Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:
Meeting the needs of all students with a proud tradition of academic excellence.

Curriculum Development Timeline

School: Ocean Township High School

Course: College Prep Math

Department: Mathematics

Board Approval	Supervisor	Notes
September 2004	Jennifer Zavacky	Born Date
July 2012	Janet Bluefield	Born Date
August 2017	Nichole Kerney	Revisions
August 2018	Nichole Kerney	Revisions
August 2019	Nichole Kerney	Review

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Pacing Guide			
Week	Marking Period 1	**Week**	Marking Period 3
1	Relations and Functions	11	Exponential and Logarithmic Functions
2	Linear Equations and Functions	12	Exponential and Logarithmic Functions
3	Absolute Value Equations and Inequalities	13	Polynomials and Polynomial Functions
4	Parent Graph Functions and Transformation	14	Polynomials and Polynomial Functions
5	Linear Systems and Matrices	15	Rational Functions and Relations
Week	Marking Period 2	**Week**	Marking Period 4
6	Quadratic Functions	16	Rational Functions and Relations
7	Quadratic Functions	17	College Placement Test Prep
8	Inverse and Radical Functions	18	Trigonometry
9	Inverse and Radical Functions	19	Trigonometry
10	Exponential and Logarithmic Function	20	Trigonometry

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Core Instructional & Supplemental Materials including various levels of Texts
Core Instruction: College Algebra Textbook and Ebook (Cengage, 7th Edition) Supplemental: Kuta, PreCalculus Textbook, 3 Acts Math and Desmos Special Education and ELL Supplemental: IXL Math and Video Tutor-phschool.com

Time Frame	**1 week (5 blocks)**
Topic	
Relations and Functions	
Essential Questions	
1. How do you interpret a graph given a situation? 2. What is a function/relation? 3. What are the different ways to represent a function? 4. Can you write a rule from a table? 5. How do you determine if a relation in a table or graph is a function?	
Enduring Understandings	
1. Function patterns can be represented in two variables. 2. Functional relationship relates the value of one variable, such as y or f(x), to another variable, such as x. 3. Functional relationships can be related visually by graphs, as well as by sets, rules, tables, and mappings.	
Alignment to Standards	
A.CED.2, A.CED.3, F.IF.1, N.Q.1, F.IF.4, F.IF.5, F.IF.7a, F.LE.2	
Learning Activities & Key Concepts and Skills	
1. To interpret, sketch and analyze graphs from various situations (ie time vs distance from home)	

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2. To identify relations and functions
3. To evaluate functions
4. To determine range and domain
5. To utilize function notation, f(x), evaluate and construct tables
6. To use the vertical line test to determine if a relation is a function
7. To write function rules based on real world situations
8. Video tutor – phschool.com
9. Worksheets on f(x), real life situations, writing function rules from words
10. Discussions on graphs, worksheets
11. TI 84 – table, table set up
12. Smartboard Files
13. Desmos Activity on Domain and Range

Assessments

Formative:
- Classwork and Homework
- Teacher Observation
- Graphic Organizer
- Math Scavenger Hunt/Trail

Summative:
- Mid-unit Quizzes
- Topic Tests

Alternative:
- Kahoot/Quizizz
- Individual or group productive struggle assessment during introductory lessons
- Partners or groups on graphs

Career Education

CRP11: Use technology to enhance productivity.

21st Century Skills

9.1.8.C.1: When applying linear functions to variable rates and constant rates students will compare and contrast credit cards and debit cards and the advantages and disadvantages of using each.

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Interdisciplinary Connections
Science: MS-PS3-1: In lessons on comparing distance-time graphs to speed-time graphs students will construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and the speed of an object.
Technology Integration
8.1 Educational Technology- All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge. ● Students will access College Algebra online ebook to further investigate lesson concepts and demonstrate understanding of standards. ● Students will use graphing calculators to use math tools strategically and attend to precision. ● Students will use internet based game sites such as Quizizz, Kahoot and Quizlet live to reflect on their learning progress. ● Supplemental instruction and math games will be presented using IXL Math and Video Tutor-phschool.com. ● Students will use Desmos in order to discover new concepts involving graphing and functions. ● Additional resources and extension activities will be posted on Google Classroom in order to encourage students to reflect on their learning and expand on their knowledge.

