



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.

DEPARTMENT: Mathematics COURSE: Algebra II

Curriculum Development Timeline

School: Ocean Township High School

Course: Algebra II

Department: Mathematics

Board Approval	Supervisor	Notes
July 2008	Janet Bluefield	Born Date
July 2012	Janet Bluefield	Revisions
August 2017	Nichole Kerney	Revisions
March 2019	Nichole Kerney	Review
August 2022	Gerard Marrone	Alignment to Standards

* Topic completed in Advanced/Honors; in regular level differentiate topics and include if time permits.

** Topic is completed in Honors.





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Township of Ocean Pacing Guide			
Week	Marking Period 1	Week	Marking Period 3
1	Linear Equations & Functions	11	Exponential & Logarithmic Functions & Relations
2	Quadratic Functions & Relations	12	Exponential & Logarithmic Functions & Relations
3	Quadratic Functions & Relations	13	Exponential & Logarithmic Functions & Relations
4	Quadratic Functions & Relations	14	Rational Functions & Relations
5	Polynomials & Polynomial Functions	15	Rational Functions & Relations
Week	Marking Period 2	Week	Marking Period 4
6	Polynomials & Polynomial Functions	16	Rational Functions & Relations
7	Polynomials & Polynomial Functions	17	Conics
8	Polynomials & Polynomial Functions	18	Sequence & Series
9	Inverse & Radical Functions & Relations	19	Statistics & Probability
10	Inverse & Radical Functions & Relations	20	Trigonometry

Core Instructional & Supplemental Materials including various levels of Texts

Core Instruction: Big Ideas Algebra II Textbook and Ebook (Cengage)
Supplemental: IXL, Kuta, PARCC Released Questions, and Desmos
Special Education and ELL Supplemental: Video Tutor-bigideasmath.com

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Time Frame	1 Week (5 blocks)
Topic	
Linear Equations and Functions	
Alignment to Standards	
N.Q.2 , F.IF.4 , F.IF.5 , F.IF.6 , F.IF.7a , F.IF.9 , F.LE.2 , F.LE.5 , F.BF.3 , A.REI.1 , A.REI.6 , A.REI.11 , A.REI.12 , A.SSE.1b , A.CED.2 , A.CED.3	
Learning Objectives and Activities	
<p>SWBAT answer the following questions:</p> <ul style="list-style-type: none">• How are equations, inequalities, and their graphs used to solve real-world problems?• Why are relations and functions represented in multiple ways?• How does the graph of a given function or relation reflect its characteristics?• How many solutions does a system have?• Which method of solving a system works best in a given situation?• Why do some systems have one solution, no solution, or an infinite number of solutions? <p>SWBAT demonstrate understanding of the following:</p> <ul style="list-style-type: none">• Linear functions can be used to model real-world situations.• Algebraic properties govern the fluent manipulation of symbols in expressions, equations, and inequalities.• Linear functions can be represented verbally, numerically, graphically, and analytically to understand patterns and relationships.• Rates of change can be represented mathematically and graphically.• Graphs and equations are alternative (and often equivalent) ways for depicting and analyzing families of linear functions. A variety of families of functions and methods can be used to model and solve real world situations.• Creating a graph is not the same as interpreting the information displayed. <p>Learning Activities:</p> <ul style="list-style-type: none">• Review Summer Packet• CBL Activities- Matching the Graph<ul style="list-style-type: none">○ Time vs Distance○ Piecewise Functions• Using graphing calculator- solve systems• Use communicators or dry erase board sets to graph linear equations	

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Assessments

Formative:

- Classwork
- Teacher Observation
- Entrance/Exit Cards

Summative:

- Mid-unit Quizzes
- Topic Tests

Alternative:

- Project - Determine which is the better product?
- Kahoot/Quizizz

Interdisciplinary Connections

Career Readiness, Life Literacies, and Key Skills

Technology Integration

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.

- 9.4.8.TL.6: Collaborate to develop and publish work that provides perspectives on a real-world problem.

