

2006-2007 Curriculum Guide West Carroll High School (Grades 9-12)

Illinois Learning Standards



Mathematics

The *Illinois Learning Standards for Mathematics* were developed by Illinois teachers for Illinois schools. These goals, standards and benchmarks are an outgrowth of the 1985 Illinois State Goals for Learning influenced by the latest thinking in school mathematics. This includes the National Council of Teachers of Mathematics; *Curriculum and Evaluation Standards for School Mathematics*; ideas underlying recent local and national curriculum projects; results of state, national, and international assessment findings; and the work and experiences of Illinois school districts and teachers.

Mathematics is a language we use to identify, describe and investigate the patterns and challenges of everyday living. It helps us to understand the events that have occurred and to predict and prepare for events to come so that we can more fully understand our world and more successfully live in it.





Goal 6 - Number Sense  

Goal 7 - Estimation and Measurement  

Goal 8 - Algebra and Analytical Methods  

Goal 9 - Geometry  

Goal 10 - Data Analysis and Probability  

Retrieved on May 7, 2007 from www.isbe.net

West Carroll High School Math Course Offerings and Teachers in 2006-2007

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Any high school student may enroll in the following courses:

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Course: Basic Math (Special Education)

Instructor: Ms. Stephanie Iben

STATE GOAL 6: Demonstrate and apply a knowledge and sense of numbers, including numeration and operations (addition, subtraction, multiplication, division), patterns, ratios and proportions.

State Learning Standards	Benchmark Level- Middle/junior High School	Curriculum Standard/Experience (Learner Objective)	Suggested Resources	Month(s) Taught
A. Demonstrate knowledge and use of numbers and their representations in a broad range of theoretical and practical settings.	6.A.3 Represent fractions, decimals, percentages, exponents and scientific notation in equivalent forms.	The student will recognize and use exponential, scientific, and calculator notation. The student will rational numbers on a number line.	AM Math Exercises Practices Tests Basic Math Textbook Search and Shade Flash Cards	September October
B. Investigate, represent and solve problems using number facts, operations (addition, subtraction, multiplication, division) and their properties, algorithms and relationships	6.B.3a Solve practical computation problems involving whole numbers, integers and rational numbers.	The student will determine and describe the effects of arithmetic operations with decimals and integers.	AM Math Exercises Practices Tests Basic Math Textbook Search and Shade Flash Cards	Late October November

	6.B.3b Apply primes, factors, divisors, multiples, common factors and common multiples in solving problems.	The student will determine the least common multiple and greatest common factor of a set of numbers using prime factorization containing exponents.	AM Math Exercises Practices Tests Basic Math Textbook Search and Shade Flash Cards	November December
	6.B.3c Identify and apply properties of real numbers including pi, squares, and square roots.	The student will describe and use the inverse relationships of squaring and finding square roots to simplify computations and solve problems.	AM Math Exercises Practices Tests Basic Math Textbook Search and Shade Flash Cards	November
C. Compute and estimate using mental mathematics, paper-and-pencil methods, calculators and computers.	6.C.3a Select computational procedures and solve problems with whole numbers, fractions, decimals, percents and proportions.	The student will select, use, and justify appropriate operations, methods, and tools to compute or estimate with real numbers.	AM Math Exercises Practices Tests Basic Math Textbook Search and Shade Flash Cards	December

	6.C.3b Show evidence that computational results using whole numbers, fractions, decimals, percents and proportions are correct and/or that estimates are reasonable.	The student will Analyze algorithms for computing with real numbers and develop fluency in their use.	AM Math Exercises Practices Tests Basic Math Textbook Search and Shade Flash Cards	December
D. Solve problems using comparison of quantities, ratios, proportions and percents.	6.D.3 Apply ratios and proportions to solve practical problems.	The student will develop, use, analyze, and explain methods for solving number sentences or word problems involving proportions with rational numbers.	AM Math Exercises Practices Tests Basic Math Textbook Search and Shade Flash Cards	April

Course: Basic Math (Special Education)

Instructor: Ms. Stephanie Iben

STATE GOAL 7: Estimate, make and use measurements of objects, quantities and relationships and determine acceptable levels of accuracy.

State Learning Standards	Benchmark Level-middle/junior High School	Curriculum Standard/ Experience (Learner Objective)	Suggested Resources	Month(s) Taught
A. Measure and compare quantities using appropriate units, instruments and methods.	7.A.3a Measure length, capacity, weight/mass and angles using sophisticated instruments (e.g., compass, protractor, trundle wheel).		Algebra 1	
	7.A.3a Measure length, capacity, weight/mass and angles using sophisticated instruments (e.g., compass, protractor, trundle wheel).		Geometry	

Course: Algebra 1

Instructor: Mr. Brandon Farrell

(A & B are split into two years but represent the same Algebra curriculum)

State Goal 6: Number Sense and Operations

Demonstrate and apply a knowledge and sense of numbers

State Learning Standards	Benchmark Level- Early High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Demonstrate knowledge and use of numbers and their representations in a broad range of theoretical and practical settings	6.A.4 Identify and apply the properties of real numbers including special numbers such as pi and square roots.	Use properties to evaluate algebraic expressions	Textbook, Ch. 1 -Connections to Algebra	September
B. Investigate, represent and solve problems using number facts, operations and their properties, algorithms and relationships	6.B.4 Select and use appropriate arithmetic operations in practical situations	Identify solutions to equations and inequalities	Textbook, Ch. 1,3, 6 -Connections to Algebra -Solving Linear Equations -Solving and Graphing Linear Inequalities	September – November, January
C. Compute and estimate using mental mathematics, paper and pencil methods, calculators and computers	6.C.4 Determine whether exact values or approximations are appropriate.			Taught in Geometry
D. Solve problems using comparison of quantities, ratios, proportions and percents	6.D.4 Solve problems involving recipes or mixtures, financial calculations and geometric similarity using ratios, proportions and percents	Use rates and ratios to model and solve real life problems	Textbook, Ch. 3 & 12 - Solving Linear Equations -Radicals	October & May

Course: Algebra 1

Instructor: Mr. Brandon Farrell

(A & B are split into two years but represent the same Algebra curriculum)

State Goal 7: Estimation and Measurement

Estimate, make and use measurements of objects, quantities and relationships

State Learning Standards	Benchmark Level- Early High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Measure and compare quantities using appropriate units, instruments and methods	7.A.4a Apply units and scales to describe and compare numerical data and physical objects			Taught in Geometry
	7.A.4b Apply formulas in a wide variety of theoretical and practical measurement applications involving perimeter, area, etc.	Understand measurable attributes of objects and the units, systems and processes of measurement	Textbook, Ch 3, 5, & 12 -Solving Linear Equations -Writing Linear Equations -Radicals	October, December, May
B. Estimate measurements and determine acceptable levels of accuracy	7.B.4 Estimate and measure the magnitude and directions of physical quantities using rulers, protractors and other instruments including calculators and computers			Taught in Geometry

Course: Algebra 1 Instructor: Mr. Brandon Farrell
 (A & B are split into two years but represent the same Algebra curriculum)

State Goal 7: Estimation and Measurement
 Estimate, make and use measurements of objects, quantities and relationships

C. Select and use appropriate technology, instruments and formulas to solve problems, interpret results and communicate findings.	7.C.4a Make indirect measurements, including heights and distances, using proportions.	Apply and adapt a variety of appropriate strategies to solve problems	Textbook -Lesson Openers -Prerequisite Skills -Reteaching -Practice Worksheets (3 levels) -Assesment Guides	All Year
	7.C.4b Interpret scale drawings and models using maps and blueprints			Taught in Geometry
	7.C.4c Convert within and between measurement systems and monetary systems using technology where appropriate			Taught in Geometry

Course: Algebra 1 Instructor: Mr. Brandon Farrell
 (A & B are split into two years but represent the same Algebra curriculum)

State Goal: 8 - Algebra and Analytic Methods
 Use algebraic and analytical methods to identify, describe patterns and relationships in data, solve problems and predict results

State Learning Standards	Benchmark Level- Early High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Describe numerical relationships using variables and patterns	8.A.4a Use algebraic methods to convert repeating decimals to fractions	Understand numbers and ways of representing numbers	Textbook, Ch 1, 8, & 9 -Connections to Algebra - Exponents and Exponential Functions - Quadratic Equations and Functions	September, February, March
	8.A.4b Represent mathematical	Analyze mathematical	Textbook Ch 2 - Properties of	September/October

	patterns and describe their properties using variables and mathematical symbols	situations and structures using algebraic symbols	Real Numbers	
B. Interpret and Describe numerical relationships using tables , graphs, and symbols	8.B.4a Represent algebraic concepts with physical materials, words, diagrams, tables, graphs, equations and inequalities and use appropriate technology	Use mathematical models to represent and understand quantitative relationships	Textbook Ch 5, 6 - Writing Linear Equations - Solving and Graphing Linear Inequalities	January/February
	8.B.4b Use the basic functions of absolute value, square root, linear, quadratic and step to describe numerical relationships	Understand meanings of operations and how they relate to one another	Textbook, Ch 10, 11 -Polynomials and Factoring - Rational Equations and Functions	April/May