Time Frame	**1 week (5 blocks)**
Topic	
Linear Equations and Functions	
Essential Questions	
1. How can mathematical ideas be represented? 2. How are equations, inequalities, and their graphs used to solve real-world problems? 3. Why are relations and functions represented in multiple ways? 4. How does the graph of a given function or relation reflect its characteristics? 5. How is a scatter plot used to analyze trends?	

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Enduring Understandings

1. Linear functions can be used to model real-world situations.
2. Linear functions can be represented, numerically, graphically, and analytically to understand patterns and relationships.
3. Rates of change can be represented mathematically and graphically

Alignment to Standards

F.IF.4, F.IF.5, F.IF.6, F.IF.7b, F.IF.9, A.SSE.1b, A.CED.2, A.CED.3, F.BF.3

Learning Activities & Key Concepts and Skills

1. Analyze and use relations and functions.
2. Identify linear relations and functions.
3. Write linear equations in standard form.
4. Find the rate of change.
5. Write an equation of a line given the slope and a point on the line or two points.
6. Write an equation of a line parallel or perpendicular to a given line.
7. Use scatter plots and prediction equations.
8. Model data using lines of regression.
9. Write and graph piecewise functions.
10. Write and graph step and absolute value functions.
11. Identify and use parent functions. Describe transformations of functions.
12. Graph linear inequalities.
13. Graph absolute value inequalities
14. Desmos Card Sort Linear Functions
15. Applications, constant rate of change

Assessments

Formative:

- Daily Practice Problems
- Class Debate of Approaches/Mathematical Methods
- Entrance/Exit Cards

Summative:

- Mid-unit Quizzes
- Topic Tests

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Alternative:

- Kahoot/Quizizz
- Piecewise Project

Career Education

CRP8: Utilize critical thinking to make sense of problems and persevere in solving them.
CRP11: Use technology to enhance productivity.

21st Century Skills

9.3.ST.2: When determining a regression model that fits data students will use technology to acquire, manipulate, analyze and report data.

Interdisciplinary Connections

Technology Integration

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Time Frame	**1 week (5 blocks)**

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Topic
Absolute Value Equations and Inequalities
Essential Questions
1. How can mathematical ideas be represented? 2. How are equations, inequalities, and their graphs used to solve real-world problems? 3. Why do absolute value equations and inequalities have two answers? 4. How do the answers relate to the graph?
Enduring Understandings
Absolute Value functions can be represented numerically, graphically, and analytically to understand patterns and relationships
Alignment to Standards
A.REI.3, A.REI.10, A.REI.11, A.CED.2, A.CED.3, F.IF.1, F.IF.2, F.IF.4, F.IF.5, F.IF.7b
Learning Activities & Key Concepts and Skills
1. Algebraically solve absolute value equations and inequalities. Graph inequalities. 2. Identify, use, and describe transformation patterns on parent functions. 3. Graph absolute value inequalities 4. Graphing Absolute Value Functions Lab 5. Discover graphically why most absolute value functions have 2 solutions. 6. When do they equations have no solution? Graphically how is this represented?
Assessments
Formative: ● Classwork and Homework ● Teacher Observation ● Class Debate of Approaches/Mathematical Methods ● Math Scavenger Hunt/Trail **Summative:** ● Mid-unit Quizzes

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- Topic Tests

Alternative:

- Kahoot/Quizizz
- Individual or group productive struggle assessment during introductory lessons

Career Education
CRP6: Demonstrate creativity and innovation.
21st Century Skills
Interdisciplinary Connections
Technology Integration
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Time Frame	**1 week (5 blocks)**

