PUBLIC SCHOOLS OF EDISON TOWNSHIP

OFFICE OF CURRICULUM AND INSTRUCTION

Integrated Math B

Length of Course:	Term
Elective/Required:	Required
Schools:	High School
Eligibility:	Grade 11 - 12
Credit Value:	5 Credits
Date Approved:	August 24, 2020

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Statement of Purpose

This course of study has been designed for the Integrated Math B course.

In order to promote the effective implementation of this program, the following suggestions are provided:

1. Formative assessment should be used throughout this course, as with any math Course, in order to monitor students' learning and instruction such be adjusted as needed.

2. Instruction should be differentiated in order to accommodate the different ways students learn.

3. Students should be encouraged to maintain an organized and thorough set of notes in a notebook. Teachers should indicate the expected format and content and should explain how notebooks can be effectively utilized.

4. Meaningful and relevant homework assignments should be given to students on a regular basis to encourage practice of new skills and concepts.

5. Examples of application of mathematics in careers and everyday life situations should be provided as motivation wherever possible.

6. Students should be required to use correct mathematical terminology at all times.

7. The use of technology is encouraged wherever possible in order to foster the impact on students' learning and understanding.

8. Modifications and accommodations should be included where necessary to meet student's Individual Education Plans (IEP).

Course Objectives

The student will demonstrate proficiency in:

1. Using technology wherever and whenever appropriate.
2. Manipulate and factor polynomials
3. Solve quadratic equations and graph parabolas
4. Graph and create exponential and logarithmic functions
5. Construct logical arguments
6. Prove triangles are congruent
7. Apply properties of angles and side lengths of triangles
8. Apply properties of quadrilaterals
9. Use proportions and ratios to solve problems
10. Find missing side lengths and angles using trigonometry
11. Apply properties of circles and lines around circles
12. Find volume and surface area of three-dimensional figures
13. Make decisions based on probability

Suggested Pacing Guide

Unit 0: Preparing for Integrated Math II---------- 12 days

- 0-4 Algebraic Expressions
- 0-5 Linear Equations
- 0-6 Linear Inequalities
- 0-9 Systems of Linear Equations
- 0-10 Square Roots and Simplifying Radicals

Unit 1: Quadratic Expressions and Equations---------- 16 days

- 1-1: Adding and Subtracting Polynomials
- 1-2: Multiplying a Polynomial by a Monomial
- 1-3: Multiplying Polynomials
- 1-4: Special Products
- 1-5: Using the Distributive Property
- 1-6: Solving $x^2 + bx + c = 0$
- 1-8: Differences of Squares

Unit 2: Quadratic Functions and Equations---------- 10 Days

- 2-1: Graphing Quadratic Functions
- 2-4: Solving Quadratic Equations by Graphing
- 2-5: Solving Quadratic Equations using the Quadratic Formula

Unit 3: Quadratic Functions and Relations

Unit 4: Exponential and Logarithmic Functions ---------- 40 Days BEGIN MP2

- 3-4: The Quadratic Formula and the Discriminant
- 3-5: Transformations of Quadratic Graphs
- 3-6: Quadratic Inequalities
- 4-3: Simplifying Radical Expressions
- 4-4: Operations with Radical Expressions
- 4-5: Radical Equations
- 3-2: Solving Quadratic Equations by Factoring
- 3-3: Complex Numbers

Unit 5: Reasoning and Proof---------- 20 Days BEGIN MP3

5-2: Algebraic Proof

5-3: Proving Segment Relationships

5-4: Proving Angle Relationships

5-5: Angles and Parallel Lines

5-6: Proving Lines Parallel

Unit 6: Congruent Triangles---------- 18 Days

6-1: Angles of Triangles

6-2: Congruent Triangles

6-3: Proving Triangles Congruent- SSS, SAS

6-4: Proving Triangles Congruent- ASA, AAS

6-5: Isosceles and Equilateral Triangles

Unit 7: Relationships in Triangles---------- 8 Days BEGIN MP4

7-3: Inequalities in One Triangle

7-5: The Triangle Inequality

Unit 8: Quadrilaterals---------- 13 Days

8-1: Angles of Polygons

8-2: Parallelograms

8-3: Tests for Parallelograms

Unit 10: Right Triangles and Trigonometry---------- 8 Days

10-2: The Pythagorean Theorem and its Converse

10-3: Special Right Triangles

10-4: Trigonometry

10-5: Angles of Elevation and Depression

Unit 11: Circles---------- 9 Days

11-1: Circles and Circumference

11-2: Measuring Angles and Arcs

11-3: Arcs and Chords

11-8: Equations of Circles

11-9: Areas of Circles and Sectors

TOTAL: 154

Not all sections are covered. Additional sections will be used if time permits

Edison Township Curriculum
Unit of Study: Chapter 0 Preparing for Integrated Math II

Targeted State Standards: **Statistics & Probability**: Using probability to make decisions. **Algebra**: Create equations that describe numbers or relationships. **Functions**: Building functions.

Unit Objectives/Enduring Understandings: Students will be able to find probabilities of events, and make decisions based on probabilities. Students will be able to create and evaluate functions and relations.

Essential Questions: How can functions and relations be applied to the real world? How can probability be used to make decisions in everyday life?

Unit Assessment: Post - test at the end of the chapter. Teacher created assessment based on until objectives.

	Core Content		**Instructional Actions**	
Cumulative Progress Indicators	**Concepts** *What students will know.*	**Skills** *What students will be able to do.*	**Activities/Strategies** Technology Implementation/ Interdisciplinary Connections	**Assessment Check Points**
S.MD.6 Use Probabilities to make fair decisions (e.g., drawing by lots, using a random number generator) S.MD.7 Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game) A.CED.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. F.BF.4a Solve an equation of the form $f(x) = c$ for a simple	Students will know: ● Vocabulary listed in **Skills** ● Differences between the customary and the metric system ● If f(a) = b and g(b) = a, then f and g may not be inverse functions ● A solution of a system of equations is the set of points where the graphs intersect ● Irrational numbers cannot be expressed as a ratio of two integers	Students will be able to: ● Recognize and use the following terms in context: a. Event b. Trial c. Outcome d. Experiment e. Probability f. Theoretical Probability g Experimental Probability h Inverse Relation i. Inverse Function j. Ordered Pair k. x – coordinate l. y – coordinate m. Quadrant n. Origin o. System of Equations p. Substitution q. Elimination r. Product Property s. Quotient Property	● Use a foldable/graphic organizer to organize main ideas from the unit. See page P2 ● Create slides with units of length and have students describe how to convert from one to the other. See page P4 ● Use Google or other search engine to check work. Ex: search "10 miles to feet." Remind students to always think about if their answers make sense ● Ask students to calculate the probability a specific song will play next on their MP3 player.	● Complete Pre – Test on page P3 to demonstrate readiness for the chapter ● Complete exercises 1 – 27 on page P5 to demonstrate understanding of section 0-1 ● Complete exercises 1 – 21 on page P7 to demonstrate understanding of section 0-2 ● Complete exercises 1 – 23 on page P9 to demonstrate understanding of section 0-3 ● Complete exercises 1 – 36 on page P12

function *f* that has an inverse and write an expression for the inverse. *For example, f(x) = $2x^3$ or f(x) = $\frac{(x+1)}{(x-1)}$ forx ≠ 1.*	● Dividing or multiplying by a negative number will reverse the direction of an inequality	● Convert units of measure within the customary and metric systems ● Convert units of measure between the customary and metric systems ● Find the probability of simple events ● Use the order operations to evaluate algebraic expressions ● Use algebra to solve linear inequalities ● Find the inverse of a relation and a linear function ● Name and graph points in the coordinate plane ● Use graphing, substitution and elimination to solve systems of linear equations ● Evaluate square roots and simplify radical expressions	● Ask students to explain the relationship between evaluating expressions and solving equations. Remind students to check their work by substituting their solution into the original equation or expression. ● Use an interactive whiteboard to complete examples with students, and post the notes on the internet. ● Discuss why it is necessary to reverse an inequality when multiplying or dividing by a negative number. Show examples of what happens if the sign is left in its original orientation. ● Discuss examples of inverse functions :just because f(a) = b, and g(b) = a does not make f and g inverse functions. ● Show 2 graphs on projector and ask students to identify if they are inverses or not ● Complete Lab on page P22 in groups	to demonstrate understanding of section 0-4 - 05 ● Complete exercises 1 – 24 on page P14 to demonstrate understanding of section 0-6 ● Complete guided practice on page P16 to demonstrate understanding of section 0-7 ● Complete exercises 1 – 30 on page P24 to demonstrate understanding of section 0-8 ● Complete exercises 1 – 15 on page P26 to demonstrate understanding of section 0-9 ● Complete exercises 1 – 20 on page P28 to demonstrate understanding of section 0-10 ● Complete Post – Test on page P29 to demonstrate understanding of Unit 0 ● Teacher
Resources: Text, calculator, electronic teaching tools, electronic lesson presentations, online student text book. Teacher will incorporate chapter resources (study guide, college entrance tests, test tackler, standardized test prep) as needed			**Instructional Adjustments:** ● Individual accommodations will be made based on student's Individualized Education Plan or 504 Plan. ● Use interactive whiteboard and provide students with printed out notes (If available)	

