data using a variety of display types.

Instructional Unit Map					
Course Title: Algebra A/B					
Unit Title	**Unit 1: Linear Equations, Relationships, and Functions**			**Start Date:**	September
				Length of Unit:	3 weeks
Content Standards *What do we want them to know, understand, & do?*	**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	**Learning Goals**	Students will be able to evaluate expressions, construct algebraic equations and solve equations. Students will understand how to reason quantitatively with equations.		

	Supporting Standards NJSLS.A-SSE.A.1 - Interpret expressions that represent a quantity in terms of its context. NJSLS.A-CED.A.1- Create equations and inequalities in one variable and use them to solve problems. 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.A-CED.A.4 - Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. 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. NJSLS.A-REI.B.3 - Solve linear equations and inequalities in one		

<table>
<tr><td></td><td>variable, including equations with coefficients represented by letters</td><td></td><td></td></tr>
<tr><td>Essential Questions</td><td colspan="3">● How do we utilize equations to solve problems?
● How do you evaluate expressions?
● What are real world examples that can be translated into algebraic equations and expressions?</td></tr>
<tr><td rowspan="2">Assessments
How will we know they have gained the knowledge & skills?</td><td>Formative</td><td>Summative</td><td>Alternative</td></tr>
<tr><td>● Communicators
● Warm up problems
● Exit tickets
● Choral and Individual responses to questioning verbally and on the smartboard
● Graded homework
● Quizizz</td><td>● Chapter 3 Test
● Chapter 3 Quiz
● Extended Constructed Response
● Projects</td><td>● Chapter 3-5 Menu Project (to be given at the end of the marking period)</td></tr>
<tr><td>Unit Pre-Assessment(s)
What do they already know?</td><td colspan="3">● Teacher generated warm up
● Data from Pre Test
● Quizizz
● KWL</td></tr>
<tr><td>Instructional Strategies/Student Activities</td><td colspan="3">● Direct Instruction
● Guided Practice
● Cooperative learning (group work)
● Communicators
● Modeling
● Learning Centers
● Guided notes
● Student Choice Menu project</td></tr>
</table>

<table>
<tr><td></td><td colspan="4">

- Exit tickets
- Walk arounds/ Scavenger hunts

</td></tr>
<tr><td rowspan="2">Instructional/Assessment Scaffolds
(Modifications /Accommodations) – planned for prior to instruction</td><td>English Language Learners</td><td>Special Education Learners</td><td>Struggling Learners</td><td>Advanced Learners</td></tr>
<tr><td>

- Word Wall
- Oral Directions (repeat if necessary)
- Preferred Seating
- Calculator
- Graphic Organizer
- Manipulatives
- “Classroom Buddy”
- Key terms highlighted
- Immediate feedback
- Test retakes
- Google Classroom (notes, reviews, and links)

</td><td>

- Class Agenda
- Word Wall
- Oral Directions (repeat if necessary)
- Preferred Seating
- Calculator
- Graphic organizer
- Manipulatives
- Guided notes
- Extra time
- Test retakes

</td><td>

- Chunk long-term assignments
- Provide extra time
- Class agenda/planner
- Manipulatives
- Graphic Organizer
- Guided notes
- Self Correcting activities
- Google Classroom (notes, reviews, and links)

</td><td>

- Challenge problems and puzzles
- Flexible grouping
- Peer teaching
- 3 Act Tasks
- Desmos

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<tr><td rowspan="2">Differentiated Instructional Methods:
(Multiple means for students to access content and multiple modes for student to express understanding)</td><td colspan="2">Access (Resources and/or Process)</td><td colspan="2">Expression (Products and/or Performance)</td></tr>
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- Google classroom (notes, reviews, and links)
- Unit conferences - progress reports

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- Desmos
- Chapters 3 - 5 menu project

