NC Math 2 – Vance County Schools

Unit Number	Topic	Number of Days
1	Algebra Review	6 days
2	Functions and Linear Equations	6 days
3	Radical Equations	6 days
4	Quadratic Equations	10 days
5	Quadratic Functions	8 days
6	Polynomials/Function Analysis	7 days
7	Transformations	6 days
8	Introduction to Geometry	6 days
9	Triangles	7 days
10	Trigonometry	10 days
11	Probability	6 days

NOTE: This pacing guide provides 78 days of instruction including review and test days allowing each teacher 7 buffer days for end of semester review and/or extra instruction/practice days

Unit 1 - Algebra Review

Day	Topics Covered	Standard Title	Standard Objective
1	Number System, Fractions, Algebraic Properties	NC.M2.N-RN.3	The student will be able to Use the properties of rational and irrational numbers to explain why: the sum or product of two rational numbers is rational; the sum of a rational number and an irrational number is irrational; the product of a nonzero rational number and an irrational number is irrational.
2	Solving Equations	NC.M1.A-REI.3	The student will be able to Solve linear equations and inequalities in one variable.
3	Properties of Exponents	NC.M2.N-RN.2	The student will be able to rewrite expressions with radicals and rational exponents into equivalent expressions using the properties of exponents.
4	Solving Linear Systems (Substitution, Elimination)	NC.M2.A-CED.3	The student will be able to Create systems of linear, quadratic, square root, and inverse variation equations to model situations in context.
5	Solving Linear Systems (Graphing), Unit Review	NC.M2.A-CED.3, NC.M2.A-REI.7	The student will be able to Create systems of linear, quadratic, square root, and inverse variation equations to model situations in context. The student will be able to Use tables, graphs, and algebraic methods to approximate or find exact solutions of systems of linear and quadratic equations, and interpret the solutions in terms of a context.
6	Unit Test	NC.M2.N-RN.3, NC.M1.A-REI.3, NC.M2.N-RN.2, NC.M2.A-CED.3, NC.M2.A-REI.7	The students will be able to demonstrate their understanding of algebra.

Unit 2 - Functions and Linear Equations

Day	Topics Covered	Standard Title	Standard Objective
1	Relations/Functions, Function Notation	NC.M2.A-CED.1	The student will be able to create equations and inequalities in one variable that represent quadratic, square root, inverse variation, and right triangle trigonometric relationships and use them to solve problems.
2	Slope, Slope Intercept Form, Standard Form	NC.M1.F-LE.5	The student will be able to interpret the parameters a and b in a linear function f(x) = ax+b or an exponential function $f(x) = a \cdot b^x$ in terms of a context.
3	Finding x and y-intercepts, Graphing equations of lines	NC.M2.F-IF.7 NC.M2.A-REI.11	The student will be able to analyze quadratic, square root, and inverse variation functions by generating different representations, by hand in simple cases and using technology for more complicated cases, to show key features, including: domain and range; intercepts; intervals where the function is increasing, decreasing, positive, or negative; rate of change; maximums and minimums; symmetries; and end behavior. The student will be able to extend the understanding that the x-coordinates of the points where the graphs of two square root and/or inverse variation equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x) and approximate solutions using graphing technology or successive approximations with a table of values.
4	Parallel/Perpendicular Lines, Practice	NC.M1.G-GPE.5	The student will be able to use coordinates to prove the slope criteria for parallel and perpendicular lines and use them to solve problems.

5	Unit Review	NC.M2.A-CED.1, NC.M1.F-LE.5, NC.M2.F-IF.7, NC.M2.A-REI.11, NC.M1.G-GPE.5	The student will be able to review their understanding of functions and linear equations.
6	Unit Test	NC.M2.A-CED.1, NC.M1.F-LE.5, NC.M2.F-IF.7, NC.M2.A-REI.11, NC.M1.G-GPE.5	The student will be able to demonstrate their understanding of functions and linear equations.

