Pre-Calculus 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**

Lower Cape May Regional School District

Pre-Calculus

Grade 11/12

Interdisciplinary Connections
L.11-12.6. Acquire and use accurate general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression. **8.1.12.DA.5: Create data visualizations from large data sets to summarize, communicate, and support different interpretations of real-world phenomena.**
Integration of Technology
9.4.12.TL.1: Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task (e.g., W.11-12.6.). 9.4.12.TL.2: Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data 9.4.12.TL.3: Analyze the effectiveness of the process and quality of collaborative environments. • 9.4.12.TL.4: Collaborate in online learning communities or social networks or virtual worlds to analyze and propose a resolution to a real-world problem (e.g., 7.1.AL.IPERS.6).

21st Century Skills

9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).

9.4.12.CI.2: Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).

9.4.12.CI.3: Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).

9.4.12.CT.1: Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).

9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).

9.4.12.CT.3: Enlist input from a variety of stakeholders (e.g., community members, experts in the field) to design a service learning activity that addresses a local or global issue (e.g., environmental justice).

9.4.12.CT.4: Participate in online strategy and planning sessions for course-based, school-based, or other project and determine the strategies that contribute to effective outcomes.

9.4.12.DC.1: Explain the beneficial and harmful effects that intellectual property laws can have on the creation and sharing of content (e.g., 6.1.12.CivicsPR.16.a).

9.4.12.DC.2: Compare and contrast international differences in copyright laws and ethics.

9.4.12.DC.3: Evaluate the social and economic implications of privacy in the context of safety, law, or ethics (e.g., 6.3.12.HistoryCA.1).

9.4.12.DC.4: Explain the privacy concerns related to the collection of data (e.g., cookies) and generation of data through automated processes that may not be evident to users (e.g., 8.1.12.NI.3).

9.4.12.DC.5: Debate laws and regulations that impact the development and use of software.

9.4.12.DC.6: Select information to post online that positively impacts personal image and future college and career opportunities.

9.4.12.DC.7: Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society (e.g., 6.1.12.CivicsPD.16.a).

9.4.12.DC.8: Explain how increased network connectivity and computing capabilities of everyday objects allow for innovative technological approaches to climate protection.

9.4.12.GCA.1: Collaborate with individuals to analyze a variety of potential solutions to climate change effects and determine why some solutions (e.g., political. economic, cultural) may work better than others (e.g., SL.11-12.1., HS-ETS1-1, HS-ETS1-2, HS-ETS1-4, 6.3.12.GeoGI.1, 7.1.IH.IPERS.6, 7.1.IL.IPERS.7, 8.2.12.ETW.3).

9.4.12.IML.1: Compare search browsers and recognize features that allow for filtering of information. • 9.4.12.IML.2: Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources (e.g., NJSLSA.W8, Social Studies Practice: Gathering and Evaluating Sources.

9.4.12.IML.3: Analyze data using tools and models to make valid and reliable claims, or to determine optimal design solutions (e.g., S-ID.B.6a., 8.1.12.DA.5, 7.1.IH.IPRET.8)

9.4.12.IML.4: Assess and critique the appropriateness and impact of existing data visualizations for an intended audience (e.g., S-ID.B.6b, HS-LS2-4).

9.4.12.IML.5: Evaluate, synthesize, and apply information on climate change from various sources appropriately (e.g., 2.1.12.CHSS.6, S.IC.B.4, S.IC.B.6, 8.1.12.DA.1, 6.1.12.GeoHE.14.a, 7.1.AL.PRSNT.2).

9.4.12.IML.6: Use various types of media to produce and store information on climate change for different purposes and audiences with sensitivity to cultural, gender, and age diversity (e.g., NJSLSA.SL5).

9.4.12.IML.7: Develop an argument to support a claim regarding a current workplace or societal/ethical issue such as climate change (e.g., NJSLSA.W1, 7.1.AL.PRSNT.4).

9.4.12.IML.8: Evaluate media sources for point of view, bias, and motivations (e.g., NJSLSA.R6, 7.1.AL.IPRET.6).

9.4.12.IML.9: Analyze the decisions creators make to reveal explicit and implicit messages within information and media (e.g., 1.5.12acc.C2a, 7.1.IL.IPRET.4).

