Kenilworth Public Schools

Curriculum Guide

Content Area: Pre-Calculus
Grade: 11-12
BOE Approved: 1/14/2013

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Submitted by: Mendy Petti
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Pre-Calculus - Grade 11/12 Scope and Sequence

Unit 1- Exponential & Logarithmic Functions (Chapter 3, 1.4-1.5)	Unit 2- Trigonometry (Chapter 4)	Unit 3- Analytic Trigonometry (Chapter 5, 6.1-6.3)	Unit 4- Analytic Geometry (Chapter 8)	Unit 5- Systems of Non-Linear Equations (Chapter 7)	Unit 6- Sequences & Series (Chapter 9)
Weeks 1-6	Weeks 7-13	Weeks 14-20	Weeks 21-27	Weeks 28-33	Weeks 34-38
Unit Description: Graph, analyze, model, and solve exponential and logarithmic functions. Transform functions and relate Exponential/ Logarithmic characteristics to the library of functions previously learned.	*Unit Description:* Understand and apply Trigonometric Properties and Identities, the Unit Circle, and Graph Trigonometric functions.	*Unit Description:* Verify and use Trigonometric Identities, Solve Trigonometric Equations and Apply Multiple-Angle formulas.	*Unit Description:* Understand and apply Conic Sections.	*Unit Description:* Solve Systems of Non-Linear Equations using algebraic techniques as well as matrices.	*Unit Description:* Understand and apply arithmetic and geometric sequences and series.
Unit Targets: • Graph exponential growth functions. • Graph exponential decay functions. • Use functions involving *e*. • Evaluate logarithms	*Unit Targets:* • Use Trigonometry with Right Triangles. • Define the Unit Circle, and General Angles and Use Radian Measure. • Derive the unit circle	*Unit Targets:* • Apply the Laws of Sines and Cosines. • Graph, translate and reflect Trigonometric Functions. • Verify Trigonometric Identities.	*Unit Targets:* • Find the inclination of a line, the angle between two lines, and the distance between a point and a line. • Recognize assorted	*Unit Targets:* • Solve systems in two variables. • Solve systems in three variables. • Solve systems using matrices. • Decompose	*Unit Targets:* • Definition and notation of sequences and series. • Find explicit rules for sequences and series. • Find the sum of a finite series.

and graph logarithmic functions. • Apply properties of logarithms. • Solve exponential and logarithmic equations. • Create and apply exponential and power functions. • Analyze characteristics of the graphs of functions. • Transform functions.	using right triangle trigonometry. • Evaluate Trigonometric Functions of any angle. • Evaluate Inverse Trigonometric Functions.	• Solve Trigonometric Equations. • Write Trigonometric Functions and Models. • Apply Sum and Difference Formulas. • Apply Multiple-Angle Formulas.	conic sections as the intersections of a plane and a double-napped cone. • Write the standard form of the equation of a parabola, ellipse, and hyperbola. • Use properties of parabolas, ellipses, and hyperbolas to solve real-life problems.	Fractions. • Solve Matrix Equations. • Apply the multiplicative inverse of matrices • Solve systems of inequalities.	

PreCalculus – Grades 10th-12th Unit 1

Unit title: Exponential and Logarithmic Functions (Chapter 3, 1.4-1.5)

Unit summary: Graph, model, and solve using Exponential and Logarithmic functions, and use Properties of Logarithms to solve exponential and logarithmic equations.

Primary interdisciplinary connections: Business, Science

21st Century Themes: Global Awareness, Financial, Business and Entrepreneurial

Learning Targets

Standards: NJSLS 9-12.F.IF.7e, 9-12.F.BF.5, 9-12.F.LE.1, 9-12.F.LE.2, 9-12.F.LE.4

Technology Standards: 8.1.12.A.3, 8.1.12.C.1

Content Statements:

1	Exponential Functions
2	Logarithmic Functions
3	Rules of Logarithms
4	Exponential and Logarithmic Equations and Inequalities
5	Logarithmic Scales
6	A Library of Functions
7	Transformations on Functions

Big Idea: Graph, analyze, model, and solve exponential and logarithmic functions.

Unit Essential Questions:

- What is the relationship between exponential and logarithmic functions?
- How do graphs of exponential and logarithmic functions behave?
- How can exponential and logarithmic functions be useful in real life?
- How can properties of logarithms allow us to manipulate and solve equations?
- How do transformations of exponential functions compare to transformations of other functions previously learned?