Course: Algebra 1

Instructor: Mr. Brandon Farrell

(A & B are split into two years but represent the same Algebra curriculum)

State Goal 8: Algebra and Analytic Methods

Use algebraic and analytical methods to identify, describe patterns and relationships in data, solve problems and predict results

C. Solve problems using systems of numbers and their properties	8.C.4a Analyze and report the effects of changing coefficients, exponents and other parameters on functions and their graphs	Draw and make predictions from scatter plots. Evaluate and identify functions.	Textbook, Ch 4 -Graphing Linear Equations and Functions	November
	8.C.4b Apply algebraic properties and procedures with matrices, vectors, functions, and sequences using data found in real			Taught in Geometry

	life			
D. Use algebraic concepts and procedures to represent and solve problems.	8.D.4 Formulate and solve linear and quadratic equations and linear inequalities algebraically and investigate nonlinear inequalities using graphs, tables, calculators and computers.	Examine techniques of solving equations and systems of linear equations	Textbook, Ch. 3, 7, 9 - Solving Linear Equations - Solving Systems of Equations and Inequalities - Quadratic Equations and Functions	October, February, April

Course: Algebra 1

Instructor: Mr. Brandon Farrell

(A & B are split into two years but represent the same Algebra curriculum)

State Goal 9: Geometry

Use geometric methods to analyze, categorize and draw conclusions about points, lines and planes and space

State Learning Standards	Benchmark Level- Early High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Demonstrate and apply geometric concepts involving points, lines, planes and space.	9.A.4a Construct a model of a three-dimensional figure from a two-dimensional pattern			Taught in Geometry
	9.A.4b Make perspective drawings, tessellations and scale drawings, with and without the use of technology			Taught in Geometry
B. Identify, describe, classify and compare relationships using points, lines, planes and solids.	9.B.4 Recognize and apply relationships within and among geometric figures	Analyze characteristics and properties of two and three dimensional shapes and develop mathematical arguments	Textbook -Lesson Openers -Prerequisite Skills -Reteaching -Practice Worksheets (3 levels) -Assesment Guides	All Year

Course: Algebra 1
(A & B are split into two years but represent the same Algebra curriculum)

Instructor: Mr. Brandon Farrell

State Goal 9: Geometry

Use geometric methods to analyze, categorize and draw conclusions about points, lines and planes and space

C. Construct and test logical arguments for geometric situations using technology where appropriate	9.C.4a Construct and test logical arguments for geometric situations using technology where appropriate			Taught in Geometry
	9.C.4b Construct and communicate convincing arguments for geometric situations			Taught in Geometry
	9.C.4c Develop and communicate mathematical proofs and counter examples for geometric statements			Taught in Geometry
D. Use trigonometric ratios and circular functions to solve problems	9.D.4 Analyze and solve problems involving triangles using trigonometric ratios			Taught in Geometry

Course: Algebra 1
(A & B are split into two years but represent the same Algebra curriculum)

Instructor: Mr. Brandon Farrell

State Goal 10: Data Analysis and Probability

Collect, organize and analyze data using statistical methods, predict results and interpret uncertainty using concepts of probability.

State Learning Standards	Benchmark Level- Early High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Organize, describe and make predictions from	10.A.4a Represent and organize data by creating lists,	Formulate questions that can be addressed with	Textbook, Ch. 6 - Solving and Graphing Linear	February

existing data	charts, tables, frequency distributions, graphs, scatter plots and box-plots	data and collect, organize, and display relevant data to answer them	Inequalities	
	10.A.4b Analyze data using mean, median, mode, range, variance and standard deviation of a data set, with and without the use of technology		Textbook, Ch. 6 - Solving and Graphing Linear Inequalities	February
	10.A.4c Predict from data using interpolation, extrapolation and trend lines, with and without the use of technology			Taught in Algebra II
B. Formulate questions, design data collection methods, gather and analyze data and communicate findings	10.B.4 Design and execute surveys or experiments, gather data to answer relevant questions, and communicate results and conclusions.			Taught in Geometry

Course: Algebra 1

Instructor: Mr. Brandon Farrell

(A & B are split into two years but represent the same Algebra curriculum)

State Goal 10: Data Analysis and Probability

Collect, organize and analyze data using statistical methods, predict results and interpret uncertainty using concepts of probability.

C. Determine, describe and apply the probabilities of events	10.C.4a Solve problems of chance using the principles of probability including conditional settings.		Textbook, Ch. 2 -Lesson Openers -Prerequisite Skills -Reteaching -Practice Worksheets (3 levels) -Assesment Guides	October
	10.C.4b Design and conduct simulations			Taught in Statistics

	10.C.4c Propose and interpret discrete probability distributions			Taught in Statistics
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Course: Algebra 2

Instructor: Ms. Kathy Taylor

State Goal 6: Demonstrate and apply a knowledge and sense of numbers, including numeration and operations, patterns, ratios and proportions.

State Learning Standards	Benchmark Level- late High School	Curriculum Standard/Experience (Learner Objective)	Suggested Resources	Month(s) Taught
6.A Demonstrate knowledge and use of numbers and their representations in a broad range of theoretical and practical settings.	6.A.5 Perform addition, subtraction and multiplication of complex numbers	The student will be able to express numbers using Euler notation, when necessary, and perform operations with those numbers (as well as real numbers).	Primary source: textbook and its supplementary materials. Using complex numbers in a variety of problems	Usually January, but might vary according to the order in which topics are taught by individual book or teacher.
6.B Investigate, represent and solve problems using number facts, operations, and their properties, algorithms and relationships.	6.B.5 Identify, represent and apply numbers expressed in exponential form and scientific notation.	The student will be able to work with exponents and exponential notation in a variety of types of problems and to work with numbers expressed in scientific notation using scientific calculators.	Primary source: textbook and its supplementary materials. Secondary source: Algebra with Pizzazz worksheets More supplementing	Usually January, but might vary according to the order in which topics are taught by individual teacher or book.

			is needed in regards to scientific notation.	
6.C Compute and estimate using mental mathematics, paper-and-pencil methods, calculators and computers.	6.C.5 Determine the level of accuracy appropriate for needed computations involving irrational numbers (as well as whether keeping an exact value in terms of pi or a fraction is preferred over rounding off to a decimal).	The student will be able to make an informed decision on appropriate forms for answers and to quickly place irrational numbers between two integers (when that level of accuracy is sufficient) mentally or to use technology to find a more accurate approximation, when Required.	Primary source: ongoing discussion of appropriate forms in all types of problems. Rounding off vs. exact answers in a variety of problems	All year long All year long
6.D Solve problems using comparison of quantities, ratios, proportions and percents.	6.D.5 Solve problems involving geometric growth, including some practical application as word problems.	The student will be able to use the formulas of geometric sequences and series to solve problems.	Primary source: Textbook and its supplementary materials. Secondary sources: worksheets A variety of review worksheets involving ratio, proportion and percent are	May Review problems are presented all year long. Time may vary with order of topics covered by textbook or individual teacher.

			used at various times throughout the year.	
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Course: Algebra 2

Instructor: Ms. Kathy Taylor

State Goal 7: Estimate, make and use measurements of objects, quantities and relationships and determine acceptable levels of accuracy.

State Learning Standards	Benchmark Level- late High School	Curriculum Standard/Experience (Learner Objective)	Suggested Resources	Month(s) Taught
7.A Measure and compare quantities using appropriate units, instruments and methods.	7.A.5 Apply formulas in a wide variety of theoretical and practical applications.	The student will be able to use area and volume formulas in probability applications. The student will also be able to use formulas for arithmetic and geometric sequences and series.	Primary source: textbook and its supplementary materials. Arithmetic and geometric sequences and series, probability	November, but will vary according to the order in which topics are taught by individual book or teacher. For me, geometric sequences and series are done in May, after exponents.)
7.B Estimate measurements and determine acceptable levels of accuracy.	7.B.5 Estimate perimeter, area volume and capacity of irregular objects and explain the reasoning supporting the estimate.	Taught in Geometry	Taught in Geometry	Taught in Geometry
7.C Select and use appropriate technology, instruments and formulas	7.C.5a Use dimensional analysis to determine units and	Taught in Geometry	Taught in Geometry	Taught in Geometry

to solve problems, interpret results and communicate findings.	check answers in applied measurement problems.			
	7.C.5b Determine how changes in one measure may affect other measures.	Taught in Geometry	Taught in Geometry	Taught in Geometry

Course: Algebra 2

Instructor: Ms. Kathy Taylor

State Goal 8: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

State Learning Standards	Benchmark Level- late High School	Curriculum Standard/Experience (Learner Objective)	Suggested Resources	Month(s) Taught
8.A Describe numerical relationships using variables and patterns.	8.A.5 Solve mathematical problems using recursive patterns	The student will be able to use equations or formulas to find values (linear in Sept., arithmetic in Nov., and geometric in May) and to develop formulas or equations to describe values of these types.	Primary source: textbook and its supplementary materials. Linear functions, arithmetic sequences, geometric sequences	As indicated, September for linear, November for arithmetic and May for geometric for me, but will vary according to the order in which topics are taught by individual book or teacher.