</td></tr>
</table>

Vocabulary *Highlight key vocabulary (both Tier II and Tier III words)*	**Tier II:** constants, variables, isolate, equations, formulas, function **Tier III:** coefficients, inverse operations, literal equation
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 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 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.
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	**Resources:** Textbook and workbook - Ch. 3 NJCTL https://njctl.org/courses/math/algebra-i/equations-algebra-i/ Google Classroom Google forms Desmos Quizizz **Material:** Guided notes Chromebooks Graphic Organizer	

Instructional Unit Map			
Course Title: Algebra A/B			
Unit Title	**Unit 2: Graphing Linear Functions**	**Start Date:**	September - October
		Length of Unit:	4 weeks

Content Standards *What do we want them to know, understand, & do?*	**Power Standards** NJSLS.A-REI.D - Represent and solve equations and inequalities graphically NJSLS.A-CED - Create equations that describe numbers or relationships NJSLS.F-IF.A - Understand the concept of a function and use function notation NJSLS.F-BF.A - Build a function that models a relationship between two quantities **Supporting Standards:** 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. 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.	**Learning Goals**	Students will be able to graph all forms of linear equations using a variety of methods and select the best method for each given situation. Students will be able to create equations based on linear relationships and understand their significance and how they relate to real-world application. Students will be able to understand and apply algebraic vocabulary.

	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 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). 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. 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.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. NJSLS.F-BF.A.1 - Write a function that		

<table>
<tr><td></td><td>describes a relationship between two quantities.
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.
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).</td><td></td><td></td></tr>
<tr><td>Essential Questions</td><td colspan="3">● 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?</td></tr>
<tr><td rowspan="2">Assessments
How will we know they have gained the knowledge & skills?</td><td>Formative</td><td>Summative</td><td>Alternative</td></tr>
<tr><td>● Communicators
● Warm up problems
● Exit tickets
● Choral and Individual responses to questioning verbally and on the smartboard
● Graded homework
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● Chapter 4 Quiz
● Extended Constructed Response
● Projects</td><td>● Chapter 3-5 Menu Project (to be given at the end of the marking period)</td></tr>
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<tr><td>Instructional Strategies/Student Activities</td><td colspan="4">● Direct Instruction
● Guided Practice
● Cooperative learning (group work)
● Communicators
● Modeling
● Learning Centers
● Guided notes
● Student Choice Menu project
● Exit tickets
● Walkarounds/ Scavenger hunts</td></tr>
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● Manipulatives
● “Classroom Buddy”
● Key terms highlighted
● Immediate feedback
● Test retakes
● Google Classroom (notes, reviews, and links)</td><td>● Class Agenda
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● Test retakes</td><td>● Chunk long-term assignments
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Differentiated Instructional Methods: *(Multiple means for students to access content and multiple modes for student to express understanding)*	**Access** (Resources and/or Process) ● Google classroom (notes, reviews, and links) ● Unit conferences - progress reports	**Expression** (Products and/or Performance) ● Desmos ● Chapters 3 - 5 menu project
Vocabulary *Highlight key vocabulary (both Tier II and Tier III words)*	**Tier II:** Slope, x - axis, y- axis, origin, rate of change, quadrant, direct variation, linear, function, parallel **Tier III:** X- intercepts, 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 - Polygraph (Desmos) 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 Life and Careers:**	

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CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</td></tr>
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P21 Framework</td><td>Themes</td><td>Skills</td></tr>
<tr><td>Financial, Economic, Business and Entrepreneurial Literacy: Knowing How to Make Appropriate Personal Economic Choices $</td><td>Critical Thinking and Problem Solving

Life and Career Skills $

Technologies Literacy: Communication & Collaboration</td></tr>
<tr><td>Resources/Materials</td><td colspan="2">Resources:
Textbook and workbook - Ch. 4
NJCTL https://njctl.org/courses/math/algebra-i/graphing-linear-equations/
Google Classroom
Google forms
Desmos
Quizizz

Material:
Guided notes
Chromebooks
Graphic Organizer</td></tr>
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Instructional Unit Map
Course Title: Algebra A/B