Career Education

9.2.12.CAP.1: Analyze unemployment rates for workers with different levels of education and how the economic, social, and political conditions of a time period are affected by a recession. • 9.2.12.CAP.2: Develop college and career readiness skills by participating in opportunities such as structured learning experiences, apprenticeships, and dual enrollment programs.
9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth.
9.2.12.CAP.4: Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment.
9.2.12.CAP.5: Assess and modify a personal plan to support current interests and postsecondary plans.
9.2.12.CAP.6: Identify transferable skills in career choices and design alternative career plans based on those skills.
9.2.12.CAP.7: Use online resources to examine licensing, certification, and credentialing requirements at the local, state, and national levels to maintain compliance with industry requirements in areas of career interest.
9.2.12.CAP.8: Determine job entrance criteria (e.g., education credentials, math/writing/reading comprehension tests, drug tests) used by employers in various industry sectors.
9.2.12.CAP.9: Locate information on working papers, what is required to obtain them, and who must sign them.
9.2.12.CAP.10: Identify strategies for reducing overall costs of postsecondary education (e.g., tuition assistance, loans, grants, scholarships, and student loans).
9.2.12.CAP.11: Demonstrate an understanding of Free Application for Federal Student Aid (FAFSA) requirements to apply for postsecondary education.
9.2.12.CAP.12: Explain how compulsory government programs (e.g., Social Security, Medicare) provide insurance against some loss of income and benefits to eligible recipients.
9.2.12.CAP.13: Analyze how the economic, social, and political conditions of a time period can affect the labor market.
9.2.12.CAP.14: Analyze and critique various sources of income and available resources (e.g., financial assets, property, and transfer payments) and how they may substitute for earned income.

9.2.12.CAP.15: Demonstrate how exemptions, deductions, and deferred income (e.g., retirement or medical) can reduce taxable income.
9.2.12.CAP.16: Explain why taxes are withheld from income and the relationship of federal, state, and local taxes (e.g., property, income, excise, and sales) and how the money collected is used by local, county, state, and federal governments.
9.2.12.CAP.17: Analyze the impact of the collective bargaining process on benefits, income, and fair labor practice.
9.2.12.CAP.18: Differentiate between taxable and nontaxable income from various forms of employment (e.g., cash business, tips, tax filing and withholding).
9.2.12.CAP.19: Explain the purpose of payroll deductions and why fees for various benefits (e.g., medical benefits) are taken out of pay, including the cost of employee benefits to employers and self-employment income. • 9.2.12.CAP.20: Analyze a Federal and State Income Tax Return.
9.2.12.CAP.21: Explain low-cost and low-risk ways to start a business.
9.2.12.CAP.22: Compare risk and reward potential and use the comparison to decide whether starting a business is feasible.
9.2.12.CAP.23: Identify different ways to obtain capital for starting a business.

Lower Cape May Regional School District Pre-Calculus Curriculum	
Content Area: Mathematics	
Course Title: Pre-Calculus	**Grade level: 11-12**
Unit 1: Problem Solving and Analyzing Graphs	**Sept- October (40 Days)**
Unit 2: Functions	**Nov-Jan (50 Days)**
Unit 3: Trigonometry	**Feb-Apr (50 Days)**
Unit 4: Analytic Trigonometry/ Limits and Introduction to Calculus	**May- June (40 Days)**
Date Created: 10/22/19	**Board Approved On: 01/23/2020**

Lower Cape May Regional School District Pre-Calculus Curriculum Unit 1 Overview
Content Area: Mathematics
Unit Title: Unit 1 Pre-Calculus- Problem Solving and Analyzing Graphs
Target Course/Grade Level: 11-12
Unit Summary: Unit 1- Students will use their learning to justify their approaches and their steps when solving problems as well as to use their learning to analyze the graph of a real-life function and use their insights to help them make informed decisions about that function.