<p>8.B Interpret and describe numerical relationships using tables, graphs and symbols.</p>	<p>8.B.5 Use functions (including polynomial and rational) to describe numerical relationships.</p>	<p>The student will be introduced to functions, domains, ranges and functional notation. It is not stressed in this course, however.</p>	<p>Primary source: textbook and its supplementary materials. Introduction to functions, domain and range. Algebra with Pizzazz worksheets are used frequently to supplement practice in the book.</p>	<p>September, but will vary according to the order in which topics are taught by individual book or teacher.</p>
<p>8.C Solve problems using systems of numbers and their properties.</p>	<p>8.C.5 Apply algebraic properties and procedures with functions, some modeling practical applications.</p>	<p>The student will be able to evaluate functions and use those values to describe patterns and trends.</p>	<p>Primary source: textbook and its supplementary materials. Evaluating functions. Algebra with Pizzazz worksheets are used frequently to supplement practice in the book.</p>	<p>September, but will vary according to the order in which topics are taught by individual book or teacher.</p>
<p>8.D Use algebraic concepts and procedures to represent and solve problems.</p>	<p>8.D.5 Solve linear and quadratic equations and linear inequalities algebraically and graphically.</p>	<p>The student will be able to solve quadratic equations by factoring and use of the quadratic formula. He will also be able to solve and graph linear</p>	<p>Primary source: textbook and its supplementary materials. Solving quadratic</p>	<p>Quadratic in December (factoring) through February (formula). Linear inequalities in</p>

		inequalities including compound and absolute value.	equations using factoring or the quadratic formula. Algebra with Pizzazz worksheets are used frequently to supplement practice in the book.	October, but will vary according to the order in which topics are taught by individual book or teacher.
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Course: Algebra 2

Instructor: Ms. Kathy Taylor

State Goal 9 : Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes and space.

State Learning Standards	Benchmark Level- late High School	Curriculum Standard/Experience (Learner Objective)	Suggested Resources	Month(s) Taught
9.A. Demonstrate and apply geometric concepts involving points, lines, planes and space.	9.A.5 Use geometric figures and their properties to solve problems in real-life, with and without the use of technology.	The student will use geometric figures to assist in the solution of problems involving, primarily, the Pythagorean theorem, area and volume formulas.	Primary source: textbook and its supplementary materials. Secondary source: worksheets Some geometry worksheets with Pythagorean theorem and graphing, some algebra worksheets with graphing.	Could be any time throughout the year, but most likely January for simplifying radicals. Will vary according to the order in which topics are taught by individual book or teacher.

<p>9.B Identify, describe, classify and compare relationships using points, lines, planes and solids.</p>	<p>9.B.5 Construct and use two- and three-dimensional models of objects that have practical applications.</p>	<p>Taught in Geometry</p>	<p>Taught in Geometry</p>	<p>Taught in Geometry</p>
<p>9.C Construct convincing arguments and proofs to solve problems.</p>	<p>9.C.5a Perform and describe an original investigation of a geometric problem...</p>	<p>Taught in Geometry</p>	<p>Taught in Geometry</p>	<p>Taught in Geometry</p>
	<p>9.C.5b Apply physical models, graphs, coordinate systems... to develop solutions in applied contexts.</p>	<p>While extensive work is done with graphs and coordinate systems, this is taught in Geometry</p>	<p>Taught in Geometry</p>	<p>Taught in Geometry</p>
<p>9.D Use trigonometric ratios and circular functions to solve problems.</p>	<p>9.D.5 Analyze and solve problems involving periodic patterns and communicating results orally and in writing</p>	<p>Taught in Trigonometry</p>	<p>Taught in Trigonometry</p>	<p>As student background becomes more homogeneous, there might be time to do this, according to the order in</p>

				<p>which topics are taught by individual book or teacher.</p> <p>Taught in Trigonometry</p>
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Course: Algebra 2

Instructor: Ms. Kathy Taylor

State Goal 10: Collect, organize and analyze data using statistical methods; predict results; and interpret uncertainty using concepts of probability.

State Learning Standards	Benchmark Level- late High School	Curriculum Standard/Experience (Learner Objective)	Suggested Resources	Month(s) Taught
10.A Organize, describe and make predictions from existing data.	10.A.5 Represent and organize data by creating lists, charts, frequency distributions, graphs, scatterplots and boxplots.	The student will be able to make a scatterplot for existing data, find the median-median line of fit or find the equation of an existing trend line.	Primary source: textbook and its supplementary materials. Graphical models	September, but might vary according to the order in which topics are taught by individual book or teacher.
10.B Formulate questions, design data collection methods, gather and analyze data and communicate findings.	10.B.5 Design and execute surveys or experiments, gather data to answer relevant questions, and communicate results and conclusions to an audience.	Taught in Statistics	Taught in Statistics	Taught in Statistics
10.c Determine, describe and	10.C 5a Compute conditional	The student will be able to compute	Primary source:	November, but

apply the probabilities of events.	probabilities and the probabilities of independent events.	basic probabilities (both algebraic and geometric), will have been introduced to conditional probabilities and independent events.	textbook and its supplementary materials. Probability sections	will vary according to the order in which topics are taught by individual book or teacher.
	10.C 5b Compute probabilities in counting situations involving permutations and combinations.	We did not get this far in Algebra 2. More should be done, if time permits.	We did not get this far in Algebra 2. More should be done, if time permits.. Counting methods	We did not get this far in Algebra 2. More should be done, if time permits.

Course: Statistics

Instructor: Mrs. Mary Haas

State Goal 6: Number Sense and Operations

Demonstrate and apply a knowledge and sense of numbers

State Learning Standards	Benchmark Level- Late High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Demonstrate knowledge and use of numbers and their representations in a broad range of theoretical and practical settings	6.A.5 Perform addition, subtraction, and multiplication of complex numbers and graph in the complex plane			Taught in Algebra II
B. Investigate, represent and solve problems	6.B.5 Identify, represent and apply numbers			Taught in Algebra II

using number facts, operations and their properties, algorithms and relationships	expressed in exponential, logarithmic and scientific notation using contemporary technology			
C. Compute and estimate using mental mathematics, paper and pencil methods, calculators and computers	6.C.5 Determine the level of accuracy needed for computations involving measurement and irrational numbers	Compute summary statistics using formulas using the calculator enter data and compute statistics	Exploring Data Distributions	September
D. Solve problems using comparison of quantities, ratios, proportions and percents	6.D.5 Solve problems involving loans, mortgages and other practical applications involving geometric patterns of growth			Taught in Algebra II

Course: Statistics

Instructor: Mrs. Mary Haas

State Goal 7: Estimation and Measurement

Estimate, make and use measurements of objects, quantities and relationships

State Learning Standards	Benchmark Level- Late High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Measure and compare quantities using appropriate units, instruments and methods	7.A.5 Apply nonlinear scales to solve practical problems			Taught in Algebra II
B. Estimate measurements and determine acceptable levels of accuracy	7.B.5 Estimate perimeter, area, volume, and capacity of irregular shapes and explain reasoning supporting the estimate			Taught in Geometry
C. Select and use appropriate technology, instruments and formulas to solve problems, interpret results and communicate findings.	7.C.5a Use dimensional analysis to determine units and check answers in applied measurement problems			Taught in Geometry
	7.C.5b Determine how changes in one measure may affect other measures	Determine which measures of center and spread are affected by outliers	Exploring Data Distributions	September

Course: Statistics

Instructor: Mrs. Mary Haas

State Goal 8: Algebra and Analytic Methods

Use algebraic and analytical methods to identify, describe patterns and relationships in data, solve problems and predict results

State Learning Standards	Benchmark Level- Late High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Describe numerical relationships using variables and patterns	8.A.5 Solve mathematical problems involving recursive patterns and use models that employ such relationships.	Describe associations of numerical variables with least squares regression line and use the model to solve problems.	Exploring Data Comparisons and Relationships	October
B. Interpret and Describe numerical relationships using tables , graphs, and symbols	8.B.5 Use functions including exponential, polynomial, rational, parametric, logarithmic, and trigonometric to describe numerical relationships	Describe distributions – 1 variable using stemplots, boxplots, tables, histograms	Exploring Data Distributions	September
C. Solve problems using systems of numbers and their properties	8.C.5 Use polynomial, exponential, logarithmic and trigonometric functions to model situations			Taught in Algebra II

D. Use algebraic concepts and procedures to represent and solve problems.	8.D.5 Formulate and solve nonlinear equations and systems including problems involving inverse variation and exponential and logarithmic growth and decay.	Use equation of line to model best fit line and look at minimizing residuals,	Exploring Data Comparisons and Relationships	December
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Course: Statistics

Instructor: Mrs. Mary Haas

State Goal 9: Geometry

Use geometric methods to analyze, categorize and draw conclusions about points, lines and planes and space

State Learning Standards	Benchmark Level- Late High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Demonstrate and apply geometric concepts involving points, lines, planes and space.	9.A.5 Use geometric figures and their properties to solve problems in the arts the physical and life sciences and the building trades with and without the use of technology			Taught in Geometry
B. Identify, describe, classify and compare relationships	9.B.5 Construct and use two and three dimensional models of			Taught in Geometry

using points, lines, planes and solids.	objects that have practical applications (eg blueprints, topographical maps and scale models)			
C. Construct and test logical arguments for geometric situations using technology where appropriate	9.C.5a Perform and describe an original investigation of a geometric problem and verify the analysis and conclusions to an audience.			Taught in Geometry
	9.C.5b Apply physical models, graphs, coordinate systems, networks and vectors to develop solutions in applied contexts			Taught in Geometry
D. Use trigonometric ratios and circular functions to solve problems	9.D.5 Analyze and solve problems involving periodic patterns			Taught in Trigonometry

Course: Statistics

Instructor: Mrs. Mary Haas

State Goal 10: Data Analysis and Probability

Collect, organize and analyze data using statistical methods, predict results and interpret uncertainty using concepts of probability.