Edison Township Curriculum
Unit of Study: Chapter 1 Quadratic Expressions and Equations

Targeted State Standards: **Algebra**: Seeing structure in expressions, arithmetic with polynomials and rational expressions, reasoning with equations and inequalities. **Number and quantity**: The complex number system.

Unit Objectives/Enduring Understandings: Students will be able to add, subtract, multiply and divide polynomials. Students will be able to factor and solve polynomials and polynomial equations.

Essential Questions: How can polynomials be applied to real life situations?

Unit Assessment: Practice test at the end of the chapter, mid chapter quiz, teacher made assessments.

	Core Content		**Instructional Actions**	
Cumulative Progress Indicators	**Concepts** *What students will know.*	**Skills** *What students will be able to do.*	**Activities/Strategies** Technology Implementation/ Interdisciplinary Connections	**Assessment Check Points**
.A.APR.1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials. A.SSE.1a Interpret parts of an expression such as terms, factors, and coefficients. A.SSE.2 Use the structure of an expression to identify ways to rewrite it. *For example, see $x^4 – y^4$ as $(x^2)^2 – (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 – y^2)(x^2 + y^2)$.*	Students will know: ● Vocabulary as listed in skills. ● What creates a "Zero pair" when adding and subtracting ● Multiplying by a -1 can happen at any point during an operation, students can factor out a -1 to make the expressions look simpler ● FOIL is just a word to help us remember to include all terms. any order will give the same result as long as all terms are included ● Special products are helpful to know, but can be found by traditional methods	Students will be able to: ● Recognize and use the following terms in context: a. Factoring b. Factoring by grouping c. Zero Product Property d. Quadratic Equation e. Prime Polynomial f. Difference of two Squares g. Perfect Square Trinomial h. Polynomial i. Binomial j. Degree of a Monomial k. Degree of a Polynomial l. Leading Coefficient j. FOIL Method k. Quadratic Expression ● Use algebra tiles to add and subtract polynomials	● Create a foldable to organize main ideas from the unit. See page 4 ● Use algebra tiles to add and subtract polynomials. See page 5 ● Have students explain why they are doing each step of multiplying polynomials ● Use algebra tiles to multiply polynomials. See page 20. ● Discuss real world situations or ask students to come up with real world situations where squares of sums are used ● Use algebra tiles to factor binomials. See page 35.	● Complete exercises 1 – 19 on page 10 to check for understanding of section 1-1 ● Complete exercises 1 – 17 on page 16 to check for understanding of section 1-2 ● Complete exercises 1 – 11 on page 25 to check for understanding of section 1-3 ● Complete exercises 1 – 11 on page 30 to check for

A.SSE.3a Factor a quadratic expression to reveal the zeros of the function it defines. A.REI.4b Solve quadratic equations in one variable. A.REI.1 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method. N.CN.9 Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials. A.APR.3 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	● The variable term of the GCF of polynomials can be found by dividing by the numeric GCF ● If the numerator and denominator of a fraction of polynomials are both perfect squares, the fraction is a perfect square ● The degree of a polynomial is the maximum possible number of solutions, not the exact number of solutions ● The solutions or x-intercepts of a polynomial function are where the function is equal to 0	● Write polynomials in standard form. ● Add and subtract polynomials. ● Multiply a polynomial by a monomial ● Solve equations involving the products of monomials and polynomials ● Use algebra tiles to multiply polynomials ● Multiply binomials using the FOIL method and the Distributive Property ● Find squares and products of sums and differences ● Use algebra tiles to model the Distributive Property to factor binomials ● Solve quadratic equations of the form $ax^2+bx=0$ ● Use algebra tiles to model factoring trinomials ● Factor trinomials of the form x^2+bx+c ● Solve equations of the form $x^2+bx+c=0$ ● Factor binomials that are the difference of squares	● Use algebra tiles to factor trinomials. See page 43.	understanding of section 1-4 ● Use mid chapter quiz on page 34 to assess understanding of sections 1-1 through 1-4. ● Complete exercises 1 – 14 on page 39 to check for understanding of section 1-5 ● Complete exercises 1 – 11 on page 49 to check for understanding of section 1-6 ● Complete exercises 1 – 9 on page 55 to check for understanding of section 1-7 ● Complete exercises 1 – 14 on page 61 to check for understanding of section 1-8 ● Complete exercises 1 – 11 on page 68 to check for understanding of section 1-9 ● Complete exercises 1 – 16 on page 77 to check for

		● Use the difference of squares to solve equations ● Factor perfect square trinomials ● Solve equations involving perfect squares ● Determine the number and type of roots for a polynomial equation		understanding of section 1-10 ● Use study guide, and practice test starting on page 80 to assess understanding of chapter 1. ● Use Guided Practice throughout chapter during lessons
Resources: Text, calculator, electronic teaching tools, electronic lesson presentations, online student text book. Teacher will incorporate chapter resources (study guide, college entrance tests, test tackler, standardized test prep) as needed			**Instructional Adjustments:** ● Individual accommodations will be made based on student's Individualized Education Plan or 504 Plan. ● Use interactive whiteboard and provide students with printed out notes (If available) ● Use algebra tiles to factor or confirm results of factoring	

Edison Township Curriculum
Unit of Study: Chapter 2 Quadratic Functions and Equations

Targeted State Standards: **Functions**: Interpreting Functions; Building Functions; Linear, Quadratic and Exponential Functions. **Algebra:** Seeing Structure in expressions; Reasoning with Equations and Inequalities. **Statistics and Probability:** Interpreting Categorical and Quantitative Data.

Unit Objectives/Enduring Understandings: Students will be able to make conclusions about the graph of a parabola given its equation. Students will be solving quadratic equations algebraically and graphically. Students will be able to analyze and graph piecewise functions.

Essential Questions: Why do we use different methods to solve problems? How can we use quadratic systems and equations to solve real world problems? How can piecewise functions model real life situations?

Unit Assessment: Practice test at the end of the chapter, mid chapter quiz, teacher made assessments.

	Core Content		**Instructional Actions**	
Cumulative Progress Indicators	**Concepts** *What students will know.*	**Skills** *What students will be able to do.*	**Activities/Strategies** Technology Implementation/ Interdisciplinary Connections	**Assessment Check Points**
F.IF.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.* F.IF.7a Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology	Students will know: ● Vocabulary listed in Skills ● More than one method can be used to solve each type of problem ● Parabolas do not contain straight lines ● Parabolas can have no real roots or double roots ● |a| describes the steepness of the sides of a parabola ● The solution(s) to a system is/are the point(s) where the graphs intersect	Students will be able to: ● Recognize and use the following terms: a. Quadratic Function b. Standard Form c. Parabola d. Axis of Symmetry e. Vertex f. Minimum g Maximum h. Double Root i. Transformation j. Translation k. Dilation l. Reflection m. Vertex Form n. Completing the Square o. Quadratic formula p. Discriminant q. Coefficient of Determination r. Step Function s. Piecewise Linear Function	● Create a foldable to organize main ideas from the unit. See page 92 ● Have students graph parabolas on the board using a grid. ● Use rate of change lab on page 104 to graph a parabola ● Use a graphing calculator to explore the graphs of quadratic functions. See page 111. ● Use a graphing calculator to compare graphs of multiple quadratic functions. See page 112. ● Drag a parabola with a known equation to different parts of a	● Complete exercises 1 – 21 on page 99 to check for understanding of section 2-1 ● Complete exercises 1 – 9 on page 108 to check for understanding of section 2-2 ● Complete exercises 1 – 7 on page 119 to check for understanding of section 2-3 ● Complete exercises 1 – 9 on page 126 to check for