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Topic
Parent Graph Functions and Transformations
Essential Questions
1. How are functions and their graphs related? 2. How can technology be used to investigate properties of family functions and their graphs? 3. What are some patterns in the manipulation or changes in functions?
Enduring Understandings
1. Identify patterns of transformations and how the same patterns relate to multiple functions. 2. A variety of families of functions and methods can be used to model and solve real world situation
Alignment to Standards
F.IF.1. F.IF.4, F.IF.7, F.IF.7b, F.BF.3
Learning Activities & Key Concepts and Skills
1. Determine if a relationship represents a function. 2. Determine the domain and range of each function. 3. Determine 1-1 functions. 4. Determine whether a function is odd, even or neither – algebraically or graphically. 5. Graph the basic parent functions; including linear, absolute value, quadratic, square root, cube root, exponential, logarithmic and reciprocal with and without the use of technology. 6. Identify the key characteristic of the parent functions using domain, range, local maxima and minima, global maxima and minima, and intervals of increasing and decreasing. 7. Graph piecewise functions and describe domain and range. 8. Identify key characteristics of a quadratic function; including vertex intercepts, and axis of symmetry, using both algebraic and graphical approaches. 9. Solve real-world problems involving a variety of functions.

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10. Transform functions.
11. CBL Activities – Matching the Graph, Time v. Distance, Modeling Step Functions.
12. Graphing Calculator Discovery – Characteristics of Family of Curves, Effects of Transformations.

Assessments

Formative:
- Teacher Observation
- Graphic Organizer
- Math Scavenger Hunt/Trail
- Entrance/Exit Cards

Summative:
- Mid-unit Quizzes
- Topic Tests

Alternative:
- Kahoot
- Quizizz

Career Education

CRP4: Communicate clearly and effectively with reason.
CRP6: Demonstrate creativity and innovation.
CRP11: Use technology to enhance productivity.

21st Century Skills

Interdisciplinary Connections

Technology Integration

8.1 Educational Technology- All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge.

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Time Frame	**1 week (5 blocks)**

Topic
Linear Systems and Matrices

Essential Questions
1. How do you solve systems of linear equations by graphing? 2. How do you graph systems of linear inequalities? 3. How do you solve systems of equations by substitution? 4. How do you use relationships between the slopes of parallel and perpendicular lines? 5. How do you solve systems of equations using addition-or-subtraction and choose a method for solving a system of equations? 6. How do you use matrices to represent data sets and use matrix operations? 7. How to use matrices to represent changes in the size or position of a polygon? 8. How do you recognize when matrices can be multiplied and find the product of the two matrices? 9. How do you use technology to find the inverses of matrices? 10. How to use inverse matrices to solve systems of equations using the TI-84?

Enduring Understandings

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Students understand and choose the best method of solving systems of linear equations.

Alignment to Standards

A.REI.5, A.REI.6, A.REI.8, A.REI.9, A.REI.10, A.REI.11, A.REI.12, N.VM.6, N.VM.7, N.VM.8, N.VM.9, N.VM.10

Learning Activities & Key Concepts and Skills

1. How to choose between different methods for solving linear systems.
2. Linear systems can be used to solve real-world applications.

Assessments

Formative:
- Classwork and Homework
- Daily Practice Problems
- Class Debate of Approaches/Mathematical Methods
- Entrance/Exit Cards

Summative:
- Mid-unit Quizzes
- Topic Tests

Alternative:
- Kahoot/Quizizz
- Decoding Matrix Project

Career Education

CRP2: Apply appropriate academic and technical skills.
CRP6: Demonstrate creativity and innovation.
CRP11: Use technology to enhance productivity.

21st Century Skills

Interdisciplinary Connections

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Technology Integration
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Time Frame	**2 weeks (10 blocks)**

Topic
Quadratic Functions

Essential Questions
1. How do the coefficients of a quadratic function influence its graph: the direction it opens, its vertex, its line of symmetry, and its y-intercept? 2. How does the equation of a quadratic function determine the translation of a parabola? 3. How do you solve simple quadratic equations by graphing and undoing? 4. How do you solve quadratic equations by factoring? 5. How do you use the quadratic formula to solve quadratic equations? 6. How do you use the discriminant to find the number of real solutions of a quadratic equation?