State Learning Standards	Benchmark Level- Late High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Organize, describe and make predictions from existing data	10.A.5 Construct a statistics-based presentation, individually and as members of a team, to communicate and justify the results of a project	Work as team members to do variety of statistical activities, working with data and creating graphic.	Inference from Data	Ongoing all through the course
B. Formulate questions, design data collection methods, gather and analyze data and communicate findings	10.B.5 Design a statistical experiment to answer a question about a realistic situation, conduct the experiment, use statistics to interpret the data and communicate the results individually and as members of a team	Students will create surveys and do research to compare do descriptive statistics project. Students will create surveys and conduct experiments and trials for inferential statistics project	Collecting Data, Randomness	December April

C. Determine, describe and apply the probabilities of events	10.C.5a Compute conditional probabilities and the probabilities of independent events.	Students conduct experiments and learn rules of theoretical probability, randomness and discover patterns of sampling variability	Randomness in Data	February
	10.C.5b Compute probabilities in counting situations involving permutations and combinations.	Students will learn basic combinatorics and solve problems	Probability	January
	10.C.5c Make predictions using probabilities associated with normally distributed events.	Students learn to use confidence intervals, and hypothesis testing to determine the significance of experiment outcomes.	Inference from Data Principles and Comparisons	March and April

Course: Trigonometry and Analytic Geometry

Instructor: Ms. Kathy Taylor

State Goal 6: Demonstrate and apply a knowledge and sense of numbers, including numeration and operations, patterns, ratios and proportions.

State Learning Standards	Benchmark Level- late High School	Curriculum Standard/Experience (Learner Objective)	Suggested Resources	Month(s) Taught
6.A Demonstrate knowledge and use of numbers and their representations in a broad range of theoretical and practical settings.	6.A.5 Perform addition, subtraction and multiplication of complex numbers	The student will be able to express numbers using Euler notation, when necessary, and perform operations with those numbers (as well as real numbers).	Primary source: textbook and its supplementary materials. Review of complex numbers.	February, but will vary according to the order in which topics are taught by individual book or teacher. PSAE review
6.B Investigate, represent and solve problems using number facts, operations, and their properties, algorithms and relationships.	6.B.5 Identify, represent and apply numbers expressed in exponential form and scientific notation.	The student will be able to work with exponents and exponential notation in a variety of types of problems and to work with numbers expressed in scientific notation using scientific calculators.	Primary source: textbook and its supplementary materials. Using exponents and exponential expressions (including negative, zero and rational)	February, but will vary according to the order in which topics are taught by individual book or teacher. PSAE review

<p>6.C Compute and estimate using mental mathematics, paper-and-pencil methods. calculators and computers.</p>	<p>6.C.5 Determine the level of accuracy appropriate for needed computations involving irrational numbers (as well as whether keeping an exact value in terms of pi or a fraction is preferred over rounding off to a decimal).</p>	<p>The student will be able to make an informed decision on appropriate forms for answers and to quickly place irrational numbers between two integers (when that level of accuracy is sufficient) mentally or to use technology to find a more accurate approximation, when required.</p>	<p>Primary source: textbook and its supplementary materials. Using exact values, where appropriate, in a variety of trig problems</p>	<p>February, but will vary according to the order in which topics are taught by individual book or teacher. PSAE review</p>
<p>6.D Solve problems using comparison of quantities, ratios, proportions and percents.</p>	<p>6.D.5 Solve problems involving geometric growth, including some practical application as word problems.</p>	<p>The student will be able to use the formulas of geometric sequences and series to solve problems.</p>	<p>Primary source: textbook and its supplementary materials. Using geometric sequences and series to solve application-type problems.</p>	<p>February, but will vary according to the order in which topics are taught by individual book or teacher. PSAE review</p>

Course: Trigonometry and Analytic Geometry Instructor: Ms. Kathy Taylor

State Goal 7: Estimate, make and use measurements of objects, quantities and relationships and determine acceptable levels of accuracy.

State Learning Standards	Benchmark Level- late High School	Curriculum Standard/Experience (Learner Objective)	Suggested Resources	Month(s) Taught
7.A Measure and compare quantities using appropriate units, instruments and methods.	7.A.5 Apply formulas in a wide variety of theoretical and practical applications	The student will be able to use (apply) formulas that are particular to trig like the Law of Sines and Law of Cosines, as well as continued use of the Pythagorean theorem.	Primary source: textbook Applying formulas using Pythagorean theorem, Law of Sines and Law of Cosines. Geometry worksheets with right triangles, Pythagorean theorem, areas, volumes and other worksheets	May, but will be earlier as the incoming students have more homogeneous backgrounds.
7.B Estimate measurements and determine acceptable levels of accuracy.	7.B.5 Estimate perimeter, area volume and capacity of irregular objects and explain the reasoning supporting the estimate.	Taught in Geometry	Taught in Geometry	Taught in Geometry

7.C Select and use appropriate technology, instruments and formulas to solve problems, interpret results and communicate findings.	7.C.5a Use dimensional analysis to determine units and check answers in applied measurement problems.	Use of radian measure for angles is new in trigonometry. Taught in Geometry	Taught in Geometry	Taught in Geometry
	7.C.5b Determine how changes in one measure may affect other measures.	Taught in Geometry	Taught in Geometry	Taught in Geometry

Course: Trigonometry and Analytic Geometry

Instructor: Ms. Kathy Taylor

State Goal 8: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

State Learning Standards	Benchmark Level- late High School	Curriculum Standard/Experience (Learner Objective)	Suggested Resources	Month(s) Taught
8.A Describe numerical relationships using variables and patterns.	8.A.5 Solve mathematical problems using recursive patterns	The student will review linear equation patterns (September) and practice and develop an understanding of the circular functions (December and thereafter).	Primary source: textbook and its supplementary materials. Periodic nature of circular	September for linear and December through May for circular, but will vary according to the order in which topics are taught by

			functions	individual book or teacher.
8.B Interpret and describe numerical relationships using tables, graphs and symbols.	8.B.5 Use functions (including polynomial, trigonometric, absolute value and rational) to describe numerical relationships.	The student will have an extensive review of polynomial and linear functions and their characteristics before moving on to the trigonometric functions, upon which a major portion of the course will be spent.	Primary source: textbook and its supplementary materials. Review of common functions and their graphs; introduction of circular functions	Review in September and October, Trig functions thereafter, but will vary according to the order in which topics are taught by individual book or teacher.
8.C Solve problems using systems of numbers and their properties.	8.C.5 Apply algebraic properties and procedures with functions, some modeling practical applications.	The student will be able to do a variety of problems with the above-mentioned types of functions. Emphasis will be on the Trigonometric functions and a variety of new types of problems based on those.	Primary source: textbook and its supplementary materials. Application problems based on trig functions	See above, but will vary according to the order in which topics are taught by individual book or teacher.
8.D Use algebraic concepts and	8.D.5 Solve linear and quadratic	The student will practice primarily	Primary source:	See above. Times will

procedures to represent and solve problems.	equations and linear inequalities algebraically and graphically.	with trigonometric functions in representing and solving problems. Review of other types, as mentioned above, will also be included. Exponential and log functions will probably not be covered in this course, but that will depend on the available time.	textbook and its supplementary materials. Sections on various types of equations and inequalities (review) and trig equations	vary according to the order in which topics are taught by individual book or teacher. More material will be covered in the future as the students will come from a more homogeneous background.
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Course: Trigonometry and Analytic Geometry

Instructor: Ms. Kathy Taylor

State Goal 9: Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes and space.

