PITTSGROVE TOWNSHIP SCHOOL DISTRICT

Course Name: Math Algebra 8	Grade Level(s): 8
Department: Math	Credits:
BOE Adoption Date: October 17, 2019	Revision Date(s): June 18, 2020

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.

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.

Course Title: 8th Grade Algebra 1
Prerequisite(s): Math 7

Unit Title	Duration/ Month(s)	Related Standards	Learning Goals	Critical Knowledge and Skills
Unit 1: The real number system and Solving 1 variable equations and inequalities	September- October (5 weeks)	Subject Area: 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.N-Q.A.1 Mathematical Practices: NJSLS.MP.1 NJSLS.MP.2 NJSLS.MP.4 NJSLS.MP.6 NJSLS.MP.7 NJSLS.MP.8	Students will be able to evaluate expressions, construct algebraic equations/inequalities, and solve equations/inequalities . Students will understand how to reason quantitatively with equations. 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 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 Students will be able to solve one variable inequalities . Students will be able to create and solve inequalities based on word problems and real world situations
Unit 2: Graphing and Writing Linear Functions	October- Nov (6 weeks)	Subject Area: NJSLS.A-REI.D.10 NJSLS.A-REI.D.11 NJSLS.A-CED.A.2	Students will be able to graph all forms of linear equations using a variety of methods and select the	Students will be able to graph a linear function using a table, slope-intercept form, standard form, point-slope form, intercepts and slope.

| | | 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
NJSLS.A-CED.A.1
NJSLS.A-CED.A.3
NJSLS.A-REI.D.12

Mathematical Practices
NJSLS.MP.1
NJSLS.MP.2
NJSLS.MP.4
NJSLS.MP.5
NJSLS.MP.6
NJSLS.MP.7
NJSLS.MP.8 | 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.

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, graph, and solve equations from real world scenarios using graphing strategies including lines of best fit with scatterplots.

Students will be able to graph a linear function using a graphing calculator.

Students will understand that slope is a rate of change.

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 3: Functions	Nov. - Dec. (2 weeks)	Subject Area: 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 Mathematical Practices: NJSLS.MP.1 NJSLS.MP.2 NJSLS.MP.4 NJSLS.MP.6 NJSLS.MP.7 NJSLS.MP.8	Students will be able to evaluate functions and understand their significance in how they relate to real- world applications. Students will understand how to apply algebraic vocabulary to situations that involve functions.	Students will identify the characteristics of a function. 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 4: System of Linear Equations	December (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 NJSLS.MP.4 NJSLS.MP.6 NJSLS.MP.7 NJSLS.MP.8	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	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 equations.

				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.
Unit 5: Graphing Linear Inequalities and System of Linear inequalities	January (4 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 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 understand and apply algebraic vocabulary.	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 able to solve and graph a system of linear inequalities.
Unit 6: Extension of Functions	February (4 weeks)	Subject Area: NJSLS.A-REI.D.11 NJSLS.A-SSE.A.1 NJSLS.F-IF.C.7 NJSLS.F-LE.A.3	Students will be able to graph a variety of functions, including absolute value, step, piecewise and exponential functions.	Students will be able to graph an absolute value function. Students will be able to graph a step function.

		NJSLS.F-LE.B.5 NJSLS.F.LE.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 be able to graph a piecewise function.
Unit 7: Exponents and Polynomials	March-April (5 weeks)	Subject Area: NJSLS.A-APR.A.1 NJSLS.A-SSE.A.2 Mathematical Practices: NJSLS.MP.1	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. 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	April- May (6 weeks)	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 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 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 understand how to model and solve scientific and business problems involving exponential growth and decay.	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 - Descriptive Statistics	May- June (3 weeks)	Subject Area: NJSLS.S-ID.5 NJSLS.S-ID.6 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	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.

		NJSLS.S-ID.A.2 NJSLS.S-ID.A.3 NJSLS.N-RN.B.3 Mathematical Practices: NJSLS.MP.1 NJSLS.MP.2 NJSLS.MP.3 NJSLS.MP.4 NJSLS.MP.5 NJSLS.MP.6 NJSLS.MP.7 NJSLS.MP.8		Students will be able to represent and describe data on a scatterplot 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: Math 8 Algebra 1				
Unit Title	Unit 1: The real number system/ Solving 1 variable equations and inequalities		Start Date:	September
			Length of Unit:	7 weeks
Content Standards What do we want them to know, understand, & do?	Major Standards: A.SSE.A.1 - 1. Interpret expressions that represent a quantity in terms of its context. a. Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret P(1+r) n as the product of P and a factor not depending on P 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.	Learning Goals	Students will be able to: 1. Classify a real number 2. Understand solving equations as a process of reasoning and explain the reasoning 3. Create equations that describe numbers or relationships	

	A.CED.A.4- Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law V = IR to highlight resistance R. 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. A.REI.A.2 -Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise. A.REI.B.3- Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.		

	Supporting Standard:		
	N.Q.A.1- 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.		
	N.Q.A.2- Define appropriate quantities for the purpose of descriptive modeling.		
	N.Q.A.3- Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.		
	Mathematical Practices		
	MP.1 Make sense of problems and persevere in solving them.		
	MP.2 Reason abstractly and quantitatively.		

	MP.3 Construct viable arguments & critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.		
Essential Questions	Why are the properties of real numbers important when solving equations and inequalities? How do we represent unknown quantities? What are the properties for solving an equation/inequality? How is the process of solving an equation similar and different from solving an inequality?		
Assessments How will we know they have gained the knowledge & skills?	**Formative**	**Summative**	**Alternative**
	- Warmup/ Exit Tickets - Classwork and Homework assignments - Student self rating - Communicator responses - Quizzizs - Class discussions - IXL and Khan Academy	- Classifying Real Numbers Test - Solving 1 Variable Equations Test - Solving 1 Variable Inequalities Test	

	● Self correcting Worksheets ● Walk around/ Scavenger hunt ● Kahoot Games ● Task Cards		
Unit Pre-Assessment(s) What do they already know?	● Beginning of year Algebra 1 pre-assessment Test ● Fall NWEA MAP Testing results (analyzed by standard, not overall score) ● IXL Diagnostic		
Instructional Strategies/Student Activities	● Guided Practice ● Modeling ● Direct Instruction ● Instructional Videos ● Cooperative Learning ● Turn-and-Talk ● Reinforcing math skills through games: ● Examining Similarities and Differences ● Examining Errors in Reasoning, ● Chunking Content into Digestible Bites ● Reviewing Content ● Using Homework ● Self correcting Worksheets ● Walk arounds and Task Cards		
Instructional/Assessment Scaffolds (Modifications /Accommodations) – planned for prior to instruction	English Language Learners	Special Education Learners	Struggling Learners	Advanced Learners
	● Khan Academy and IXL in set Language ● Vocabulary Wall ● Preferential Seating ● Extra Time on assignments	● Assign preferential seating. ● Provide outlines or study guides.	● Provide websites for additional examples. ● Utilize flash cards available for graphs of each special function ● Daily assignment list	● Independent study that requires them to create questions. ● Mini extended lessons on

	● Calculator ● Re-take on Tests ● Key words in native language (if available). ● Daily assignment list.	● Re-take on Test and Quizzes ● Extra time on Assignments ● Vocabulary Wall ● Daily assignment list.		real-life examples.