Unit Title	Unit 3: Writing Linear Functions		Start Date:	October - November
			Length of Unit:	5 weeks
Content Standards *What do we want them to know, understand, & do?*	**Power Standards:** NJSLS.A-CED.A - Create equations that describe numbers or relationships NJSLS.A-REI.D - Represent and solve equations and inequalities graphically **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 interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods. 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	**Learning Goals**	Students will understand how to write linear equations given a variety of information. Students will be able to apply writing of functions to real world scenarios.	

	set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.		
Essential Questions	● How do you write an equation of a line in slope intercept form? ● When do we use a linear equation when working with real world problems? ● How can I use linear equations to solve real world problems?		
Assessments *How will we know they have gained the knowledge & skills?*	**Formative**	**Summative**	**Alternative**
	● Communicators ● Warm up problems ● Exit tickets ● Choral and Individual responses to questioning verbally and on the smartboard ● Graded homework ● Quizizz	● Chapter 4 Test ● Chapter 4 Quiz ● Extended Constructed Response ● Projects	● Chapter 3-5 Menu Project (to be given at the end of the marking period)
Unit Pre-Assessment(s) *What do they already know?*	● Teacher generated warm up ● Data from Pre Test ● Quizizz ● KWL		
Instructional Strategies/Student Activities	● Direct Instruction ● Guided Practice ● Cooperative learning (group work) ● Communicators ● Modeling ● Learning Centers ● Guided notes		

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- Student Choice Menu project
- Exit tickets
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- Chunk long-term assignments
- Provide extra time
- Class agenda/planner
- Manipulatives
- Graphic Organizer
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- Self Correcting activities
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- Challenge problems and puzzles
- Flexible grouping
- Peer teaching
- 3 Act Tasks
- Desmos

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- Desmos
- Chapters 3 - 5 menu project

</td></tr>
</table>

Vocabulary *Highlight key vocabulary (both Tier II and Tier III words)*	**Tier II:** Perpendicular, correlation, scatter plot, constant, slope, parallel **Tier III:** Line of best fit, point slope 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 - Marble Slide Desmos 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 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.
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	**Resources:** Textbook and workbook - Ch. 5 NJCTL https://njctl.org/courses/math/algebra-i/equations-algebra-i/ Google Classroom Google forms Desmos Quizizz **Material:** Guided notes Chromebooks Graphic Organizer	

Instructional Unit Map					
Course Title: Algebra A/B					
Unit Title	**Unit 4: Functions**			**Start Date:**	November - December
				Length of Unit:	2 weeks
Content Standards *What do we want them to know, understand, &*	**Power Standards:** NJSLS.F-IF.A - Understand the concept of a function and use	**Learning Goals**	Students will be able to evaluate functions and understand their significance in how they relate to real- world applications.		

do?	function notation NJSLS.F-IF.B - Interpret functions that arise in applications in terms of the context NJSLS.F-IF.C - Analyze functions using different representations **Supporting Standards:** 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 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). 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. 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		Students will understand how to apply algebraic vocabulary to situations that involve functions.

<table>
<tr><td></td><td>applicable, to the quantitative relationship it describes.
NJSLS.F-IF.C.9 - 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.</td><td></td><td></td></tr>
<tr><td>Essential Questions</td><td colspan="3">● What are some types of relationships that can be modeled by graphs?
● How can functions describe real-world situations, model predictions and solve problems?</td></tr>
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How will we know they have gained the knowledge & skills?</td><td>Formative</td><td>Summative</td><td>Alternative</td></tr>
<tr><td>● Communicators
● Warm up problems
● Exit tickets
● Choral and Individual responses to questioning verbally and on the smartboard
● Graded homework
● Quizizz</td><td>● Chapter 4 Test
● Chapter 4 Quiz
● Extended Constructed Response
● Projects</td><td>● Graphing picture project (desmos)</td></tr>
<tr><td>Unit Pre-Assessment(s)
What do they already know?</td><td colspan="3">● Teacher generated warm up
● Data from Pre Test
● Quizizz
● KWL</td></tr>
<tr><td>Instructional Strategies/Student Activities</td><td colspan="3">● Direct Instruction
● Guided Practice
● Cooperative learning (group work)
● Communicators</td></tr>
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<tr><td></td><td colspan="4">

