

## Instructional Guide

Grade Level Tenth - Twelve Subject Algebra 2 with Trigonometry School System Pickens County

School Year 2011-2012

Time Period (Pacing – when)	AHSGE Assessment Correlations	Standards/ Components  (Pacing – what)	Resources/ Activities (Pacing – how)  Curricular Alignment	Date of Common Formative Assessment (Pacing – how well)	Mapping Comments (What works what needs adjustment)
1 <sup>st</sup> 9 weeks					
1 day		AlgII 1. Determine relationships among subsets of complex numbers.	<p><b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 1-2,5-9</p> <p><b>Vocabulary</b> –Real, Complex, Rational, Irrational, Whole, Integer, and Natural Preteach vocabulary Use graphic organizer</p>		
3 days	II-I, IV solve multi-step eqns and inequalities of first degree	AlgII 9.b. Solve equations, inequalities, and applied problems involving absolute values with the solution represented as a graph on a number line, set notation, and interval notation.	<p><b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 1-4,1-6</p>		

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1 day	III-1: Graphs, ordered pairs, tables, or mappings.	AlgII 3.B.1. Identifying the domain and range of a relation given its graph, a table of values, or its equation, including those with restricted domains.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections: 2-1</b>		
2 days	II-3: Solve systems of two linear equations	AlgII 10.a. Solve systems of linear equations in two variables using algebraic techniques. AlgII 10.B.2. Solving two- and three-variable word problems involving application-based situations	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections: 3-2</b>		
2 days		AlgII 10.b. Solve systems of linear equations in three variables using algebraic techniques. AlgII 10.B.2. Solving two- and three-variable word problems involving application-based situations	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections: 3-2</b>		

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2 days		AlgII 10.d. Solve systems of linear inequalities in two variables	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 3-3  <b>Vocabulary</b> – Intersection  Review graphing lines with slope and y-intercept		
3 days		AlgII 10.c. Solve systems of linear equations in two and three variables involving matrices. AlgII 10.B.1. Calculating the determinant of a 2 x 2 and a 3 x 3 matrix	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 4-5,4-6		
2 days		AlgII 8. Apply laws of exponents to simplify expressions, including those containing zero and negative integral exponents.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Glencoe Practice workbook, <b>Chapter/Sections:</b> 5-1   Give additional practice from Glencoe Practice workbook		

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2 days	I-2: Unlike denominators I-3: Multiply polynomials	AlgII 7.a. Perform operations, including addition, subtraction, and multiplication with polynomial expressions containing variables.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections: 5-2</b>  Review basic operations with whole #'s before teaching the algebraic computations		
2 days		AlgII 7.b. Perform operations, including division with polynomial expressions containing variables.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections: 5-3</b>		
2 days		AlgII 9.c. Solve equations, inequalities, and applied problems involving radicals with the solution represented as a graph on a number line, set notation, and interval notation.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections: 5-8</b>		

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2 days		AlgII 2.a. Use order of operations to simplify expressions involving complex numbers. AlgII 2.b. Use conjugates to simplify expressions involving complex numbers. AlgII 2.c. Use absolute value to simplify expressions involving complex numbers.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections: 5-9</b>  <b>Vocabulary</b> – Conjugate, Rationalize		
3 days	II-2: Types of factoring-differences of two squares, greatest common monomial, trinomial, common binomial	AlgII 9.d. Solve equations, inequalities, and applied problems involving quadratics over complex numbers with the solution represented as a graph on a number line, set notation, and interval notation.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections: 6-3,6-4,6-5,6-7</b>		

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1 day		AlgII 5.d. Determine exact real zeros of polynomial functions by applying the zero product property.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 6-3		
½ day		AlgII 5.e. Determine exact real zeros of polynomial functions by applying the quadratic formula. AlgII 5.e.B. Deriving the quadratic formula	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 6-5		
½ day		AlgII 4. Determine the nature of solutions of a quadratic equation.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 6-5  <b>Vocabulary</b> – Discriminant, Real, Imaginary		
1 day		AlgII 5.c. Determine exact real zeros of polynomial functions by completing the square.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 6-4		