	Access (Resources and/or Process)		Expression (Products and/or Performance)	
Differentiated Instructional Methods: (Multiple means for students to access content and multiple modes for student to express understanding)	● Weekly Conference ● Assign Specific/ targeted IXL lesson based on progress ● Assign specific/ targeted khan Academy lessons based on progress			

Vocabulary Highlight key vocabulary (both Tier II and Tier III words)	Tier II- Solve, Analyze, Variable, Term, Constant, Coefficient, Isolate, Equation, Inverse, Greater than, Less than, Solution, Equals, Tier III- Algebraic Expression, Numeric Expression, Literal equation, inequality, compound inequality, all real numbers, no solution, variable on both sides, closed, open, natural numbers, whole numbers, rational numbers, irrational numbers, integer,
Integration of Technology SAMR	A- Graphing Calculator S/A –Use mathematical videos on Khan Academy to review the pre-algebra skills and Algebra Skills. S/A –Use IXL to review the pre-algebra skills and Algebra Skills. A – Create an online worksheet or formative assessment on Google Forms. A- Use Kahoot as a Review A- Use Quiziz as a review or formative assessment S/A/M- Use Desmos to introduce a lesson and as an extension of the lesson S/A- Solving 1 variable equation basketball

	M – Have a discussion board on Google classroom from a shared video that relates to the mathematical reasoning behind solving equations. Students must post one discussion and comment on two other students discussions. R – Students create their own tutorial using online video technology to share with their peers on Google classroom.
Interdisciplinary Connections [NJ Student Learning Standards](#)	Technology: NJ SLS 8.1.12.B.2: Apply previous content knowledge by creating and piloting a digital learning game or tutorial. NJ SLS 8.1.12.F.1: Use geographic mapping tools to plan and solve problems. NJ SLS 8.2.12.E.3: Using a simple, visual programming language, create a program using loops, events and procedures to generate specific output. NJ SLS 8.2.12.E.4: Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements). Career Practices: CRP1. Act as a responsible and contributing citizen and employee 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. CRP11. Use technology to enhance productivity. Career Awareness: NJ SLS 9.2.12.C.4: Analyze how economic conditions and societal changes influence employment trends and future education. Interdisciplinary: NJ SLS.W.9-10.1.A: Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. NJ SLS.W.9-10.1.C: Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
21st Century Themes/Skills [P21 Framework](#)	Themes Skills

	Global Awareness – Population growth versus the amount of resources needed. Financial – amount of chores done around the house in relation to amount of allowance paid at the end of the work.	Life and Career Skills - performing tasks with an extrinsic reward attached (working for a pay check – doing chores for an allowance) Communication & Collaboration students working in groups and using Google classroom to collaborate on and peer review projects.
Resources/Materials	IXL, Khan Academy, Desmos,Quizizz , Kahoot, Released Items PARCC, njctl, Illuminations , Algebra 1 Coach Books, Spiral Notebook, Pencil, Chromebook, Larson Algebra 1 Book	

Course Title: Math 8 Algebra 1				
Unit Title	Unit 2: Graphing and Writing Linear Functions		Start Date:	October
			Length of Unit:	6 weeks
Content Standards What do we want them to know, understand, & do?	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 A.CED.A.3 : Represent constraints by equations or inequalities, and by systems of equations and/or	Learning Goals	Students will be able to: 1. Determine the slope of a linear function 2. Represent and solve equations graphically 3. Summarize, represent, and interpret data on quantitative variables. 4. Create and describe a scatter plot	

| | 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.

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).

S.ID.C.7 :
Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data

S.ID.C.8:
Compute (using technology) and interpret the correlation coefficient of a linear fit.

S.ID.C.9: | | |

	Distinguish between correlation and causation. A.REI.D.11: Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, Supporting standards N.Q.A.1- 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.		

	N.Q.A.2- Define appropriate quantities for the purpose of descriptive modeling. N.Q.A.3- Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. S.ID.B.6: Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. Mathematical Practices MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments & critique the reasoning of others. MP.4 Model with mathematics.		

	MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.		
Essential Questions	How can you recognize a Linear equation and what are some ways you can express it? How you would determine a reasonable domain and range in the context of a real world problem? How can systems of linear equations or inequalities be used to model real world situations?		
Assessments How will we know they have gained the knowledge & skills?	**Formative**	**Summative**	**Alternative**
	• Warmup/ Exit Tickets • Classwork and Homework assignments • Student self rating • Communicator responses • Quizzizs • Class discussions • IXL and Khan Academy • Self correcting Worksheets • Walk around/ Scavenger hunt • Kahoot Games • Task Cards y	• Slope and Graphing linear Equations Test • Graphing Linear equations in Standard and Point Slope Form	Linear Equation Choice Board Project
Unit Pre-Assessment(s) **What do they already know?**	• One variable Equations Test • Fall NWEA MAP Testing results (analyzed by standard, not overall score)		

	● IXL Diagnostic
Instructional Strategies/Student Activities	● Guided Practice ● Modeling ● Direct Instruction ● Instructional Videos ● Cooperative Learning ● Turn-and-Talk ● Reinforcing math skills through games: ● Examining Similarities and Differences ● Examining Errors in Reasoning, ● Chunking Content into Digestible Bites ● Reviewing Content ● Using Homework ● Self correcting Worksheets ● Walk arounds and Task Cards

Instructional/Assessment Scaffolds (Modifications /Accommodations) – planned for prior to instruction	English Language Learners	Special Education Learners	Struggling Learners	Advanced Learners
	● Khan Academy and IXL in set Language ● Vocabulary Wall ● Preferential Seating ● Extra Time on assignments ● Calculator ● Re-take on Tests ● Key words in native language (if available). ● Note Cards for Formulas	● Assign preferential seating. ● Provide outlines or study guides. ● Re-take on Test and Quizzes ● Extra time on Assignments ● Note Cards for formulas	● Provide websites for additional examples. ● Utilize flash cards available for graphs of each special function ● Daily assignment list	● Independent study that requires them to create questions. ● Mini extended lessons on real-life examples.

	● Daily assignment list.	● Daily assignment list.