- Modeling
- Learning Centers
- Guided notes
- Student Choice Menu project
- Exit tickets
- Walk arounds/ Scavenger Hunts

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<tr><td rowspan="2">Instructional/Assessment Scaffolds (Modifications /Accommodations) – planned for prior to instruction</td><td>English Language Learners</td><td>Special Education Learners</td><td>Struggling Learners</td><td>Advanced Learners</td></tr>
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- Word Wall
- Oral Directions (repeat if necessary)
- Preferred Seating
- Calculator
- Graphic Organizer
- Manipulatives
- “Classroom Buddy”
- Key terms highlighted
- Immediate feedback
- Test retakes
- Google Classroom (notes, reviews, and links)

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- Desmos

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content and multiple modes for student to express understanding)		
Vocabulary *Highlight key vocabulary (both Tier II and Tier III words)*	**Tier II:** Function, domain, range, linear, non linear, input, output, slope **Tier III:** Function notation	
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 - Card sort - Desmos 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 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.	
21st Century Themes/Skills	Themes	Skills

P21 Framework	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. 4 Google Classroom Google forms Desmos Quizizz **Material:** Guided notes Chromebooks Graphic Organizer	

Instructional Unit Map					
Course Title: Algebra A/B					
Unit Title	**Unit 5: Solving and Graphing Linear Inequalities**			**Start Date:**	December
				Length of Unit:	3 weeks
Content Standards *What do we want them to know, understand, & do?*	**Power Standard:** NJSLS.A-CED.A - Create equations that describe numbers or relationships NJSLS.A-REI.D - Represent and solve	**Learning Goals**	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		

	equations and inequalities graphically NJSLS.S-ID.A - Summarize, represent, and interpret data on a single count or measurement variable **Supporting Standard:** 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 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 half-planes. NJSLS.S-ID.A.1 - Represent data with plots on the real number line (dot plots, histograms, and box plots).		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 understand and apply algebraic vocabulary.

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<tr><td>Essential Questions</td><td colspan="3">● 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?</td></tr>
<tr><td rowspan="2">Assessments
How will we know they have gained the knowledge & skills?</td><td>Formative</td><td>Summative</td><td>Alternative</td></tr>
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● Quizizz</td><td>● Chapter 6 Test
● Chapter 6 Quiz
● Extended Constructed Response
● Projects</td><td>● Chapter 6-8 Menu Project (to be given at the end of the marking period)</td></tr>
<tr><td>Unit Pre-Assessment(s)
What do they already know?</td><td colspan="3">● Teacher generated warm up
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<tr><td>Instructional Strategies/Student Activities</td><td colspan="3">● Direct Instruction
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● Google Classroom (notes, reviews, and links)</td><td>● Class Agenda
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● Chapters 6 - 8 menu project</td></tr>
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Vocabulary *Highlight key vocabulary (both Tier II and Tier III words)*	**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 - Inequalities on the number line - Desmos 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 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.
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	**Resources:** Textbook and workbook - Ch. 6 NJCTL https://njctl.org/courses/math/algebra-i/solving-and-graphing-linear-inequalities/ Google Classroom Google forms Desmos Quizizz **Material:** Guided notes Chromebooks Graphic Organizer	

Instructional Unit Map					
Course Title: Algebra A/B					
Unit Title	**Unit 6: Systems of Linear Functions and Systems of Inequalities**		**Start Date:**	January	
			Length of Unit:	4 weeks	
Content Standards *What do we want them to know, understand, &*	**Power Standards:** NJSLS.A-CED.A - Create equations that describe numbers or	**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.		