State Learning Standards	Benchmark Level- late High School	Curriculum Standard/Experience (Learner Objective)	Suggested Resources	Month(s) Taught
9.A. Demonstrate and apply geometric concepts involving points, lines, planes and space.	9.A.5 Use geometric figures and their properties to solve problems in real-life, with and without the use of technology.	The student will use geometric figures to assist in the solution of problems involving, primarily, the Pythagorean theorem, area and volume formulas, and trig relationships in triangles and the unit circle.	Primary source: textbook and its supplementary materials. Geometry worksheets with right triangles, Pythagorean theorem, areas, volumes and other worksheets	December and thereafter, but will vary according to the order in which topics are taught by individual book or teacher. More time for new topics will be available as the students' backgrounds become more

				homogeneous and less review is needed.
9.B Identify, describe, classify and compare relationships using points, lines, planes and solids.	9.B.5 Construct and use two-and three-dimensional models of objects that have practical applications.	The student will use geometric figures to assist in the solution of problems involving, primarily, the Pythagorean theorem, area and volume formulas, and trig relationships in triangles and the unit circle. Two-dimensional drawings are most frequently used.	Primary source: textbook and its supplementary materials. Geometry worksheets with right triangles, Pythagorean theorem, areas, volumes and other worksheets	December and thereafter, but will vary according to the order in which topics are taught by individual book or teacher. More time for new topics will be available as the students' backgrounds become more homogeneous and less review is needed.
9.C Construct convincing arguments and proofs to solve problems.	9.C.5a Perform and describe an original investigation of a geometric problem.	Taught in Geometry.	Taught in Geometry	Taught in Geometry
	9.C.5b Apply physical models, graphs, coordinate systems...to develop solutions in applied	The student will use geometric figures to assist in the solution of problems involving, primarily, the Pythagorean theorem, area and volume formulas,	Primary source: textbook and its supplementary materials.	December and thereafter, but will vary according to the order in which topics are taught by

	contexts.	and trig relationships in triangles and the unit circle. Two-dimensional drawings are most frequently used.	Geometry worksheets with right triangles, Pythagorean theorem, areas, volumes and other worksheets	individual book or teacher. More time for new topics will be available as the students' backgrounds become more homogeneous and less review is needed.
9.D Use trigonometric ratios and circular functions to solve problems.	9.D.5 Analyze and solve problems involving periodic patterns and communicating results orally and in writing	The student will use the periodic relationships of the circular functions to solve trig equations, evaluate functions, and graph the functions.	Primary source: textbook and its supplementary materials. Geometry worksheets with right triangles, Pythagorean theorem, areas, volumes and other worksheets	December and thereafter, but will vary according to the order in which topics are taught by individual book or teacher. More time for new topics will be available as the students' backgrounds become more homogeneous and less review is needed.

Course: Trigonometry and Analytic Geometry

Instructor: Ms. Kathy Taylor

State Goal 10: Collect, organize and analyze data using statistical methods; predict results; and interpret uncertainty using concepts of probability.

State Learning Standards	Benchmark Level- late High School	Curriculum Standard/Experience (Learner Objective)	Suggested Resources	Month(s) Taught
10.A Organize, describe and make predictions from existing data.	10.A.5 Represent and organize data by creating lists, charts, frequency distributions, graphs, scatterplots and boxplots.	Taught in Algebra 2	Taught in Algebra 2	Taught in Algebra 2
10.B Formulate questions, design data collection methods, gather and analyze data and communicate findings.	10.B.5 Design and execute surveys or experiments, gather data to answer relevant questions, and communicate results and conclusions to an audience.	Taught in Statistics	Taught in Statistics	Taught in Statistics
10.c Determine, describe and apply the probabilities of events.	10.C 5a Compute conditional probabilities and the probabilities of independent events.	Taught in Algebra 2	Taught in Algebra 2	Taught in Algebra 2

	10.C 5b Compute probabilities in counting situations involving permutations and combinations.	Taught in Algebra 2	Taught in Algebra 2	Taught in Algebra 2
	10.C.5c Make predictions with probabilities associated with normally distributed events.	(The predictions they would be able to make would concern values of the circular functions.) Taught in Statistics	Taught in Statistics	Taught in Statistics

Course: Honors Algebra 3

Instructor: Ms. Kathy Taylor

State Goal 6 : Demonstrate and apply a knowledge and sense of numbers, including numeration and operations, patterns, ratios and proportions.

State Learning Standards	Benchmark Level- late High School	Curriculum Standard/Experience (Learner Objective)	Suggested Resources	Month(s) Taught
6.A Demonstrate knowledge and use of numbers and their representations in a broad range of theoretical and practical	6.A.5 Perform addition, subtraction and multiplication of complex numbers	The students will review operations with complex numbers and how these solutions are represented on graphs of quadratic functions. Highland Syllabus:	Primary source: textbook and its supplementary materials. Using complex numbers in a	First semester, but will vary according to the order in which topics are taught by individual book or teacher.

settings.		“Use complex number system to solve problems.”	variety of problems	Use of complex numbers to solve problems is also part of outcome #5 on the Highland syllabus, so it will reappear during second semester.
6.B Investigate, represent and solve problems using number facts, operations, and their properties, algorithms and relationships.	6.B.5 Identify, represent and apply numbers expressed in exponential form and scientific notation.	The student will be able to change the form of exponential expressions to log expressions and to solve some types of equations using either form.	Primary source: textbook and its supplementary materials. Changing forms of exponential/log expressions in order to facilitate solving problems	First semester, But will vary according to the order in which topics are taught by individual book or teacher. Solving exponential and logarithmic equations reappears during second semester as part of outcome # 2 on the Highland syllabus.
6.C Compute and estimate using mental mathematics, paper-and-pencil	6.C.5 Determine the level of accuracy appropriate for needed computations	Highland syllabus, Outcome # 1: “Using calculator to explore data, test conjectures and confirm and verify	Primary source: textbook and its supplementary materials.	Second semester, but will vary according to the order in which topics

methods. calculators and computers.	involving irrational numbers (as well as whether keeping an exact value in terms of pi or a fraction is preferred over rounding off to a decimal).	mathematics.”	Using graphing calculators to verify results of a variety of problems.	are taught by individual book or teacher.
6.D Solve problems using comparison of quantities, ratios, proportions and percents.	6.D.5 Solve problems involving geometric growth, including some practical application as word problems.	Highland Outcomes # 1 includes problems with geometric growth patterns as does # 5. The student will be able to solve problems involving exponential, geometric and logarithmic patterns of growth or decay.	Primary source: textbook and its supplementary materials. Solving logarithmic and exponential equations that result from word problems.	Mostly second semester, but will vary according to the order in which topics are taught by individual book or teacher.

Course: Honors Algebra 3

Instructor: Ms. Kathy Taylor

State Goal 7 : Estimate, make and use measurements of objects, quantities and relationships and determine acceptable levels of accuracy.

State Learning Standards	Benchmark Level- late High School	Curriculum Standard/Experience (Learner Objective)	Suggested Resources	Month(s) Taught
7.A Measure and compare quantities using	7.A.5 Apply formulas in a wide variety of theoretical and	Taught in Geometry	Taught in Geometry	Taught in Geometry

appropriate units, instruments and methods.	practical applications			
7.B Estimate measurements and determine acceptable levels of accuracy.	7.B.5 Estimate perimeter, area volume and capacity of irregular objects and explain the reasoning supporting the estimate.	Taught in Geometry	Taught in Geometry	Taught in Geometry
7.C Select and use appropriate technology, instruments and formulas to solve problems, interpret results and communicate findings.	7.C.5a Use dimensional analysis to determine units and check answers in applied measurement problems.	Taught in Geometry	Taught in Geometry	Taught in Geometry
	7.C.5b Determine how changes in one measure may affect other measures.	Taught in Geometry	Taught in Geometry	Taught in Geometry

Course: Honors Algebra 3

Instructor: Ms. Kathy Taylor

State Goal 8 : Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.

State Learning Standards	Benchmark Level- late High School	Curriculum Standard/Experience (Learner Objective)	Suggested Resources	Month(s) Taught
8.A Describe numerical relationships using variables and patterns.	8.A.5 Solve mathematical problems using recursive patterns	Highland course outcome #5: Use summation notation to write the sum of a sequence, determine whether a sequence is arithmetic or geometric.	Primary source: textbook and its supplementary materials. Arithmetic and geometric sequences and series	May, but will vary according to the order in which topics are taught by individual book or teacher.
8.B Interpret and describe numerical relationships using tables, graphs and symbols.	8.B.5 Use functions (including exponential, logarithmic, trigonometric, polynomial and rational) to describe numerical relationships.	Highland course outcome # 2: Solve equations and mathematical problems of the following types: linear, quadratic, radical, absolute value, rational, polynomial, logarithmic, exponential, linear systems and non-linear systems.	Primary source: textbook and its supplementary materials. Solving a variety of types of equations (see left)	September and October review for dual credit. Second semester for dual credit, but will vary according to the order in which topics are taught by individual book or teacher.

8.C Solve problems using systems of numbers and their properties.	8.C.5 Apply algebraic properties and procedures with functions, some modeling practical applications.	Use polynomial, exponential, trigonometric and logarithmic functions to model situations.	Primary source: textbook and its supplementary materials. Word problems using a variety of functions	See section above, but will vary according to the order in which topics are taught by individual book or teacher.
8.D Use algebraic concepts and procedures to represent and solve problems.	8.D.5 Solve linear and quadratic equations and linear inequalities algebraically and graphically.	Formulate and solve non-linear equations and systems including problems involving inverse variation and exponential and logarithmic growth and decay.	Primary source: textbook and its supplementary materials. Application-type problems of a variety of types	See section above, but will vary according to the order in which topics are taught by individual book or teacher.

