

ALGEBRA II SYLABUS

DAYS NEEDED	ESSENTIAL QUESTION	CONTENT (CHAPTER/UNIT DESCRIPTION/ACTIVITIES) <i>*D.O.E. ALG.2 MATH STRANDS</i>	SKILLS (STANDARDS LEARNING OUTCOMES)	MATERIALS/ RESOURCES TEXT: AWSM Adv. Algebra - all	ASSESSMENT (OBJECTIVES/ SUBJECTIVES)
1	How would you identify the relationship trend and association between two sets of data?	GRAPHICAL MODELS <i>A11.P.10 Use symbolic, numeric, and graphical methods to solve systems of equations and/or inequalities involving algebraic, exponential, and logarithmic expressions. Also use technology where appropriate. Describe the relationships among the methods</i> <i>A1.D.1 Select, create, and interpret an appropriate graphical representation (e.g., scatterplot, table, stem-and-leaf plots, circle graph, line graph, and line plot) for a set of data and use appropriate statistics (e.g., mean, median, range, and mode) to communicate information about the data. Use these notions to compare different sets of data.</i>	-DATA AND SCATTERPLOTS -FUNCTIONS *#+	CHAPTER 1 Graphing calculator	Tests, quizzes, homework, class work and/or critical reading and writing assessment on graphical models of data
1	How do you measure or simulate the likelihood of an event occurring?	PROBABILITY <i>*D.1</i>	-THEORETICAL AND EXPERIMENTAL -SIMULATION *#+	Graphing calculator, coins, dice, cards, random number table	Tests, quizzes, homework, class work and/or critical reading and writing assessment on probability
1	How do you model real-world data using matrices?	MATRICES <i>*A11.P.9 Use matrices to solve systems of linear equations. Apply to the solution of everyday problems.</i>	-DATA -MULTIPLYING *#+	Graphing calculator,	Tests, quizzes, homework, class work and/or critical reading and writing assessment on matrices
1	How do you write, interpret and solve linear equations?	LINEAR FUNCTION <i>*A11.P.8 Solve a variety of equations and inequalities using algebraic, graphical, and numerical methods, including the quadratic formula; use technology where</i>	-SOLVING EQUATIONS -DIRECT VARIATIONS -EQUATIONS OF LINES	CHAPTER 2 Graphing calculator	Tests, quizzes, homework, class work and/or critical reading and writing assessment on linear functions

		appropriate. Include polynomial, exponential, and logarithmic functions; expressions involving the absolute values; and simple rational expressions *P.10	*#+		
1	How do you interpret data to make predictions?	FITTING FUNCTIONS TO DATA *P.10	-TREND LINES -LINE OF BEST FIT *#+	Graphing calculator	Tests, quizzes, homework, classwork and/or critical reading and writing assessment on best fit of data
1	How do you apply the concepts of linear and absolute value inequalities to boundaries, distances and tolerances?	LINEAR INEQUALITIES *P.8 *P.10	-ABSOLUTE VALUE -ONE AND TWO VARIABLES -GRAPHING *#+	CHAPTER 2 Graphing calculator	Tests, quizzes, homework, classwork and/or critical reading and writing assessment on comparing inequalities
2	How are the methods of solving linear systems used in real world situations?	SOLVING LINEAR EQUATIONS *P.9 *P.10	-GRAPHICALLY, NUMERICALLY, SYMBOLICALLY AND MATRICES -3-VARIABLES *#+	CHAPTER 3 Graphing calculator	Tests, quizzes, homework, class work and/or critical reading and writing assessment On solving systems of equations
1	How are constraints modeled as a tool for decision-making?	SOLVING SYSTEMS OF LINEAR INEQUALITIES *P.10	-GRAPHICALLY *#+		Tests, quizzes, homework, class work and/or critical reading and writing assessment on graphical analysis of inequalities
2	How do you model patterns?	ARITHMETIC AND GEOMETRIC <i>* All.P.1 Describe, complete, extend, analyze, generalize, and create a wide variety of patterns, including iterative and recursive patterns such as Pascal's Triangle</i> <i>*A11.P.2 Identify arithmetic and geometric sequences and finite arithmetic and geometric series. Use the properties of such sequences and series to solve problems,</i>	-SIGMA NOTATION -FINITE AND INFINITE SEQUENCES *#+	CHAPTER 4 Graphing calculator, Bouncing balls, measuring tape, yardstick	*#+ Tests, quizzes, homework, class work and/or critical reading and writing assessment on sequences and series