Differentiated Instructional Methods: (Multiple means for students to access content and multiple modes for student to express understanding)	⬛
	● Weekly Conference ● Assign Specific/ targeted IXL lesson based on progress ● Assign specific/ targeted khan Academy lessons based on progress
Vocabulary Highlight key vocabulary (both Tier II and Tier III words)	Tier II- Solve, Analyze, Variable, Term, Constant, Coefficient, Origin, Equation, Coordinate Plane, Inverse, Graph , Tier III- Linear Equation, Slope- Intercept Form, Standard Form, Point-Slope Form, x intercept, y intercept, Slope, Unit Rate, Horizontal Line, Vertical Line, Solution, X-Axis, Y-Axis, Ordered Pair,
Integration of Technology SAMR	A- Graphing Calculator S/A –Use mathematical videos on Khan Academy to review the pre-algebra skills and Algebra Skills. S/A –Use IXL to review the pre-algebra skills and Algebra Skills. A – Create an online worksheet or formative assessment on Google Forms. A- Use Kahoot as a Review A- Use Quiziz as a review or formative assessment S/A/M- Use Desmos to introduce a lesson and as an extension of the lesson S/A- Math Games to reinforce skills
Interdisciplinary Connections NJ Student Learning Standards	Technology: NJ SLS 8.1.12.B.2: Apply previous content knowledge by creating and piloting a digital learning game or tutorial. NJ SLS 8.1.12.F.1: Use geographic mapping tools to plan and solve problems. NJ SLS 8.2.12.E.3: Using a simple, visual programming language, create a program using loops, events and procedures to generate specific output. NJ SLS 8.2.12.E.4: Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements). Career Practices: 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. Career Awareness: NJ SLS 9.2.12.C.3: Identify transferable career skills and design alternate career plans. NJ SLS 9.2.12.C.4: Analyze how economic conditions and societal changes influence employment trends and future education. NJ SLS 9.2.12.C9: Analyze the correlation between personal and financial behavior and employability Interdisciplinary: NJ SLS.W.9-10.1.A: Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. NJ SLS.W.9-10.1.C: Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.	
21st Century Themes/Skills P21 Framework		
	Global Awareness – Population growth versus the amount of resources needed. Financial – amount of chores done around the house in relation to amount of allowance paid at the end of the work.	Life and Career Skills - performing tasks with an extrinsic reward attached (working for a pay check – doing chores for an allowance) Communication & Collaboration students working in groups and using Google classroom to collaborate on and peer review projects.
Resources/Materials	IXL, Khan Academy, Desmos,Quizizz , Kahoot, Released Items PARCC, njctl, Illuminations , Algebra 1 Coach Books, Spiral Notebook, Pencil, Chromebook, Larson Algebra 1 Book	

Instructional Unit Map

Course Title: Math 8: Algebra 1

| Unit Title | Unit 3: Functions | | Start Date: | December |
| | | | Length of Unit: | 2-3 weeks |

| Content Standards What do we want them to know, understand, & do? | 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).

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

F.IF.A.3 Recognize that sequences are functions, sometimes | Learning Goals | Students will be able to

identify the characteristics of a function.

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. |

	defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$. 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. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity. F.IF.B.5 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if	

| | the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function

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. | | |
|---|---|---|---|
| Essential Questions | How can you represent and describe functions?
 How can functions describe real-world situations, model predictions and solve problems?
 Why do we analyze domain and range of functions? | | |
| Assessments
 How will we know they have gained the knowledge & skills? | **Formative** | **Summative** | **Alternative** |
| | Warmup/ Exit Tickets Classwork and Homework assignments Student self rating Communicator responses Quizzizs Class discussions IXL and Khan Academy | Identifying Functions Test | |

Unit Pre-Assessment(s) What do they already know?	- Linear Equations Test - Fall NWEA MAP Testing results (analyzed by standard, not overall score) - IXL Diagnostic
Instructional Strategies/Student Activities	- Guided Practice - Modeling - Direct Instruction - Instructional Videos - Cooperative Learning - Turn-and-Talk - Reinforcing math skills through games:

Instructional/Assessment Scaffolds (Modifications /Accommodations) – planned for prior to instruction				
	- Khan Academy and IXL in set Language - Vocabulary Wall - Preferential Seating - Extra Time on assignments - Calculator - Re-take on Tests - Key words in native language (if available). - Daily assignment list.	- Assign preferential seating. - Provide outlines or study guides. - Re-take on Test and Quizzes - Extra time on Assignments - Daily assignment list.	- Provide websites for additional examples. - Utilize flash cards available for graphs of each special function - Daily assignment list	- Independent study that requires them to create questions. - Mini extended lessons on real-life examples.
Differentiated Instructional Methods: (Multiple means for students to access content and				

multiple modes for student to express understanding)	● Weekly Conference ● Assign Specific/ targeted IXL lesson based on progress ● Assign specific/ targeted khan Academy lessons based on progress	● Desmos
Vocabulary Highlight key vocabulary (both Tier II and Tier III words)	Tier II- Solve, Analyze, Variable, Term, Constant, Coefficient, Increasing, Decreasing, evaluate, Interval , Tier III- Domain, Range, Minimum, Maximum, Function Notation, Vertical Line Test, Relative minimum, Relative Maximum, input, output, transformation, continuous, discontinuous, independent variable , dependent variable	
Integration of Technology SAMR	A- Graphing Calculator S/A –Use mathematical videos on Khan Academy to review the pre-algebra skills and Algebra Skills. S/A –Use IXL to review the pre-algebra skills and Algebra Skills. A – Create an online worksheet or formative assessment on Google Forms. A- Use Kahoot as a Review A- Use Quiziz as a review or formative assessment M/R- Students use Google Slides to create their own Jeopardy Review S/A- Math Games to reinforce skills	
Interdisciplinary Connections NJ Student Learning Standards	Technology: NJ SLS 8.1.12.B.2: Apply previous content knowledge by creating and piloting a digital learning game or tutorial. NJ SLS 8.1.12.F.1: Use geographic mapping tools to plan and solve problems. NJ SLS 8.2.12.E.3: Using a simple, visual programming language, create a program using loops, events and procedures to generate specific output. NJ SLS 8.2.12.E.4: Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements) . Career Practices: 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. Career Awareness: NJ SLS 9.2.12.C.3: Identify transferable career skills and design alternate career plans.	

	NJ SLS 9.2.12.C.4: Analyze how economic conditions and societal changes influence employment trends and future education. NJ SLS 9.2.12.C9: Analyze the correlation between personal and financial behavior and employability Interdisciplinary: NJ SLS.W.9-10.1.A: Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. NJ SLS.W.9-10.1.C: Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
21st Century Themes/Skills P21 Framework	**Themes** / **Skills**
	Global Awareness – Population growth versus the amount of resources needed. Financial – amount of chores done around the house in relation to amount of allowance paid at the end of the work.	Life and Career Skills - performing tasks with an extrinsic reward attached (working for a pay check – doing chores for an allowance) Communication & Collaboration students working in groups and using Google classroom to collaborate on and peer review projects.
Resources/Materials	IXL, Khan Academy, Desmos,Quizizz , Kahoot, Released Items PARCC, njctl, Illuminations , Algebra 1 Coach Books, Spiral Notebook, Pencil, Chromebook, Larson Algebra 1 Book

Instructional Unit Map				
Course Title: Math 8: Algebra 1				
Unit Title	System of Linear Equations		Start Date:	January
			Length of Unit:	3 weeks
Content Standards What do we want them to know, understand, & do?	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. .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 Supporting: A.REI.C.5: Prove that, given a system of two equations in two variables, replacing one equation by	Learning Goals	Students will be able to use graphing to solve systems of equations. Students will be able to use substitution to solve systems of equations. Students will be able to use elimination to solve systems of equations.	

	the sum of that equation and a multiple of the other produces a system with the same solutions. 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 A-REI.C.7: Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line y = −3x and the circle x2 + y2 = 3.	