do?	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 half-planes. 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. NJSLS.A-REI.C.6 - Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations		Students will understand how to model, translate, and solve real world situation problems using systems of equations and inequalities.

	in two variables.		
Essential Questions	● 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 *How will we know they have gained the knowledge & skills?*	**Formative**	**Summative**	**Alternative**
	● Communicators ● Warm up problems ● Exit tickets ● Choral and Individual responses to questioning verbally and on the smartboard ● Graded homework ● Quizizz	● Chapter 7 Test ● Chapter 7 Quiz ● Extended Constructed Response ● Projects	● Chapter 6-8 Menu Project (to be given at the end of the marking period)
Unit Pre-Assessment(s) *What do they already know?*	● Teacher generated warm up ● Data from Pre Test ● Quizizz ● KWL		
Instructional Strategies/Student Activities	● Direct Instruction ● Guided Practice ● Cooperative learning (group work) ● Communicators ● Modeling ● Learning Centers ● Guided notes ● Student Choice Menu project		

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- Chapters 6 - 8 menu project

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Vocabulary *Highlight key vocabulary (both Tier II and Tier III words)*	**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 - 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 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.
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	**Resources:** Textbook and workbook - Ch. 7 NJCTL https://njctl.org/courses/math/algebra-i/systems-of-linear-equations/ Google Classroom Google forms Desmos Quizizz **Material:** Guided notes Chromebooks Graphic Organizer	

Instructional Unit Map

Course Title: Algebra A/B

Unit Title	**Unit 7: Exponents and Exponential Functions**	**Start Date:**	February - March
		Length of Unit:	5 weeks

Content Standards *What do we want them to know, understand, & do?*	**Power Standards:** NJSLS.A-APR.A - Perform arithmetic operations on polynomials NJSLS.A-SSE.A - Interpret the structure of expressions	**Learning goals**	Students will be able to perform mathematical operations using exponents. Students will understand how to model and solve scientific and business problems involving exponential growth and decay.

	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.		

Essential Questions	● 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 *How will we know they have gained the knowledge & skills?*	**Formative**	**Summative**	**Alternative**
	● Communicators ● Warm up problems ● Exit tickets ● Choral and Individual responses to questioning verbally and on the smartboard ● Graded homework ● Quizizz	● Chapter 8 Test ● Chapter 8 Quiz ● Extended Constructed Response ● Projects	● Chapter 6-8 Menu Project (to be given at the end of the marking period)
Unit Pre-Assessment(s) *What do they already know?*	● Teacher generated warm up ● Data from Pre Test ● Quizizz ● KWL		

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Instructional Methods: *(Multiple means for students to access content and multiple modes for student to express understanding)*	• Google classroom (notes, reviews, and links) • Unit conferences - progress reports	• Desmos • Chapters 6 - 8 menu project
Vocabulary *Highlight key vocabulary (both Tier II and Tier III words)*	**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 - Card sort (exponents) Desmos 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 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.	
21st Century Themes/Skills [P21 Framework]	Themes	Skill
	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. 8 NJCTL https://njctl.org/courses/math/algebra-i/exponential-functions/ Google Classroom Google forms Desmos Quizizz **Material:** Guided notes Chromebooks Graphic Organizer	

Instructional Unit Map			
Course Title: Algebra A/B			
Unit Title	**Unit 8: Factoring and Quadratic Functions**	**Start Date:**	March - April
		Length of Unit:	5 weeks

Content Standards *What do we want them to know, understand, & do?*	**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 using different representations NJSLS.F-BF.B - Build new functions from existing functions **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	**Learning goals**	Students will be able to manipulate expressions using various factoring methods. Students will be able to solve quadratic equations using factoring, completing the square, graphing and graphing calculators. Students will be able to graph quadratic equations. Students will understand how to develop strategies to solve science- based word problems using quadratic functions.