Unit 3 - Radical Equations

Day	Topics Covered	Standard Title	Standard Objective
1	Simplifying Radicals (including rational exponents)	NC.M2.N-RN.1, NC.M2.N-RN.2, NC.M2.A-SSE.1	The student will be able to explain how expressions with rational exponents can be rewritten as radical expressions. The student will be able to rewrite expressions with radicals and rational exponents into equivalent expressions using the properties of exponents. The student will be able to interpret expressions that represent a quantity in terms of its context.
2	Adding, Subtracting, Multiplying and Dividing Radicals	NC.M2.N-RN.2	The student will be able to rewrite expressions with radicals and rational exponents into equivalent expressions using the properties of exponents.
3	Radical Equations, Practice (include extraneous solutions)	NC.M2.A-CED.1, NC.M2.A-CED.2, NC.M2.A-REI.1, NC.M2.A-REI.2	The student will be able to create equations and inequalities in one variable that represent quadratic,square root, inverse variation, and right triangle trigonometric relationships and use them to solve problems. The student will be able to create and graph equations in two variables to represent quadratic, square root and inverse variation relationships between quantities. The student will be able to justify a chosen solution method and each step of the solving process for quadratic, square root and inverse variation equations using mathematical reasoning. The student will be able to solve and interpret one variable inverse variation and square root equations arising from a context, and explain how extraneous

			solutions may be produced.
4	Graphing Radical Equations, Practice	NC.M2.A-SSE.1b, NC.M2.A-REI.11	The student will be able to identify and interpret parts of a quadratic, square root, inverse variation, or right triangle trigonometric expression, including terms, factors, coefficients, radicands, and exponents. The student will be able to Extend the understanding that the x-coordinates of the points where the graphs of two square root and/or inverse variation equations □ = (□) and □ = (□) intersect are the solutions of the equation (□) = □(□) and approximate solutions using graphing technology or successive approximations with a table of values.
5	Unit Review	NC.M2.N-RN.1, NC.M2.N-RN.2, NC.M2.A-SSE.1, NC.M2.N-RN.2, NC.M2.A-CED.1, NC.M2.A-CED.2, NC.M2.A-REI.1, NC.M2.A-REI.2, NC.M2.A-SSE.1b, NC.M2.A-REI.11	The students will be able to review their understanding of radical equations.
6	Unit Test	NC.M2.N-RN.1, NC.M2.N-RN.2, NC.M2.A-SSE.1, NC.M2.N-RN.2, NC.M2.A-CED.1, NC.M2.A-CED.2, NC.M2.A-REI.1, NC.M2.A-REI.2, NC.M2.A-SSE.1b, NC.M2.A-REI.11	The students will be able to demonstrate their understanding of radical equations.

Unit 4 - Quadratic Equations (Algebraic)

Day	Topics Covered	Standard Title	Standard Objective
1	Factoring (GCF, Grouping)	NC.M2.A-SSE.1	The student will be able to identify and interpret parts of a quadratic, square root, inverse variation, or right triangle trigonometric expression, including terms, factors, coefficients, radicands, and exponents.
2	Factoring (Trinomials a=1, a not equal 1)	NC.M2.A-SSE.1	The student will be able to identify and interpret parts of a quadratic, square root, inverse variation, or right triangle trigonometric expression, including terms, factors, coefficients, radicands, and exponents.
3	Factoring (Difference of Squares, Perfect Square Trinomials)	NC.M2.A-SSE.1	The student will be able to identify and interpret parts of a quadratic, square root, inverse variation, or right triangle trigonometric expression, including terms, factors, coefficients, radicands, and exponents.
4	Mixed Review, Quiz	NC.M2.A-SSE.1	The student will be able to identify and interpret parts of a quadratic, square root, inverse variation, or right triangle trigonometric expression, including terms, factors, coefficients, radicands, and exponents.
5	Completing the Square	NC.M2.A-SSE.3 NC.M2.A-REI.4a	The student will be able to write an equivalent form of a quadratic expression by completing the square, where a is an integer of a quadratic expression,$□□^2 + □□ + □$, to reveal the maximum or minimum value of the function the expression defines. The student will be able to understand that the quadratic formula is the generalization of solving $□□^2 + □□ + □$by using the process of completing the square.
6	Solving Quadratics by	NC.M2.A-REI.1	The student will be able to justify a chosen solution method and each step of the solving process for quadratic, square root and inverse variation equations