Students will access the Big Ideas online ebook to further investigate lesson concepts and demonstrate understanding of standards.

- 9.4.8.TL.3: Select appropriate tools to organize and present information digitally.

Students will use internet based game sites such as Quizizz, Kahoot, and Quizlet live to reflect on their learning progress.

- 9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems.

Supplemental instruction and math games will be presented using IXL Math and Video Tutor bigideasmath.com.

- 9.4.12.TL.1: Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task

Students will use Google Classroom to collaborate, work towards solving authentic

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problems, or participate in an online classroom discussion utilizing pre-learned etiquette about blended learning platforms.

- 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.

Students will use graphing calculators to use math tools strategically and attend to precision and will use Desmos in order to discover new concepts involving graphing and functions.

- 9.4.8.IML.3: Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping

Career Education

CRP2: Apply appropriate academic and technical skills.

CRP11: Use technology to enhance productivity.

Time Frame	3 Weeks (15 blocks)
Topic	
Quadratic Functions and Relations	
Alignment to Standards	
A.CED.3 , A.REI.1 , A.REI.4.a , A.REI.4.b , A.REI.7 , A.REI.11 , A.SSE.2 , A.SSE.3a , A.SSE.3b , F.IF.7a , F.IF.8a , N.Q.2 , N.CN.1 , N.CN.2 , N.CN.3(+) , *N.CN.4(+) , *N.CN.5(+) , *N.CN.6(+) , N.CN.7 , N.CN.8(+) , N.CN.9(+)	
Learning Objectives and Activities	
<p>SWBAT answer the following questions:</p> <ul style="list-style-type: none"> • Why do we use different methods to solve math problems? • Where in real life do we solve quadratic equations? • How do you know if an equation is quadratic? • How do you know which method to use when solving quadratic equations? • When is it more efficient to use standard form over vertex form (and vice versa) when graphing a parabola? • When do we use quadratic functions to solve everyday problems? • What can we learn about the graph of a quadratic equation? <p>SWBAT demonstrate understanding of the following:</p>	

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- There are several strategies to solve quadratic equations.
- Simplifying expressions and solving equations allow us to take a complex situation and make it simple.
- Quadratic functions model real-world phenomena.
- Using previous knowledge to help you solve problems allows you to grow.
- Mathematical models can be used to describe physical relationships; these relationships are often non-linear.

Learning Activities:

- Use Algebra Tiles to review trinomial patterns
- Solve quadratic equations by finding the zeros on the graphing calculator
- Green Globes- Transformations
- Use graphing calculators- Quad reg & Stat Plot
- Use of communicators or dry erase board sets

Assessments

Formative:

- Daily Practice Problems
- IXL Practice
- Class Debate of Approaches/Mathematical Methods
- Graphic Organizer
- Math Scavenger Hunt/Trail

Summative:

- Mid-unit Quizzes
- Topic Tests
- Problem-based Quiz/Test on projectile motion

Alternative:

- Observation Assessment with Problem-solving finding max and min's in real world.
- Kahoot/Quizizz
- Individual or group productive struggle assessment during introductory lessons

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.

Career Readiness, Life Literacies, and Key Skills

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Technology Integration

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- 9.4.8.TL.6: Collaborate to develop and publish work that provides perspectives on a real-world problem.

Students will access the Big Ideas online ebook to further investigate lesson concepts and demonstrate understanding of standards.

- 9.4.8.TL.3: Select appropriate tools to organize and present information digitally.

Students will use internet based game sites such as Quizizz, Kahoot, and Quizlet live to reflect on their learning progress.

- 9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems.

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- 9.4.12.TL.1: Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task

Students will use Google Classroom to collaborate, work towards solving authentic problems, or participate in an online classroom discussion utilizing pre-learned etiquette about blended learning platforms.

- 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.

Students will use graphing calculators to use math tools strategically and attend to precision and will use Desmos in order to discover new concepts involving graphing and functions.

- 9.4.8.IML.3: Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping

Career Education

CRP6: Demonstrate creativity and innovation.