Course: Honors Algebra 3

Instructor: Ms. Kathy Taylor

State Goal 9 : Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes and space.

State Learning Standards	Benchmark Level- late High School	Curriculum Standard/Experience (Learner Objective)	Suggested Resources	Month(s) Taught
9.A. Demonstrate and apply geometric concepts involving points, lines,	9.A.5 Use geometric figures and their properties to solve problems in real-life, with	Taught in Geometry	Taught in Geometry	Taught in Geometry

planes and space.	and without the use of technology.			
9.B Identify, describe, classify and compare relationships using points, lines, planes and solids.	9.B.5 Construct and use two-and three-dimensional models of objects that have practical applications.	Taught in Geometry	Taught in Geometry	Taught in Geometry
9.C Construct convincing arguments and proofs to solve problems.	9.C.5a Perform and describe an original investigation of a geometric problem...	Taught in Geometry	Taught in Geometry	Taught in Geometry
	9.C.5b Apply physical models, graphs, coordinate systems...to develop solutions in applied contexts.	Taught in Geometry	Taught in Geometry	Taught in Geometry
9.D Use trigonometric ratios and circular functions to solve problems.	9.D.5 Analyze and solve problems involving periodic patterns and communicating results orally and in writing	Taught in Trigonometry	Taught in Trigonometry	Taught in Trigonometry

Course: Honors Algebra 3

Instructor: Ms. Kathy Taylor

State Goal 10: Collect, organize and analyze data using statistical methods; predict results; and interpret uncertainty using concepts of probability.

State Learning Standards	Benchmark Level- late High School	Curriculum Standard/Experience (Learner Objective)	Suggested Resources	Month(s) Taught
10.A Organize, describe and make predictions from existing data.	10.A.5 Represent and organize data by creating lists, charts, frequency distributions, graphs, scatterplots and boxplots.	Highland course outcome # 3: Students will read and interpret graphs including scatterplots, bar graphs and algebraic graphs generated by hand or through the use of the graphing calculator.	Primary source: textbook and its supplementary materials. Graphs of various types of functions throughout the semester.	Estimated March, but will vary according to the order in which topics are taught by individual book or teacher.
10.B Formulate questions, design data collection methods, gather and analyze data and communicate findings.	10.B.5 Design and execute surveys or experiments, gather data to answer relevant questions, and communicate results and conclusions to an audience.	Taught in Statistics	Taught in Statistics	Taught in Statistics
10.c Determine, describe and apply the probabilities of events.	10.C 5a Compute conditional probabilities and the probabilities of independent events.	Taught in Statistics	Taught in Statistics	Taught in Statistics
	10.C 5b Compute probabilities in	Taught in Statistics	Taught in Statistics	Taught in Statistics

	counting situations involving permutations and combinations.			
	10.C.5c Make predictions with probabilities associated with normally distributed events.	Taught in Statistics	Taught in Statistics	Taught in Statistics

Course: Pre-calculus

Instructor: Mrs. Mary Haas

State Goal 6: Number Sense and Operations

Demonstrate and apply a knowledge and sense of numbers

State Learning Standards	Benchmark Level- Late High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Demonstrate knowledge and use of numbers and their representations in a broad range of theoretical and practical settings	6.A.5 Perform addition, subtraction, and multiplication of complex numbers and graph in the complex plane	In the context of finding polynomial zeros student must apply the numerical operations to the complex numbers,	Polynomials and Rational Functions	October
B. Investigate, represent and solve problems using number facts, operations and their properties, algorithms and relationships	6.B.5 Identify, represent and apply numbers expressed in exponential, logarithmic and scientific notation using contemporary technology	Students connect with numbers expressed exponentially and as logarithms of different bases including e	Exponential and Logarithmic Functions	November

<p>C. Compute and estimate using mental mathematics, paper and pencil methods, calculators and computers</p>	<p>6.C.5 Determine the level of accuracy needed for computations involving measurement and irrational numbers</p>	<p>In working with trigonometry problems students determine when to leave pi or radicals in simplified terms or use a calculator to get a certain level of accuracy for an applied problem</p>	<p>Trigonometric Functions</p>	<p>December</p>
<p>D. Solve problems using comparison of quantities, ratios, proportions and percents</p>	<p>6.D.5 Solve problems involving loans, mortgages and other practical applications involving geometric patterns of growth</p>	<p>Use exponential growth models, exponential decay models, Gaussian and logistic models to solve real-life problems</p>	<p>Exponential and Logarithmic Functions</p>	<p>November</p>

Course: Pre-calculus

Instructor: Mrs. Mary Haas

State Goal 7: Estimation and Measurement

Estimate, make and use measurements of objects, quantities and relationships

State Learning Standards	Benchmark Level- Late High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Measure and compare quantities using appropriate units, instruments and methods	7.A.5 Apply nonlinear scales to solve practical problems	Create a logarithmic scale to graph quantities covering a large scale	Exponential and Logarithmic Functions	December
B. Estimate measurements and determine acceptable levels of accuracy	7.B.5 Estimate perimeter, area, volume, and capacity of irregular shapes and explain reasoning supporting the estimate	Using a legal land description use law of sines and cosines to estimate the acreage	Additional Topics in Trigonometry	March
C. Select and use appropriate technology, instruments and formulas to solve problems, interpret results and communicate findings.	7.C.5a Use dimensional analysis to determine units and check answers in applied measurement problems	Converting between degree and radian systems of angle measurement	Trigonometric Functions	December
	7.C.5b Determine how changes in one measure may affect other measures	Solve problems involving right and oblique triangles using trigonometry ratios and identities	Analytic Trigonometry	January, February

Course: Pre-calculus

Instructor: Mrs. Mary Haas

State Goal: 8 - Algebra and Analytic Methods

Use algebraic and analytical methods to identify, describe patterns and relationships in data, solve problems and predict results

State Learning Standards	Benchmark Level- Late High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Describe numerical relationships using variables and patterns	8.A.5 Solve mathematical problems involving recursive patterns and use models that employ such relationships.	Students recognize, write and use sequences and series to model recursive patterns	Sequences and Series	April
B. Interpret and Describe numerical relationships using tables , graphs, and symbols	8.B.5 Use functions including exponential, polynomial, rational, parametric, logarithmic, and trigonometric to describe numerical relationships.	Students really spend most of year learning about the behavior of these types of functions and how they are represented	Functions	Throughout the entire school year
C. Solve problems using systems of numbers and their properties	8.C.5 Use polynomial, exponential, logarithmic and trigonometric functions to model situations	As students learn about each type of function they learn the inverse of the function and properties that enable them to solve equations. They also learn the types of real life situations that are modeled by these functions	Functions	Throughout the entire school year

D. Use algebraic concepts and procedures to represent and solve problems.	8.D.5 Formulate and solve nonlinear equations and systems including problems involving inverse variation and exponential and logarithmic growth and decay.	Students learn to solve and check each type of equation	Functions	Throughout the entire school year
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Course: Pre-calculus

Instructor: Mrs. Mary Haas

State Goal 9: Geometry

Use geometric methods to analyze, categorize and draw conclusions about points, lines and planes and space

State Learning Standards	Benchmark Level- Late High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Demonstrate and apply geometric concepts involving points, lines, planes and space.	9.A.5 Use geometric figures and their properties to solve problems in the arts the physical and life sciences and the building trades with and without the use of technology	Solve physical geometrical problems with trigonometry	Trigonometric Functions	December
B. Identify, describe, classify and compare relationships	9.B.5 Construct and use two and three dimensional models of	Using reflective properties of the parabola construct a hot dog cooker	Conic Sections	May

using points, lines, planes and solids.	objects that have practical applications (eg blueprints, topographical maps and scale models)			
C. Construct and test logical arguments for geometric situations using technology where appropriate	9.C.5a Perform and describe an original investigation of a geometric problem and verify the analysis and conclusions to an audience.	Prove the Law of sines and cosines	Analytic Trigonometry	February
	9.C.5b Apply physical models, graphs, coordinate systems, networks and vectors to develop solutions in applied contexts	Solve problems involving vectors representing forces and trigonometry	Analytic Trigonometry	February
D. Use trigonometric ratios and circular functions to solve problems	9.D.5 Analyze and solve problems involving periodic patterns	Model real life situations climatic and business related involving circular graphs.	Other Topics in Trigonometry	March

Course: Pre-calculus

Instructor: Mrs. Mary Haas

State Goal 10: Data Analysis and Probability

Collect, organize and analyze data using statistical methods, predict results and interpret uncertainty using concepts of probability.