	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 in simple cases and using technology for more complicated cases. 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. 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). 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		

<table>
<tr><td>Essential Questions</td><td colspan="3">● 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?</td></tr>
<tr><td rowspan="2">Assessments
How will we know they have gained the knowledge & skills?</td><td>Formative</td><td>Summative</td><td>Alternative</td></tr>
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● Chapter 9 Quiz
● Extended Constructed Response
● Projects</td><td>● Menu Project (Ch. 9 - 12)</td></tr>
<tr><td>Unit Pre-Assessment(s)
What do they already know?</td><td colspan="3">● Teacher generated warm up
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(Modifications /Accommodations) – planned for prior to instruction</td><td>English Language Learners</td><td>Special Education Learners</td><td>Struggling Learners</td><td>Advanced Learners</td></tr>
<tr><td>● Word Wall
● Oral Directions (repeat if necessary)
● Preferred Seating
● Calculator
● Graphic Organizer
● Manipulatives
● “Classroom Buddy”
● Key terms highlighted
● Immediate feedback
● Test retakes
● Google Classroom (notes, reviews, and links)</td><td>● Class Agenda
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● Menu Project</td></tr>
<tr><td>Vocabulary
Highlight key vocabulary (both Tier II and Tier III words)</td><td colspan="4">Tier II:
Vertex, solution, minimum, maximum

Tier III:</td></tr>
</table>

<table>
<tr><td></td><td colspan="2">Quadratic, axis of symmetry, zeros of a function, parabola, discriminate, quadratic formula</td></tr>
<tr><td>Integration of Technology SAMR</td><td colspan="2">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 - Quizizz</td></tr>
<tr><td>Interdisciplinary Connections
NJ Student Learning Standards</td><td colspan="2">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 Life and Careers:
CRP2. Apply appropriate academic and technical skills.
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<tr><td rowspan="2">21st Century Themes/Skills
P21 Framework</td><td>Themes</td><td>Skills</td></tr>
<tr><td>Financial, Economic, Business and Entrepreneurial Literacy: Knowing How to Make Appropriate Personal Economic Choices $</td><td>Critical Thinking and Problem Solving

Life and Career Skills $

Technologies Literacy: Communication & Collaboration</td></tr>
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Resources/Materials	**Resources:** Textbook and workbook - Ch. 9 NJCTL https://njctl.org/courses/math/algebra-i/quadratic-equations/ Google Classroom Google forms Desmos Quizizz **Material:** Guided notes Chromebooks Graphic Organizer

Instructional Unit Map					
Course Title: Algebra A/B					
Unit Title	**Unit 9 : Polynomials**			**Start Date:**	May
				Length of Unit:	4 weeks
Content Standards *What do we want them*	**Power Standard:** NJSLS.A-APR.A - Perform arithmetic	**Learning goals**	Students will be able to perform mathematical operations using monomials and polynomials, including those with exponents.		

<table>
<tr><td>to know, understand, & do?</td><td>operations on polynomials
NJSLS.A-SSE.A - Interpret the structure of expressions

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 x4 – y4 as (x2) 2 – (y2) 2 , thus recognizing it as a difference of squares that can be factored as (x2 – y2)(x2 + y2).</td><td></td><td>Students will understand how to apply mathematical rules to monomials and polynomials.</td></tr>
<tr><td>Essential Questions</td><td colspan="3">● 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?</td></tr>
<tr><td>Assessments
How will we know they have gained the knowledge & skills?</td><td>Formative
● Communicators
● Warm up problems
● Exit tickets
● Choral and Individual responses to questioning verbally and on the smartboard
● Graded homework
● Quizizz</td><td>Summative
● Chapter 10 Test
● Chapter 10 Quiz
● Extended Constructed Response
● Projects</td><td>Alternative
● Menu Project (Ch. 9 - 12)</td></tr>
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<tr><td>Unit Pre-Assessment(s)
What do they already know?</td><td colspan="4">● Teacher generated warm up
● Data from Pre Test
● Quizizz
● KWL</td></tr>
<tr><td>Instructional Strategies/Student Activities</td><td colspan="4">● Direct Instruction
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	reviews, and links)	● Guided notes ● Extra time ● Test retakes		
Differentiated Instructional Methods: *(Multiple means for students to access content and multiple modes for student to express understanding)*	**Access** (Resources and/or Process) ● Google classroom (notes, reviews, and links) ● Unit conferences - progress reports		**Expression** (Products and/or Performance) ● Desmos ● Chapters 9 - 12 menu project	
Vocabulary *Highlight key vocabulary (both Tier II and Tier III words)*	**Tier II:** Factoring **Tier III:** Monomial, polynomial, binomial, trinomial,			
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 Desmos 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.			