Essential Questions	What does the number of solutions (none, one or infinite) of a system of linear equations represent? What are the advantages and disadvantages of solving a system of linear equations graphically versus algebraically? How can systems of equations be used to represent situations and solve problems?	
Assessments How will we know they have gained the knowledge & skills?	**Formative**	**Summative**	**Alternative**

Assessments	Formative	Summative	Alternative
	English LWarmup/ Exit Tickets • Classwork and Homework assignments • Student self rating • Communicator responses	System of Linear Equations Test	

	• Quizzizs • Class discussions • IXL and Khan Academy • Self Correcting Worksheets • Walk arounds/ Scavenger hunts • Spiral Review Quizzes
Unit Pre-Assessment(s) What do they already know?	• Linear Equations Test • Fall NWEA MAP Testing results (analyzed by standard, not overall score) • IXL Diagnostic
Instructional Strategies/Student Activities	• Guided Practice • Modeling • Direct Instruction • Instructional Videos • Cooperative Learning • Turn-and-Talk • Reinforcing math skills through games:

Instructional/Assessment Scaffolds (Modifications /Accommodations) – planned for prior to instruction	English Language Learners	Special Education Learners	Struggling Learners	Advanced Learners
	• Khan Academy and IXL in set Language • Vocabulary Wall • Preferential Seating • Extra Time on assignments • Calculator • Re-take on Tests • Create flash cards for different types of systems	• Assign preferential seating. • Provide outlines or study guides. • Re-take on Test and Quizzes • Extra time on Assignments	• Provide websites for additional examples. • Create Flash Cards for different types of systems • Daily assignment list	• Desmos Lesson on System of Equations with a quadratic and linear function • Extended lesson on System of 3 equations

	● Key words in native language (if available). ● Daily assignment list.	● Create flash cards for different type of systems ● Daily assignment list.

	Access (Resources and/or Process)	Expression (Products and/or Performance)
Differentiated Instructional Methods: (Multiple means for students to access content and multiple modes for student to express understanding)	● Weekly Conference ● Assign Specific/ targeted IXL lesson based on progress ● Assign specific/ targeted khan Academy lessons based on progress	
Vocabulary Highlight key vocabulary (both Tier II and Tier III words)	Tier II- Solve, Analyze, Variable, Term, Constant, Coefficient, Coordinate Plane, Ordered Pair, Parallel, Intersect, Slope, Tier III: System of Equations, Substitution Method, Elimination Method, Solution to system of Equation, No Solution, All Real Numbers, Consistent, Inconsistent, Dependent, Independent	
Integration of Technology SAMR	A- Graphing Calculator A- Quizziz Review Game for Algebra Skills S/A/M- Desmos Activity to introduce Systems and have an extended lesson on systems S/A – Use mathematical videos on Khan Academy to review the pre-algebra skills and Algebra Skills. S/A- Use IXL to review pre-algebra and Algebra Skills A – Create an online worksheet or formative assessment on Google Forms. A- Kahoot Review Game	
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
	Critical Thinking and Problem Solving Communication and Collaboration Life and Career Skills	Financial Economic Busines, Entrepreneurial Literacy
Resources/Materials	IXL, Khan Academy, Desmos,Quizizz , Kahoot, Released Items PARCC, njctl, Illuminations , Algebra 1 Coach Books, Spiral Notebook, Pencil, Chromebook, Larson Algebra 1 Book	

Course Title: Math 8: Algebra 1				
Unit Title	Graphing Linear Inequalities and System of Linear inequalities		Start Date:	January -Febuary
			Length of Unit:	3 weeks
Content Standards What do we want them to know, understand, & do?	A-CED.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. A-CED.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. A-REI.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	Learning Goals	Students will be able to graph a linear inequality that contains two variables in a coordinate plane. Students will be able to solve and graph a system of linear inequalities by graphing them in a coordinate plane.	

	intersection of the corresponding half-planes.		

Essential Questions	How do the tools of algebra relate to equations and inequalities? Why do we want to solve using inequalities rather than get an equation? How do we graph a linear inequality in the coordinate plane? How do we solve a system of linear inequalities?		

Assessments How will we know they have gained the knowledge & skills?	Formative	Summative	Alternative
	 ● Warmup/ Exit Tickets ● Classwork and Homework assignments ● Student self rating ● Communicator responses ● Quizzizs ● Class discussions ● IXL and Khan Academy	● Graphing Linear Inequalities Test	

Unit Pre-Assessment(s) What do they already know?	● Linear Equations Test ● System of Linear Equations Test ● Fall NWEA MAP Testing results (analyzed by standard, not overall score) ● IXL Diagnostic		

Instructional Strategies/Student Activities	● Guided Practice ● Modeling ● Direct Instruction ● Instructional Videos ● Cooperative Learning ● Turn-and-Talk ● Reinforcing math skills through games:		

Instructional/Assessment Scaffolds (Modifications	English Language Learners	Special Education Learners	Struggling Learners	Advanced Learners

/Accommodations) – planned for prior to instruction	• Khan Academy and IXL in set Language • Vocabulary Wall • Preferential Seating • Extra Time on assignments • Calculator • Re-take on Tests • Key words in native language (if available). • Daily assignment list.	• Assign preferential seating. • Provide outlines or study guides. • Re-take on Test and Quizzes • Extra time on Assignments • Daily assignment list.	• Provide websites for additional examples. • Utilize flash cards available for graphs of each special function • Daily assignment list	• Independent study that requires them to create questions. • Mini extended lessons on real-life examples.
Differentiated Instructional Methods: (Multiple means for students to access content and multiple modes for student to express understanding)	**Access (Resources and/or Process)**		**Expression (Products and/or Performance)**	
	• Weekly Conference • Assign Specific/ targeted IXL lesson based on progress • Assign specific/ targeted khan Academy lessons based on progress		• Desmos	
Vocabulary Highlight key vocabulary (both Tier II and Tier III words)	Tier II- Solve, Analyze, Variable, Term, Constant, Coefficient, Origin, Equation, Coordinate Plane, Axis, Inverse, Graph, less than, greater than, , Tier III- Slope, Inequality, half plane, constraint, system of inequalities, (0,0) test, x-intercept, y-intercept, slope,			
Integration of Technology SAMR	A- Graphing Calculator S/A –Use mathematical videos on Khan Academy to review the pre-algebra skills and Algebra Skills. S/A –Use IXL to review the pre-algebra skills and Algebra Skills. A – Create an online worksheet or formative assessment on Google Forms. A- Use Kahoot as a Review A- Use Quiziz as a review or formative assessment			

	S/A/M- Use Desmos to introduce a lesson and as an extension of the lesson S/A- Math Games to reinforce skills M – Students must use technology to create a venn diagram to compare and contrast the similarities of linear inequalities and linear equations
Interdisciplinary Connections [NJ Student Learning Standards](#)	Technology: NJ SLS 8.1.12.B.2: Apply previous content knowledge by creating and piloting a digital learning game or tutorial. NJ SLS 8.1.12.F.1: Use geographic mapping tools to plan and solve problems. NJ SLS 8.2.12.E.3: Using a simple, visual programming language, create a program using loops, events and procedures to generate specific output. NJ SLS 8.2.12.E.4: Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements). Career Practices: 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. Career Awareness: NJ SLS 9.2.12.C.3: Identify transferable career skills and design alternate career plans. NJ SLS 9.2.12.C.4: Analyze how economic conditions and societal changes influence employment trends and future education. NJ SLS 9.2.12.C9: Analyze the correlation between personal and financial behavior and employability Interdisciplinary: NJ SLS.W.9-10.1.A: Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. NJ SLS.W.9-10.1.C: Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.