	Factoring	NC.M2.A-SSE.1b	using mathematical reasoning. The student will be able to interpret quadratic and square root expressions made of multiple parts as a combination of single entities to give meaning in terms of a context.
7	Defining and Simplifying Complex Numbers	NC.M2.N-CN.1	The student will be able to know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ where a and b are real numbers
8	Quiz, Solving Quadratics by Quadratic Formula (including nonreal solutions)	NC.M2.A-REI.4b	The student will be able to explain when quadratic equations will have non-real solutions and express complex solutions as $a \pm bi$ for real numbers a and b.
9	Unit Review	NC.M2.A-SSE.1, NC.M2.A-SSE.3, NC.M2.A-REI.4a, NC.M2.A-REI.1, NC.M2.A-SSE.1b, NC.M2.N-CN.1, NC.M2.A-REI.4b	The student will be able to review their understanding of quadratic equations.
10	Unit Test	NC.M2.A-SSE.1, NC.M2.A-SSE.3, NC.M2.A-REI.4a, NC.M2.A-REI.1, NC.M2.A-SSE.1b, NC.M2.N-CN.1, NC.M2.A-REI.4b	The student will be able to demonstrate their understanding of quadratic equations.

Unit 5 - Quadratic Functions (Graphing)

Day	Topics Covered	Standard Title	Standard Objective
1	Introduction to Quadratics (Graphing)	NC.M2.A-CED.2	The student will be able to create and graph equations in two variables to represent quadratic, square root and inverse variation relationships between quantities.
2	Key Features, Vertex vs. standard form	NC.M2.F-IF.8	The student will be able to use equivalent expressions to reveal and explain different properties of a function by developing and using the process of completing the square to identify the zeros, extreme values, and symmetry in graphs and tables representing quadratic functions, and interpret these in terms of a context.
3	Quadratic Modeling (Word Problems)	NC.M2.A-CED.1, NC.M2.F-BF.1	The student will be able to create equations and inequalities in one variable that represent quadratic, square root, inverse variation, and right triangle trigonometric relationships and use them to solve problems. The student will be able to write a function that describes a relationship between two quantities by building quadratic functions with real solution(s) and inverse variation functions given a graph, a description of a relationship, or ordered pairs (include reading these from a table).
4	Geometric Word Problems	NC.M2.A-CED.1, NC.M2.F-BF.1	The student will be able to create equations and inequalities in one variable that represent quadratic, square root, inverse variation, and right triangle trigonometric relationships and use them to solve problems. The student will be able to write a function that describes a relationship between two quantities by building quadratic functions with real solution(s) and inverse variation functions given a graph, a description of a relationship, or ordered pairs (include reading these from a table).

5	Practice	NC.M2.A-CED.1, NC.M2.F-BF.1	The student will be able to create equations and inequalities in one variable that represent quadratic, square root, inverse variation, and right triangle trigonometric relationships and use them to solve problems. The student will be able to write a function that describes a relationship between two quantities by building quadratic functions with real solution(s) and inverse variation functions given a graph, a description of a relationship, or ordered pairs (include reading these from a table).
6	Solving Nonlinear Systems (Algebraically and Graphically)	NC.M2.A-REI.7	The student will be able to use tables, graphs, and algebraic methods to approximate or find exact solutions of systems of linear and quadratic equations, and interpret the solutions in terms of a context.
7	Unit Review	NC.M2.A-CED.2, NC.M2.F-IF.8, NC.M2.A-CED.1, NC.M2.F-BF.1, NC.M2.A-REI.7	The student will be able to review their understanding of quadratic functions.
8	Unit Test	NC.M2.A-CED.2, NC.M2.F-IF.8, NC.M2.A-CED.1, NC.M2.F-BF.1, NC.M2.A-REI.7	The student will be able to demonstrate their understanding of quadratic functions.