State Learning Standards	Benchmark Level- Late High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Organize, describe and make predictions from existing data	10.A.5 Construct a statistics-based presentation, individually and as members of a team, to communicate and justify the results of a project	Students collect data. Welk and Crow Behavior	Rational Functions	January
B. Formulate questions, design data collection methods, gather and analyze data and communicate findings	10.B.5 Design a statistical experiment to answer a question about a realistic situation, conduct the experiment, use statistics to interpret the data and communicate the results individually and as members of a team	Students collect data. Welk and Crow Behavior	Rational Functions	January
C. Determine, describe and apply the probabilities of events	10.C.5a Compute conditional probabilities and the probabilities of independent events.	Find the probabilities of events and their complements. Use binomial probabilities	Probability	April

	10.C.5b Compute probabilities in counting situations involving permutations and combinations.	Solve counting problems – using the Fundamental counting principle	Probability	April
	10.C.5c Make predictions using probabilities associated with normally distributed events.			Taught in Statistics

Course: Geometry

Instructor: Mrs. Mary Haas

(Geometry A represents the same Geometry curriculum, but eliminates all proof concepts)

State Goal 6: Number Sense and Operations

Demonstrate and apply a knowledge and sense of numbers

State Learning Standards	Benchmark Level- Early High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Demonstrate knowledge and use of numbers and their representations in a broad range of theoretical and practical settings	6.A.4 Identify and apply the properties of real numbers including special numbers such as pi and square roots.	Use algebraic properties in reasoning with proofs	Reasoning and Proof, Investigations, Logic Activities	September
B. Investigate, represent and solve problems using number	6.B.4 Select and use appropriate arithmetic operations in			Covered in Algebra I

facts, operations and their properties, algorithms and relationships	practical situations			
C. Compute and estimate using mental mathematics, paper and pencil methods, calculators and computers	6.C.4 Determine whether exact values or approximations are appropriate.	Use Trigonometry to estimate distances outdoors	Right Triangles and Trigonometry Outdoor Activity using shadows, mirrors or clinometer and trig.	April
D. Solve problems using comparison of quantities, ratios, proportions and percents	6.D.4 Solve problems involving recipes or mixtures, financial calculations and geometric similarity using ratios, proportions and percents	Students solve problems involving similarity of triangles and other geometric figures, using ratios and proportions.	Similarity and Right Triangles Proportion and similarity problems Simplification of radicals	March

Course: Geometry

Instructor: Mrs. Mary Haas

State Goal 7: Estimation and Measurement

Estimate, make and use measurements of objects, quantities and relationships

State Learning Standards	Benchmark Level- Early High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Measure and compare quantities using	7.A.4a Apply units and describe and	Investigate Dilations and make conjectures	Transformations and Similarity Draw dilations using rulers,	February, March

appropriate units, instruments and methods	compare numerical data and physical objects	about similarity of geometric figures	compasses and graph paper	
	7.A.4b Apply formulas in a wide variety of theoretical and practical measurement applications involving perimeter, area, etc.	Use geometric tools to measure segments, angles.	Geometry Basics Use rulers, compasses, protractors	August
		Use geometric properties of quadrilaterals	Quadrilaterals Compare and contrast quadrilaterals	January
		Derive and use appropriate formulas to measure perimeter, area and volume	Areas, Surface areas and Volumes Construct solids and measure surface area and volume using formulas	May
B. Estimate measurements and determine acceptable levels of accuracy	7.B.4 Estimate and measure the magnitude and directions of physical quantities using rulers, protractors and other instruments including calculators and computers	Use geometric transformations to show motion in a plane. Create an animation	Transformations Create a flipbook using all the transformations learned	February
C. Select and use appropriate technology, instruments and	7.C.4a Make indirect measurements, including heights and	Find distances indirectly using similar triangles	Similarity. Solve problems involving similar triangles	March

formulas to solve problems, interpret results and communicate findings.	distances, using proportions.			
	7.C.4b Interpret scale drawings and models using maps and blueprints	Interpret distances on a map using a scale and proportions	Similarity. Map and blueprint activities Design and Build a life-size arch	March April
	7.C.4c Convert within and between measurement systems and monetary systems using technology where appropriate	Use proportions to solve real-life problems such as finding the width of a painting.	Similarity. Standard paper size activity	March

Course: Geometry

Instructor: Mrs. Mary Haas

State Goal 8: Algebra and Analytic Methods

Use algebraic and analytical methods to identify, describe patterns and relationships in data, solve problems and predict results

State Learning Standards	Benchmark Level- Early High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Describe numerical relationships using variables and patterns	8.A.4a Use algebraic methods to convert repeating decimals to fractions			Covered in Algebra I
	8.A.4b Represent mathematical	Use inductive reasoning to	Geometry Basics	August

	patterns and describe their properties using variables and mathematical symbols	observe, test, and describe visual and numerical patterns	Activities with number and visual patterns, like Pascals triangle, polygonal numbers	
B. Interpret and Describe numerical relationships using tables , graphs, and symbols	8.B.4a Represent algebraic concepts with physical materials, words, diagrams, tables, graphs, equations and inequalities and use appropriate technology	Represent parallel and perpendicular lines as equations in slope-intercept form	Perpendicular and Parallel Lines Activities with notecards for parallel lines and perpendicular lines, geoboards, dotpaper, and graph paper	October
	8.B.4b Use the basic functions of absolute value, square root, linear, quadratic and step to describe numerical relationships			Covered in Algebra I
C. Solve problems using systems of numbers and their properties	8.C.4a Analyze and report the effects of changing coefficients, exponents on functions and their graphs			Covered in Algebra I
	8.C.4b Apply algebraic properties and procedures with matrices,	Use vectors in real-life situations. Find the magnitude	Transformations and Right Triangles and Trigonometry	January, March

	vectors, functions, and sequences using data found in real life	and direction.	Activities with vectors, example skydiving, golfing, wind speed	
D. Use algebraic concepts and procedures to represent and solve problems.	8.D.4 Formulate and solve linear and quadratic equations and linear inequalities algebraically and investigate nonlinear inequalities using graphs, tables, calculators and computers.			Covered in Algebra I

Course: Geometry

Instructor: Mrs. Mary Haas

State Goal 9: Geometry

Use geometric methods to analyze, categorize and draw conclusions about points, lines and planes and space

State Learning Standards	Benchmark Level- Early High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Demonstrate and apply geometric concepts involving points, lines, planes and space.	9.A.4a Construct a model of a three-dimensional figure from a two-dimensional pattern	Create two-dimensional nets for a variety of three-dimensional solids.	Surface Area and Volume 3-D Activities, constructing and drawing	May
	9.A.4b Make perspective drawings, tessellations	Create tessellations involving translations,	Transformations Tessellation Activity	January

	and scale drawings, with and without the use of technology	rotations, reflections and glide reflections		
B. Identify, describe, classify and compare relationships using points, lines, planes and solids.	9.B.4 Recognize and apply relationships within and among geometric figures	This learning standard and benchmarks are integrated throughout the entire course	Discussion, notes, homework activities everyday	August - May
C. Construct and test logical arguments for geometric situations using technology where appropriate	9.C.4a Construct and test logical arguments for geometric situations using technology where appropriate	Use computer to test geometric conjectures, demonstrate and prove using either two-column proof, flow-chart, or paragraph proof.	Perpendicular Lines, Triangles and their Properties Geometer sketchpad activities, Proof and Reasoning activities	October - January
	9.C.4b Construct and communicate convincing arguments for geometric situations	In a group present a proof of the Pythagorean Theorem using computer software or graphic posters	Right Triangles Pythagorean Proof activity	March
	9.C.4c Develop and communicate mathematical	Use computer to test geometric	Triangles, Quadrilaterals and Proof	October – January

	proofs and counter examples for geometric statements	conjectures, demonstrate and prove using either two-column proof, flow-chart, or paragraph proof.	Development of Geometrical Reasoning Activities	
D. Use trigonometric ratios and circular functions to solve problems	9.D.4 Analyze and solve problems involving triangles using trigonometric ratios	Solve problems using right triangle trigonometry	Right Triangles and Trigonometry Solve right triangles using trigonometry, Pythagorean theorem and Interior Angle sums	March

Course: Geometry

Instructor: Mrs. Mary Haas

State Goal 10: Data Analysis and Probability

Collect, organize and analyze data using statistical methods, predict results and interpret uncertainty using concepts of probability.