21st Century Themes/Skills [P21 Framework](#)	Themes	Skills
	Critical Thinking and Problem Solving Communication and Collaboration Life and Career Skills	Financial, Economic Business, Entrepreneurial Literacy

Resources/Materials	[IXL](#), [Khan Academy](#), [Desmos](#),[Quizizz](#) , [Kahoot](#), [Released Items PARCC](#), [njctl](#), [Illuminations](#) , Algebra 1 Coach Books, Spiral Notebook, Pencil, Chromebook, Larson Algebra 1 Book

Course Title:			
Unit Title	Absolute Value and Piecewise Functions	Start Date:	February
		Length of Unit:	3 weeks
Content Standards What do we want them to know, understand, & do?	NJSLS.A-REI.D.11: Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	Learning Goals	Students will be able to graph an absolute value function Students will be able to transform an absolute value function Students will be able to graph a piece wise function

	NJSLS.A-SSE.A.1 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. b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. E: Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude. F.BF.1 Write a function that describes the relationship between two quantities F.BF.2 Write arithmetic & geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.		
Essential Questions	Why is the shape of an absolute value function different from the shape of a linear function when graphed? How do you determine the maximum or minimum of an absolute value function?		

	How do you use rigid and non-rigid transformations to sketch the graph of an absolute value function? How are step functions similar to linear functions? How are they different? What scenarios might require models other than linear, exponential or quadratic? Why is it important to define some functions over a specific interval?		
Assessments How will we know they have gained the knowledge & skills?	Formative	Summative	Alternative
Unit Pre-Assessment(s) What do they already know?	● Warmup/ Exit Tickets ● Classwork and Homework assignments ● Student self rating ● Communicator responses ● Quizzizs ● Class discussions ● IXL and Khan Academy	● Extension of Functions Test	
Instructional Strategies/Student Activities	● Linear Equations Test ● System of Linear Equations Test ● Fall NWEA MAP Testing results (analyzed by standard, not overall score) ● IXL Diagnostic		
Instructional/Assessment Scaffolds (Modifications /Accommodations) – planned for prior to instruction	● Guided Practice ● Modeling ● Direct Instruction ● Instructional Videos ● Cooperative Learning ● Turn-and-Talk		

	● Reinforcing math skills through games:			
	English Language Learners	**Special Education Learners**	**Struggling Learners**	
Differentiated Instructional Methods: (Multiple means for students to access content and multiple modes for student to express understanding)	● Khan Academy and IXL in set Language ● Vocabulary Wall ● Preferential Seating ● Extra Time on assignments ● Calculator ● Re-take on Tests ● Key words in native language (if available). ● Daily assignment list.	● Assign preferential seating. ● Provide outlines or study guides. ● Re-take on Test and Quizzes ● Extra time on Assignments ● Daily assignment list.	● Provide websites for additional examples. ● Utilize flash cards available for graphs of each special function ● Daily assignment list	● Desmos Extension
	Access (Resources and/or Process)		**Expression (Products and/or Performance)**	
Vocabulary Highlight key vocabulary (both Tier II and Tier III words)	● Weekly Conference ● Assign Specific/ targeted IXL lesson based on progress ● Assign specific/ targeted khan Academy lessons based on progress			

Integration of Technology SAMR	Tier II- Solve, Analyze, Variable, Term, Constant, Coefficient, Origin, Equation, Coordinate Plane, Axis, Inverse, Graph, , Tier III- absolute value, vertex, maximum, minimum, rigid, non-rigid, symmetry, transformations, translation, reflection, dilation, Piece Wise, Domain, Range, Exponential, Quadratic, Cubic, Square Root
Interdisciplinary Connections NJ Student Learning Standards	A- Graphing Calculator S/A –Use mathematical videos on Khan Academy to review the pre-algebra skills and Algebra Skills. S/A –Use IXL to review the pre-algebra skills and Algebra Skills. A – Create an online worksheet or formative assessment on Google Forms. A- Use Kahoot as a Review A- Use Quiziz as a review or formative assessment S/A/M- Use Desmos to introduce a lesson and as an extension of the lesson S/A- Math Games to reinforce skills
21st Century Themes/Skills P21 Framework	Technology: NJ SLS 8.1.12.B.2: Apply previous content knowledge by creating and piloting a digital learning game or tutorial. NJ SLS 8.1.12.F.1: Use geographic mapping tools to plan and solve problems. NJ SLS 8.2.12.E.3: Using a simple, visual programming language, create a program using loops, events and procedures to generate specific output. NJ SLS 8.2.12.E.4: Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements). Career Practices: 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. Career Awareness: NJ SLS 9.2.12.C.3: Identify transferable career skills and design alternate career plans. NJ SLS 9.2.12.C.4: Analyze how economic conditions and societal changes influence employment trends and future education. NJ SLS 9.2.12.C9: Analyze the correlation between personal and financial behavior and employability Interdisciplinary:

	NJ SLS.W.9-10.1.A: Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. NJ SLS.W.9-10.1.C: Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.	
	Themes	**Skills**
Resources/Materials	Critical Thinking and Problem Solving Communication and Collaboration Life and Career Skills	Financial, Economic Business, Entrepreneurial Literacy

Course Title: Math 8: Algebra 1				
Unit Title	Unit 7: Exponential Functions		Start Date:	March
			Length of Unit:	4 weeks
Content Standards What do we want them to know, understand, & do?	Major: 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,	Learning Goals	Students will be able to: Identify and describe the characteristics of an exponential function Identify, describe, and graph exponential growth Identify, describe, and graph exponential decay Perform operations on polynomial expressions.	

	subtract, and multiply polynomials. 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. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity. F.IF.B.5. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers		

	would be an appropriate domain for the function. A.SSE.A.1. Interpret expressions that represent a quantity in terms of its context A.SSE.A.1a: Interpret parts of an expression, such as terms, factors, and coefficients. A.SSE.A.1b: Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret P(1+r)n as the product of P and a factor not depending on P. F.IF.A.3. Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by f(0) = f(1) = 1, f(n+1) = f(n) + f(n-1) for n ≥ 1. Supporting Standards: F.LE.A.1. Distinguish between situations that can be modeled with		

	linear functions and with exponential functions. F.LE.A.1a. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. F.LE.A.1b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. F.LE.A.1c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another. F.LE.A.2. Construct linear and exponential functions - including arithmetic and geometric sequences - given a graph, a description of a relationship, or two input-output pairs (include reading these from a table). F.BF.A.1. Write a function that describes a relationship between two		

	quantities. 1a. Determine an explicit expression, a recursive process, or steps for calculation from a context. 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. A.SSE.B.3c. Use the properties of exponents to transform expressions for exponential functions. For example the expression 1.15t can be rewritten as (1.151/12) 12t ≈ 1.01212t to reveal the approximate equivalent monthly interest rate if the annual rate is 15%. F.LE.B.5. Interpret the parameters in a linear or exponential function in terms of a context F.IF.C.9. Compare properties of two functions each represented in a different		