Unit 6 - Polynomials/Function Analysis

Day	Topics Covered	Standard Title	Standard Objective
1	Adding, Subtracting, and Multiplying Polynomials, Review	NC.M2.A-APR.1	The student will be able to extend the understanding that operations with polynomials are comparable to operations with integers by adding, subtracting, and multiplying polynomials.
2	Finding intercepts, domain and range, intervals (increasing/decreasing and positive/negative), maximums/minimums, end behavior	NC.M2.F-IF.4 NC.M2.F-IF.7	The student will be able to interpret key features of graphs, tables, and verbal descriptions in context to describe functions that arise in applications relating two quantities, including: domain and range, rate of change, symmetries, and end behavior. The student will be able to analyze quadratic, square root, and inverse variation functions by generating different representations, by hand in simple cases and using technology for more complicated cases, to show key features, including: domain and range; intercepts; intervals where the function is increasing, decreasing, positive, or negative; rate of change; maximums and minimums; symmetries; and end behavior.
3	Practice	NC.M2.F-IF.4 NC.M2.F-IF.7	The student will be able to interpret key features of graphs, tables, and verbal descriptions in context to describe functions that arise in applications relating two quantities, including: domain and range, rate of change, symmetries, and end behavior. The student will be able to analyze quadratic, square root, and inverse variation functions by generating different representations, by hand in simple cases and using technology for more complicated cases, to show key features, including: domain and range; intercepts; intervals where the function is increasing, decreasing, positive, or negative; rate of change; maximums and minimums; symmetries; and end behavior.

4	Inverse, Direct, Joint Variation (include extraneous solutions)	NC.M2.A-CED.1	The student will be able to create equations and inequalities in one variable that represent quadratic, square root, inverse variation, and right triangle trigonometric relationships and use them to solve problems.
		NC.M2.A-CED.2	The student will be able to create and graph equations in two variables to represent quadratic, square root and inverse variation relationships between quantities.
		NC.M2.A-REI.1	The student will be able to justify a chosen solution method and each step of the solving process for quadratic, square root and inverse variation equations using mathematical reasoning.
		NC.M2.A-REI.2	The student will be able to solve and interpret one variable inverse variation and square root equations arising from a context, and explain how extraneous solutions may be produced.
		NC.M2.A-SSE.1a	The student will be able to identify and interpret parts of a quadratic, square root, inverse variation, or right triangle trigonometric expression, including terms, factors, coefficients, radicands, and exponents.
		NC.M2.A-REI.11	The student will be able to extend the understanding that the x-coordinates of the points where the graphs of two square root and/or inverse variation equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$ and approximate solutions using graphing technology or successive approximations with a table of values.

		NC.M2.F-BF.1	The student will be able to write a function that describes a relationship between two quantities by building quadratic functions with real solution(s) and inverse variation functions given a graph, a description of a relationship, or ordered pairs (include reading these from a table).
5	Comparing Key Features of Two Functions in Different Forms (Linear, Quadratic, Square Root, Inverse Variation)	NC.M2.F-IF.9	The student will be able to compare key features of two functions (linear, quadratic, square root, or inverse variation functions) each with a different representation (symbolically, graphically, numerically in tables, or by verbal descriptions).
6	Unit Review	NC.M2.A-APR.1, NC.M2.F-IF.4, NC.M2.F-IF.7, NC.M2.A-CED.1, NC.M2.A-CED.2, NC.M2.A-REI.1, NC.M2.A-REI.2, NC.M2.A-SSE.1a, NC.M2.A-REI.11, NC.M2.F-BF.1, NC.M2.F-IF.9	The student will be able to review their understanding of polynomials/function analysis.
7	Unit Test	NC.M2.A-APR.1, NC.M2.F-IF.4, NC.M2.F-IF.7, NC.M2.A-CED.1, NC.M2.A-CED.2, NC.M2.A-REI.1, NC.M2.A-REI.2,	The student will be able to demonstrate their understanding of polynomials/function analysis.