Unit Enduring Understandings:

- Exponential equations and Logarithmic Equations are inverses of each other.
- Graphs will vary but have key characteristics.
- Exponential and Logarithmic Functions can be used to model and solve real life problems including finance, population growth, musical pitch, and countless everyday events.
- Properties allow us to rewrite one or both sides of the exponential and logarithmic equations which can then allow such to be solved.

Unit Learning Targets

Students will…

- Graph exponential growth functions

- Graph exponential decay functions
- Use functions involving *e*
- Evaluate logarithms and graph natural log functions
- Apply properties of logarithms
- Solve exponential and logarithmic equations
- Create and apply exponential and power functions
- Apply transformations of functions to exponential and logarithmic functions

Evidence of Learning

Summative Assessment: Quizzes, Tests

Formative Assessments:

- Homework
- Classwork
- Other activities at teacher's discretion

Lesson Plans

Activities/Interdisciplinary Connections	*Timeframe*
• Define and Graph Exponential Functions 1. Define Exponential Function. 2. Graph several exponential functions and discuss properties and characteristics of their graphs. 3. Introduce the number e, and use simple and compound interest formulas, including the Continuously Compounding Interest formula. 4. Graph the natural exponential function and model using assorted exponential functions.	10 minutes 10 minutes 10 minutes
Teacher Resources	*Teacher Note*
• Graphing software viewed on SmartBoard	If all students have access to graphing calculators, students may make individual graphs, and make the same observations.

Differentiating Instruction: Students with Disabilities, English Language Learners, and Gifted & Talented Students

Examples of Strategies and Practices that Support Students with Disabilities:

• Use of visual and multisensory formats

• Use of assisted technology

• Use of prompts
• Modification of content and student products
• Testing accommodations
• Authentic assessments

Examples of Strategies and Practices that Support Gifted & Talented Students:
• Adjusting the pace of lessons
• Curriculum compacting
• Inquiry-based instruction
• Independent study
• Higher-order thinking skills
• Interest-based content
• Student-driven instruction
• Real-world problems and scenarios

Examples of Strategies and Practices that Support English Language Learners:
• Pre-teaching of vocabulary and concepts
• Visual learning, including graphic organizers
• Use of cognates to increase comprehension
• Teacher modeling
• Pairing students with beginning English language skills with students who have more advanced English language skills
• Scaffolding
•Word walls
•Sentence frames
•Think-pair-share
•Cooperative learning groups

PreCalculus – Grades 10th-12th Unit 2

Unit title: Trigonometric Functions (Chapter 4)

Unit summary: Understand and use angles in both degree and radian measure, how angles relate to values on the Unit Circle, as well as trigonometric functions of angles and graphs of trigonometric functions.

Primary interdisciplinary connections: Business, Science

21st Century Themes: Global Awareness, Business and Entrepreneurial

Learning Targets

Standards: NJSLS 9-12.F.TF.1, 9-12.F.TF.2, 9-12.F.TF.6, 9-12.G.SRT.11, 9-12.F.IF.7e, 9-12.F.TF.8, 9-12.F.TF.7, 9-12.F.TF.5, 9-12.F.TF.9

Technology Standards: 8.1.12.A.3, 8.1.12.C.1

Content Statements:

1	Angles and Their Measures
2	The Unit Circle; Trigonometric Functions of Real Numbers
3	Trigonometric Functions of Angles
4	Graphs of the Sine and Cosine Functions
5	Graphs of Other Trigonometric Functions
6	Inverse Trigonometric Functions

Big Idea: Use angles in degrees and radians, understand trigonometric ratios and identities, and graph trigonometric functions and understand the cyclical behavior of such.

Unit Essential Questions:

- What are the different measures of angles and how do you convert from one to the other?
- What is the Unit Circle and what is its significance?
- What are the trigonometric functions and how can they be used in real life?
- What is the behavior or different trigonometric functions?

Unit Enduring Understandings:

- This section focuses on angle measures in degrees and radians and there are conversion fractions to take one measure and convert to the other.
- The Unit Circle is a circle with its center at the Origin and with a radius of 1 unit. Properties of the Unit Circle allow us to see the cyclical behavior of angle measures as well as to understand the trigonometric functions.
- Trigonometric functions relate real numbers to the angle measures to which they correspond, and these functions can be used to model countless real-life scenarios.
- Trigonometric functions have different graphs

	with special characteristics, which can be determined from the equations themselves.

