Algebra 1
Curriculum

This curricula and accompanying instructional materials have been developed to align with the NJSLS and in accordance with the NJ Department of Education's guidelines to include: Curriculum designed to meet grade level expectations, integrated accommodations and modifications for students with IEPs, 504s, ELLs, and gifted and talented students, assessments including benchmarks, formative, summative, and alternative assessments, a list of core instructional and supplemental materials, pacing guide, interdisciplinary connections, integration of 21st century skills, integration of technology, and integration of 21st Century Life and Career standards.

About the Standards

In 1996, the New Jersey State Board of Education adopted the state's first set of academic standards called the Core Curriculum Content Standards. The standards described what students should know and be able to do upon completion of a thirteen-year public school education. Over the last twenty years, New Jersey's academic standards have laid the foundation for local district curricula that is used by teachers in their daily lesson plans.

Revised every five years, the standards provide local school districts with clear and specific benchmarks for student achievement in nine content areas. Developed and reviewed by panels of teachers, administrators, parents, students, and representatives from higher education, business, and the community, the standards are influenced by national standards, research-based practice, and student needs. The standards define a "Thorough and Efficient Education" as guaranteed in 1875 by the New Jersey Constitution. Currently the standards are designed to prepare our students for college and careers by emphasizing high-level skills needed for tomorrow's world.

The New Jersey Student Learning Standards include Preschool Teaching and Learning Standards, as well as nine K-12 standards for the following content areas: **21st Century Life and Careers, Comprehensive Health and Physical Education, English Language Arts, Mathematics, Science, Social Studies, Technology, Visual and Performing Arts, World Languages**

The most recent review and revision of the standards occurred in 2014. However, the standards in language arts and math underwent an additional review in 2015 with adoption by the New Jersey State Board of Education in May 2016.

Content Area: Mathematics	
Course Title: Algebra I	**Grade level: 9-11**
Unit 1: Modeling with Linear Equations and Inequalities	**September - October**
Unit 2: Modeling with Linear Functions, Linear Systems, & Exponential Functions	**November-January**
Unit 3: Quadratic Equations, Functions & Polynomials	**February- April**
Unit 4: Modeling with Statistics	**May-June**
Date Created:	**Board Approved On:**

Lower Cape May Regional School District (Insert Subject/Content Area) Curriculum
Unit 1 Overview

Content Area: Mathematics

Unit Title: **Modeling with Linear Equations and Inequalities**

Target Course/Grade Level: 9, 10, 11

Unit Summary:

In unit 1 we will:

- Perform arithmetic operations on polynomials
- Understand the relationship between zeros and factors
- Interpret the structure of expressions
- Solve equations and inequalities in one variable
- Create equations that describe numbers or relationships
- Interpret functions that arise in applications in terms of the context
- Represent and solve equations and inequalities graphically
- Build a function that models a relationship between two quantities
- Construct & compare linear, quadratic, & exponential models
- Build new functions from existing functions
- Analyze functions using different representation

- Use properties of rational and irrational numbers

Interdisciplinary Connections
Economics, business, financing, geometry, literacy, science
CRP.K-12.CRP2 Apply appropriate academic and technical skills.
CRP.K-12.CRP4 Communicate clearly and effectively and with reason.
CRP.K-12.CRP11 Use technology to enhance productivity.
CRP.K-12.CRP8 Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP7 Employ valid and reliable research strategies.
TECH.8.1.12.A.3 Collaborate in online courses, learning communities, social networks or virtual worlds to discuss a resolution to a problem or issue.
TECH.8.1.12.F.1 Evaluate the strengths and limitations of emerging technologies and their impact on educational, career, personal and or social needs

21st Century Themes, Skills, and Standards:
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

Learning Targets	
CPI #	**Cumulative Progress Indicators (CPI) for Unit**
A.REI.B.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
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.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.

	Interpret expressions that represent a quantity in terms of its context.
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 simple rational and exponential functions.
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.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.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). [Focus on linear equations.]
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, absolute value, exponential, and logarithmic functions.* [Focus on linear equations.]