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1 day		AlgII 5.a. Determine approximate real zeros of functions graphically . AlgII 5.b. Determine approximate real zeros of functions numerically.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Graphing Calculators, <b>Chapter/Sections:</b> 6-2,6-7		
1 day	V-2: Given two points, x- and y-intercepts, point and slope, or slope and y-intercept.	AlgII 6.B.2. Constructing the graph of a function when given its equation	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 6-1  <b>Vocabulary</b> – Parabola, Vertex, Axis, Symmetry		

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1 day		<p>AlgII 6.a. Identify characteristics, including maximum and minimum values, of quadratic functions from their roots.</p> <p>AlgII6.B.1. Determining a quadratic equation when given its graph or roots</p> <p>AlgII 6.B.3. Using the maximum or minimum value of a quadratic function to solve application-based problems</p> <p>AlgII 6.b. Identify characteristics, including maximum and minimum values, of quadratic functions from their graphs.</p> <p>AlgII 6.c. Identify characteristics, including maximum and minimum values, of quadratic functions from their equations.</p>	<p><b>Text/Teaching Materials:</b> Glencoe Algebra 2, Teacher-made worksheet, <b>Chapter/Sections:</b> 6-1</p> <p>Textbook does not have problems that correlate with AlgII 6.B.1</p>		

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1 day		AlgII 3.b. Determine effects of shifts, reflections, and dilations on families of functions, including $y = x^2$ (quadratic)	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections: 6-6</b>		
1 day		AlgII 7.c. Perform operations, including composition of functions with polynomial and rational expressions containing variables.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections: 7-7</b>  Very few problems involving composition of functions with rational expressions		
1 day		AlgII 7.B.1. Determining the inverse of a function or a relation AlgII 7.B.2. Evaluating rational functions	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections: 7-8</b> <b>Vocabulary – Domain, Range</b>		

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1 day		AlgII 7.e. Perform operations, including multiplication and division with rational expressions containing variables.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections: 9-1</b>  Review factoring before this lesson		
2 days		AlgII 7.d. Perform operations, including addition and subtraction with rational expressions containing variables.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections: 9-2</b>  Review adding & subtracting fractions with whole numbers and factoring of polynomials before this lesson		
1 day		AlgII 3.a. Determine effects of shifts, reflections, and dilations on families of functions, including $y = \frac{k}{x}$ (inverse variation) and $y = kx$ (direct variation/linear).	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections: 9-4</b>		

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2 <sup>nd</sup> 9 weeks			*Glencoe Textbook		
2 days		AlgII 9.a. Solve equations, inequalities, and applied problems involving rational and irrational exponents with the solution represented as a graph on a number line, set notation, and interval notation.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 10-1  <b>Vocabulary</b> – Infinity, Union		
2 days		AlgII 9.f. Solve equations, inequalities, and applied problems involving exponential functions with the solution represented as a graph on a number line, set notation, and interval notation.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 10-1,10-4  <b>Vocabulary</b> – Exponential Growth & Decay		
2 days		AlgII 9.g. Solve equations, inequalities, and applied problems involving logarithmic functions with the solution represented as a graph on a number line, set notation, and interval notation.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 10-2  <b>Vocabulary</b> – Logarithmic Scale		

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2 days		AlgII 3.c. Determine effects of shifts, reflections, and dilations on families of functions, including $y = a^x$ (exponential) and $y = \log_a x$ (logarithmic)	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 10-1,10-2		
2 days		AlgII 8.B.1. Applying laws of logarithms to simplify expressions and solve equations.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 10-2		
1 day		AlgII 18.a. Calculate probabilities of events using permutations and combinations	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 12-2  <b>Vocabulary - Factorial</b>		