CPI #	Cumulative Progress Indicators (CPI) for Unit
A-APR4.	Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity $(x2 + y2)2 = (x2 – y2)\ 2 + (2xy)2$ can be used to generate Pythagorean triples.
A-SSE2.	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 $(x2 – y2)(x2 + y2)$.
F-IF4.	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-IF7.	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. a. Graph linear and quadratic functions and show intercepts, maxima, and minima. b. Graph square root, cube root, and piecewise-defined functions, including absolute value functions.
F-BF1.	Write a function that describes a relationship between two quantities. c. (+) Compose functions. For example, if T(y) is the temperature in the atmosphere as a function of height, and h(t) is the height of a weather balloon as a function of time, then T(h(t)) is the temperature at the location of the weather balloon as a function of time.
F-BF3.	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.
F-BF4.	Find inverse functions: a. Solve an equation of the form f(x) = c for a simple function f that has an inverse and write an expression for the inverse. For example, f(x) =2x+3 or f(x) = (x+1)/(x–1) for x ≠1. b. (+) Verify by composition that one function is the inverse of another. c. (+) Read values of an inverse function from a graph or a table, given that the function has an inverse. d. (+) Produce an invertible function from a non-invertible function by restricting the domain.

Unit Enduring Questions: • How do we solve an unfamiliar equation? • How do we know if an expression is completely simplified? • Besides checking our work, what are some strategies to help us gain confidence that we are solving a problem correctly? • Can all transformations of basic functions be represented in a predictable algebraic way?	**Unit Enduring Understandings:** • Solving algebraic equations is a basic exercise in their knowledge of the order of operations. • It can be determined (for the most part) if an expression is (or is not) completely simplified. • Basic rules of equality are the key to ensure accuracy in mathematics. • Transformations of functions can be represented graphically or algebraically. • When is it more appropriate to analyze a function algebraically? Graphically? Graphical representations of functions can provide additional insight into a function's behavior.
Unit Objectives: ***Students will know….*** ● if a relation is a function ● if an equation represents a function ● how to use rational exponents ● the intercepts, domain and range of a function from the graph ● relative maxima and minima ● piecewise functions ● graphs of common functions ● how vertical shifts, horizontal shifts, and reflections move the graph of functions	**Unit Objectives:** ***Students will be able to…...*** ● factoring algebraic expressions containing fractional and negative exponents ● solving quadratic equations by the square root property, completing the square, and the quadratic formula ● determining the most efficient method to use when solving a quadratic equation. ● solving radical equations ● finding the distance between two points ● finding the midpoint of a line segment ● writing the standard form of a circle's equation ● determining the center and radius of a circle whose equation is in standard form ● converting the general form of a circle's equation to standard from ● calculating a line's slope ● writing the point-slope equation of a line ● writing and graphing the slope-intercept equation of a line ● graphing horizontal and vertical lines ● recognizing and using the general form of a line's equation ● using intercepts to graph the general form of a line's equation ● finding slopes and equations of parallel and perpendicular lines ● interpreting slope as a rate of change ● finding the domain and the range of a function

	• determining whether an equation represents a function • evaluating a function • graphing functions by plotting points • using the vertical line test to identify functions • obtaining information about a functions from its graph • identifying intervals on which a function increases, decreases, or is constant • identifying even or odd functions • finding and simplifying a function's difference quotient • finding a functions average rate of change • combining functions • forming composite functions • determining domains for composite functions • writing functions as compositions • verifying inverse functions • finding inverse functions • using the horizontal line test to determine if a function has an inverse function • using the graph of a one-to-one function to graph its inverse function • finding the inverse of a function and graph both functions on the same axes

Lower Cape May Regional School District Pre-Calculus Curriculum Unit 2 Overview
Content Area: Mathematics
Unit Title: Pre-Calculus Unit 2: Functions
Target Course/Grade Level: 11-12
Unit Summary: Students will learn to determine what an "accurate" graph of a polynomial function would look like. Students will then use their learning to investigate important real-world phenomena from a graphical and an algebraic perspective.

CPI #	Cumulative Progress Indicators (CPI) for Unit
N-CN7.	Solve quadratic equations with real coefficients that have complex solutions. N-CN8. (+) Extend polynomial identities to the complex numbers. For example, rewrite x2 + 4 as (x + 2i)(x – 2i).
A-APR3	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.
A-APR6.	Rewrite simple rational expressions in different forms; write a(x)/b(x) in the form q(x) + r(x)/b(x), where a(x), b(x), q(x), and r(x) are polynomials with the degree of r(x) less than the degree of b(x), using inspection, long division, or, for the more complicated examples, a computer algebra system.
F-IF7.	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior. d. (+) Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior. e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.
F-IF8.	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. b. Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of

	change in functions such as y = (1.02)t , y = (0.97)t , y = (1.01)12t, y = (1.2)t/10, and classify them as representing exponential growth or decay.
F-BF5.	(+) Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.
L-FE4.	For exponential models, express as a logarithm the solution to abct = d where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.