7. How do you add, subtract and multiply complex numbers?
8. How do you solve problems using quadratic systems?

Enduring Understandings

1. Students should be able to graph and describe the properties of quadratic functions.
2. Students should be able to solve quadratic equations through multiple methods - factoring, graphing, square root, completing the square, quadratic formula
3. Students should be able to find the discriminant, the vertex, zeros of the quadratic function.

Alignment to Standards

F.IF.7.a, F.IF.7.c, F.IF.8, A.APR.1, A.APR.3, A.SSE.3.a, A.SSE.3.b

Learning Activities & Key Concepts and Skills

1. Students should be able to understand how the coefficients of a quadratic function influence its graph: the direction it opens, its vertex, its line of symmetry, and its y-intercept.
2. Students should be able to solve quadratic equations by factoring, quadratic formula and calculator.
3. Students should be able to add, subtract and multiply complex numbers (calculator in complex mode.
4. Graphing Activity in Vertex Form
5. Desmos - Will it hit the hoop?
6. Desmos - Match my Parabola
7. Quizlet live review

Assessments

Formative:

- IXL Practice
- Class Debate of Approaches/Mathematical Methods
- Graphic Organizer
- Math Scavenger Hunt/Trail
- Entrance/Exit Cards

Summative:

- Mid-unit Quizzes
- Topic Tests

Alternative:

- Observation Assessment with Problem-solving
- Kahoot/Quizizz
- Individual or group productive struggle assessment during introductory lessons

Career Education

CRP6: Demonstrate creativity and innovation.
CRP8: Utilize critical thinking to make sense of problems and persevere in solving them.

21st Century Skills

Interdisciplinary Connections

Science: HS-ETS1-2: In this quadratics unit students will design a solution to a complex real-world problem involving maximum/minimum/projectile motion by breaking it down into smaller, more manageable problems that can be solved through engineering.

Technology Integration

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order to encourage students to reflect on their learning and expand on their knowledge.

Time Frame	**2 weeks (10 blocks)**

Topic

Inverses and Radical Functions

Essential Questions

1. How can you choose a model to represent a set of data?
2. How do we apply mathematical principles?
3. What makes an algebraic algorithm both effective and efficient?
4. How do operations affect numbers?

Enduring Understandings

1. Algebraic representations can be used to generalize patterns in mathematics
2. Patterns and relationships can be represented graphically, numerically, symbolically, or verbally

Alignment to Standards

F.IF.4, F.IF.7.b, F.IF.9, F.BF.1.b, F.BF.3, F.BF.4.a, A.SSE.2, A.REI.2, A.REI.11

Learning Activities & Key Concepts and Skills

1. Find the sum, difference, product, quotient, and composition of functions.
2. Find the inverse of a function or relation.
3. Determine whether two functions or relations are inverses algebraically and graphically.
4. Graph and analyze square root functions.
5. Graph square root inequalities.
6. Simplify radicals.
7. Use a calculator to approximate radicals.

8. Use a graphing calculator to graph nth root functions.
9. Simplify radical expressions.
10. Add, subtract, multiply, and divide radical expressions.
11. Write expressions with rational exponents in radical form and vice versa.
12. Simplify expressions in exponential or radical form.
13. Solve equations and inequalities containing radicals.
14. Use a graphing calculator to solve radical equations and inequalities.
15. Miras to show inverse is the reflection over y=x
16. Green Globs activity- square root function.
17. Sketch and graph a given function - state domain and range.
18. Quizzes - radical functions
19. Desmos Polygraph - radical functions

Assessments

Formative:
- Classwork and Homework
- Teacher Observation
- Math Scavenger Hunt/Trail
- Entrance/Exit Cards

Summative:
- Mid-unit Quizzes
- Topic Tests

Alternative:
- Kahoot/Quizizz
- Individual or group productive struggle assessment during introductory lessons

Career Education

CRP4: Communicate clearly and effectively with reason.