Unit Enduring Questions: ● How do you solve linear inequalities and equations in one variable? ● What are the different parts of an expression? ● What is a scatter plot and what can it be used to determine? ● How do you solve systems of equations?	**Unit Enduring Understandings:** ● Solve linear equations and inequalities in one variable (including literal equations); justify each step in the process. ● Interpret terms, factors, coefficients, and other parts of expressions in terms of a context . ● Equations and inequalities describe relationships. ● Equations can represent real-world and mathematical problems. ● Equations represent quantitative relationships ● Scatter plots represent the relationship between two variables. ● Scatter plots can be used to determine the nature of the association between the variables. ● Linear models may be developed by fitting a linear function to approximately linear data. ● The correlation coefficient represents the strength of a linear association. ● $y = f(x)$, $y=g(x)$ represent a system of equations ● Systems of equations can be solved graphically ●

Unit Objectives:

Students will know….

- Literal equations can be rearranged using the properties of equality.
- how to interpret terms, factors, coefficients, and other parts of expressions in terms of a context .
- how to create linear equations and inequalities in one variable and use them in contextual situations to solve problems. Justify each step in the process and the solution.
- How to create linear equations in two variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
- How to represent data on a scatter plot, describe how the variables are related and use technology to fit a function to data.
- How to interpret the slope, intercept, and correlation coefficient of a data set of a linear model; distinguish between correlation and causation.
- Explain why the solutions of the equation $f(x) = g(x)$ are the x-coordinates of the points where the graphs of the linear equations $y=f(x)$ and $y=g(x)$ intersect
- Find approximate solutions of $f(x) = g(x)$, where $f(x)$ and $g(x)$ are linear functions, by making a table of values, using technology to graph and finding successive approximations.

Unit Objectives:

Students will be able to…...

- solve linear equations with coefficients represented by letters in one variable
- use the properties of equality to justify steps in solving linear equations
- solve linear inequalities in one variable.
- rearrange linear formulas and literal equations, isolating a specific variable.
- identify different parts of an expression, including terms, factors and constants.
- explain the meaning of parts of an expression in context.
- identify and describe relationships between quantities in word problems.
- create linear equations in one variable.
- create linear inequalities in one variable.
- use equations and inequalities to solve real world problems.
- explain each step in the solution process.
- identify and describe relationships between quantities in word problems.
- create linear equations in one variable.
- create linear inequalities in one variable.
- use equations and inequalities to solve real world problems.
- explain each step in the solution process.
- create linear equations in two variables, including those from a context.
- select appropriate scales for constructing a graph.
- interpret the origin in graphs.
- graph equations on coordinate axes, including labels and scales.
- identify and describe the solutions in the graph of an equation.
- distinguish linear models representing approximately linear data from linear. equations representing “perfectly” linear relationships.
- create a scatter plot and sketch a line of best fit.
- fit a linear function to data using technology.
- solve problems using prediction equations.
- interpret the slope and the intercepts of the linear model in context.
- determine the correlation coefficient for the linear model using technology.
- determine the direction and strength of the linear

		association between two variables. • explain the relationship between the x-coordinate of a point of intersection and the solution to the equation $f(x) = g(x)$ for linear equations $y = f(x)$ and $y = g(x)$. • find approximate solutions to the system by making a table of values, graphing, and finding successive approximations

Lower Cape May Regional School District (Insert Subject/Content Area) Curriculum
Unit 2 Overview

Content Area: Mathematics

Unit Title: **Modeling with Linear Functions, Linear Systems, & Exponential Functions**

Target Course/Grade Level: 9

Unit Summary:

In unit 2:

- Solve linear systems of equations
- Create equations that describe numbers or relationships
- Interpret the structure of expressions
- Represent and solve equations and inequalities graphically
- Construct & compare linear & exponential models
- Interpret expressions for functions in terms of the situation
- Build a function that models a relationship between two quantities
- Understand the concept of a function and use function notation
- Interpret functions that arise in applications in terms of the context
- Analyze functions using different representations