Unit Learning Targets
Students will…

- Use Trigonometry with Right Triangles
- Define the Unit Circle, and General Angles and Use Radian Measure
- Derive the unit circle using right triangle trig
- Evaluate Trig Functions of any angle
- Evaluate Inverse Trig Functions

Evidence of Learning

Summative Assessment: Quizzes, Tests

Formative Assessments:

- Homework
- Classwork
- Other activities at teacher's discretion

Lesson Plans

Activities/Interdisciplinary Connections	*Timeframe*
• Define and use the Unit Circle and Radian Measures 1. Define Unit Circle and Radian Measure 2. Convert Angles from Radian to Degree Measure and vice versa. 3. Estimate angles measures in both radian and degree measures. (Students work in partners to draw angles for one another and estimate their measures.) 4. Find linear and angular speed, arc length, and area of sectors.	10 minutes 5 minutes 5 minutes 15 minutes
Teacher Resources	*Teacher Note*
• Smart Notebook File with Unit Circle for exploration (viewed on SmartBoard)	

Differentiating Instruction: Students with Disabilities, English Language Learners, and Gifted & Talented Students

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• Use of visual and multisensory formats
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Examples of Strategies and Practices that Support Gifted & Talented Students:
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• Independent study
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• Interest-based content
• Student-driven instruction
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Examples of Strategies and Practices that Support English Language Learners:
• Pre-teaching of vocabulary and concepts
• Visual learning, including graphic organizers
• Use of cognates to increase comprehension
• Teacher modeling
• Pairing students with beginning English language skills with students who have more advanced English language skills
• Scaffolding
•Word walls
•Sentence frames
•Think-pair-share
•Cooperative learning groups

PreCalculus – Grades 10th-12th Unit 3

Unit title: Analytic Trigonometry (Chapters 5, 6.1-6.3)

Unit summary: Verify and use Trigonometric Identities, Solve Trigonometric Equations and Apply Sum-and-Difference, Multiple-Angle, Sum-to-Product and Product-to-Sum Formulas, as well as Right Triangle Trigonometry, Law of Sines, Law of Cosines

Primary interdisciplinary connections: Business, Science

21st Century Themes: Global Awareness, Business and Entrepreneurial

Learning Targets

Standards: NJSLS 9-12.F.TF.1, 9-12.F.TF.2, 9-12.F.TF.6, 9-12.G.SRT.11, 9-12.F.IF.7e, 9-12.F.TF.8, 9-12.F.TF.7, 9-12.F.TF.5, 9-12.F.TF.9

Technology Standards: 8.1.12.A.3, 8.1.12.C.1

Content Statements:

1	Trigonometric Identities and Equations
2	Trigonometric Equations
3	Sum and Difference Formulas
4	Double-Angle and Half-Angle Formulas
5	Product-to-Sum and Sum-to-Product Formulas
6	Right-Triangle Trigonometry
7	Law of Sines
8	Law of Cosines

Big Idea: Use trig ratios and identities to solve various types of problems in many ways.

Unit Essential Questions:

- What are Fundamental Trigonometric Identities and how are they useful?
- What are Sum-and-Difference, Multiple-Angle, Sum-to-Product and Product-to-Sum formulas?
- What is the Law of Sines or the Law of Cosines?

Unit Enduring Understandings:

- The Fundamental Trigonometric Identities are the heart of trigonometry and can be used to rewrite/simplify/evaluate trigonometric equations/functions.
- The various formulas are relationships that can be applied to solve problems that would otherwise be very difficult or even impossible to solve.
- These “laws” are really just more formulas that show relationships between angles and sides of oblique (or non-right) triangles and they can be used to find missing information about given triangles, and to solve real life problems that

	can be represented by such triangles.