21st Century Skills

Interdisciplinary Connections

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Time Frame	**3 weeks (15 blocks)**

Topic
Exponential and Logarithmic Functions

Essential Questions
1. How can an exponential function represent a real-world scenario? 2. How can the properties of logarithms be used to solve equations? 3. Why does simplifying or expanding a logarithmic expression help solve problems?

Enduring Understandings
1. Solving exponential and logarithmic equations 2. Applicable applications for exponential functions, compound interest, continuous

compound interest, growth/decay
3. Applications for natural logarithm and its uses in finance

Alignment to Standards

F.IF, F.IF.7, F.IF.7.e, F.LE.4

Learning Activities & Key Concepts and Skills

1. Evaluate exponential functions and solve logarithmic functions
2. Define the number "e"
3. Use exponential and logarithmic functions to describe real world scenarios including growth and decay. Ex: Interest money problems, population growth, radioactive decay (half-life)
4. Self discovery on properties of logarithms
5. Quizzes and Quizlet Live activities

Assessments

Formative:
- Teacher Observation
- Class Debate of Approaches/Mathematical Methods
- Graphic Organizer
- Entrance/Exit Cards

Summative:
- Mid-unit Quizzes
- Topic Tests

Alternative:
- Kahoot/Quizizz
- Individual or group productive struggle assessment during introductory lessons

Career Education

CRP6: Demonstrate creativity and innovation.
CRP8: Utilize critical thinking to make sense of problems and persevere in solving them.

21st Century Skills

9.1.12.C.2: When learning exponential equations students will compare and compute interest and compound interest. 9.1.12.B.8: In the logarithms unit students will describe and calculate interest and fees that are applied to various forms of spending, debt, and saving in solving equations.
Interdisciplinary Connections
Technology Integration
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Time Frame	**2 weeks (10 blocks)**
Topic	
Polynomials and Polynomial Functions	
Essential Questions	
1. Why is math used to model real-world situations?	

2. How do we use polynomial patterns to make real-world predictions?
3. How can I use the remainder and factor theorems to solve polynomials?

Enduring Understandings

1. The arithmetic of rational expressions is governed by the same rules as the arithmetic of rational numbers.
2. Defining and solving the problem begins by selecting the appropriate procedural tool.
3. The characteristics of polynomial functions and their representations are useful in solving real-world problems.
4. The domain and range of polynomial functions can be extended to include the set of complex numbers.

Alignment to Standards

A.CED.1, A.REI.11, A.APR.2, A.APR.3, A.APR.4, F.FI.7c, N.CN.9

Learning Activities & Key Concepts and Skills

1. Factor polynomial expressions and solve polynomial equations.
2. Evaluate functions by using synthetic substitution.
3. Determine whether a binomials is a factor of a polynomial by using synthetic substitution.
4. Determine the number and type of roots of a polynomial equation.
5. Find the zeros of a polynomial function.
6. Use a graphing calculator to analyze polynomial functions.
7. Identify possible rational zeros of a polynomial function.
8. Find all the rational zeros of a polynomial function
9. Dividing Polynomials Lab
10. Graphing Polynomials Lab
11. Quizlet Live - Solving polynomial equations

Assessments

Formative:

- Daily Practice Problems
- Teacher Observation
- Entrance/Exit Cards

Summative:

- Mid-unit Quizzes
- Topic Tests

Alternative:

- Observation Assessment with Problem-solving
- Kahoot/Quizizz

Career Education

CRP2: Apply appropriate academic and technical skills.
CRP6: Demonstrate creativity and innovation.

21st Century Skills

Interdisciplinary Connections

Technology Integration

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- Supplemental instruction and math games will be presented using IXL Math and Video Tutor-phschool.com.
- Students will use Desmos in order to discover new concepts involving graphing and functions.
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Time Frame	**2 weeks (10 blocks)**

Topic

Rational Functions and Relations

Essential Questions

1. Why are graphs useful?
2. How do we decide which method is most appropriate when solving rational equations?
3. When are asymptotes used to graph rational functions?

Enduring Understandings

1. Multiplying and Dividing Rational Expressions
2. Adding and Subtracting Rational Expressions
3. Solving rational equations
4. Simplified expressions are essential in being able to solve equations.
5. Domain restrictions affect graphing and solving of rational functions.