Interdisciplinary Connections:

- Economics, business, financing, geometry, literacy, science

CRP.K-12.CRP2 Apply appropriate academic and technical skills.
CRP.K-12.CRP4 Communicate clearly and effectively and with reason.
CRP.K-12.CRP11 Use technology to enhance productivity.
CRP.K-12.CRP8 Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP7 Employ valid and reliable research strategies.
TECH.8.1.12.A.3 Collaborate in online courses, learning communities, social networks or virtual worlds to discuss a resolution to a problem or issue.
TECH.8.1.12.F.1 Evaluate the strengths and limitations of emerging technologies and their impact on educational, career, personal and or social needs

21st Century Themes, Skills, and Standards:

RP2. 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

Learning Targets

CPI #	Cumulative Progress Indicators (CPI) for Unit
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.
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.
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
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 defined recursively, whose domain is a subset of the integers.

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.
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.
F.IF.B.5	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.
F.IF.B.6	. Calculate and interpret the average rate of change of a function (presented bolically or as a table) over a specified interval. Estimate the rate of change n a graph

Unit Enduring Questions:	**Unit Enduring Understandings:**
● How do you solve a systems of equations algebraically ● What is domain and range? ● Are sequences functions? ● What is the rate of change of a non-linear function?	● Systems of equations can be solved exactly (algebraically) and approximately (graphically). ● F(x) is an element in the range and x is an element in the domain ● Sequences are functions, sometimes defined and represented recursively. Sequences are functions whose domain is a subset of integers. ● · Rate of change of non-linear functions varies.

Unit Objectives: ***Students will know….***	**Unit Objectives:** ***Students will be able to…...***
● how to solve multistep contextual problems by identifying variables, writing equations, and solving systems of linear equations in two variables algebraically and graphically. ● how to graph linear inequalities and systems of linear inequalities in two variables and explain that the solution to the system ● how to Explain the definition of a function, including the relationship between the domain and range. Use function notation, evaluate functions and interpret statements in context ● how to Write linear and exponential functions given a graph, table of values, or written description; construct arithmetic and geometric sequences. ● How to write explicit expressions, recursive processes and steps for calculation from a context that describes a linear or exponential relationship between two quantities. ● How to sketch graphs of linear and exponential functions expressed symbolically or from a verbal description. Show key features and interpret parameters in context. ● properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). ● Calculate and interpret the average rate of change of a function presented symbolically or as a table; estimate the rate of change from a graph.	● identify and define variables representing essential features for the model. ● model real world situations by creating a system of linear equations. ● solve systems of linear equations using the elimination or substitution method. ● solve systems of linear equations by graphing. ● interpret the solution(s) in context. ● model real world situations by creating a system of linear inequalities given a context. ● interpret the solution(s) in context. ● use the definition of a function to determine whether a relationship is a function. ● use function notation once a relation is determined to be a function. ● evaluate functions for given inputs in the domain. ● explain statements involving function notation in the context of the problem ● create arithmetic and geometric sequences from verbal descriptions ● create arithmetic sequences from linear functions. ● create geometric sequences from exponential functions ● identify recursively defined sequences as functions. ● create linear and exponential functions given a graph, a description of a relationship, or a table of values. ● given a context, write an explicit expressions, a recursive process or steps for calculation for linear and exponential relationships ● interpret parts of linear and exponential functions in context ● given a verbal description of a relationship, sketch linear and exponential functions. ● identify intercepts and intervals where the function is positive/negative. ● interpret parameters in context. ● determine the *practical* domain of a function. ● compare key features of two linear functions represented in different ways. ● compare key features of two exponential functions represented in different ways.

		● calculate the rate of change from a table of values or from a function presented symbolically ● estimate the rate of change from a graph.