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

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Time Frame	4 Weeks (20 blocks)
Topic	
Polynomials and Polynomial Functions	
Alignment to Standards	
A.CED.1 , A.REI.4.a , A.REI.4.b , A.REI.11 , A.SSE.2 , A.APR.2 , A.APR.3 , A.APR.4 , F.IF.7c , F.IF.8a , N.CN.9(+)	
Learning Objectives and Activities	
<p>SWBAT answer the following questions:</p> <ul style="list-style-type: none">• Why is math used to model real-world situations?• How do we use polynomial patterns to make real-world predictions?• How can I use the remainder and factor theorems to solve polynomials? <p>SWBAT demonstrate understanding of the following:</p> <ul style="list-style-type: none">• The arithmetic of rational expressions is governed by the same rules as the arithmetic of rational numbers.• Defining and solving the problem begins by selecting the appropriate procedural tool.• The characteristics of polynomial functions and their representations are useful in solving real-world problems.• The domain and range of polynomial functions can be extended to include the set of complex numbers. <p>Learning Activities:</p> <ul style="list-style-type: none">• Algebra Tile Activity to divide polynomials• Dividing Polynomials Lab	
Assessments	
<p><u>Formative:</u></p> <ul style="list-style-type: none">• Classwork and Homework• IXL Practice• Teacher Observation• Class Debate of Approaches/Mathematical Methods• Math Scavenger Hunt/Trail• Entrance/Exit Cards <p><u>Summative:</u></p> <ul style="list-style-type: none">• Mid-unit Quizzes	

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- Topic Tests

Alternative:

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

Interdisciplinary Connections

Career Readiness, Life Literacies, and Key Skills

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

Technology Integration

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.

- 9.4.8.TL.6: Collaborate to develop and publish work that provides perspectives on a real-world problem.

Students will access the Big Ideas online ebook to further investigate lesson concepts and demonstrate understanding of standards.

- 9.4.8.TL.3: Select appropriate tools to organize and present information digitally.

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- 9.4.12.TL.1: Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task

Students will use Google Classroom to collaborate, work towards solving authentic problems, or participate in an online classroom discussion utilizing pre-learned etiquette about blended learning platforms.

- 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.

Students will use graphing calculators to use math tools strategically and attend to precision and will use Desmos in order to discover new concepts involving graphing and functions.

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- 9.4.8.IML.3: Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping

Career Education

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.

Time Frame	2 Weeks (10 blocks)
Topic	
Inverses and Radical Functions and Relations	
Alignment to Standards	
N.RN.1 , N.RN.2 , F.IF.4 , F.IF.7b , F.IF.9 , F.BF.1.b , F.BF.1.c(+) , F.BF.3 , F.BF.4.a , F.BF.4.b(+) , F.BF.4.c(+) , *F.BF.4.d(+) , A.SSE.2 , A.REI.2 , A.REI.11	
Learning Objectives and Activities	
<p>SWBAT answer the following questions:</p> <ul style="list-style-type: none"> How can you choose a model to represent a set of data? How do we apply mathematical principles? What makes an algebraic algorithm both effective and efficient? How do operations affect numbers? <p>SWBAT demonstrate understanding of the following:</p> <ul style="list-style-type: none"> Algebraic representations can be used to generalize patterns in mathematics Patterns and relationships can be represented graphically, numerically, symbolically, or verbally. <p>Learning Activities:</p> <ul style="list-style-type: none"> Miras to show inverse is the reflection over $y=x$ Green Globbs activity- square root function Sketch and graph a given function- state domain and range Use communicators or dry erase board set 	

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Assessments

Formative:

- Classwork and Homework
- IXL Practice
- Teacher Observation
- Math Scavenger Hunt/Trail
- Entrance/Exit Cards

Summative:

- Mid-unit Quizzes
- Topic Tests

Alternative:

- Kahoot
- Quizizz

Interdisciplinary Connections

Career Readiness, Life Literacies, and Key Skills

Technology Integration

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.

- 9.4.8.TL.6: Collaborate to develop and publish work that provides perspectives on a real-world problem.