for more complicated cases: Graph linear and quadratic functions and show intercepts, maxima, and minima. F.IF.7b Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases: Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. F.IF.6 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. F.IF.8a Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function: Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context. F.BF.3 Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$ and $f(x + k)$ for specific values of k (both positive and	● The solutions of a quadratic function are not changes by completing the square. ● The quadratic formula will always work, even if the equation is factorable. ● The discriminant tells how many solutions a quadratic equation has. ● Absolute value functions can be written as piecewise functions	t. Greatest Integer Function u. Absolute Value Function v. Piecewise Defined Function ● Analyze the characteristics of the graphs of quadratic functions. ● Graph quadratic Functions ● Use a given quadratic function to investigate the rate of change of a quadratic function ● Solve quadratic equations by graphing ● Estimate solutions of quadratic equations by graphing ● Apply translations of a quadratic function ● Apply dilations and reflections to a quadratic function ● Complete the square to write perfect square trinomials ● Solve quadratic equations by completing the square ● Solve quadratic equations by using the quadratic formula ● Use the discriminant to determine the number of solutions to a quadratic equation	coordinate grid using an interactive whiteboard. Ask students to give the equation of the result. ● Use a graphing calculator to explore systems of linear and quadratic equations. See page 122. ● Use algebra tiles to complete the square. See page 124. ● Use graphing lab on page 130 to find the minimum and maximum values of parabolas. ● Use a graphing calculator to fit a polynomial to a set of points. See page 146 ● Have students create tables to find points on absolute value and piecewise functions before graphing. ● Use graphing calculators to explore the graphs of piecewise functions. See page 156	understanding of section 2-4 ● Complete mid chapter quiz on page 132 to assess understanding of sections 2-1 through 2-4 ● Complete exercises 1 – 15 on page 137 to check for understanding of section 2-5 ● Complete exercises 1 – 13 on page 143 to check for understanding of section 2-6 ● Complete exercises 1 – 8 on page 151 to check for understanding of section 2-7 ● Use study guide, and practice test starting on page 157 to assess understanding of chapter 2. ● Use Guided Practice throughout chapter during lessons

negative); find the value of *k* given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. *Include recognizing even and odd functions from their graphs and algebraic expressions for them.* F.LE.1 Distinguish between situations that can be modeled with linear functions and with exponential functions. F.LE.2 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table). A.SSE.3b Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression: Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. A.REI.4 Solve quadratic equations in one variable. A.REI.7 Solve a simple system consisting of a linear equation and a quadratic equation in two variables		● Identify linear, quadratic, and exponential functions from given data ● Write equations that model data ● Identify and graph step functions ● Identify and graph absolute value and piecewise defined functions		

algebraically and graphically. *For example, find the points of intersection between the line y = -3x and the circle $x^2 + y^2 = 3$.* S.ID.6a Represent data on two quantitative variables on a scatter plot, and describe how the variables are related: Fit a function to the data; use functions fitted to data to solve problems in the context of the data. *Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.*				
Resources: Text, calculator, electronic teaching tools, electronic lesson presentations, online student text book. Teacher will incorporate chapter resources (study guide, college entrance tests, test tackler, standardized test prep) as needed			**Instructional Adjustments:** ● Individual accommodations will be made based on student's Individualized Education Plan or 504 Plan. ● Use interactive whiteboard and provide students with printed out notes (If available) ● Allow students to use a graphing calculator to check solutions.	

Edison Township Curriculum
Unit of Study: Chapter 3 Quadratic Functions and Relations

Targeted State Standards: **Functions**: Building Functions; Interpreting Functions. **Algebra**: Seeing Structure in Expressions; Creating Equations. **Number and Quantity**: The Complex Number System.

Unit Objectives/Enduring Understandings: Students will be able to use a quadratic equation to determine the type and number of roots, and the nature of the graph. Students will be able to solve and graph inequalities with quadratic equations.

Essential Questions: Why do we use different methods to solve problems? What do complex solutions mean when solving real world problems?

Unit Assessment: Practice test at the end of the chapter, mid chapter quiz, teacher made assessments.

	Core Content		**Instructional Actions**	
Cumulative Progress Indicators	**Concepts** *What students will know.*	**Skills** *What students will be able to do.*	**Activities/Strategies** Technology Implementation/ Interdisciplinary Connections	**Assessment Check Points**
F.IF.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.* F.IF.8a Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function: Use the process of factoring and	Students will know: ● Vocabulary listed in Skills ● When dividing by a variable, the value of that variable can no longer be 0 ● Square roots have a positive and negative solution ● All real numbers and all imaginary numbers are complex numbers ● Why the discriminant tells the nature of roots of a quadratic equation ● When to use which method to solve a quadratic equation the fastest	Students will be able to: ● Recognize and use the following terms: a. Factored Form b. FOIL Method c. Imaginary Unit d. Pure Imaginary Number e. Complex Number f. Complex Conjugates g. Quadratic Formula h. Discriminant i. Vertex Form j. Quadratic Inequality ● Write quadratic equations in intercept form ● Solve quadratic equations by factoring ● Perform operations with pure imaginary numbers	● Create a foldable to organize main ideas from the unit. See page 168. ● Use a graphing calculator to model data with a quadratic function. See page 169. ● Complete lab about graphing complex numbers on page 185. ● Use a graphing calculator or computer to solve quadratic equations. See page 187 ● Use a graphing calculator to graph families of parabolas. See page 198. ● Use the rate of change lab on page 206 to extend sections 3-4.	● Complete exercises 1 – 16 on page 174 to check for understanding of section 3-1 ● Complete exercises 1 – 17 on page 182 to check for understanding of section 3-2 ● Complete mid chapter quiz on page 168 to assess understanding of sections 3-1 through 3-2 ● Complete exercises 1 – 13 on page 194 to check for

completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context. F.IF.6 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. F.BF.3 Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$ and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. *Include recognizing even and odd functions from their graphs and algebraic expressions for them.* N.CN.1 Know there is a complex number i such that $i^2 = -1$, and every complex number as the form $a + bi$ with a and b real. N.CN.2 Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.		● Perform operations with complex numbers ● Solve quadratic equations by using the quadratic formula ● Use the discriminant to determine the number and type of roots of a quadratic equation ● Write an equation of the form $y=a(x-h)^2+k$ ● Transform graphs of quadratic functions of the form $y=a(x-h)^2+k$ ● Graph quadratic inequalities in two variables ● Solve quadratic inequalities in one variable	● Have students explain how a quadratic inequality is similar and different to a linear inequality. ● Use the graphing calculator to explore quadratic inequalities. See page 214	understanding of section 3-3 ● Complete exercises 1 – 7 on page 203 to check for understanding of section 3-4 ● Complete exercises 1 – 12 on page 210 to check for understanding of section 3-5 ● Use study guide, and practice test starting on page 157 to assess understanding of chapter 3. ● Use Guided Practice throughout chapter during lessons

N.CN.7 Solve quadratic equations with real coefficients that have complex solutions. A.CED.1 Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.* A.CED.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. *For example, represent inequalities describing nutritional cost constraints on combinations of different foods.* A.SSE.1b Interpret expressions that represent a quantity in terms of its context: Interpret complicated expressions by viewing one or more of their parts as a single entity. *For example, interpret* $P(1 + r)^n$ *as the product of P and a factor not depending on P.* A.SSE.2 Use the structure of an expression to identify ways to rewrite it. *For example, see*				

$x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.				

Resources: Text, calculator, electronic teaching tools, electronic lesson presentations, online student text book. Teacher will incorporate chapter resources (study guide, college entrance tests, test tackler, standardized test prep) as needed	**Instructional Adjustments:** ● Individual accommodations will be made based on student's Individualized Education Plan or 504 Plan. ● Use interactive whiteboard and provide students with printed out notes (If available)

Edison Township Curriculum
Unit of Study: Chapter 4 Exponential and Logarithmic Functions

Targeted State Standards: **Functions**: Interpreting Functions; Linear, Quadratic and Exponential Models. **Algebra**: Seeing Structure in Expressions; Creating Equations; Reasoning with Equations and Inequalities. **Number and Quantity**: The Real Number System.