Lower Cape May Regional School District (Insert Subject/Content Area) Curriculum
Unit 3 Overview

Content Area: Mathematics

Unit Title: **Quadratic Equations, Functions & Polynomials**

Target Course/Grade Level: 9

Unit Summary:

- Perform arithmetic operations on polynomials
- Understand the relationship between zeros and factors
- Interpret the structure of expressions
- Solve equations and inequalities in one variable
- Create equations that describe numbers or relationships
- Interpret functions that arise in applications in terms of the context
- Represent and solve equations and inequalities graphically
- Build a function that models a relationship between two quantities
- Construct & compare linear, quadratic, & exponential models
- Build new functions from existing functions
- Analyze functions using different representations
  - Use properties of rational and irrational numbers

Interdisciplinary Connections:

- Economics, business, financing, geometry, literacy, science

CRP.K-12.CRP2 Apply appropriate academic and technical skills.
CRP.K-12.CRP4 Communicate clearly and effectively and with reason.
CRP.K-12.CRP11 Use technology to enhance productivity.
CRP.K-12.CRP8 Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP7 Employ valid and reliable research strategies.
TECH.8.1.12.A.3 Collaborate in online courses, learning communities, social networks or virtual worlds to discuss a resolution to a problem or issue.
TECH.8.1.12.F.1 Evaluate the strengths and limitations of emerging technologies and their impact on educational, career, personal and or social needs

21st Century Themes, Skills, and Standards:

RP2. 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

Learning Targets

CPI #	Cumulative Progress Indicators (CPI) for Unit
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.
A.SSE.A.2	Use the structure of an expression to identify ways to rewrite it.
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 $x^2 = 49$), 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 $a \pm bi$ 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 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.

F.IF.B.5	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.
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.
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.*

Unit Enduring Questions:	**Unit Enduring Understandings:**
● What are polynomials? ● How do you solve a quadratic equation? ● How do you add, subtract, and multiply polynomials? ● What are the steps for transforming a quadratic equation into vertex form?	● Polynomials form a system analogous to the integers. ● Polynomials are closed under the operations of addition, subtraction, and multiplication. ● Multiple methods for solving quadratic equations ● Transforming a quadratic equation into the form $(x - p)2 = q$ yields an equation having the same solutions

Unit Objectives: ***Students will know……..***	**Unit Objectives:** ***Students will be able to…...***
● Add, subtract, and multiply polynomials, relating these to arithmetic operations with integers. Factor to produce equivalent forms of quadratic expressions in one variable. ● Derive the quadratic formula by completing the square and recognize when there are no real solutions. ● Solve quadratic equations in one variable using a variety of methods (including inspection, taking square roots, factoring, completing the square, and the quadratic formula) and write complex solutions in a ± bi form ● Create quadratic equations in one variable and use them to solve problems ● Interpret key features of quadratic functions from graphs and tables. Given a verbal description of the relationship, sketch the graph of a quadratic function, showing key features and relating the domain of the function to its graph. ● Find approximate solutions of f(x) = g(x), where f(x) is a linear function and g(x) is a quadratic function by making a table of values, using technology to graph and finding successive approximations.	● add and subtract polynomials. • multiply polynomials. • recognize numerical expressions as a difference of squares and rewrite the expression as the product of sums/differences. • recognize polynomial expressions in one variable as a difference of squares and rewrite the expression as the product of sums/differences. ● use the method of completing the square to transform a quadratic equation in x into an equation of the form (x - p)2 = q. • derive the quadratic formula from (x - p)2 = q. • solve a quadratic equations in one variable by inspection. • 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. • strategically select, as appropriate to the initial form of the equation, a method for solving a quadratic equation in one variable. • write complex solutions of the quadratic formula in a ± bi form. • analyze the quadratic formula, recognizing the conditions leading to complex solutions (discriminant). ● create quadratic equations in one variable. • use quadratic equations to solve real world problems. ● interpret maximum/minimum and intercepts of quadratic functions from graphs and tables in the context of the problem. • sketch graphs of quadratic functions given a verbal description of the relationship between the quantities. • identify intercepts and intervals where function is increasing/decreasing • determine the practical domain of a function.

		approximate the solution(x) to a system of equations comprised of a linear and a quadratic function by using technology to graph the functions, by making a table of values and/or by finding successive approximations.