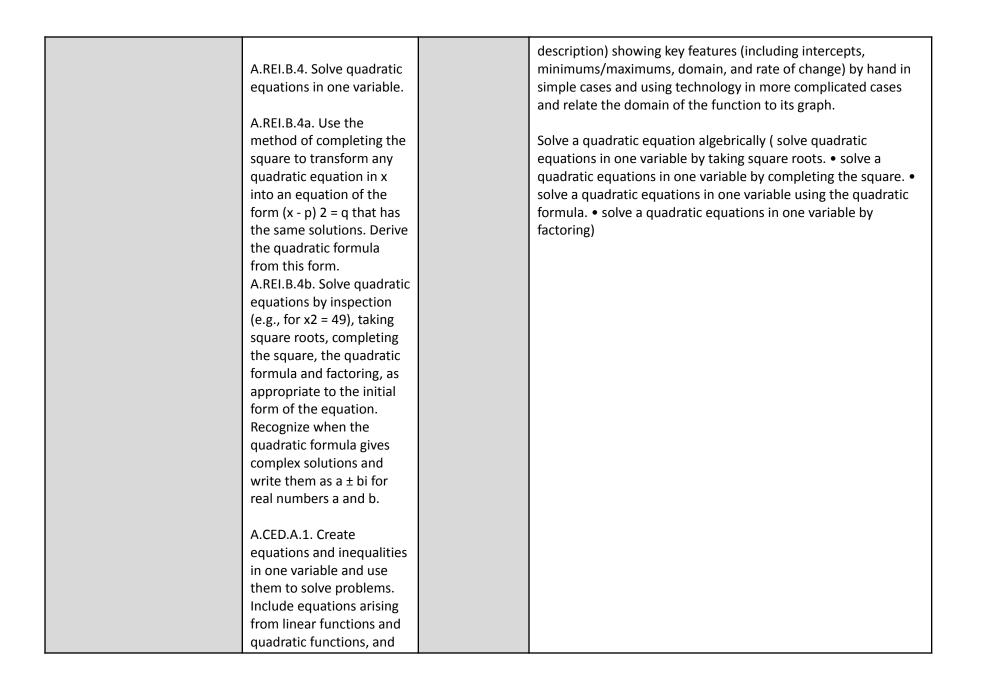|	way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum F.IF.C.7. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. F.IF.C.7a. Graph linear and quadratic functions and show intercepts, maxima, and minima		
Essential Questions	How can you simplify expressions involving exponents? What characterizes exponential growth and decay? What are real world models of exponential growth and decay? How can one differentiate an exponential model from a linear model given a real world set of data?		
Assessments How will we know they have gained the knowledge & skills?	**Formative**	**Summative**	**Alternative**
	Teacher Observation, Class Participation, Warm Ups, Homework, Exit Slips,	Laws of Exponents and Exponential functions test	

	Status Checks, Thumbs Up/Thumbs Down, arts & Reflections		
Unit Pre-Assessment(s) What do they already know?	● All of the Linear Function Tests ● Fall NWEA MAP Testing results (analyzed by standard, not overall score) ● IXL Diagnostic		
Instructional Strategies/Student Activities	● Guided Practice ● Modeling ● Direct Instruction ● Instructional Videos ● Cooperative Learning ● Turn-and-Talk ● Reinforcing math skills through games:		
Instructional/Assessment Scaffolds (Modifications /Accommodations) – planned for prior to instruction	**English Language Learners**	**Special Education Learners**	**Struggling Learners**	**Advanced Learners**
	Label axes Underline/highlight import information in real-world application word problems Define necessary variables Simplify language Accept short answers	Scale graphs accordingly Underline/highlight important Read passages aloud Allow additional time Shorten assignments Retakes Daily assignment lists	Provide multiple study guides prior to assessments with teacher's answer key as a reference Multiple texts (leveled reading for real world application word problems) Scale graphs accordingly Interactive notebooks Graphic organizers for key objectives in this unit	Tiered projects Multiple texts to compare and contrast methods and solution possibilities Tiered homework assignments

		Demonstrations of key concepts Reworded, bulleted questions for word problems that students write equations from		
Differentiated Instructional Methods: (Multiple means for students to access content and multiple modes for student to express understanding)	**Access (Resources and/or Process)**		**Expression (Products and/or Performance)**	
	● Weekly Conference ● Assign Specific/ targeted IXL lesson based on progress ● Assign specific/ targeted khan Academy lessons based on progress		Desmos Extension	
Vocabulary Highlight key vocabulary (both Tier II and Tier III words)	Tier II- Solve, Analyze, Variable, Term, Constant, Tier III- Function, inputs, outputs, domain, range, independent variable, dependent variable, maximum, minimum, symmetry, increasing, decreasing, rate of change, end behavior			
Integration of Technology SAMR	A- Graphing Calculator S/A –Use mathematical videos on Khan Academy to review the pre-algebra skills and Algebra Skills. S/A –Use IXL to review the pre-algebra skills and Algebra Skills. A – Create an online worksheet or formative assessment on Google Forms. A- Use Kahoot as a Review A- Use Quiziz as a review or formative assessment S/A/M- Use Desmos to introduce a lesson and as an extension of the lesson S/A- Math Games to reinforce skills A – Use the calculator to graph different functions and make changes in their notes. Use the research tool to find examples that support their work. R – Students can share the Desmos calculator link to share their graphs and collaborate and create a project (a tutorial or a video where they can create various graphs). Post for discussion.			

| Interdisciplinary Connections
[NJ Student Learning Standards](#) | Technology:
NJ SLS 8.1.12.B.2: Apply previous content knowledge by creating and piloting a digital learning game or tutorial.
NJ SLS 8.1.12.F.1: Use geographic mapping tools to plan and solve problems.
NJ SLS 8.2.12.E.3: Using a simple, visual programming language, create a program using loops, events and procedures to generate specific output.
NJ SLS 8.2.12.E.4: Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements).

Career Practices:
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.