Unit Objectives/Enduring Understandings: Students will be able to graph exponential functions. Students will be able to solve exponential equations and inequalities. Students will be able to combine radical and exponential expressions.

Essential Questions: How can exponential equations be used to model real life situations? Who uses exponential equations in everyday life?

Unit Assessment: Practice test at the end of the chapter, teacher made assessments.

	Core Content		**Instructional Actions**	
Cumulative Progress Indicators	**Concepts** *What students will know.*	**Skills** *What students will be able to do.*	**Activities/Strategies** Technology Implementation/ Interdisciplinary Connections	**Assessment Check Points**
F.IF.7e Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases: Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude. F.IF.8b Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function: Use the properties of exponents to interpret expressions for exponential functions. *For example, identify percent rate of change in functions such as*	Students will know: ● Vocabulary listed in Skills ● The difference between a polynomial and exponential function ● They can check their answers by substituting in any value from the solution interval ● Solving may produce extraneous solutions ● The importance of checking their solutions in the original equation	Students will be able to: ● Recognize and use the following terms a. Exponential Function b. Exponential Growth c. Asymptote d. Growth Factor e. Exponential Decay f. Decay Factor g. Exponential Equation h. Compound Interest i. Exponential Inequality j. Radical Expression k. Rationalize the denominator l. Conjugate m. Closed n. Nth root o. Index p. Radical Expression q. Extraneous Solution ● Graph exponential growth functions	● Create a foldable to organize main ideas from the unit. See page 226 ● Use a graphing calculator to explore exponential inequalities. See page 235 ● Have students explain the property of equality and how it relates to solving exponential equations ● Complete transforming exponential expressions lab on page 244. ● Ask students to explain how they would simplify radicals with only numeric values	● Complete exercises 1 – 12 on page 231 to check for understanding of section 4-1 ● Complete exercises 1 – 8 on page 240 to check for understanding of section 4-2 ● Complete exercises 1 – 16 on page 248 to check for understanding of section 4-3 ● Complete exercises 1 – 13 on page 254 to check for

$y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$ and classify them as representing exponential growth or decay. F.LE.4 For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where *a*, *c*, and *d* are numbers and the base *b* is 2, 10, or *e*; evaluate the logarithm using technology. A.SSE.3c Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression: Use the properties of exponents to transform expressions for exponential functions. *For example the expression* 1.15^t *can be rewritten as* $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ *to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.* A.REI.4a solve quadratic equations in one variable: Use the method of completing the square to transform any quadratic equation in *x* into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. A.REI.11 Explain why the *x*-coordinates of the points where the graphs of the		● Graph exponential decay functions ● Solve exponential equations ● Solve exponential inequalities ● Simplify radical expressions by using the product property of square roots Simplify radical expressions by using the quotients property of square roots ● Add and subtract radical expressions ● Multiply radical expressions ● Solve radical equations ● Solve radical equations with extraneous square roots	● Complete rational and irrational numbers lab on page 251 ● Complete simplifying nth root lab on page 257	understanding of section 4-4 ● Complete exercises 1 – 7 on page 261 to check for understanding of section 4-5 ● Use study guide, and practice test starting on page 264 to assess understanding of chapter 2. ● Use Guided Practice throughout chapter during lessons

equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions. A.CED.1 Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.* A.CED.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. N.RN.2 Rewrite expressions using radical and rational exponents using the properties of exponents. N.RN.3 Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number				

and an irrational number is irrational.				
Resources: Text, calculator, electronic teaching tools, electronic lesson presentations, online student text book. Teacher will incorporate chapter resources (study guide, college entrance tests, test tackler, standardized test prep) as needed			**Instructional Adjustments:** ● Individual accommodations will be made based on student's Individualized Education Plan or 504 Plan. ● Use interactive whiteboard and provide students with printed out notes (If available)	

Edison Township Curriculum
Unit of Study: Chapter 5 Reasoning and Proof

Targeted State Standards: **Geometry**: Congruence; Modeling with Geometry

Unit Objectives/Enduring Understandings: Students will be able to form logical arguments. Students will be able to prove that lines are parallel, and draw conclusions from parallel lines. Students will be able to make conclusions about complementary, supplementary and right angles.

Essential Questions: What makes a logical argument? How is being able to think logically and form true conclusions useful in real life?

Unit Assessment: Practice test at the end of the chapter, teacher made assessments.

	Core Content		**Instructional Actions**	
Cumulative Progress Indicators	**Concepts** *What students will know.*	**Skills** *What students will be able to do.*	**Activities/Strategies** Technology Implementation/ Interdisciplinary Connections	**Assessment Check Points**
G.MG.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios). G.CO.9 Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*	Students will know: ● Vocabulary listed in Skills ● The difference between necessary and sufficient ● Postulates are accepted as true even though no formal proof exists ● In a two column proof, the current statement does not have to depend on a previous one ● Congruent is used for objects, equals is used for values. Two angels cannot be equal, but their measures can be.	Students will be able to: ● Recognize and use the following terms a. Necessary conditions b. Sufficient conditions c. Postulate d. Axiom e. Theorem f. Deductive arguments g. Paragraph proof h. Informal proof i. Algebraic proof j. Two- column proof k. Formal proof ● Identify and use basic postulates about points, lines and planes ● Write paragraph proofs ● Use algebra to write two-column proofs	● Create a foldable to organize main ideas from the unit. See page 274 ● Complete lab on conditions. See page 275 ● Practice writing proofs before using them to prove geometric ideas ● Use an interactive whiteboard for constructions, or give students a compass and straightedge to complete them on their own ● Ask students to explain when parallel lines appear in real life ● Ask students to identify the types of angles that appear in	● Complete exercises 1 – 15 on page 279 to check for understanding of section 5-1 ● Complete exercises 1 – 8 on page 288 to check for understanding of section 5-2 ● Complete exercises 1 – 3 on page 295 to check for understanding of section 5-3 ● Complete exercises 1 – 7 on page 304 to check for understanding of section 5-4

G.CO.12 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*		● Use properties of equality to write geometric proofs ● Write proofs involving segment addition ● Write proofs involving congruence ● Write proofs involving supplementary and complementary angles ● Write proofs involving congruent and right angles ● Use theorems to determine the relationships between specific pairs of angles ● Use algebra to find angle measurements ● Recognize angle pairs that occur with parallel lines ● Prove that two lines are parallel	scaffolding used to repair buildings	● Complete exercises 1 – 10 on page 311 to check for understanding of section 5-5 ● Complete exercises 1 – 7 on page 319 to check for understanding of section 5-6 ● Use study guide, and practice test starting on page 323 to assess understanding of chapter 5. ● Use Guided Practice throughout chapter during lessons
Resources: Text, calculator, electronic teaching tools, electronic lesson presentations, online student text book. Teacher will incorporate chapter resources (study guide, college entrance tests, test tackler, standardized test prep) as needed			**Instructional Adjustments:** ● Individual accommodations will be made based on student's Individualized Education Plan or 504 Plan. ● Use interactive whiteboard and provide students with printed out notes (If available)	

Edison Township Curriculum
Unit of Study: Chapter 6 Congruent Triangles

Targeted State Standards: **Geometry:** Congruence; Modeling with Geometry; Expressing Geometric Properties with Equations; Similarity, Right Triangles and Trigonometry.

Unit Objectives/Enduring Understandings: Students will be able to draw conclusions about triangles. Students will be able to prove triangles congruent.

Essential Questions: How can you prove two triangles are congruent? What is a congruence transformation?

Unit Assessment: Practice test at the end of the chapter, mid chapter quiz, teacher made assessments.