Lower Cape May Regional School District (Insert Subject/Content Area) Curriculum **Unit 4 Overview**
Content Area: Mathematics
Unit Title: **Modeling with Statistics**

Target Course/Grade Level: 9

Unit Summary:

- Summarize, represent, and interpret data on a single count or measurement variable
- Summarize, represent, and interpret data on two categorical and quantitative variables
- Interpret functions that arise in applications in terms of the context

Interdisciplinary Connections:

- History and social sciences, sciences, engineering, sports, game theory, language arts
  - CRP.K-12.CRP2 Apply appropriate academic and technical skills.
  - CRP.K-12.CRP4 Communicate clearly and effectively and with reason.
  - CRP.K-12.CRP11 Use technology to enhance productivity.
  - CRP.K-12.CRP8 Utilize critical thinking to make sense of problems and persevere in solving them.
  - CRP.K-12.CRP7 Employ valid and reliable research strategies.
  - TECH.8.1.12.A.3 Collaborate in online courses, learning communities, social networks or virtual worlds to discuss a resolution to a problem or issue.
  - TECH.8.1.12.F.1 Evaluate the strengths and limitations of emerging technologies and their impact on educational, career, personal and or social needs

21st Century Themes, Skills, and Standards:

RP2. 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

Learning Targets

CPI #	Cumulative Progress Indicators (CPI) for Unit
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.
F.IF.B.5	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.
S.ID.B.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.
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.

Unit Enduring Questions: ● How do you interpret the data distribution? ● What is the definition of a standard deviation? ● What are the categorical variables?	**Unit Enduring Understandings:** ● Appropriate use of a statistic depends on the shape of the data distribution. • Standard deviation ● Categorical variables represent types of data which may be divided into groups
Unit Objectives: ***Students will know….*** ● Interpret key features of functions from graphs and tables. Given a verbal description of the relationship, sketch the graph of a function, showing key features and relating the domain of the function to its graph. ● Summarize and interpret categorical data for two categories in two-way frequency tables; explain possible associations and trends in the data	**Unit Objectives:** ***Students will be able to…...*** ● interpret maximum/minimum and intercepts of functions from graphs and tables in the context of the problem. • sketch graphs of functions given a verbal description of the relationship between the quantities. • identify intercepts and intervals where function is increasing/decreasing. • determine the practical domain of a function . ● construct two-way frequency tables for categorical data. • interpret joint, marginal and conditional

		relative frequencies in context. • explain possible associations between categorical data in two-way tables. • identify and describe trends in the data.

Lower Cape May Regional School District (Insert Subject/Content Area) Curriculum Evidence of Learning

Specific Formative Assessments Utilized in Daily Lessons:

- Big Ideas online assessments
- Observation
- Self-Assessment
- Exit Ticket
- Quiz
- Choral Response
- Think-Pair-Share
- Oral Questioning

Summative Assessment Utilized throughout Units:

- QBA's
- Benchmarks: Big Ideas Quizzes & Tests, Big Ideas online assessments

Modifications for ELL's, Special Education, 504, and Gifted and Talented Students:

- Peer tutoring
- Cooperative Learning Groups
- Modified Assignments
- Differentiated Instruction
- Response to Intervention (www.help4teachers.com)
- Follow all IEP and 504 modifications
- Teacher tutoring

Teacher Notes:

- As required by the NJ Department of Education, teachers in all content areas will integrate the 21st Century Life and Careers Standards. As the NJDOE indicates, "Providing New Jersey students with the life and career skills needed to function optimally within this dynamic context is a critical focus and organizing principle of K-12 public education. New Jersey has both an obligation to prepare its young people to thrive in this environment, and a vested economic interest in grooming an engaged citizenry made up of productive members of a global workforce that rewards innovation, creativity, and adaptation to change." The links below indicate the CPIs for grade ranges and need to be addressed throughout the units of study:

  Life and Career Standards

- As indicated in the NJSLS, standards and interdisciplinary connections will be integrated throughout content area curriculum. Links to relevant content standards can be found below:

http://www.corestandards.org/Math/

Project-based Learning Tasks:

- Several will be utilized throughout the curriculum - provided by Big Ideas curriculum, as well as original tasks created by the teacher

Vocabulary:

- In-text vocabulary should be incorporated into every unit. Word journals, vocabulary walls, and/or various other activities should be utilized by the instructor to teach vocabulary.

The Research Process:

- The research process must be integrated within each course curriculum. Student will be provided with opportunities to investigate issues from thematic units of study. As the NJSLS indicate, students will develop proficiency with MLA or APA format as applicable.

Technology:

- Students must engage in technology applications integrated throughout the curriculum. Applicable technology utilized in this curricula are included below:
- Ti-83 Calculators
- Youtube
- Kahn Academy
- Big Ideas

Resources:

Ancillary resources and materials used to deliver instruction are included below:

- Various technology & math websites
- Supplemental material created by the teacher as needed

Differentiation Strategies

Differentiation strategies can require varied amounts of preparation time. High-prep strategies often require a teacher to both create multiple pathways to process information/demonstrate learning and to assign students to those pathways. Hence, more ongoing monitoring and assessment is often required. In contrast, low-prep strategies might require a teacher to strategically create process and product choices for students, but students are allowed to choose which option to pursue given their learning profile or readiness level. Also, a low-prep strategy might be focused on a discrete skill (such as vocabulary words), so there are fewer details to consider. Most teachers find that integration of one to two new low-prep strategies and one high-prep strategy each quarter is a reasonable goal.

Low Prep Strategies (add to list as needed)

Varied journal prompts, spelling or vocabulary lists	Students are given a choice of different journal prompts, spelling lists or vocabulary lists depending on level of proficiency/assessment results.

Anchor activities	Anchor activities provide meaningful options for students when they are not actively engaged in classroom activities (e.g., when they finish early, are waiting for further directions, are stumped, first enter class, or when the teacher is working with other students). Anchors should be directly related to the current learning goals.
Choices of books	Different textbooks or novels (often at different levels) that students are allowed to choose from for content study or for literature circles.
Choices of review activities	Different review or extension activities are made available to students during a specific section of the class (such as at the beginning or end of the period).
Homework options	Students are provided with choices about the assignments they complete as homework. Or, students are directed to specific homework based on student needs.
Student-teacher goal setting	The teacher and student work together to develop individual learning goals for the student.
Flexible grouping	Students might be instructed as a whole group, in small groups of various permutations (homogeneous or heterogeneous by skill or interest), in pairs or individual. Any small groups or pairs change over time based on assessment data.
Varied computer programs	The computer is used as an additional center in the classroom, and students are directed to specific websites or software that allows them to work on skills at their level.
Multiple Intelligence or Learning Style options	Students select activities or are assigned an activity that is designed for learning a specific area of content through their strong intelligence (verbal-linguistic, interpersonal, musical, etc.)

Varying scaffolding of same organizer	Provide graphic organizers that require students to complete various amounts of information. Some will be more filled out (by the teacher) than others.
Think-Pair-Share by readiness, interest, and/or learning profile	Students are placed in predetermined pairs, asked to think about a question for a specific amount of time, then are asked to share their answers first with their partner and then with the whole group.
Mini workshops to re-teach or extend skills	A short, specific lesson with a student or group of students that focuses on one area of interest or reinforcement of a specific skill.
Orbitals	Students conduct independent investigations generally lasting 3-6 weeks. The investigations "orbit" or revolve around some facet of the curriculum.
Games to practice mastery of information and skill	Use games as a way to review and reinforce concepts. Include questions and tasks that are on a variety of cognitive levels.
Multiple levels of questions	Teachers vary the sorts of questions posed to different students based on their ability to handle them. Varying questions is an excellent way to build the confidence (and motivation) of students who are reluctant to contribute to class discourse. Note: Most teachers would probably admit that without even thinking about it they tend to address particular types of questions to particular students. In some cases, such tendencies may need to be corrected. (For example, a teacher may be unknowingly addressing all of the more challenging questions to one student, thereby inhibiting other students' learning and fostering class resentment of that student.)
High Prep Strategies (add to list as needed)	