Career Awareness:
NJ SLS 9.2.12.C.3: Identify transferable career skills and design alternate career plans.
NJ SLS 9.2.12.C.4: Analyze how economic conditions and societal changes influence employment trends and future education.
NJ SLS 9.2.12.C9: Analyze the correlation between personal and financial behavior and employability I

nterdisciplinary:
NJ SLS.W.9-10.1.A: Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
NJ SLS.W.9-10.1.C: Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. |

21st Century Themes/Skills [P21 Framework](#)	Themes	Skills
	Financial, Economic, Business, & Entrepreneurial Literacy – students will determine how various items will increase or decrease in monetary value over time due to exponential growth and decay	Life and Career Skills – students will complete real-world applications involving finances and investments and determine how these factors will contribute to their future situations

	Environmental Literacy – students will use exponential growth/decay to determine the sustainability and growth of bacteria over time in a controlled environment	Communication & Collaboration – students will clearly communicate and defend their decisions and answers to growth/decay problems Information Literacy – students will research the current net worth of two different companies and use this information along with a hypothetical situation to determine if the company will gain or lose value over an allotted amount of time
Resources/Materials	IXL, Khan Academy, Desmos,Quizizz , Kahoot, Released Items PARCC, njctl, Illuminations , Algebra 1 Coach Books, Spiral Notebook, Pencil, Chromebook, Larson Algebra 1 Book	

Course Title: Math 8: Algebra 1			
Unit Title	Unit 8: Factoring and Quadratic Functions	Start Date:	April
		Length of Unit:	6 weeks
Content Standards What do we want them to know, understand, & do?	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).	Learning Goals	Students will be able to: interpret parts of expressions in terms of context including those that represent square and cube roots; use the structure of an expression to identify ways to write it. Sketch the graph of a function that models a relationship between two quantities (expressed symbolically or from a verbal

	A.REI.B.4. Solve quadratic equations in one variable. A.REI.B.4a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)2 = q$ that has the same solutions. Derive the quadratic formula from this form. A.REI.B.4b. Solve quadratic equations by inspection (e.g., for $x2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a ± bi$ for real numbers a and b. A.CED.A.1. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear functions and quadratic functions, and		description) showing key features (including intercepts, minimums/maximums, domain, and rate of change) by hand in simple cases and using technology in more complicated cases and relate the domain of the function to its graph. Solve a quadratic equation algebrically (solve quadratic equations in one variable by taking square roots. • solve a quadratic equations in one variable by completing the square. • solve a quadratic equations in one variable using the quadratic formula. • solve a quadratic equations in one variable by factoring)

	simple rational and exponential functions. 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. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity. F.IF.B.5. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers		

	would be an appropriate domain for the function

F.IF.C.9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.

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.

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. Include recognizing even and odd functions from their graphs and algebraic expressions for them. A.REI.D.11. Explain why the x coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions. Supporting Standards: 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. A.SSE.B.3a. Factor a quadratic expression to reveal the zeros of the function it defines. A.SSE.B.3b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.

F.BF.A.1. Write a function that describes a relationship between two quantities. F.BF.A.1a: Determine an explicit expression, a recursive process, or steps for calculation from a context.

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. F.IF.C.7a. Graph linear and quadratic functions and show intercepts, maxima, and minima. *[emphasize quadratic functions] | | |

| | 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.

F.IF.C.8a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret t

F.LE.A.3. Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.

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. *[Algebra 1: limit to quadratic and cubic functions in which linear | | |

	and quadratic factors are available] Mathematical Practices: MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments & critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.		
Essential Questions	How do the arithmetic operations on numbers extend to polynomials? What do the factors of a quadratic reveal about the function? What does completing the square reveal about a quadratic function? What is the graph of a quadratic function? What are its properties?		
Assessments How will we know they have gained the knowledge & skills?	**Formative**	**Summative**	**Alternative**
	- Warmup/ Exit Tickets - Classwork and Homework assignments - Student self rating	- Solving Quadratic Functions Test - Graphing Quadratic Functions Test - Projectile Motion Test	

	- Communicator responses - Quizzizs - Class discussions - IXL and Khan Academy
Unit Pre-Assessment(s) What do they already know?	- Polynomials Test - Fall NWEA MAP Testing results (analyzed by standard, not overall score) - IXL Diagnostic
Instructional Strategies/Student Activities	- Guided Practice - Modeling - Direct Instruction - Instructional Videos - Cooperative Learning - Turn-and-Talk - Reinforcing math skills through games:

Instructional/Assessment Scaffolds (Modifications /Accommodations) – planned for prior to instruction	English Language Learners	Special Education Learners	Struggling Learners	Advanced Learners
	Provide study guides with teacher notes and tips prior to assessments Allow the use of graphing calculators on all assessments Provide leveled texts for projectile motion and word problems Provide students with different forms of quadratic equations.	Allow students the use of the graphing calculator for all assessments Enhanced directions on homework assignments and assessments Present projectile motion questions and other word problems using leveled text	Highlight/underline key words in directions or word problems Present projectile motion question and other word problems in bullet point form Shorten homework assignments Include multiple-choice questions on assessments Provide students with different forms of quadratic equations with descriptions in native language (if possible)	Flexible grouping Extensions/side-bar studies using quadratic functions and factoring Independent study with one-on one conferences to offer resources and clarifications

	Graphic organizers for key objectives in this unit Reword projectile motion and word problems in simplified (or native) language when possible Provide sentence frames for projectile motion answers Pre-teach key vocabulary words and provide visual representations when possible Provide students will filled in teacher notes to use as a guide	Provide students with different forms of quadratic equations Learning stations to differentiate different ways to solve a quadratic (Quadratic Formula, graphing, factoring…) Read longer passages and word problems aloud	Graphic organizers for key objectives in this unit Concrete examples of when and how to use the Quadratic Formula Interactive Notebooks Multiple texts with leveled reading for projectile motion and word problems

Differentiated Instructional Methods: (Multiple means for students to access content and multiple modes for student to express understanding)	**Access (Resources and/or Process)**	**Expression (Products and/or Performance)**
	● Weekly Conference ● Assign Specific/ targeted IXL lesson based on progress ● Assign specific/ targeted khan Academy lessons based on progress	Desmos
Vocabulary Highlight key vocabulary (both Tier II and Tier III words)	Tier II- Solve, Analyze, Variable, Term, Constant, Vertex form, Intercepts, Maximum, Minima, Tier III- Quadratic, Parabola, Factor, Zeros, Quadratic Formula, Zero Product Property, Completing the Square, Extreme values, Interval, Polynomial	

Integration of Technology [SAMR](#)	A- Graphing Calculator S/A –Use mathematical videos on Khan Academy to review the pre-algebra skills and Algebra Skills. S/A –Use IXL to review the pre-algebra skills and Algebra Skills. A – Create an online worksheet or formative assessment on Google Forms. A- Use Kahoot as a Review A- Use Quiziz as a review or formative assessment S/A/M- Use Desmos to introduce a lesson and as an extension of the lesson S/A- Math Games to reinforce skills M – Have a discussion board on Google classroom from a shared video that relates to the mathematical reasoning behind solving equations. Students must post one discussion and comment on two other students discussions. R – Students create their own tutorial using online video technology to share with their peers on Google classroom.
Interdisciplinary Connections [NJ Student Learning Standards](#)	Technology: NJ SLS 8.1.12.B.2: Apply previous content knowledge by creating and piloting a digital learning game or tutorial. NJ SLS 8.1.12.F.1: Use geographic mapping tools to plan and solve problems. NJ SLS 8.2.12.E.3: Using a simple, visual programming language, create a program using loops, events and procedures to generate specific output. NJ SLS 8.2.12.E.4: Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements). Career Practices: CRP2: Apply appropriate academic and technical skills. CRP4. Communicate clearly and effectively and with reason. CRP6. Demonstrate creativity and innovation. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. Career Awareness: NJ SLS 9.2.12.C.4: Analyze how economic conditions and societal changes influence employment trends and future education. Interdisciplinary:

	NJ SLS.W.9-10.1.A: Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. NJ SLS.W.9-10.1.C: Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. NJ SLS.S.HS-PS2-1: Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration. NJ SLS.S.HS-PS2-2: Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system. NJ SLS.S.HS-PS2-4: Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

21st Century Themes/Skills P21 Framework	Themes	Skills
	Global Awareness – discover the impact of outside forces and gravity on objects in projectile motion	Critical Thinking and Problem Solving- Prove that one quadratic equation can be solved in a variety of ways using a wide range of methods. Life and Career Skills – partner assignments allow students to use multiple points of view to identify alternative solutions.