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21st Century Life and Careers:
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<tr><td>Resources/Materials</td><td colspan="2">Resources:
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NJCTL https://njctl.org/courses/math/algebra-i/polynomials/
Google Classroom
Google forms
Desmos
Quizizz

Material:
Guided notes
Chromebooks
Graphic Organizer</td></tr>
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Instructional Unit Map			
Course Title: Algebra A/B			
Unit Title	**Unit 10: Data Analysis**	**Start Date:**	June
		Length of Unit:	2 weeks
Content Standards *What do we want them to know, understand, & do?*	**Power Standard:** NJSLS.S-ID.B - Summarize, represent, and interpret data on two categorical and quantitative variables NJSLS.F-IF. A - Understand the concept of a function and use function notation NJSLS.N.Q.A - Reason quantitatively and use units to solve problems NJSLS.N-RN.B - Use properties of rational and irrational numbers **Supporting Standard:** NJSLS.S-ID.5 - Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data NJSLS.S-ID.6 - Represent data on two quantitative variables on a scatter plot, and describe how the variables are related	**Learning Goals**	Students will understand the difference between correlation and causation and they will be able to interpret the correlation coefficient of a data set. Students will be able to find trends in data sets and be able to represent and describe data on a variety of data.

	NJSLS.S-ID.7 - Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data. NJSLS.S-ID.8 - Compute (using technology) and interpret the correlation coefficient of a linear fit. NJSLS.S-ID.9 - Distinguish between correlation and causation NJSLS.F-IF.3 - Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. NJSLS.N.Q.A.2 - Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. NJSLS.N.Q.A.3 - Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. NJSLS.S-ID.A.2 - Define appropriate quantities for the purpose of descriptive modeling NJSLS.S-ID.A.3 - Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread		

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NJSLS.N-RN.B.3 - Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.</td><td></td><td></td></tr>
<tr><td>Essential Questions</td><td colspan="3">How can I interpret data using algebraic ideas, including functions, slope, and linear models?
How do I represent data visually?</td></tr>
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Exit tickets
Choral and Individual responses to questioning verbally and on the smartboard
Graded homework
Quizizz</td><td>Chapter 12 Test
Chapter 12 Quiz
Extended Constructed Responses
Projects</td><td>Menu Project Ch. 9-12</td></tr>
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Data from Pre Test
Quizizz
Warm up problems</td></tr>
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● Student Choice Menu project
● Exit tickets
● Walk arounds/ Scavenger hunts</td></tr>
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Instructional Methods: *(Multiple means for students to access content and multiple modes for student to express understanding)*	• Khan Academy (videos, examples, practice problems) • Unit conferences - progress reports	• Desmos • Ch. 9 - 12 Menu Project
Vocabulary *Highlight key vocabulary (both Tier II and Tier III words)*	**Tier II:** Mean, median, mode, range, scatter plot, histogram, frequency, correlation **Tier III:** box and whisker plot, interquartile range,	
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 - Desmos S, A, and M - Khan Academy A and R - Kahoot	
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<tr><td>Resources/Materials</td><td colspan="2">Resources:
Textbook and workbook - Ch. 12
NJCTL https://njctl.org/courses/math/algebra-i/statistical-analysis-and-data-displays-2/
Google forms
Desmos
Quizziz

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