Students will access the Big Ideas online ebook to further investigate lesson concepts and demonstrate understanding of standards.

- 9.4.8.TL.3: Select appropriate tools to organize and present information digitally.

Students will use internet based game sites such as Quizizz, Kahoot, and Quizlet live to reflect on their learning progress.

- 9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems.

Supplemental instruction and math games will be presented using IXL Math and Video Tutor bigideasmath.com.

- 9.4.12.TL.1: Assess digital tools based on features such as accessibility

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options, capacities, and utility for accomplishing a specified task
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- 9.4.8.IML.3: Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping

Career Education

CRP4: Communicate clearly and effectively with reason.

CRP11: Use technology to enhance productivity.

Time Frame	3 Weeks
Topic	
Exponential and Logarithmic Functions and Relations	
Alignment to Standards	
N.Q.2 , F.BF.1.b , F.BF.3 , F.BF.5(+) , F.IF.7.e , F.IF.8.b , F.LE.2 , F.LE.4 , F.LE.5 , A.REI.11 , A.CED.1 , A.SSE.2 , A.SSE.3.c	
Learning Objectives and Activities	
<p>SWBAT answer the following questions:</p> <ul style="list-style-type: none"> • How can you make good decisions? • What factors can affect good decision making? • What is the difference between exponential growth and decay? • Why do we need "e"? • How are logs and exponents related? • When graphing $y=ab^x+c$, what does a, b, and c do to the graph? • How do you solve a log problem with a base other than 10? <p>SWBAT demonstrate understanding of the following:</p>	

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- Nth roots are inverses of power functions.
- Understanding the properties of power functions and how inverses behave explains the properties of nth roots.
- Computing with rational exponents is no different from computing with integral exponents.
- Exponential and logarithmic functions behave the same as other functions with respect to graphical transformations.
- Two special logarithmic functions are the common log and natural log. These special functions occur often in nature.

Learning Activities:

- M & M Lab- exponential decay
- Compound Interest Activity
- Population Growth Activity

Assessments

Formative:

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

Summative:

- Mid-unit Quizzes
- Topic Tests
- Problem-based Quiz/Test on Exponential growth/decay

Alternative:

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

Interdisciplinary Connections

Career Readiness, Life Literacies, and Key Skills

9.1.12.CDM.8: In the logarithmic unit students will compare and compute interest and compound interest and develop an amortization table using business tools.
9.1.12.CDM.6: When learning exponential equations students will compute and assess the accumulating effect of interest paid over time when using a variety of sources of credit (e.g., student loans, credit cards, auto loans, mortgages, etc.)

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COURSE: Algebra II

Technology Integration

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- 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.

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Career Education

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.

Time Frame

3 Weeks (15 blocks)

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Topic
Rational Functions and Relations
Alignment to Standards
N.CN.3 , A.APR.6 , A.APR.7(+) , A.CED.1 , A.CED.2 , A.REI.2 , A.REI.11 , F.BF.3 , F.IF.7.d(+) , F.IF.9
Learning Objectives and Activities
<p>SWBAT answer the following questions:</p> <ul style="list-style-type: none">• Why are graphs useful?• How do we decide which method is most appropriate when solving rational equations?• When are asymptotes used to graph rational functions? <p>SWBAT demonstrate understanding of the following:</p> <ul style="list-style-type: none">• Mastering a procedure is not the same as mastering the concept.• Simplified expressions are essential in being able to solve equations.• Domain affects graphing and solving of rational functions. <p>Learning Activities:</p> <ul style="list-style-type: none">• "Inverse Variation" Lab• Wind Chimes• Paint Puzzler• Harvir Needs a Car
Assessments
<p><u>Formative:</u></p> <ul style="list-style-type: none">• Daily Practice Problems• Teacher Observation• Math Scavenger Hunt/Trail• Entrance/Exit Cards <p><u>Summative:</u></p> <ul style="list-style-type: none">• Mid-unit Quizzes• Topic Tests <p><u>Alternative:</u></p> <ul style="list-style-type: none">• Kahoot/Quizizz• Individual or group productive struggle assessment during introductory lessons
Interdisciplinary Connections

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Career Readiness, Life Literacies, and Key Skills

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Students will use Google Classroom to collaborate, work towards solving authentic problems, or participate in an online classroom discussion utilizing pre-learned etiquette about blended learning platforms.