Resources/Materials	IXL, Khan Academy, Desmos,Quizizz , Kahoot, Released Items PARCC, njctl, Illuminations , Algebra 1 Coach Books, Spiral Notebook, Pencil, Chromebook, Larson Algebra 1 Book

Course Title: Math 8: Algebra 1				
Unit Title	Unit 9: Statistics		Start Date:	May
			Length of Unit:	3-4 weeks
Content Standards What do we want them to know, understand, & do?	S.ID.A.1. Represent data with plots on the real number line (dot plots, histograms, and box plots). S.ID.A.2. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. S.ID.A.3. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers). Supporting Standards: S.ID.B.5. Summarize categorical data for two categories in two-way	Learning Goals	Students will be able to interpret the slope (rate of change) and intercept (constant term) of a linear model in the context of the data, compute (using technology) and interpret the correlations of a linear fit, and distinguish between correlations and causation. (NJ SLS.S.ID.C.7, NJ SLS.S.ID.C.8, NJ SLS.S.ID.C.9)	

	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. S.ID.B.6. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. S.ID.B.6a. Fit a function to the data (including the use of technology); use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models. S.ID.B.6b. Informally assess the fit of a function by plotting and analyzing residuals, including with the use of technology		

Essential Questions	How do various representations of data lead to different interpretations of the data?
	When and how can extreme data points impact interpretation of data?
	Why are multiple sets of data used?
	How are center and spread of data sets described and compared?
	How is a data set represented in a two-way frequency table summarized?
	When is it appropriate to use causation or correlation?
	How can technology help to determine whether a linear model is appropriate in a given situation?

Assessments How will we know they have gained the knowledge & skills?	Formative	Summative	Alternative
	● Warmup/ Exit Tickets ● Classwork and Homework assignments ● Student self rating ● Communicator responses ● Quizzizs ● Class discussions ● IXL and Khan Academy ● Self Correcting Worksheets ● Walk arounds/ Scavenger hunts ● Spiral Review Quizze	Algebra Statistics Test	

Unit Pre-Assessment(s) What do they already know?	● Statistics Pre Test ● Winter NWEA MAP Testing results (analyzed by standard, not overall score) ● IXL Diagnostic

Instructional Strategies/Student Activities	● Guided Practice ● Modeling ● Direct Instruction ● Instructional Videos ● Cooperative Learning

	● Turn-and-Talk ● Communicators ● Learning Centers ● Reinforcing math skills through games ● Examining Errors in Reasoning		
Instructional/Assessment Scaffolds (Modifications /Accommodations) – planned for prior to instruction	**English Language Learners**	**Special Education Learners**	**Struggling Learners** / **Advanced Learners**
	Allow use of graphing calculator Interactive notebooks Graphic organizers for key objectives in this unit Give oral prompts/cues Reword questions and present information in a simpler context	Preferential seating Flexible grouping Concrete examples of causation versus correlation	Allow use of graphing calculator Learning stations to reiterate and practice the differences and concepts of correlations versus causations Allow the use of graphing calculators / Jigsaw activity for students to reiterate and reteach information to classmates Desmos Activities Tiered homework assignments
Differentiated Instructional Methods: (Multiple means for students to access content and multiple modes for student to express understanding)	**Access (Resources and/or Process)**	**Expression (Products and/or Performance)**	
	● Weekly Conference ● Assign Specific/ targeted IXL lesson based on progress ● Assign specific/ targeted khan Academy lessons based on progress		
Vocabulary Highlight key vocabulary (both Tier II and Tier III words)	Tier II- Solve, Analyze, Variable, Term, Constant, Association, Trend, Dot plot, Histogram, Box Plot, Scatter Plot, Measure of Center, Normal Distribution, Categorical Data, Accuracy, Scale, Quantity		

	Tier III- Joint relative frequency, Marginal relative frequency, Conditional relative frequency, Outlier, Skewed Distribution, Correlation, Coefficient, Two-Way Frequency Table, Standard deviation, Interquartile Range, Line of best fit, Linear regression, Correlation coefficient, Correlation, Causation
Integration of Technology [SAMR](link)	A- Graphing Calculator S/A –Use mathematical videos on Khan Academy to review the pre-algebra skills and Algebra Skills. S/A –Use IXL to review the pre-algebra skills and Algebra Skills. A – Create an online worksheet or formative assessment on Google Forms. A- Use Kahoot as a Review A- Use Quiziz as a review or formative assessment S/A/M- Use Desmos to introduce a lesson and as an extension of the lesson S/A- Math Games to reinforce skills
Interdisciplinary Connections [NJ Student Learning Standards](link)	Technology: NJ SLS 8.1.12.B.2: Apply previous content knowledge by creating and piloting a digital learning game or tutorial. NJ SLS 8.1.12.F.1: Use geographic mapping tools to plan and solve problems. NJ SLS 8.2.12.E.3: Using a simple, visual programming language, create a program using loops, events and procedures to generate specific output. NJ SLS 8.2.12.E.4: Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements). Career Practices: CRP2: Apply appropriate academic and technical skills. CRP3. Attend to personal health and financial well-being CRP4. Communicate clearly and effectively and with reason. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. Career Awareness: NJ SLS 9.2.12.C.3: Identify transferable career skills and design alternate career plans. NJ SLS 9.2.12.C.4: Analyze how economic conditions and societal changes influence employment trends and future education
21st Century Themes/Skills [P21 Framework](link)	

	Financial, Economic, Business, & Entrepreneurial Literacy – compare and contrast the health benefits/costs of different food chains and determine which would be the best investment Civic Literacy – students will learn to evaluate information on various ecosystems to determine living conditions for the animals with outside influences that have a positive or negative effect on them	Critical Thinking and Problem Solving – persevere through problems to find solutions presented in an inquiry fashion Communication & Collaboration - students work in teams to develop solutions to problems.
Resources/Materials	IXL, Khan Academy, Desmos,Quizizz , Kahoot, Released Items PARCC, njctl, Illuminations , Algebra 1 Coach Books, Spiral Notebook, Pencil, Chromebook, Larson Algebra 1 Book	