Unit Learning Targets
Students will…

- Learn the Fundamental Trigonometric Identities
- Solve/Evaluate Trigonometric Equations/Functions Using the Fundamental Trig Identities
- Apply assorted formulas to simplify or solve problems
- Use the Law of Sines and Law of Cosines to solve triangles and real life problems

Evidence of Learning

Summative Assessment: Quizzes, Tests

Formative Assessments:

- Homework
- Classwork
- Other activities at teacher's discretion

Lesson Plans

Activities/Interdisciplinary Connections	*Timeframe*
• Define and use Trigonometric Identities 1. Define Fundamental Trigonometric Identities and demonstrate how the relationships connect to what we already know about basic right triangle trigonometry and the Unit Circle. 2. Use FTI to simplify complicated trig expressions 3. Use FTI to prove that an equation either is not an identity or verify that it is an identity 4. Independent practice	15 minutes 10 minutes 5 minutes 10 minutes
Teacher Resources	*Teacher Note*
• Smart Notebook File with FTI (viewed on SmartBoard) • Handouts- Fundamental Trigonometric Identities • Textbook	

Differentiating Instruction: Students with Disabilities, English Language Learners, and Gifted & Talented Students

Examples of Strategies and Practices that Support Students with Disabilities:
• Use of visual and multisensory formats
• Use of assisted technology

• Use of prompts
• Modification of content and student products
• Testing accommodations
• Authentic assessments

Examples of Strategies and Practices that Support Gifted & Talented Students:
• Adjusting the pace of lessons
• Curriculum compacting
• Inquiry-based instruction
• Independent study
• Higher-order thinking skills
• Interest-based content
• Student-driven instruction
• Real-world problems and scenarios

Examples of Strategies and Practices that Support English Language Learners:
• Pre-teaching of vocabulary and concepts
• Visual learning, including graphic organizers
• Use of cognates to increase comprehension
• Teacher modeling
• Pairing students with beginning English language skills with students who have more advanced English language skills
• Scaffolding
•Word walls
•Sentence frames
•Think-pair-share
•Cooperative learning groups

PreCalculus – Grades 10th-12th Unit 4

Unit title: Analytic Geometry- Conic Sections (Chapter 8)

Unit summary: Define and use equations of conic sections to solve problems involving real life phenomena such as planetary orbits.

Primary interdisciplinary connections: Business, Science

21st Century Themes: Global Awareness, Business and Entrepreneurial

Learning Targets

Standards: NJSLS 9-12.G-GPE.1, 9-12.G-GPE.2, 9-12.G-GPE.3

Technology Standards: 8.1.12.A.3, 8.1.12.C.1

Content Statements:

1	Conic Sections - Overview
2	The Parabola
3	The Ellipse (introduce Circles first, which can be considered special ellipses)
4	The Hyperbola

Big Idea: Use equations of conic sections to find missing information about the conic or related information.

Unit Essential Questions:

- What are Conic Sections and how do they relate to what I already know?
- What is a parabola in terms of conics and how is it different from what I already know to be a parabola?
- What is an ellipse, how are circles related to it, and what are their equations?
- What is a hyperbola and how can equations of hyperbolas help solve real life problems?
- What is the Polar Coordinate System and how can I use it?

Unit Enduring Understandings:

- Conic Sections are the intersections of a plane and a double-napped cone which can all be related to what we already know from Geometric and Algebra.
- In chapter 2 we learned about the algebraic definition of a parabola. This section looks at the parabolas from a geometric perspective. They are still the same thing, but viewed through different lenses.
- Circles are special cases of an ellipse. An ellipse is an oval-like shape (which we will define formally in class), and they can be used to represent and solve real life problems.
- A hyperbola is a special conic section which looks much like two parabolas that open in opposite directions and do not intersect. Hyperbolas are used with systems such as GPS systems that we likely use regularly in today's

	world. • The Polar Coordinate system is based on distance from the origin (or pole) an angle from the horizontal (or polar) axis, and we can use the system to graph polar equations.

Unit Learning Targets
Students will…

- Recognize assorted conic sections as the intersections of a plane and a double-napped cone
- Write the standard form of the equation of a parabola, circle, ellipse, and hyperbola
- Use properties of parabolas, ellipses, and hyperbolas to solve real life problems
- Plot points on the polar coordinate system
- Convert points and equations from rectangular to polar form and vice versa
- Recognize special polar graphs

Evidence of Learning

Summative Assessment: Quizzes, Tests

Formative Assessments:

- Homework
- Classwork
- Other activities at teacher's discretion

Lesson Plans

Activities/Interdisciplinary Connections	*Timeframe*
• Ellipses and Circles 1. Define Ellipses and show the connection between an ellipse and a circle as well as the equations of each and their similarities and differences. 2. Take given information and write equations of ellipses and use equations of ellipses to find missing information. 3. Graph ellipses based on given information or equations. 4. Find eccentricity of ellipses. 5. Independent practice.	10 minutes 10 minutes 5 minutes 5 minutes 10 minutes
Teacher Resources	*Teacher Note*
• Smart Notebook File with interactive illustration of an	

ellipse (viewed on SmartBoard) • Textbook	

Differentiating Instruction: Students with Disabilities, English Language Learners, and Gifted & Talented Students