	Core Content		**Instructional Actions**	
Cumulative Progress Indicators	**Concepts** *What students will know.*	**Skills** *What students will be able to do.*	**Activities/Strategies** Technology Implementation/ Interdisciplinary Connections	**Assessment Check Points**
G.CO.7 Use the definitions of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent. G.CO.10 Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.* G.CO.12 Make formal geometric constructions with a variety of tools and methods	Students will know: ● Vocabulary listed in Skills ● The angles in a triangle add to 180º ● An exterior angle is the sum of the remote interior angle ● Figures are not always marked, do not make assumptions by simply looking at a diagram ● Order matters when naming congruent figures ● SSA is not a congruence theorem	Students will be able to: ● Recognize and use the following terms a. Auxiliary line b. Exterior angle c. Remote interior angle d. Flow proof e. Corollary f. Congruent g. Congruent polygon h. Corresponding parts i. Included angle j. Legs of an isosceles triangle k. Vertex angle l. Base angles m. Coordinate proof n. Orthographic drawing o. Net ● Apply the triangle sum theorem	● Create a foldable to organize main ideas from the unit. See page 334 ● Use Geometers sketchpad to construct and measure various triangles to show angle relationships ● Have students discover the exterior angle theorem by using multiple examples ● Explain how the angles of a triangle relate to a straight angle ● Draw triangles in the coordinate plane and use the distance formula to decide if the are congruent or not	● Complete exercises 1 – 11 on page 339 to check for understanding of section 6-1 ● Complete exercises 1 – 8 on page 347 to check for understanding of section 6-2 ● Complete exercises 1 – 4 on page 357 to check for understanding of section 6-3 ● Complete mid chapter quiz on page 363 to assess understanding of

(compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.* G.GPE.4 Use coordinates to prove simple geometric theorems algebraically. G.MG.1 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder). G.SRT.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.		● Apply the exterior angles theorem ● Name and use corresponding parts of congruent polygons ● Prove triangles congruent using the definition of congruence ● Use the SSS and SAS Postulates to test for triangle congruence ● Use the ASA and AAS postulates to test for triangle congruence ● Use properties of isosceles and equilateral triangles ● Position and label triangles for use in coordinate proofs ● Use coordinate geometry to write proofs	● Complete constructions lab on page 362 using a compass and straightedge or geometers sketchpad ● Use a construction to show that SSA cannot be used to prove two triangles are congruent ● Use geometer's sketchpad or a protractor and straightedge to complete congruence in right triangles lab on page 372 ● When talking about isosceles triangles, use different orientations (make sure the base angles are not always at the bottom) ● Use a set of small cubes to discuss three-dimensional objects. See page 390.	sections 6-1 through 6-3 ● Complete exercises 1 – 5 on page 367 to check for understanding of section 6-4 ● Complete exercises 1 – 8 on page 378 to check for understanding of section 6-5 ● Complete exercises 1 – 6 on page 386 to check for understanding of section 6-6 ● Use study guide, and practice test starting on page 393 to assess understanding of chapter 6. ● Use Guided Practice throughout chapter during lessons
Resources: Text, calculator, electronic teaching tools, electronic lesson presentations, online student text book. Teacher will incorporate chapter resources (study guide, college entrance tests, test tackler, standardized test prep) as needed			**Instructional Adjustments:** ● Individual accommodations will be made based on student's Individualized Education Plan or 504 Plan. ● Use interactive whiteboard and provide students with printed out notes (If available)	

Edison Township Curriculum
Unit of Study: Chapter 7 Relationships in Triangles

Targeted State Standards: **Geometry**: Congruence; Modeling with Geometry. **Functions**: Interpreting Functions.

Unit Objectives/Enduring Understandings: Students will be able to identify and use different measures of centers of triangles and the segments that form them. Students will be able to make conclusions about triangles using the measures of their sides.

Essential Questions: How can you find the balancing point of a triangle? How are inequalities related to the sides of a triangle? When is it useful to prove something indirectly rather than directly?

Unit Assessment: Practice test at the end of the chapter, mid chapter quiz, teacher made assessments.

	Core Content		**Instructional Actions**	
Cumulative Progress Indicators	**Concepts** *What students will know.*	**Skills** *What students will be able to do.*	**Activities/Strategies** Technology Implementation/ Interdisciplinary Connections	**Assessment Check Points**
G.CO.10 Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.* G.CO.12 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular*	Students will know: ● Vocabulary listed in Skills ● The incenter and circumcenter always lie inside the triangle, the orthocenter and circumcenter may lie outside ● The incenter is the balancing point of a triangle ● The largest side is across from the largest angle in a triangle ● The segment addition postulate tells us that if the sum of two sides of a triangle is equal to the third, they lie on the same line	Students will be able to: ● Recognize and use the following terms: a. Angle bisector b. Perpendicular bisector c. Point of concurrency d. Circumcenter e. Incenter f. Median g. Altitude h. Centroid i. Orthocenter j. Matrix logic k. Indirect reasoning l. Indirect proof m. Proof by contradiction ● Identify and use perpendicular bisectors in triangles	● Create a foldable to organize main ideas from the unit. See page 404 ● Give students a ruler and paper, ask them to create a triangle and cut it out. Use this to construct the bisectors in the triangle. Have students measure their triangles to prove theorems about them. See page 405 ● Construct medians and altitudes using the same method as above. See page 416 ● Use geometer's sketchpad to manipulate triangles to show the theorems still hold	● Complete exercises 1 – 8 on page 411 to check for understanding of section 7-1 ● Complete exercises 1 – 4 on page 421 to check for understanding of section 7-2 ● Complete exercises 1 – 7 on page 430 to check for understanding of section 7-3 ● Complete mid chapter quiz on page 434 to assess understanding of

lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line. G.MG.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios). F.IF.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.*		● Identify and use angle bisectors in triangles ● Identify and use medians in triangles ● Identify and use altitudes in triangles ● Recognize and apply properties of inequalities to the measures of the angles of a triangle ● Recognize and apply properties of inequalities to the relationships between the angles and the sides of a triangle ● Write indirect algebraic proofs ● Write indirect geometric proofs ● Use the triangle inequality theorem to identify possible triangles ● Prove triangle relationships using the triangle inequality theorem ● Apple the hinge theorem or its converse to make comparisons in two triangles ● Prove triangle relationships using the hinge theorem or its converse	● Use a graphing calculator to discover the triangle inequality. See page 445 ●	sections 7-1 through 7-3 ● Complete exercises 1 – 10 on page 441 to check for understanding of section 7-4 ● Complete exercises 1 – 5 on page 449 to check for understanding of section 7-5 ● Complete exercises 1 – 9 on page 457 to check for understanding of section 7-6 ● Use study guide, and practice test starting on page 463 to assess understanding of chapter 7. ● Use Guided Practice throughout chapter during lessons

Resources:	**Instructional Adjustments:**
Text, calculator, electronic teaching tools, electronic lesson presentations, online student text book. Teacher will incorporate chapter resources (study guide, college entrance tests, test tackler, standardized test prep) as needed	● Individual accommodations will be made based on student's Individualized Education Plan or 504 Plan. ● Use interactive whiteboard and provide students with printed out notes (If available)

Edison Township Curriculum
Unit of Study: Chapter 8 Quadrilaterals

Targeted State Standards: **Geometry**: Modeling with Geometry; Congruence; Expressing Geometric Properties with Equations.

Unit Objectives/Enduring Understandings: Students will be able to find and use interior and exterior angle measures of polygons. Students will be able to find and apply the properties of rhombi, squares, rectangles, parallelograms, kites and trapezoids.

Essential Questions: How can you find the interior angle measures of a polygon? What are the different types of quadrilaterals and how are they related?

Unit Assessment: Practice test at the end of the chapter, mid chapter quiz, teacher made assessments.