	including finding the formula for the general term and the sum, recursively and explicitly.		
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1	Where do you use imaginary and complex numbers?	<p>RELATING REAL AND NONREAL NUMBERS</p> <p><i>*A11.N.1 Define complex numbers (e.g., $a + bi$) and operations on them, in particular, addition, subtraction, multiplication, and division. Relate the system of complex numbers to the systems of real and rational numbers.</i></p>	<p>-RATIONAL AND REAL NUMBERS</p> <p>-COMPLEX AND IMAGINARY NUMBERS</p> <p>*##+</p>	Graphing calculator	Tests, quizzes, homework, class work and/or critical reading and writing assessment on the complex number systems
2	How do you investigate the characteristics of parabolas?	<p>QUADRATIC FUNCTION</p> <p><i>*A11.P.6 Given algebraic, numeric and/or graphical representations, recognize functions as polynomial, rational, logarithmic, or exponential. (12.P.6)</i></p> <p><i>*A11.P.7 Find solutions to quadratic equations (with real coefficients and real or complex roots) and apply to the solutions of problems.</i></p> <p>*P.8</p>	<p>-SOLVING USING EQUATIONS, GRAPHS AND TECHNOLOGY</p> <p>-TRANSLATIONS AND RELATIONS</p> <p>*##+</p>	Marble launcher	Tests, quizzes, homework, class work and/or critical reading and writing assessment on evaluating quadratic functions
1	How do the curves of conic sections model real world phenomena?	<p>QUADRATIC RELATIONS</p> <p><i>*A11.G.3 Relate geometric and algebraic representations of lines, simple curves, and conic sections.</i></p>	<p>-CONIC SECTIONS*##+</p> <p>-CIRCLES*##+</p> <p>-HYPERBOLAS AND ELLIPSES*#</p>	Graphing calculator	Tests, quizzes, homework, class work and/or critical reading and writing assessment on conics
1	How do you interpret the intersections of quadratic systems?	<p>QUADRATIC SYSTEMS</p> <p>*P.10</p> <p><i>*P.13 A11.P.13 Describe the translations and scale changes of a given function $f(x)$ resulting from substitutions for the various parameters a, b, c, and d in $y = af(b(x + c/b)) + d$. In particular, describe the effect of such changes on polynomial, rational, exponential, and logarithmic functions</i></p>	<p>-QUADRATIC-LINEAR,</p> <p>-QUADRATIC-QUADRATIC SYSTEMS,</p> <p>-PROBLEM SOLVING SYMBOLICALLY AND GRAPHICALLY</p> <p>*#</p>	Graphing calculator	Tests, quizzes, homework, class work and/or critical reading and writing assessment on solving quadratic systems using a variety of methods

2	How do you classify relationships involving radicals, exponents and inverse variations?	RADICALS AND POWERS <i>* A11.N.2 Simplify numerical expressions with powers and roots, including fractional and negative exponents.</i> <i>* A11.P.5 Perform operations on functions, including composition. Find inverses of functions.</i> *P.8	-INVERSE VARIATION -PROPERTIES OF POWERS -SOLVING RADICAL EQUATIONS -RATIONAL EXPONENTS *#	Graphing calculator	Tests, quizzes, homework, class work and/or critical reading and writing assessment on exponents and radicals
2	What do the maximum/minimum and zeros of polynomial functions represent?	POLYNOMIAL FUNCTIONS *P.6 *P.8 <i>* A11.P.11 Solve everyday problems that can be modeled using polynomial, rational, exponential, logarithmic, and step functions, absolute values and square roots. Apply appropriate graphical, tabular, or symbolic methods to the solution.</i> <i>Include growth and decay; logistic growth; joint (e.g., $I = Prt$, $y = k(w_1 + w_2)$), and combined ($F = G(m_1m_2)/d^2$) variation.</i> <i>* A11.P.12 Identify maximum and minimum values of functions in simple situations. Apply to the solution of problems.</i>	-SOLVING BY GRAPHING -MINIMUM AND MAXIMUMS -ZEROS OF FUNCTIONS *#	CHAPTER 8 Graphing calculator	Tests, quizzes, homework, class work and/or critical reading and writing assessment on polynomials

* MATERIAL COVERED IN HONORS ALGEBRA II

MATERIAL COVERED IN CP1 ALGEBRA II

+ MATERIAL COVERED IN CP2 ALGEBRA II

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1	How do you measure or simulate the likelihood of an event occurring?	<p>PROBABILITY <i>*D.1</i></p>	<p>-THEORETICAL AND EXPERIMENTAL -SIMULATION *#+</p>	Graphing calculator, Coins, dice, cards, random number table	
1	How do you model real-world data using matrices?	<p>MATRICES <i>*P.9 Use matrices to solve systems of linear equations. Apply to the solution of everyday problems. (12.P.9)</i></p>	<p>-DATA -MULITPLYING *#+</p>	Graphing calculator	
1	How do you write, interpret and solve linear equations?	<p>LINEAR FUNCTION <i>*P.8</i> <i>*P.10</i></p>	<p>-SOLVING EQUATIONS -DIRECT VARIATIONS -EQUATIONS OF LINES *#+</p>	Graphing calculator	
1	How do you interpret data to make predictions?	<p>FITTING FUNCTIONS TO DATA <i>*P.10</i></p>	<p>-TREND LINES -LINE OF BEST FIT *#+</p>	Graphing calculator	Tests, quizzes, homework, class work, and/or critical reading and writing assessment
1	How do you apply the concepts of linear and absolute value inequalities to boundaries, distances and tolerances?	<p>LINEAR INEQUALITIES <i>*P.8 Solve a variety of equations and inequalities using algebraic, graphical, and numerical methods, including the quadratic formula; use technology where appropriate. Include</i></p>	<p>-ABSOLUTE VALUE -ONE AND TWO VARIABLES -GRAPHING *#+</p>	Graphing calculator	

CHAPTER NUMBERS REFER TO ADDISON WESLEY SECONDARY MATH BOOK

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