Examples of Strategies and Practices that Support Students with Disabilities:
• Use of visual and multisensory formats
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• Testing accommodations
• Authentic assessments

Examples of Strategies and Practices that Support Gifted & Talented Students:
• Adjusting the pace of lessons
• Curriculum compacting
• Inquiry-based instruction
• Independent study
• Higher-order thinking skills
• Interest-based content
• Student-driven instruction
• Real-world problems and scenarios

Examples of Strategies and Practices that Support English Language Learners:
• Pre-teaching of vocabulary and concepts
• Visual learning, including graphic organizers
• Use of cognates to increase comprehension
• Teacher modeling
• Pairing students with beginning English language skills with students who have more advanced English language skills
• Scaffolding
•Word walls
•Sentence frames
•Think-pair-share
•Cooperative learning groups

PreCalculus – Grades 10th-12th Unit 5

Unit title: Systems of Equations (Chapter 7)

Unit summary: Use various methods to solve two-variable and three-variable systems of equations, including graphing, substitution, and matrix operations.

Primary interdisciplinary connections: Business, Science

21st Century Themes: Global Awareness, Business and Entrepreneurial

Learning Targets

Standards: NJSLS 9-12.A-REI.5, 9-12.A-REI.6, 9-12.A-REI.7, 9-12.A-REI.8

Technology Standards: 8.1.12.A.3, 8.1.12.C.1

Content Statements:

1	Systems of Equations in Two Variables
2	Systems of Equations in Three Variables
3	Matrices and Systems of Equations
4	Determinants and Cramer's Rule
5	Partial-Fraction Decomposition
6	Matrix Algebra

Big Idea: Use various methods to solve two-variable and three-variable systems of equations, including graphing, substitution, and matrix operations.

Unit Essential Questions:

- How can systems of equations in two variables be solved?
- How can systems of equations in three variables be solved?
- How can systems of operations be solved in matrices?
- What are Determinants and how is Cramer's Rule helpful?
- What is Matrix Algebra?

Unit Enduring Understandings:

- Systems can be solved using several techniques including graphing, substitution and elimination.
- Three-variable systems can be solved using the same approaches as two-variable systems with some added steps.
- Matrices can be used along with a series of steps to solve systems that would otherwise be too complicated.
- A Determinant of a matrix is a sum found by performing a series of multiplication and addition and is used in other calculations such as in Cramer's Rule. Cramer's Rule can be used to solve systems of equations.
- Matrix Algebra allows use to take many values (such as a set of date) and perform operations

	to all values at once such as in scalar multiplication or matrix addition or subtraction.

Unit Learning Targets
Students will…

- Use the substitution method to solve systems of equations in two variables
- Use the elimination method to solve systems of equations in two variables
- Use a graphical approach to solve systems of equations in two variables
- Interpret graphically the numbers of solutions of systems of linear equations in two variables
- Use systems of equations to model and solve real life problems
- Use matrices to solve systems of equations
- Find and use determinants
- Use Cramer's Rule to solve systems of linear equations
- Use Partial Fraction Decomposition
- Use Matrix Algebra

Evidence of Learning

Summative Assessment: Quizzes, Tests

Formative Assessments:

- Homework
- Classwork
- Other activities at teacher's discretion

Lesson Plans

Activities/Interdisciplinary Connections	*Timeframe*
• Solve Systems of Equations in Two Variables 1. Solve systems of equations by graphing. 2. Define systems as consistent or inconsistent, and dependent or independent. 3. Solve one system both by substitution and by elimination and compare. 4. Discuss special cases when solving algebraically 5. Independent practice	5 minutes 5 minutes 10 minutes 5 minutes 10 minutes
Teacher Resources	*Teacher Note*
• Smart Notebook File with coordinate plane for graphing of system of equations for a visual of the solution (point of intersection) (viewed on SmartBoard) • Textbook	

Differentiating Instruction:
Students with Disabilities, English Language Learners, and Gifted & Talented Students

Examples of Strategies and Practices that Support Students with Disabilities:
- Use of visual and multisensory formats
- Use of assisted technology
- Use of prompts
- Modification of content and student products
- Testing accommodations
- Authentic assessments