	Core Content		Instructional Actions	
Cumulative Progress Indicators	**Concepts** *What students will know.*	**Skills** *What students will be able to do.*	**Activities/Strategies** Technology Implementation/ Interdisciplinary Connections	**Assessment Check Points**
G.MG.1 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder). G.MG.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios). G.GPE.4 Use coordinates to prove simple geometric theorems algebraically. G.CO.11 Prove theorems about parallelograms. *Theorems include: opposite*	Students will know: ● Vocabulary listed in Skills ● The exterior angles of a parallelogram add to 360º ● A parallelogram needs to only pass one test for you to know all of the properties ● Rectangles are parallelograms, and rhombi are not. A square is both a rectangle and a rhombus ● A rhombus can be classified as a kite ● Many theorems to prove a quadrilateral is a rhombus or a rectangle only work if the quadrilateral is already known to be a parallelogram	Students will be able to: ● Recognize and use the following terms: a. Diagonal b. Parallelogram c. Rectangle d. Rhombus e. Square f. Trapezoid g. Base lags of a trapezoid h. Base angle of a trapezoid i. Midsegment of a trapezoid j. Kite ● Find and use the sum of the measures of the interior angles of a polygon ● Find and use the sum of the measures of the exterior angles of a polygon	● Create a foldable to organize main ideas from the unit. See page 474 ● Use geometer's sketchpad to construct polygons to show the relationships between interior and interior angles ● Use a spreadsheet program to discover properties of angles of polygons. See page 484 ● Ask students what properties they think parallelograms have before discussing the theorems ● Use a graphing calculator to explore parallelogram properties. See page 494	● Complete exercises 1 – 11 on page 99 to check for understanding of section 8-1 ● Complete exercises 1 – 8 on page 489 to check for understanding of section 8-2 ● Complete exercises 1 – 8 on page 499 to check for understanding of section 8-3 ● Complete mid chapter quiz on page 504 to assess understanding of

sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals. G.GO.12 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*	● Some definitions of a trapezoid say that it has at least one set of parallel sides, not exactly one set of parallel sides. Both are acceptable.	● Recognize and apply the properties of the sides and angles of parallelograms ● Recognize and apply the properties of the diagonals of parallelograms ● Recognize the conditions that ensure a quadrilateral is a parallelogram ● Prove that a set of points form a parallelogram in the coordinate plane ● Recognize and apply properties of rectangles ● Determine whether parallelograms ate rectangles ● Recognize and apply properties of rhombi and squares ● Determine whether quadrilaterals are rectangles rhombi or squares ● Recognize and apply the properties of trapezoids, including the medians of trapezoids ● Recognize and apply the properties of kites		sections 8-1 through 8-3 ● Complete exercises 1 – 9 on page 508 to check for understanding of section 8-4 ● Complete exercises 1 – 6 on page 517 to check for understanding of section 8-5 ● Complete exercises 1 – 7 on page 526 to check for understanding of section 8-6 ● Use study guide, and practice test starting on page 531 to assess understanding of chapter 8 ● Use Guided Practice throughout chapter during lessons
Resources: Text, calculator, electronic teaching tools, electronic lesson presentations, online student text book. Teacher will incorporate chapter resources (study guide, college entrance tests, test tackler, standardized test prep) as needed			**Instructional Adjustments:** ● Individual accommodations will be made based on student's Individualized Education Plan or 504 Plan. ● Use interactive whiteboard and provide students with printed out notes (If available)	

Edison Township Curriculum
Unit of Study: Chapter 9 Proportions and Similarity

Targeted State Standards: **Geometry**: Modeling with Geometry; Expressing Geometric Properties with Equations; Similarity, Right Triangles, and Trigonometry.

Unit Objectives/Enduring Understandings: Students will be able to write ratios and solve proportions. Students will be able to apply ratios and proportions to similar figures, and determine whether figures are similar.

Essential Questions: What makes figures similar? How do you prove that figures are similar? How is the concept of similarity used in the real world?

Unit Assessment: Practice test at the end of the chapter, mid chapter quiz, teacher made assessments.

	Core Content		Instructional Actions	
Cumulative Progress Indicators	**Concepts** *What students will know.*	**Skills** *What students will be able to do.*	**Activities/Strategies** Technology Implementation/ Interdisciplinary Connections	**Assessment Check Points**
G.MG.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios). G.SRT.2 Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.	Students will know: ● Vocabulary listed in Skills ● Ratios should have units ● Similarity does not imply congruence ● Some scale factors are given as percents, and some as decimals ● Scale factors may be given in different units	Students will be able to: ● Recognize and use the following terms a. Ratio b. Proportion c. Cross product d. Similar polygon e. Similar ratio f. Scale factor g. Dilation h. Similarity transformation i. Scale factor of a dilation j. Scale model k. Scale drawing l. Scale m. Midsegment of a triangle ● Write ratios ● Write and solve proportions	● Create a foldable to organize main ideas from the unit. See page 542 ● Use a graphing calculator or computer to explore the Fibonacci sequence. See page 550 ● Relate similar polygons to resizing a picture on a computer ● Complete parallel and perpendicular lines lab on page 570 ● Complete fractal lab on page 591	● Complete exercises 1 – 9 on page 546 to check for understanding of section 9-1 ● Complete exercises 1 – 7 on page 555 to check for understanding of section 9-2 ● Complete exercises 1 – 8 on page 565 to check for understanding of section 9-3 ● Complete exercises 1 – 9 on page 577 to check for

G.SRT.4 Prove theorems about triangles. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.* G.SRT.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures. G.GPE.5 Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).		● Use proportions to identify similar polygons ● Solve problems using the properties of similar polygons ● Identify similar triangles using the AA similarity postulate and the SSS and SAS similarity theorems ● Use similar triangles to solve problems ● Use proportional parts with triangles ● Use proportional parts with parallel lines ● Recognize and use proportional relationships of corresponding segments of similar triangles ● Use the angle bisector theorem ● Identify similarity transformations ● Verify similarity after a similarity transformation ● Interpret scale models ● Use scale factors to solve proportions	● Give scale questions where each figure is in different orientations and units	understanding of section 9-4 ● Complete mid chapter quiz on page 582 to assess understanding of sections 9-1 through 9-4 ● Complete exercises 1 – 5 on page 587 to check for understanding of section 9-5 ● Complete exercises 1 – 5 on page 596 to check for understanding of section 9-6 ● Complete exercises 1 – 4 on page 602 to check for understanding of section 9-7 ● Use study guide, and practice test starting on page 606 to assess understanding of chapter 9. ● Use Guided Practice throughout chapter during lessons
Resources: Text, calculator, electronic teaching tools, electronic lesson presentations, online student text book. Teacher will incorporate chapter resources (study guide, college entrance tests, test tackler, standardized test prep) as needed			**Instructional Adjustments:** ● Individual accommodations will be made based on student's Individualized Education Plan or 504 Plan. ● Use interactive whiteboard and provide students with printed out notes (If available)	

Edison Township Curriculum
Unit of Study: Chapter 10 Right Triangles and Trigonometry

Targeted State Standards: **Geometry**: Similarity, Right Triangles and Trigonometry; Congruence; Expressing Geometric Properties with Equations.

Unit Objectives/Enduring Understandings: Students will be able to use the Pythagorean theorem. Students will be able to find missing information in right triangles. Students will be able to work with and apply vectors.

Essential Questions: How are right triangle relationships useful in solving real world problems? What is trigonometry? What are vectors and why are they important?

Unit Assessment: Practice test at the end of the chapter, mid chapter quiz, teacher made assessments.

	Core Content		Instructional Actions	
Cumulative Progress Indicators	**Concepts** *What students will know.*	**Skills** *What students will be able to do.*	**Activities/Strategies** Technology Implementation/ Interdisciplinary Connections	**Assessment Check Points**
G.SRT.1 Verify experimentally the properties of dilations given by a center and a scale factor G.SRT.4 Prove theorems about triangles. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.* G.SRT.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures. G.SRT.6 Understand that by similarity, side ratios in right	Students will know: ● Vocabulary listed in Skills ● Order matters when writing similarity statements ● The legs of a right triangle are also altitudes ● Pythagorean triples are one whole numbers that can make up right triangles. There are an infinite number of real number side lengths that make up right triangles ● We rationalize the denominator to make quantities easier to compare to each other	Students will be able to: ● Recognize and use the following terms: a. Geometric mean b. Pythagorean triple c. Trigonometry d. Trigonometric ratio e. Sine f. Cosine g. Tangent h. Inverse sine i. Inverse cosine j. Inverse tangent k. Cosecant l. Secant m. Cotangent n. Angle of elevation o. Angle of depression p. Law of sines q. Law of cosines r. Ambiguous case s. Vector t. Magnitude	● Create a foldable to organize main ideas from the unit. See page 618 ● Show a geometric proof of the Pythagorean Theorem. See page 628 ● Use a ruler to construct a three dimensional coordinate system. See page 638 ● Use a graphing calculator to find trigonometric ratios in a right triangle. See page 649 ● Use a graphing calculator to explore the secant, cosecant and cotangent functions. See page 660	● Complete exercises 1 – 7 on page 523 to check for understanding of section 10-1 ● Complete exercises 1 – 8 on page 634 to check for understanding of section 10-2 ● Complete exercises 1 – 7 on page 644 to check for understanding of section 10-3 ● Complete exercises 1 – 15 on page 655 to check for

triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles. G.SRT.7 Explain and use the relationship between the sine and cosine of complementary angles. G.SRT.8 Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. G.SRT.9 Derive the formula $A = \frac{1}{2}ab\sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side. G.SRT.11 Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces). G.CO.2 Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).	● Trigonometric ratios are only defined for nonnegative values ● Law of sines and law of cosines can be used for any triangle, sine, cosine and tangent can only be used with right triangles ● A vector has a magnitude and a direction	u. Direction v. Resultant w. Standard position x. Component form ● Find the geometric mean between two numbers ● Solve problems involving relationships between parts of a right triangle and the altitude to its hypotenuse ● Use the Pythagorean theorem ● Use the converse of the Pythagorean theorem ● Use properties of 45-45-90 triangles ● Use properties of 30-60-90 triangles ● Find trigonometric ratios using right triangles ● Use trigonometric ratios to find angle measurements in right triangles ● Solve problems involving angles of elevation and depression ● Use angles of elevation and depression to find the distance between two objects ● Use the law of sines to solve triangles	● Find items around the classroom to measure the angle of depression of elevation. For example measure the distance between the projector and screen to find the angle between them ● Use geometers sketchpad or notecards to construct the ambiguous case. See page 680 ● Complete adding vectors lab on page 691 ● Use a computer or graphing calculator to explore dilations. See page 692	understanding of section 10-4 ● Complete mid chapter quiz on page 132 to assess understanding of sections 10-1 through 10-4 ● Complete exercises 1 – 3 on page 665 to check for understanding of section 10-5 ● Complete exercises 1 – 11 on page 674 to check for understanding of section 10-6 ● Complete exercises 1 – 11 on page 687 to check for understanding of section 10-7 ● Complete exercises 1 – 8 on page 697 to check for understanding of section 10-8 ● Use study guide, and practice test starting on page 702 to assess understanding of chapter 10.

G.CO.10 Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.* G.MG.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios). G.GPE.6 Find the point on a directed line segment between two given points that partitions the segment in a given ratio.		● Use the law of cosines to solve triangles ● Perform vector operations geometrically ● Perform vector operations on the coordinate plane ● Draw dilations ● Draw dilations in the coordinate plane		● Use Guided Practice throughout chapter during lessons
Resources: Text, calculator, electronic teaching tools, electronic lesson presentations, online student text book. Teacher will incorporate chapter resources (study guide, college entrance tests, test tackler, standardized test prep) as needed			**Instructional Adjustments:** ● Individual accommodations will be made based on student's Individualized Education Plan or 504 Plan. ● Use interactive whiteboard and provide students with printed out notes (If available)	

Edison Township Curriculum
Unit of Study: Chapter 11 Circles

Targeted State Standards: **Geometry**: Congruence; Expressing Geometric Properties with Equations; Modeling with Geometry; Circles.

Unit Objectives/Enduring Understandings: Students will be able to identify and use parts of circles. Students will be able to identify and use angles formed by lines intersecting inside, on or outside circles. Students will be able to find information about circles.

Essential Questions: What is measureable in a circle? Why might studying the relationships between the measures of segments and angles drawn in and around circles be useful in the real world?

Unit Assessment: Practice test at the end of the chapter, mid chapter quiz, teacher made assessments.

	Core Content		**Instructional Actions**	
Cumulative Progress Indicators	**Concepts** *What students will know.*	**Skills** *What students will be able to do.*	**Activities/Strategies** Technology Implementation/ Interdisciplinary Connections	**Assessment Check Points**
G.CO.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc. G.CO.12 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing*	Students will know: ● Vocabulary listed in Skills ● Every triangle can be inscribed or circumscribed, but for a quadrilateral to be circumscribed its opposite angles must be supplementary ● Two arcs can have the same measure, but different arc lengths ● The difference between a chord and a secant ● The equation of a circle	Students will be able to: ● Recognize and use the following terms a. Center b. Circle c. Chord d. Diameter e. Radius f. Congruent circles g. Concentric circles h. π i. Inscribed j. Circumscribed k. Central angle l. Arc m. Major arc n. Minor arc o. Semicircle p. Congruent arcs q. Adjacent arcs r. Arc length s. Inscribed angle t. Intercepted arc	● Create a foldable to organize main ideas from the unit. See page 714 ● Practice with circles of different sizes with the same central angles to show the same arc does not mean the same arc length ● Use geometer's sketchpad to create circles and show students how inscribed angles change the arc and arc length ● Use geometer's sketchpad or a compass and straightedge to construct an inscribed and circumscribed circle. See page 758	● Complete exercises 1 – 9 on page 719 to check for understanding of section 11-1 ● Complete exercises 1 – 11 on page 728 to check for understanding of section 11-2 ● Complete exercises 1 – 6 on page 737 to check for understanding of section 11-3 ● Complete exercises 1 – 10 on page 745 to check for

a line parallel to a given line through a point not on the line. G.CO.13 Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle. G.C.1 Prove that all circles are similar. G.C.2 Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.* G.C.3 Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle. G.C.4 Construct a tangent line from a point outside a given circle to the circle. G.C.5 Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.		u. Tangent v. Point of tangency w. Common tangent x. Secant y. Chord segment z. Secant segment a1. External secant segment b1. Tangent segment c1. Compound locus d1. Conic sections e1. Conics f1. Parabola g1. Focus h1. Directrix i1. Sector of a circle ● Identify and use parts of circles ● Solve problems involving the circumference of a circle ● Identify central angles, major arcs, minor arcs, and semicircles, and find their measures ● Find arc lengths ● Recognize and use relationships between arcs and chords ● Recognize and use relationships between arcs, chords and diameters ● Find measures of inscribed angles ● Find measures of angles of inscribed polygons	● Complete conic sections lab on page 782 to see how circles relate to parabolas	understanding of section 11-4 ● Complete mid chapter quiz on page 749 to assess understanding of sections 11-1 through 11-4 ● Complete exercises 1 – 8 on page 754 to check for understanding of section 11-5 ● Complete exercises 1 – 7 on page 763 to check for understanding of section 11-6 ● Complete exercises 1 – 5 on page 771 to check for understanding of section 11-7 ● Complete exercises 1 – 10 on page 778 to check for understanding of section 11-8 ● Complete exercises 1 – 7 on page 787 to check for understanding of section 11-9 ● Use study guide, and practice test starting on page 791

G.MG.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios). G.GPE.1 Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation. G.GPE.2 Derive the equation of a parabola given a focus and directrix. G.GPE.5 Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).		● Use properties of tangents ● Find measures of angles formed by lines intersecting on or inside a circle ● Find measures of angles formed by lines intersecting outside the circle ● Find measures of segments that intersect in the interior of a circle ● Find measures of segments that intersect in the exterior of a circle ● Write the equation of a circle ● Graph the circle in the coordinate plane ● Find areas of circles ● Find areas of sectors of circles		to assess understanding of chapter 11. ● Use Guided Practice throughout chapter during lessons
Resources: Text, calculator, electronic teaching tools, electronic lesson presentations, online student text book. Teacher will incorporate chapter resources (study guide, college entrance tests, test tackler, standardized test prep) as needed			**Instructional Adjustments:** ● Individual accommodations will be made based on student's Individualized Education Plan or 504 Plan. ● Use interactive whiteboard and provide students with printed out notes (If available)	

Edison Township Curriculum
Unit of Study: Chapter 12 Extending Surface Area and Volume

Targeted State Standards: **Geometry**: Modeling with Geometry; Geometric Measurement and Dimension.

Unit Objectives/Enduring Understandings: Students will be able to find volumes and surface areas of three-dimensional figures. Students will be able to recognize different types of geometry.

Essential Questions: How is perimeter and area related to surface area and volume?

Unit Assessment: Practice test at the end of the chapter, mid chapter quiz, teacher made assessments.