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2 days	VII-6: Both AND and OR situations	AlgII 18.b. Calculate probabilities of events using the laws of probability AlgII 18.b.B.1. Calculating conditional probability	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 12-3,12-4,12-5  <b>Vocabulary</b> – Outcome, Sample Space, Independent, Dependent, Event		
1 day	VII-5: Frequency diagrams	AlgII 16.B.4. Identifying characteristics, including the mean and standard deviation, of a normal distribution	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 12-6,12-7		
1 day		AlgII 18.c. Calculate probabilities of events using the binomial theorem.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 12-8  <b>Vocabulary</b> – Binomial Experiment		

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2 days		AlgII 11.B.1. Converting angle measures from degrees to radians and from radians to degrees AlgII 11.B.2. Graphing angles in standard position	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 13-2  <b>Vocabulary</b> – Initial, Terminal, Coterminal, Angle		
1 day		AlgII 14.a. Define the six trigonometric functions using ratios of the sides of a right triangle	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 13-1  <b>Vocabulary</b> – Ratio, Opposite, Adjacent, Hypotenuse		

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2 days		AlgII 11. Determine specific unit circle coordinates associated with special angles. AlgII 11.B.3. Determining the value of the six trigonometric functions for special angles AlgII 14.b. Define the six trigonometric functions using ratios of the sides of coordinates on the unit circle AlgII 14.c. Define the six trigonometric functions using ratios of the sides of the reciprocal of other functions	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 13-1,13-3,13-6  <b>Vocabulary</b> – Sine, Cosine, Tangent, Cotangent, Secant, Cosecant		
3 days		AlgII 12.a. Graph trigonometric functions of the form $y = a \sin(bx)$ , $y = a \cos(bx)$ , $y = a \tan(bx)$ . AlgII 12.a.B.1. Determining period and amplitude of sine, cosine, and tangent functions from graphs or basic equations	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 14-1  <b>Vocabulary</b> –Period, Amplitude		

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1 day		AlgII 12.b. Graph trigonometric functions of the form $y = a \sec(bx)$ , $y = a \csc(bx)$ , and $y = a \cot(bx)$ .	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 14-1  <b>Vocabulary - Asymptote</b>		
3 days		AlgII 14.B.1. Applying the law of sines and the law of cosines to determine missing measures of triangles	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 13-4,13-5		
2 days		AlgII 15. Verify simple trigonometric identities using Pythagorean and reciprocal identities.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 14-4  <b>Vocabulary – Identity, Reciprocal, Verify</b>		

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2 days		AlgII 9.e. Solve equations, inequalities, and applied problems involving simple trigonometric functions with the solution represented as a graph on a number line, set notation, and interval notation.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 14-7		
2 days		AlgII 3.B.2. Identifying application-based situations corresponding to families of functions	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 2-6		
2 days		AlgII 17. Analyze data to determine if a linear, quadratic, or exponential relationship exists. AlgII 17.B. Determining an equation of linear regression from a set of data to predict outcomes	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 2-5,2-7,11-4  <b>Vocabulary</b> – Linear, Quadratic, Exponential, Linear Regression		

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2 days	IV-2: Distance, Midpoint, and Slope	AlgII 13. Solve coordinate geometry problems using algebraic techniques.	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 8.1		
3 days		AlgII 16. Use multiple representations, including graphical, numerical, analytical, and verbal, to compare characteristics of data gathered from two populations. AlgII 16.B.1. Identifying characteristics of the design of an experimental study AlgII 16.B.2. Describing effects of an experimental study design on its outcome AlgII 16.B.3. Predicting population characteristics using sample statistics	<b>Text/Teaching Materials:</b> Glencoe Algebra 2, Practice workbook, Skills Practice, Study Guide, <b>Chapter/Sections:</b> 12-9  <a href="http://www.okstate.edu/ag/agedcm4h/academic/aged5980a/5980/newpage2.htm">www.okstate.edu/ag/agedcm4h/academic/aged5980a/5980/newpage2.htm</a>		