		NC.M2.A-SSE.1a, NC.M2.A-REI.11, NC.M2.F-BF.1, NC.M2.F-IF.9	

Unit 7 - Transformations

Day	Topics Covered	Standard Title	Standard Objective
1	Transformations of Functions (Vertical/Horizontal Translations, Stretching, Reflecting) (linear, quadratic, square root, and inverse variation functions)	NC.M2.F-IF.1	The student will be able to extend the concept of a function to include geometric transformations in the plane by recognizing that the domain and range of a transformation function f are sets of points in the plane; the image of a transformation is a function of its pre-image.
		NC.M2.F-BF.3	The student will be able to understand the effects of the graphical and tabular representations of a linear, quadratic, square root, and inverse variation function f with $k \cdot f(x)$, $f(x) + k$, $f(x + k)$ for specific values of k (both positive and negative).
		NC.M2.G-SRT.2a	The student will be able to determine whether two figures are similar by specifying a sequence of transformations that will transform one figure into the other.
2	Translations, Dilations of Geometric Figures (Similarity vs. Congruence), include actions that carry the figure onto itself.	NC.M2.F-IF.2	The student will be able to extend the use of function notation to express the image of a geometric figure in the plane resulting from a translation, rotation by multiples of 90 degrees about the origin, reflection across an axis, or dilation as a function of its pre-image.
		NC.M2.G-CO.2	The student will be able to experiment with transformations in the plane.
		NC.M2.G-CO.3	The student will be able to given a triangle, quadrilateral, or regular polygon, describe any reflection or rotation symmetry i.e., actions that carry the figure onto itself. Identify center and angle(s) of rotation symmetry.

		NC.M2.G-CO.4 NC.M2.G-CO.6 NC.M2.G-SRT.2 NC.M2.G-SRT.1	Identify line(s) of reflection symmetry. The student will be able to verify experimentally properties of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments. The student will be able to determine whether two figures are congruent by specifying a rigid motion or sequence of rigid motions that will transform one figure onto the other. The student will be able to understand similarity in terms of transformations. The student will be able to verify experimentally the properties of dilations with given center and scale factor.
3	Rotations, Reflections, Identify center and angles of rotation symmetry, and lines of reflection symmetry	NC.M2.F-IF.2 NC.M2.G-CO.2 NC.M2.G-CO.3	The student will be able to extend the use of function notation to express the image of a geometric figure in the plane resulting from a translation, rotation by multiples of 90 degrees about the origin, reflection across an axis, or dilation as a function of its pre-image. The student will be able to experiment with transformations in the plane. The student will be able to given a triangle, quadrilateral, or regular polygon, describe any reflection or rotation symmetry i.e., actions that carry the figure onto itself. Identify center and angle(s) of rotation symmetry. Identify line(s) of reflection symmetry.

		NC.M2.G-CO.4	The student will be able to verify experimentally properties of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
		NC.M2.G-CO.6	The student will be able to determine whether two figures are congruent by specifying a rigid motion or sequence of rigid motions that will transform one figure onto the other.
		NC.M2.G-SRT.2	The student will be able to understand similarity in terms of transformations.
		NC.M2.G-SRT.1	The student will be able to verify experimentally the properties of dilations with given center and scale factor.
4	Practice	NC.M2.F-IF.2	The student will be able to extend the use of function notation to express the image of a geometric figure in the plane resulting from a translation, rotation by multiples of 90 degrees about the origin, reflection across an axis, or dilation as a function of its pre-image.
		NC.M2.G-CO.2	The student will be able to experiment with transformations in the plane.
		NC.M2.G-CO.3	The student will be able to given a triangle, quadrilateral, or regular polygon, describe any reflection or rotation symmetry i.e., actions that carry the figure onto itself. Identify center and angle(s) of rotation symmetry. Identify line(s) of reflection symmetry.
		NC.M2.G-CO.4	The student will be able to verify experimentally properties of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines,

		NC.M2.G-CO.6 NC.M2.G-SRT.2 NC.M2.G-SRT.1	and line segments. The student will be able to determine whether two figures are congruent by specifying a rigid motion or sequence of rigid motions that will transform one figure onto the other. The student will be able to understand similarity in terms of transformations. The student will be able to verify experimentally the properties of dilations with given center and scale factor.
5	Unit Review	NC.M2.F-IF.1, NC.M2.F-BF.3, NC.M2.G-SRT.2a, NC.M2.F-IF.2, NC.M2.G-CO.2, NC.M2.G-CO.3, NC.M2.G-CO.4, NC.M2.G-CO.6, NC.M2.G-SRT.2a, NC.M2.G-SRT.2b, NC.M2.G-SRT.1d, NC.M2.G-SRT.1c, NC.M2.G-SRT.1b, NC.M2.G-SRT.1a	The student will be able to review their understanding of transformations.
6	Unit Test	NC.M2.F-IF.1, NC.M2.F-BF.3, NC.M2.G-SRT.2a, NC.M2.F-IF.2, NC.M2.G-CO.2, NC.M2.G-CO.3, NC.M2.G-CO.4, NC.M2.G-CO.6, NC.M2.G-SRT.2a,	The student will be able to demonstrate their understanding of transformations.