	Core Content		Instructional Actions	
Cumulative Progress Indicators	**Concepts** *What students will know.*	**Skills** *What students will be able to do.*	**Activities/Strategies** Technology Implementation/ Interdisciplinary Connections	**Assessment Check Points**
G.GMD.1 Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. *Use dissection arguments, Cavalieri's principle, and informal limit arguments.* G.GMD.3 Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems. G.GMD.4 Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.	Students will know: ● Vocabulary listed in Skills ● The difference between and isometric and orthographic drawing ● Alternate formulas for surface area ● Volume is the amount of space inside of a solid ● Volume is measured in cubic units, area is measured is squared units ● All dimensions of two pyramids must have the same scale to be similar	Students will be able to: ● Recognize and use the following terms a. Right solid b. Oblique solid c. Isometric view d. Cross section e. Topographic map f. Lateral face g. Lateral edge h. Base edge i. Altitude j. Height k. Axis l. Composite solid m. Regular pyramid n. Slant height o. Right cone p. Oblique cone q. Great circle r. Pole s. Hemisphere t. Euclidean geometry u. Spherical geometry	● Create a foldable to organize main ideas from the unit. See page 804 ● Use cards to build solid figures to explore how the volume is measured. See page 805 ● Use topographic maps to explore different types of three-dimensional representations. See page 813 ● Use a cone shaped water cup, or other cone to help students visualize the properties of a cone ● Use a graphing calculator or computer to explore how volume and area change when a dimension is changed. See page 839	● Complete exercises 1 – 7 on page 809 to check for understanding of section 12-1 ● Complete exercises 1 – 8 on page 817 to check for understanding of section 12-2 ● Complete exercises 1 – 6 on page 827 to check for understanding of section 12-3 ● Complete exercises 1 – 9 on page 834 to check for understanding of section 12-4

G.MG.1 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder). G.MG.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).		v. Non-Euclidean geometry w. Median x. Longitude y. Latitude z. Parallels a1. Similar solids b1. Congruent solids ● Draw isometric views of three dimensional figures ● Investigate cross sections of three dimensional figures ● Find lateral areas and surface areas of prisms ● Find lateral areas and surface areas of cylinders ● Find lateral areas and surface areas of pyramids ● Find lateral areas and surface areas of cones ● Find volumes of prisms ● Find volumes of cylinders ● Find volumes of pyramids ● Find volumes of cones ● Find surface areas of spheres ● Find Volumes of Spheres ● Describe sets of points on a sphere	● Connect the area of a rectangle and circle to the volume of a cone or pyramid ● Have students bring in spherical objects to find the volume of ● Complete locus and sphere lab on page 856 ● Bring a globe, or use a computer to complete navigation lab on page 863	● Complete mid chapter quiz on page 840 to assess understanding of sections 21-1 through 12-4 ● Complete exercises 1 – 9 on page 844 to check for understanding of section 12-5 ● Complete exercises 1 – 9 on page 852 to check for understanding of section 12-6 ● Complete exercises 1 – 8 on page 859 to check for understanding of section 12-7 ● Complete exercises 1 – 5 on page 867 to check for understanding of section 12-8 ● Use study guide, and practice test starting on page 871 to assess understanding of chapter 12. ● Use Guided Practice throughout chapter during lessons

		● Compare and contrast Euclidean and spherical geometries ● Identify congruent or similar solids ● Use properties of similar solids		
Resources: Text, calculator, electronic teaching tools, electronic lesson presentations, online student text book. Teacher will incorporate chapter resources (study guide, college entrance tests, test tackler, standardized test prep) as needed			**Instructional Adjustments:** ● Individual accommodations will be made based on student's Individualized Education Plan or 504 Plan. ● Use interactive whiteboard and provide students with printed out notes (If available)	

Edison Township Curriculum
Unit of Study: Chapter 13 Probability and Measurement

Targeted State Standards: **Statistics and Probability**: Conditional Probability and the Rules of Probability; Using Probability to Make Decisions. **Geometry**: Modeling with Geometry.

Unit Objectives/Enduring Understandings: Students will be able to find and apply probabilities using sample spaces, combinations, permutations and the fundamental counting principle. Students will be able to make decisions based on probabilities. Students will be able to estimate probabilities using simulations.

Essential Questions: How is probability used in the real world?

Unit Assessment: Practice test at the end of the chapter, mid chapter quiz, teacher made assessments.

	Core Content		**Instructional Actions**	
Cumulative Progress Indicators	**Concepts** *What students will know.*	**Skills** *What students will be able to do.*	**Activities/Strategies** Technology Implementation/ Interdisciplinary Connections	**Assessment Check Points**
S.CP.1 Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not"). S.CP.2 Understand that two events *A* and *B* are independent if the probability of *A* and *B* occurring together is the product of their probabilities, and use this characterization to determine if they are independent. S.CP.3 Understand the conditional probability of *A* given *B* as *P*(*A* and *B*)/*P*(*B*) , and interpret independence	Students will know: ● Vocabulary listed in Skills ● The fundamental counting principle can be used to check whether all possible outcomes were considered in a sample space ● The entire interval may not be the same interval we are considering for an event ● Expected value is the probability of the event times the random variable ● Using a Venn diagram with mutually exclusive events will have non-overlapping circles	Students will be able to: ● Recognize and use the following terms a. Sample space b. Tree diagram c. Two stage experiment d. Multi stage experiment e. Fundamental counting principle f. Permutation g. Factorial h. Circular permutation i. Combination j. Geometric probability k. Probability model l. Simulation m. Random variable n. Expected value o. Law of large numbers p. Compound event q. Independent event r. Dependent event s. Conditional Probability	● Create a foldable to organize main ideas from the unit. See page 862 ● Ask students to find the probability a specific song will play on an iPod on shuffle ● Complete two way frequency table lab on page 922 ● Complete graph theory lab on page 932	● Complete exercises 1 – 5 on page 886 to check for understanding of section 13-1 ● Complete exercises 1 – 5 on page 895 to check for understanding of section 13-2 ● Complete exercises 1 – 5 on page 902 to check for understanding of section 13-3 ● Complete mid chapter quiz on page 906 to assess understanding of

of *A* and *B* as saying that the conditional probability of *A* given *B* is the same as the probability of *A*, and the conditional probability of *B* given *A* is the same as the probability of *B*. S.CP.4 Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. *For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.* S.CP.6 Find the conditional probability of *A* given *B* as the fraction of *B*'s outcomes that also belong to *A*, and interpret the answer in terms of the model. S.CP.7 Apply the Addition Rule, *P*(*A* or *B*) = *P*(*A*) + *P*(*B*) – *P*(*A* and *B*), and interpret the answer in terms of the model.		t. Probability tree u. Two way frequency table v. Marginal frequencies w. Joint frequencies x. Relative frequency y. Mutually exclusive events z. Complement a1. Vertex-edge graph b1. Network c1. Node d1. Edge e1. Traceable network f1. Weighted vertex-edge graph ● Represent sample spaces ● Use the fundamental counting principle to count outcomes ● Use permutations with probability ● Use combinations with probability ● Find probabilities by using length ● Find probabilities by using area ● Design simulations to estimate probabilities ● Summarize data from simulations ● Find probabilities of independent and dependent events		sections 13-1 through 13-3 ● Complete exercises 1 – 3 on page 911 to check for understanding of section 13-4 ● Complete exercises 1 – 5 on page 919 to check for understanding of section 13-5 ● Complete exercises 1 – 7 on page 929 to check for understanding of section 13-6 ● Use study guide, and practice test starting on page 934 to assess understanding of chapter 13. ● Use Guided Practice throughout chapter during lessons

S.CP.9 Use permutations and combinations to compute probabilities of compound events and solve problems. S.MD.6 Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator). S.MD.7 Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game). G.MG.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).		● Find probabilities of events given the occurrence of other events ● Find probabilities of events that are mutually exclusive and events that are not mutually exclusive ● Find probabilities of complements		
Resources: Text, calculator, electronic teaching tools, electronic lesson presentations, online student text book. Teacher will incorporate chapter resources (study guide, college entrance tests, test tackler, standardized test prep) as needed			**Instructional Adjustments:** ● Individual accommodations will be made based on student's Individualized Education Plan or 504 Plan. ● Use interactive whiteboard and provide students with printed out notes (If available)	