Alignment to Standards

A.APR.6, A.APR.7, A.CED.1, A.CED.2, F.BF.3, F.IF.9, A.REI.2, A.REI.11

Learning Activities & Key Concepts and Skills

1. Multiply and divide rational expressions, including simplifying complex fractions.
2. Add and subtract rational expressions.
3. Determine properties of reciprocal functions.
4. Graph transformations of reciprocal functions.
5. Use a graphing calculator to explore the graphs of rational functions.
6. Graph rational functions with vertical and horizontal asymptotes.
7. Graph rational functions with oblique asymptotes and point discontinuity.
8. Recognize and solve direct and joint variation problems.
9. Recognize and solve inverse and combined variation problems.
10. Solve rational equations.
11. Solve rational inequalities.

12. Use a graphing calculator to solve rational equations by graphing or by using the table feature.
13. Quizizz Practice - dividing, add/subtract, and solving
14. Desmos - Polygraph Rational Functions
15. Graphing Rational Functions

Assessments

Formative:
- Classwork and Homework
- Teacher Observation
- Entrance/Exit Cards

Summative:
- Mid-unit Quizzes
- Topic Tests

Alternative:
- Kahoot/Quizizz
- Individual or group productive struggle assessment during introductory lessons

Career Education

CRP4: Communicate clearly and effectively with reason.

21st Century Skills

Interdisciplinary Connections

Technology Integration

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- Students will access College Algebra online ebook to further investigate lesson

concepts and demonstrate understanding of standards.

- Students will use graphing calculators to use math tools strategically and attend to precision.
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- Supplemental instruction and math games will be presented using IXL Math and Video Tutor-phschool.com.
- Students will use Desmos in order to discover new concepts involving graphing and functions.
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Time Frame	**1 week (5 blocks)**

Topic

College Placement Test Prep

Essential Questions

1. Why are you taking this test?
2. What does passing/failing mean for your academic career?
3. How can you prepare yourself for the exam/
4. When will you take the exam?
5. Why can't you use a calculator?

Enduring Understandings

1. Test Prep for future exams.
2. Test taking strategies

Alignment to Standards

A.REI.2, A.REI.3, A.REI.4, A.REI.5, A.REI.6, F.IF.4, F.IF.2, N.Q.2

Learning Activities & Key Concepts and Skills

Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:
Meeting the needs of all students with a proud tradition of academic excellence.

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1. Test Taking Strategies
2. What to concentrate your time on in order to be prepared
3. How to contact your future college to schedule exam
4. Main topics on most exams:
    a. Basic Algebra:
        i. Adding and subtracting fractions
        ii. Multiplying and dividing fractions
        iii. Percentages
        iv. Dividing decimals
        v. Long division
    b. Intermediate Algebra:
        i. Quadratics
        ii. Polynomial Operations
        iii. Exponent Rules
        iv. Logarithms
        v. Rational Expressions
        vi. Complex Fractions
        vii. Trigonometry
5. Preparedness for College Placements
6. Game to practice skills in a group setting
7. Practice tests

Assessments

Formative:

- Daily Practice Problems
- IXL Practice
- Teacher Observation
- Class Debate of Approaches/Mathematical Methods
- Graphic Organizer
- Entrance/Exit Cards

Summative:

- Mid-unit Quizzes
- Topic Tests

Alternative:

- Observation Assessment with Problem-solving
- Kahoot/Quizizz

Career Education

Home of the Spartans!
#spartanlegacy

CRP6: Demonstrate creativity and innovation. CRP8: Utilize critical thinking to make sense of problems and persevere in solving them. CRP11: Use technology to enhance productivity.
21st Century Skills
Interdisciplinary Connections
Technology Integration
8.1 Educational Technology- All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge. ● Students will access College Algebra online ebook to further investigate lesson concepts and demonstrate understanding of standards. ● Students will use internet based game sites such as Quizizz, Kahoot and Quizlet live to reflect on their learning progress. ● Supplemental instruction and math games will be presented using IXL Math and Video Tutor-phschool.com. ● Additional resources and extension activities will be posted on Google Classroom in order to encourage students to reflect on their learning and expand on their knowledge.