Unit Enduring Questions:	**Unit Enduring Understandings:**
● What makes an accurate sketch of a polynomial function? ● What makes a good window for the graph of a polynomial function? ● What is the best way to find the zeros of a polynomial function? ● Why do we need the logarithm function? ● What real-world phenomena are modeled by exponential or logarithmic functions?	● Polynomial and rational functions can be sketched quickly and accurately using nothing but algebraic skills. ● All zeros of a polynomial function can be found by using division to break the function down into the product of linear and quadratic factors. ● Logarithmic functions are the inverse of exponential functions. ● Exponential and logarithmic functions model real-world phenomena. ● Inverse functions allow us to solve equations algebraically
Unit Objectives: *Students will know….*	**Unit Objectives:** ***Students will be able to…...***
● rational numbers ● the most efficient method to use when solving a quadratic equation ● the characteristics of a parabola ● how to use compound interest formulas ● basic logarithmic properties ● the domain of a logarithmic function ● common logarithms ● natural logarithms ● the product rule ● the quotient rule ● the power rule	● adding, subtracting, multiplying, and dividing complex numbers performing operations with square roots of negative numbers ● solving quadratic equations with complex imaginary solutions ● using rational exponents ● factoring algebraic expressions containing fractional and negative exponents ● solving quadratic equations by the square root property, completing the square, and quadratic formula ● solving radical equations

	• graphing parabolas • determining a quadratic function's minimum or maximum value • solving problems involving a quadratic functions minimum and maximum value • finding the domain of rational functions • identify vertical and horizontal asymptotes • evaluating exponential functions • Using like bases to solve exponential equations evaluating functions with base • converting from logarithmic to exponential and vise versa

Lower Cape May Regional School District Pre-Calculus Curriculum Unit 3 Overview
Content Area: Mathematics
Unit Title: Pre-Calculus Unit 3 Trigonometry
Target Course/Grade Level: 11-12
Unit Summary: ● Unit 3- Trigonometry In this unit, students will use their learning to understand the implications of right triangle trigonometry in the unit circle. Students will also use their knowledge of periodic functions to analyze real-life periodic phenomena.

Learning Targets	
CPI #	**Cumulative Progress Indicators (CPI) for Unit**
F-TF8	Prove the Pythagorean identity sin2 (θ) + cos2 (θ) = 1 and use it to find sin(θ), cos(θ), or tan(θ) given sin(θ), cos(θ), or tan(θ) and the quadrant of the angle.
F-TF1	Understand radian measure of an angle as the length of the arc on the

Learning Targets	
CPI #	**Cumulative Progress Indicators (CPI) for Unit**
	unit circle subtended by the angle
F-TF2	Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.
F-TF3	(+) Use special triangles to determine geometrically the values of sine, cosine, tangent for π/3, π /4 and π /6, and use the unit circle to express the values of sine, cosine, and tangent for π –x, π +x, and 2π –x in terms of their values for x, where x is any real number.
F-TF4	+) Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.
F-IF7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. E. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.
F-TF5	Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.
F-TF6	Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.
F-TF7	Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context.

Unit Enduring Questions:	**Unit Enduring Understandings:**
• What does evaluating a trig function at a given angle mean in real life? • How does changing the size of a right triangle affect the sine, cosine and tangent of its angles? • What is the value in knowing trig identities? • How does the unit circle solidify (and enhance) our understanding of trig functions? • What is the purpose of measuring angles in	• Trig functions are ratios of sides of right triangles. • Trig functions evaluated at a certain angle are • constant, regardless of the size of the triangle. • Trig identities allow us to express trig expressions in different, but equivalent ways.