- 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.

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- 9.4.8.IML.3: Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping

Career Education

CRP11: Use technology to enhance productivity.

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Time Frame	1 Week (5 blocks)
Topic	
Conic Sections*	
Alignment to Standards	
A.CED.2 , A.CED.4 , A.SSE.1.b , F.IF.9 , A.REI.11 , G.GPE.1 , G.GPE.2 , *G.GPE.3 (+)	
Learning Objectives and Activities	
<p>SWBAT answer the following questions:</p> <ul style="list-style-type: none">• How does mathematics help us to describe the physical world?• How are conics useful? <p>SWBAT demonstrate understanding of the following:</p> <ul style="list-style-type: none">• To be able to identify symmetries from graphs of conic sections.• A conic section is the intersection of a plane and a cone.• Conic sections model physical phenomena such as motion of the planets and reflective properties of light and sound <p>Learning Activities:</p> <ul style="list-style-type: none">• Wax paper folding- parabola• "Norm Parabola" Story• Build an Ellipse Activity• Conic Section Lab	
Assessments	
<p><u>Formative:</u></p> <ul style="list-style-type: none">• Classwork and Homework• Teacher Observation• Graphic Organizer• Entrance/Exit Cards <p><u>Summative:</u></p> <ul style="list-style-type: none">• Mid-unit Quizzes• Topic Tests <p><u>Alternative:</u></p> <ul style="list-style-type: none">• Kahoot• Quizizz	

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Office of Teaching and Learning

SPARTAN MISSION:

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

DEPARTMENT: Mathematics COURSE: Algebra II

Interdisciplinary Connections

Career Readiness, Life Literacies, and Key Skills

Technology Integration

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.

- 9.4.8.TL.6: Collaborate to develop and publish work that provides perspectives on a real-world problem.

Students will access the Big Ideas online ebook to further investigate lesson concepts and demonstrate understanding of standards.

- 9.4.8.TL.3: Select appropriate tools to organize and present information digitally.

Students will use internet based game sites such as Quizizz, Kahoot, and Quizlet live to reflect on their learning progress.

- 9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems.

Supplemental instruction and math games will be presented using IXL Math and Video Tutor bigideasmath.com.

- 9.4.12.TL.1: Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task

Students will use Google Classroom to collaborate, work towards solving authentic problems, or participate in an online classroom discussion utilizing pre-learned etiquette about blended learning platforms.

- 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.

Students will use graphing calculators to use math tools strategically and attend to precision and will use Desmos in order to discover new concepts involving graphing and functions.

- 9.4.8.IML.3: Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping

Career Education

CRP4: Communicate clearly and effectively with reason.

* Topic completed in Advanced/Honors; in regular level differentiate topics and include if time permits.

** Topic is completed in Honors.





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CRP6: Demonstrate creativity and innovation.
CRP11: Use technology to enhance productivity.

Time Frame	1 Week (5 blocks)
Topic	
Sequences and Series**	
Alignment to Standards	
N.Q.2, F.IF.3, F.IF.4, F.IF.5, F.IF.6, F.BF.1.a, F.BF.2, F.LE.2, A.CED.4, A.SSE.1.b, A.SSE.4, *A.APR.5(+)	
Learning Objectives and Activities	
<p>SWBAT answer the following questions:</p> <ul style="list-style-type: none">• Where are patterns found in the real world?• How can recognizing patterns help you solve real-world problems?• What type of patterns can be modeled mathematically?• How can you classify a sequence? <p>SWBAT demonstrate understanding of the following:</p> <ul style="list-style-type: none">• Sequences and series are models of linear and exponential functions.• Arithmetic and geometric sequences and series model real life phenomena.• We can use these models to solve problems <p>Learning Activities:</p> <ul style="list-style-type: none">• Arithmetic Sequence Lab• Sum of Arithmetic Sequence Lab• Family Probability Lab	
Assessments	
<p><u>Formative:</u></p> <ul style="list-style-type: none">• Classwork and Homework• IXL Practice• Teacher Observation• Entrance/Exit Cards <p><u>Summative:</u></p>	

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- Mid-unit Quizzes
- Topic Tests

Alternative:

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

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Career Education

CRP2: Apply appropriate academic and technical skills.