Cubing	Designed to help students think about a topic or idea from many different angles or perspectives. The tasks are placed on the six sides of a cube and use commands that help support thinking (justify, describe, evaluate, connect, etc.). The students complete the task on the side that ends face up, either independently or in homogenous groups.
Tiered assignment/ product	The content and objective are the same, but the process and/or the products that students must create to demonstrate mastery are varied according to the students' readiness level.
Independent studies	Students choose a topic of interest that they are curious about and wants to discover new information on. Research is done from questions developed by the student and/or teacher. The researcher produces a product to share learning with classmates.
4MAT	Teachers plan instruction for each of four learning preferences over the course of several days on a given topic. Some lessons focus on mastery, some on understanding, some on personal involvement, and some on synthesis. Each learner has a chance to approach the topic through preferred modes and to strengthen weaker areas
Jigsaw	Students are grouped based on their reading proficiency and each group is given an appropriate text on a specific aspect of a topic (the economic, political and social impact of the Civil War, for example). Students later get into heterogeneous groups to share their findings with their peers, who have read about different areas of study from source texts on their own reading levels. The jigsaw technique allows you to tackle the same subject with all of your students while discreetly providing them the different tools they need to get there.
Multiple texts	The teacher obtains or creates a variety of texts at different reading levels to assign strategically to students.

Alternative assessments	After completing a learning experience via the same content or process, the student may have a choice of products to show what has been learned. This differentiation creates possibilities for students who excel in different modalities over others (verbal versus visual).
Modified Assessments	Assessments can be modified in a variety of ways – for example by formatting the document differently (e.g. more space between questions) or by using different types of questions (matching vs. open ended) or by asking only the truly essential questions.
Learning contracts or Personal Agendas	A contract is a negotiated agreement between teacher and student that may have a mix of requirements and choice based on skills and understandings considered important by the teacher. A personal agenda could be quite similar, as it would list the tasks the teacher wants each student to accomplish in a given day/lesson/unit. Both Learning contracts and personal agendas will likely vary between students within a classroom.
Compacting	This strategy begins with a student assessment to determine level of knowledge or skill already attained (i.e. pretest). Students who demonstrate proficiency before the unit even begins are given the opportunity to work at a higher level (either independently or in a group).
Literature circles	Flexible grouping of students who engage in different studies of a piece of literature. Groups can be heterogeneous and homogeneous.
Learning Centers	A station (or simply a collection of materials) that students might use independently to explore topics or practice skills. Centers allow individual or groups of students to work at their own pace. Students are constantly reassessed to determine which centers are appropriate for students at a particular time, and to plan activities at those centers to build the most pressing skills.

Tic-Tac-Toe Choice Board (sometimes called "Think-Tac-Toe"	The tic-tac-toe choice board is a strategy that enables students to choose multiple tasks to practice a skill, or demonstrate and extend understanding of a process or concept. From the board, students choose (or teacher assigns) three adjacent or diagonal. To design a tic-tac-toe board: - Identify the outcomes and instructional focus - Design 9 different tasks - Use assessment data to determine student levels - Arrange the tasks on a tic-tac-toe board either randomly, in rows according to level of difficulty, or you may want to select one critical task to place in the center of the board for all students to complete.

Curriculum development Resources/Instructional Materials:

List or Link Ancillary Resources and Curriculum Materials Here:

- bigideas.com
- kahnacademy.com

Board of Education Approved Text(s)

- List BOE Approved text here