Time Frame	**3 weeks (15 blocks)**
Topic	
Trigonometry	
Essential Questions	
1. How can I make connections to angles to determine basic trigonometric values? 2. How can I evaluate trigonometric functions at any domain value by connecting	

experiences with special right triangles gained in Geometry?
3. How can I select and apply trigonometric functions to solve problems in contexts that model cyclical behavior?

Enduring Understandings

1. Solving Trigonometric Equations with and without the unit circle
2. Model periodic phenomena with trigonometric functions
3. Extend the domain of trigonometric functions using the unit circle

Alignment to Standards

F.TF.1, F.TF.2, F.TF.5, F.TF.8

Learning Activities & Key Concepts and Skills

1. Draw and find angles in standard position
2. Convert between degree measure and radian measures
3. Find values of trigonometric functions for general angles
4. Find values of trigonometric functions by using reference angles
5. Find the values of trigonometric functions based on the unit circle
6. Use the properties of periodic functions to evaluate trigonometric functions
7. Use trigonometric identities to find trigonometric values
8. Use trigonometric identities to simplify expressions
9. Construct a color coded unit circle
10. Define trigonometric functions using x, y, and r
11. Ferris Wheel Problem
12. Tide Problem
13. Spaghetti Lab
14. Graphing calculator activity discovering properties of periodic functions
15. Quizizz solving equations

Assessments

Formative:

- Classwork and Homework
- Teacher Observation
- Class Debate of Approaches/Mathematical Methods
- Graphic Organizer

- Math Scavenger Hunt/Trail
- Entrance/Exit Cards

Summative:

- Mid-unit Quizzes
- Topic Tests

Benchmark:

- Cumulative final exam with multiple choice, short answer, and extended constructed response questions.

Alternative:

- Observation Assessment with Problem-solving
- Kahoot/Quizizz
- Individual or group productive struggle assessment during introductory lessons

Career Education

CRP6: Demonstrate creativity and innovation.
CRP8: Utilize critical thinking to make sense of problems and persevere in solving them.

21st Century Skills

Interdisciplinary Connections

ELA: W.11-12.1: When students are justifying their reasoning on short answer and extended constructed response questions they write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

Technology Integration

8.1 Educational Technology- All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge.

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Modifications (ELL, Special Education, At-Risk Students, Gifted & Talented, & 504 Plans)

ELL:
- Work toward longer passages as skills in English increase
- Use visuals
- Introduce key vocabulary before lesson
- Teacher models reading aloud daily
- Provide peer tutoring
- Use of Bilingual Dictionary
- Guided notes and/or scaffold outline for written assignments
- Provide students with English Learner leveled readers.

Supports for Students With IEPs:
- Allow extra time to complete assignments or tests
- Guided notes and/or scaffold outline for written assignments
- Work in a small group
- Allow answers to be given orally or dictated
- Use large print books, Braille, or books on CD (digital text)
- Follow all IEP modifications

At-Risk Students:
- Guided notes and/or scaffold outline for written assignments
- Introduce key vocabulary before lesson
- Work in a small group
- Lesson taught again using a differentiated approach
- Allow answers to be given orally or dictated
- Use visuals / Anchor Charts

- Leveled texts according to ability

Gifted and Talented:

- Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)
- Provide options, alternatives and choices to differentiate and broaden the curriculum
- Organize and offer flexible small group learning activities
- Provide whole group enrichment explorations
- Teach cognitive and methodological skills
- Use center, stations, or contracts
- Organize integrated problem-solving simulations
- Propose interest-based extension activities
- Expose students to beyond level texts.

Supports for Students With 504 Plans:

- Follow all the 504 plan modifications
- Text to speech/audio recorded selections
- Amplification system as needed
- Leveled texts according to ability
- Fine motor skill stations embedded in rotation as needed
- Modified or constrained spelling word lists
- Provide anchor charts with high frequency words and phonemic patterns