Time Frame	1 Week (5 blocks)
Topic	
Statistics and Probability	
Alignment to Standards	
S.IC.1 , S.IC.2 , S.IC.3 , S.IC.4 , S.IC.5 , S.IC.6 , S.CP.6 , S.CP.7 , S.ID.4 , S.MD.6(+) , S.MD.7(+)	
Learning Objectives and Activities	
<p>SWBAT answer the following questions:</p> <ul style="list-style-type: none"> How does technology influence and enhance experimental studies? How does analysis of data inform and influence decisions? <p>SWBAT demonstrate understanding of the following:</p> <ul style="list-style-type: none"> The study of statistics includes observational studies, sample surveys, and experimental design. Describing center, spread, and shape is essential analysis of both univariate and bivariate data. Probability is indispensable for analyzing data; data is indispensable for estimating probabilities <p>Learning Activities:</p> <ul style="list-style-type: none"> Random Sampling Simulation Graphing Calculator Lab- Margin of Error and Sample Size Describe Distribution using a Histogram Describe a situation using a Box-and-Whisker Plot Compare Data using a Histogram Compare Data using a Box-and-Whisker Plot Construct a Probability Distribution 	

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- Construct a Theoretical and Experimental Probability Distribution
- Real World Example of expected value and standard deviation
- Identify and design a Binomial Experiment
- Real World Example of Finding Probabilities Real World Examples of Confidence Interval

Assessments

Formative:

- IXL Practice
- Teacher Observation
- Entrance/Exit Cards

Summative:

- Mid-unit Quizzes
- Topic Tests

Alternative:

- Observation Assessment with Problem-solving
- Kahoot/Quizizz

Interdisciplinary Connections

Science: HS-LS3-3. In the distribution section of the statistics unit students will apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.

Career Readiness, Life Literacies, and Key Skills

9.3.ST-SM.4: In the statistics lessons students will apply critical thinking skills to review information, explain statistical analysis, and to translate, interpret and summarize research and statistical data.

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Career Education

CRP2: Apply appropriate academic and technical skills.

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

CRP11: Use technology to enhance productivity.

Time Frame	1 Week (5 blocks)
Topic	
Trigonometry**	
Alignment to Standards	
F.TF.1 , F.TF.2 , F.TF.5 , F.TF.8	
Learning Objectives and Activities	

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SWBAT answer the following questions:

- How can I make connections to angles to determine basic trigonometric values?
- How can I evaluate trigonometric functions at any domain value by connecting experiences with special right triangles gained in Geometry?
- How can I select and apply trigonometric functions to solve problems in contexts that model cyclical behavior?

SWBAT demonstrate understanding of the following:

- Build new functions from existing function.
- Model periodic phenomena with trigonometric functions
- Analyze functions using different representations
- Extend the domain of trigonometric functions using the unit circle

Learning Activities:

- Construct a color coded unit circle
- Define trigonometric functions using x, y, and r
- Ferris Wheel Problem
- Tide Problem
- Spaghetti Lab
- Graphing calculator activity discovering properties of periodic functions

Assessments

Formative:

- Classwork and Homework
- IXL Practice
- Teacher Observation
- Class Debate of Approaches/Mathematical Methods
- Graphic Organizer
- Entrance/Exit Cards

Summative:

- Mid-unit Quizzes
- Topic Tests

Benchmark:

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

Alternative:

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

Interdisciplinary Connections

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COURSE: Algebra II

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.

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CRP11: Use technology to enhance productivity.

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:

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- 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

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