radians? ● What is the relationship between a trig equation and the trig function's graph? ● How can the unit circle begin to explain the graphs of sin, cos, tan, cot, sec and csc?	● The Unit Circle allows us to evaluate trig functions at quadrantal angles. ● Reference angles allow us to evaluate trig functions at angles greater than 90 degrees. - Radians are often a more appropriate way of describing angles. ● Tangent and secant are named after their relationship to the unit circle. ● Changes to the algebraic equation of a function cause predictable changes to the function's graph. ● Basic properties of trig graphs can be linked to a deep understanding of the unit circle and fundamental trig identities.
Unit Objectives: ***Students will know….*** ● the vocabulary of angles ● the domain and range of sine and cosine functions ● fundamental identities ● period properties ● definition of functions of any angle ● signs of the trigonometric functions ● reference angles ● the inverse sine function ● the inverse cosine function ● the inverse tangent function	**Unit Objectives:** ***Students will be able to…...*** ● using degree and radian measure ● drawing angles in standard position ● finding conterminal angles converting between degrees and radians ● finding the length of a circular arc ● using a unit circle to define trigonometric functions of real numbers ● using a unit circle to find values of the trigonometric functions ● finding exact values at 4 ● using even and odd trigonometric functions ● evaluating trigonometric functions with a calculator ● evaluating trigonometric functions using right triangles ● Finding values for 30 (6), 45 (4), 60 (3) ● using equal cofunctions of complements ● using right angle trigonometry to solve applied problems ● evaluating trigonometric functions using reference angles ● understanding the graph of y=sin(x) ● understanding the graph of y=cos(x) ● graphing variations of y=sin(x) ● understanding the graph of y=cos(x) ● graphing variations of y=cos(x) ● evaluating inverse trigonometric functions using a calculator ● finding exact values of composite functions with inverse trigonometric functions

Lower Cape May Regional School District Pre-Calculus Curriculum Unit 4 Overview
Content Area: Mathematics
Unit Title: Pre-Calculus Unit 4 Analytic Trigonometry/ Limits and Introduction to Calculus
Target Course/Grade Level: 11-12
Unit Summary Students will learn to solve trigonometric equations and use trigonometric identities to solve various problems. By the end of the unit students will demonstrate their ability to calculate limits algebraically and estimate limits from graphs and tables of values.

Learning Targets	
CPI #	**Cumulative Progress Indicators (CPI) for Unit**
F.TF.C.8	Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant of the angle
F.TF.C.9	Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.

Unit Enduring Questions:	**Unit Enduring Understandings**
● What approaches can be used to verify an identity? ● What is the best approach?	● Identities are used to evaluate, simplify, and solve trigonometric expressions and equations.
Unit Objectives: ***Students will know….***	**Unit Objectives:** ***Students will be able to…...***
● double-angle formulas ● half-angle formulas ● definition of limit ● Properties of limits	● verifying identities with the fundamental trigonometric identities ● finding all the solutions of a trigonometric equation solving trigonometric equations using identities ● Solving trigonometric equations using a calculator

Lower Cape May Regional School District Pre-Calculus Curriculum **Evidence of Learning**
Specific Formative Assessments Utilized in Daily Lessons: ● Quizzes and activities from the curriculum. Exit tickets
Summative Assessment Utilized throughout Units: ● End of unit assessments
Benchmarks ● Quarterly exams on content
Alternative Assessments ● Allow students the opportunity to show learning through project-based learning ● Allow more time ● Allow re-test in different format ● Use of a word bank

Modifications:

ELLs

- Teacher tutoring
- Peer tutoring
- Cooperative Learning Groups

Special Education

- Modified Assignments
- Modified texts
- Differentiated Instruction
- Response to Intervention (www.help4teachers.com)

504

- Follow all IEP and 504 modifications
- Use of Adaptive Technology

Gifted and Talented

- Modified assignments
- Modified texts

Students At Risk of Failure

- Allow opportunities to make up missing work and tests
- Use a Parent Communication Log

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.
- Link Research resources here.

Technology:

- Students must engage in technology applications integrated throughout the curriculum. Applicable technology utilized in this curricula are included below:
- Use of Graphing Calculators

Resources:

PreCalculus Mathematics For Calculus- Engage Learning by Stewart, Redlin, and Watson

Adapting AP Mathematics Questions as a Pre-AP Strategy

http://apcentral.collegeboard.com/apc/members/courses/teachers_corner/29924.html

TI-83 or TI-84 Graphing Calculators

Curriculum development Resources/Instructional Materials:
Resources and Curriculum Materials : ● Pre-Calculus Mathematics for Calculus- Engage Learning by Stewart, Redlin, and Watson ● Adapting AP Mathematics Questions as a Pre-AP Strategy ●http://apcentral.collegeboard.com/apc/members/courses/teachers_corner/29924.html ● TI-83 or TI-84 Graphing Calculators
Board of Education Approved Text(s)
Pre-Calculus Mathematics for Calculus- Engage Learning by Stewart, Redlin, and Watson