State Learning Standards	Benchmark Level- Early High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Organize, describe and make predictions from existing data	10.A.4a Represent and organize data by creating lists, charts, tables, frequency distributions, graphs, scatter plots and box-plots	Use tables to recognize patterns	Geometry Basics Number Pattern Activities	August
	10.A.4b Analyze data using mean,			Covered in Algebra I

	median, mode, range, variance and standard deviation of a data set, with and without the use of technology			
	10.A.4c Predict from data using interpolation, extrapolation and trend lines, with and without the use of technology			Covered in Algebra II
B. Formulate questions, design data collection methods, gather and analyze data and communicate findings	10.B.4 Design and execute surveys or experiments, gather data to answer relevant questions, and communicate results and conclusions.	Use geometric probability to solve real life problems	Area of Polygons and Circles Geometric Probability Activities	April
C. Determine, describe and apply the probabilities of events	10.C.4a Solve problems of chance using the principles of probability including conditional settings.	Use geometric probability to solve real life problems	Areas of Polygons and Circles Geometric Probability Activities	April
	10.C.4b Design and conduct simulations	Investigate experimental probability	Areas of Polygons and Circles Dartboard / Monte Carlo problems	April

	10.C.4c Propose and interpret discrete probability distributions			Covered in Statistics
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Course: Geometry Honors

Instructor: Mrs. Mary Haas

State Goal 6: Number Sense and Operations

Demonstrate and apply a knowledge and sense of numbers

State Learning Standards	Benchmark Level- Early High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Demonstrate knowledge and use of numbers and their representations in a broad range of theoretical and practical settings	6.A.4 Identify and apply the properties of real numbers including special numbers such as pi and square roots.	Use algebraic properties in reasoning with proofs	Reasoning and Proof, Investigations, Logic Activities	September
B. Investigate, represent and solve problems using number facts, operations and their properties, algorithms and relationships	6.B.4 Select and use appropriate arithmetic operations in practical situations			Covered in Algebra I
C. Compute and estimate using mental mathematics, paper and pencil methods, calculators and computers	6.C.4 Determine whether exact values or approximations are appropriate.	Use Trigonometry to estimate distances out doors	Right Triangles and Trigonometry Outdoor Activity using shadows, mirrors or clinometer and trig.	April

D. Solve problems using comparison of quantities, ratios, proportions and percents	6.D.4 Solve problems involving recipes or mixtures, financial calculations and geometric similarity using ratios, proportions and percents	Students solve problems involving similarity of triangles and other geometric figures, using ratios and proportions.	Similarity and Right Triangles Proportion and similarity problems Simplification of radicals including rationalizing the denominator	March
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Course: Geometry Honors

Instructor: Mrs. Mary Haas

State Goal 7: Estimation and Measurement

Estimate, make and use measurements of objects, quantities and relationships

State Learning Standards	Benchmark Level- Early High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Measure and compare quantities using appropriate units, instruments and methods	7.A.4a Apply units and scales to describe and compare numerical data and physical objects	Investigate Dilations and make conjectures about similarity of geometric figures	Transformations and Similarity Draw dilations using rulers, compasses and graph paper	February, March
	7.A.4b Apply formulas in a wide variety of theoretical and practical measurement applications involving perimeter, area, etc.	Use geometric tools to measure segments, angles. Use geometric properties of quadrilaterals	Geometry Basics Use rulers, compasses, protractors Quadrilaterals Compare and contrast quadrilaterals. Proof.	August January
		Derive and use appropriate	Areas, Surface areas and	May

		formulas to measure perimeter, area and volume	Volumes Construct solids and measure surface area and volume using formulas	
B. Estimate measurements and determine acceptable levels of accuracy	7.B.4 Estimate and measure the magnitude and directions of physical quantities using rulers, protractors and other instruments including calculators and computers	Use geometric transformations to show motion in a plane. Create an animation	Transformations Create a flipbook using all the transformations learned	February
C. Select and use appropriate technology, instruments and formulas to solve problems, interpret results and communicate findings.	7.C.4a Make indirect measurements, including heights and distances, using proportions.	Find distances indirectly using similar triangles	Similarity. Solve problems involving similar triangles Proof.	March
	7.C.4b Interpret scale drawings and models using maps and blueprints	Interpret distances on a map using a scale and proportions	Similarity. Map and blueprint activities Design and Build a lifesize arch	March April
	7.C.4c Convert within and between measurement systems and	Use proportions to solve real-life problems such as finding	Similarity. Standard paper size activity	March

	monetary systems using technology where appropriate	the width of a painting.		
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Course: Geometry Honors

Instructor: Mrs. Mary Haas

State Goal 8: Algebra and Analytic Methods

Use algebraic and analytical methods to identify, describe patterns and relationships in data, solve problems and predict results

State Learning Standards	Benchmark Level- Early High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Describe numerical relationships using variables and patterns	8.A.4a Use algebraic methods to convert repeating decimals to fractions			Covered in Algebra I
	8.A.4b Represent mathematical patterns and describe their properties using variables and mathematical symbols	Use inductive reasoning to observe, test, and describe visual and numerical patterns	Geometry Basics Activities with number and visual patterns, like Pascals triangle, polygonal numbers	August
B. Interpret and Describe numerical relationships using tables, graphs, and symbols	8.B.4a Represent algebraic concepts with physical materials, words, diagrams, tables, graphs, equations and inequalities and	Represent parallel and perpendicular lines as equations in slope-intercept form	Perpendicular and Parallel Lines Activities with notecards for parallel lines and perpendicular lines,	October

	use appropriate technology		geoboards, dotpaper, and graph paper	
	8.B.4b Use the basic functions of absolute value, square root, linear, quadratic and step to describe numerical relationships			Covered in Algebra I
C. Solve problems using systems of numbers and their properties	8.C.4a Analyze and report the effects of changing coefficients, exponents on functions and their graphs			Covered in Algebra I
	8.C.4b Apply algebraic properties and procedures with matrices, vectors, functions, and sequences using data found in real life	Use vectors in real-life situations. Find the magnitude and direction.	Transformations and Right Triangles and Trigonometry Activities with vectors, example skydiving, golfing, wind speed	January, March
D. Use algebraic concepts and procedures to represent and solve problems.	8.D.4 Formulate and solve linear and quadratic equations and linear inequalities algebraically and investigate nonlinear inequalities using graphs, tables, calculators and computers.			Covered in Algebra I

Course: Geometry Honors

Instructor: Mrs. Mary Haas

State Goal 9: Geometry

Use geometric methods to analyze, categorize and draw conclusions about points, lines and planes and space

State Learning Standards	Benchmark Level- Early High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Demonstrate and apply geometric concepts involving points, lines, planes and space.	9.A.4a Construct a model of a three-dimensional figure from a two-dimensional pattern	Create two-dimensional nets for a variety of three-dimensional solids.	Surface Area and Volume 3-D Activities, constructing and drawing	May
	9.A.4b Make perspective drawings, tessellations and scale drawings, with and without the use of technology	Create tessellations involving translations, rotations, reflections and glide reflections	Transformations Tessellation Activity	January
B. Identify, describe, classify and compare relationships using points, lines, planes and solids.	9.B.4 Recognize and apply relationships within and among geometric figures	This learning standard and benchmarks are integrated throughout the entire course	Discussion, notes, homework activities everyday	August - May
C. Construct and test logical arguments for geometric situations using technology	9.C.4a Construct and test logical arguments for geometric situations using technology	Use computer to test geometric conjectures, demonstrate and prove using	Perpendicular Lines, Triangles and their Properties Geometer	October - January

where appropriate	where appropriate	either two-column proof, flow-chart, or paragraph proof.	sketchpad activities, Proof and Reasoning activities	
	9.C.4b Construct and communicate convincing arguments for geometric situations	In a group present a proof of the Pythagorean Theorem using computer software or graphic posters	Right Triangles Pythagorean Proof activity	March
	9.C.4c Develop and communicate mathematical proofs and counter examples for geometric statements	Use computer to test geometric conjectures, demonstrate and prove using either two-column proof, flow-chart, or paragraph proof.	Triangles, Quadrilaterals and Proof Development of Geometrical Reasoning Activities	October – January
D. Use trigonometric ratios and circular functions to solve problems	9.D.4 Analyze and solve problems involving triangles using trigonometric ratios	Solve problems using right triangle trigonometry	Right Triangles and Trigonometry Solve right triangles using trigonometry, Pythagorean theorem and Interior Angle sums	March

Course: Geometry Honors

Instructor: Mrs. Mary Haas

State Goal 10: Data Analysis and Probability

Collect, organize and analyze data using statistical methods, predict results and interpret uncertainty using concepts of probability.

State Learning Standards	Benchmark Level- Early High School	Curriculum Standard Learner Objective	Suggested Resources	Month(s) Taught
A. Organize, describe and make predictions from existing data	10.A.4a Represent and organize data by creating lists, charts, tables, frequency distributions, graphs, scatter plots and box-plots	Use tables to recognize patterns	Geometry Basics Number Pattern Activities	August
	10.A.4b Analyze data using mean, median, mode, range, variance and standard deviation of a data set, with and without the use of technology			Covered in Algebra I
	10.A.4c Predict from data using interpolation, extrapolation and trend lines, with and without the use of technology			Covered in Algebra II

B. Formulate questions, design data collection methods, gather and analyze data and communicate findings	10.B.4 Design and execute surveys or experiments, gather data to answer relevant questions, and communicate results and conclusions.	Use geometric probability to solve real life problems	Area of Polygons and Circles Geometric Probability Activities	April
C. Determine, describe and apply the probabilities of events	10.C.4a Solve problems of chance using the principles of probability including conditional settings.	Use geometric probability to solve real life problems	Area of Polygons and Circles Geometric Probability Activities	April
	10.C.4b Design and conduct simulations	Investigate experimental probability	Area of Polygons and Circles Dartboard / Monte Carlo problems	April
	10.C.4c Propose and interpret discrete probability distributions			Covered in Statistics