Examples of Strategies and Practices that Support Gifted & Talented Students:
- Adjusting the pace of lessons
- Curriculum compacting
- Inquiry-based instruction
- Independent study
- Higher-order thinking skills
- Interest-based content
- Student-driven instruction
- Real-world problems and scenarios

Examples of Strategies and Practices that Support English Language Learners:
- Pre-teaching of vocabulary and concepts
- Visual learning, including graphic organizers
- Use of cognates to increase comprehension
- Teacher modeling
- Pairing students with beginning English language skills with students who have more advanced English language skills
- Scaffolding
- Word walls
- Sentence frames
- Think-pair-share
- Cooperative learning groups

PreCalculus- Grades 10/11 Unit 6

Unit title: Sequences and Series, Partial Sums, and Counting Principles

Unit summary: Define, analyze, and find sums of sequences and series. Apply counting principles.

Primary interdisciplinary connections: Business, Social Studies, Science

21st Century Themes: Global Awareness, Financial, Economic, Business and Entrepreneurial Literacy, Life and Career Skills, Information Literacy

Learning Targets

Standards: NJSLS: 9-12.F.IF.3, 9-12.F.BF.2, 9-12.A.SSE.4, 9-12.A.SSE.3, 9-12.S.ID.4, 9-12.G.SRT.6

Technology Standards: 8.1.12.A.3, 8.1.12.C.1

Content Statements:

1	Sequences and Series
2	Arithmetic sequences and series/Partial Sums
3	Geometric sequences and series
4	Mathematical Inductions
5	The Binomial Theorem
6	Counting Principles
7	Probability

Big Idea: Identifying patterns in sequences and series allows us to create models and make predictions. There are many ways to represent and analyze data via normal distributions. Right triangle trigonometry can be used to calculate missing information about triangle measurements.

Unit Essential Questions:

- What is a sequence or a series?
- What is the difference between arithmetic and geometric sequences/series?
- How can mathematical induction be used to prove statements?
- How can the binomial theorem be used to expand a binomial power?
- How can the Counting Principle be used find how many options exist?
- What is probability and how does it apply?

Unit Enduring Understandings:

- Infinite sequences can be modeled mathematically.
- Understanding the mathematical model of a sequence allows us to find cumulative totals of a series.
- The normal curve can be applied to model numerous real-world scenarios.
- Right triangle trigonometry can be used to solve a triangle given only two measurements.

Unit Learning Targets

Students will…

- Define and use Sequences and Series.
- Analyze arithmetic sequences and series.
- Analyze geometric sequences and series.
- Evaluate Sums of infinite geometric series.
- Analyze variation.
- Construct and interpret Normal Distributions.

Evidence of Learning

Summative Assessment: Quizzes, Test

Formative Assessments:

- Homework
- Classwork
- Other activities at teacher's discretion

Lesson Plans

Activities/Interdisciplinary Connections	*Timeframe*
• Investigate an infinite geometric series with the activity on page 459. • Calculate the height of tall objects given the angle of inclination to the top of the object from a given distance from the base of the object, using right triangle trigonometry.	30 minutes 40 minutes Weeks 28-34
Teacher Resources	*Teacher Note*
• Colored paper, scissors for each student • Clinometer, measuring tape or measuring wheel	The trigonometry activity is best done outdoors to calculate the height of very tall objects. As an alternate, it can be accomplished in the classroom and the angle of inclination should be measured from a sitting position.

Differentiating Instruction: Students with Disabilities, English Language Learners, and Gifted & Talented Students

Examples of Strategies and Practices that Support Students with Disabilities:

• Use of visual and multisensory formats

• Use of assisted technology
• Use of prompts
• Modification of content and student products
• Testing accommodations
• Authentic assessments

Examples of Strategies and Practices that Support Gifted & Talented Students:
• Adjusting the pace of lessons
• Curriculum compacting
• Inquiry-based instruction
• Independent study
• Higher-order thinking skills
• Interest-based content
• Student-driven instruction
• Real-world problems and scenarios

Examples of Strategies and Practices that Support English Language Learners:
• Pre-teaching of vocabulary and concepts
• Visual learning, including graphic organizers
• Use of cognates to increase comprehension
• Teacher modeling
• Pairing students with beginning English language skills with students who have more advanced English language skills
• Scaffolding
•Word walls
•Sentence frames
•Think-pair-share
•Cooperative learning groups