		NC.M2.G-SRT.2b, NC.M2.G-SRT.1d, NC.M2.G-SRT.1c, NC.M2.G-SRT.1b, NC.M2.G-SRT.1a	

Unit 8 - Introduction to Geometry

Day	Topics Covered	Standard Title	Standard Objective
1	Introduction to Geometry Vocabulary		
2	Midpt Formula/Distance Formula/Pythagorean Theorem, Review	NC.M1.G-GPE.6	The student will be able to use coordinates to find the midpoint or endpoint of a line segment.
3	Transversals and Angle Pairs (including proofs) (vertical angles, alternate interior angles, corresponding angles)	NC.M2.G-CO.9	The student will be able to prove theorems about lines and angles and use them to prove relationships in geometric figures including: -Vertical angles are congruent. -When a transversal crosses parallel lines, alternate interior angles are congruent. -When a transversal crosses parallel lines, corresponding angles are congruent. -Points are on a perpendicular bisector of a line segment if and only if they are equidistant from the endpoints of the segment. -Use congruent triangles to justify why the bisector of an angle is equidistant from the sides of the
4	Measuring Segments and Angles (including: points are on a perpendicular bisector of a line segment if and only if they are equidistant from the endpoints of the segment, use congruent triangles to justify why the bisector of an	NC.M2.G-CO.9	The student will be able to prove theorems about lines and angles and use them to prove relationships in geometric figures including: -Vertical angles are congruent. -When a transversal crosses parallel lines, alternate interior angles are congruent. -When a transversal crosses parallel lines, corresponding angles are congruent.

	angle is equidistant from the sides of the angle)		-Points are on a perpendicular bisector of a line segment if and only if they are equidistant from the endpoints of the segment. -Use congruent triangles to justify why the bisector of an angle is equidistant from the sides of the
5	Unit Review	NC.M1.G-GPE.6, NC.M2.G-CO.9	The student will be able to review their understanding of geometry.
6	Unit Test	NC.M1.G-GPE.6, NC.M2.G-CO.9	The student will be able to demonstrate their understanding of geometry.

Unit 9 - Triangles

Day	Topics Covered	Standard Title	Standard Objective
1	Base Angles, Exterior Angles, Interior Angles Sum Thm, Midsegments (including proofs)	NC.M2.G-CO.10	The student will be able to prove theorems about triangles and use them to prove relationships in geometric figures including the sum of the measures of the interior angles of a triangle is 180º, an exterior angle of a triangle is equal to the sum of its remote interior angles, the base angles of an isosceles triangle are congruent, and the segment joining the midpoints of two sides of a triangle is parallel to the third side and half the length.
2	Congruent Triangle Postulates (SSS, SAS, ASA, AAS, HL) (include corresponding parts of congruent triangles	NC.M2.G-CO.7 NC.M2.G-CO.8	The student will be able to use the properties of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent. The student will be able to use congruence in terms of rigid motion by justifying the ASA, SAS, and SSS criteria for triangle congruence and using criteria for triangle congruence (ASA, SAS, SSS, HL) to determine whether two triangles are congruent.
3	Review, Quiz	NC.M2.G-CO.7 NC.M2.G-CO.8 NC.M2.G-CO.10	The student will be able to use the properties of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent. The student will be able to use congruence in terms of rigid motion by justifying the ASA, SAS, and SSS criteria for triangle congruence and using criteria for triangle congruence (ASA, SAS, SSS, HL) to determine whether two triangles are congruent. The student will be able to prove theorems about triangles and use them to prove relationships in geometric figures including the sum of the measures of the interior angles of a triangle is 180º,

			an exterior angle of a triangle is equal to the sum of its remote interior angles, the base angles of an isosceles triangle are congruent, and the segment joining the midpoints of two sides of a triangle is parallel to the third side and half the length.
4	Ratios and Proportions, Similar Triangles and Parallel Lines/Postulates	NC.M2.G-SRT.4	The student will be able to use similarity to solve problems and to prove theorems about triangles as well as use theorems about triangles to prove relationships in geometric figures.
5	Similar Triangles and Parallel Lines/Postulates Continued	NC.M2.G-SRT.3 NC.M2.G-SRT.4 NC.M2.G-SRT.2b	The student will be able to use transformations (rigid motions and dilations) to justify the AA criterion for triangle similarity. The student will be able to use similarity to solve problems and to prove theorems about triangles as well as use theorems about triangles to prove relationships in geometric figures. The student will be able to use the properties of dilations to show that two triangles are similar when all corresponding pairs of sides are proportional and all corresponding pairs of angles are congruent.
6	Unit Review	NC.M2.G-CO.7, NC.M2.G-CO.8, NC.M2.G-CO.10, NC.M2.G-SRT.4, NC.M2.G-SRT.2b, NC.M2.G-SRT.3	The student will be able to review their understanding of triangles.
7	Unit Test	NC.M2.G-CO.7, NC.M2.G-CO.8, NC.M2.G-CO.10,	The student will be able to demonstrate their understanding of triangles.

		NC.M2.G-SRT.4, NC.M2.G-SRT.2b, NC.M2.G-SRT.3	

Unit 10 - Trigonometry

Day	Topics Covered	Standard Title	Standard Objective
1	Radical Review, Intro to Special Right Triangles (30^0-60^0-90^0 & 45^0-45^0-90^0)	NC.M2.G-SRT.12	The student will be able to develop properties of special right triangles (45-45-90 and 30-60-90) and use them to solve problems.
2	Special Right Triangles Continued, Practice	NC.M2.G-SRT.12	The student will be able to develop properties of special right triangles (45-45-90 and 30-60-90) and use them to solve problems.
3	Review, Quiz	NC.M2.G-SRT.12	The student will be able to develop properties of special right triangles (45-45-90 and 30-60-90) and use them to solve problems.
4	Trigonometric Ratio-SOH/CAH/TOA, determining opposite/adjacent/hypotenuse sides	NC.M2.A-SSE.1a, NC.M2.G-SRT.8	The student will be able to identify and interpret parts of a quadratic, square root, inverse variation, or right triangle trigonometric expression, including terms, factors, coefficients, radicands, The student will be able to use trigonometric ratios and the Pythagorean Theorem to solve problems involving right triangles in terms of a context.
5	Trigonometric Ratio Continued-Finding one side/angle	NC.M2.G-SRT.6, NC.M2.G-SRT.8	The student will be able to verify experimentally that the side ratios in similar right triangles are properties of the angle measures in the triangle, due to the preservation of angle measure in similarity. Use this discovery to develop definitions of the trigonometric ratios for acute angles. The student will be able touse trigonometric ratios and the Pythagorean Theorem to solve problems involving right triangles in terms of a context.

6	Trigonometric Ratio Continued-Finding more than one side/angle	NC.M2.G-SRT.6, NC.M2.G-SRT.8, NC.M2.G-CO.10	The student will be able to verify experimentally that the side ratios in similar right triangles are properties of the angle measures in the triangle, due to the preservation of angle measure in similarity. Use this discovery to develop definitions of the trigonometric ratios for acute angles. The student will be able touse trigonometric ratios and the Pythagorean Theorem to solve problems involving right triangles in terms of a context. The student will be able to Prove theorems about triangles and use them to prove relationships in geometric figures including: The sum of the measures of the interior angles of a triangle is 180º. An exterior angle of a triangle is equal to the sum of its remote interior angles. The base angles of an isosceles triangle are congruent. The segment joining the midpoints of two sides of a triangle is parallel to the third side and half the length.
7	Angle of Elevation/Depression	NC.M2.G-SRT.6, NC.M2.G-SRT.8	The student will be able to verify experimentally that the side ratios in similar right triangles are properties of the angle measures in the triangle, due to the preservation of angle measure in similarity. Use this discovery to develop definitions of the trigonometric ratios for acute angles. The student will be able touse trigonometric ratios and the Pythagorean Theorem to solve problems involving right triangles in terms of a context.
8	Unit Review	NC.M2.G-SRT.12, NC.M2.A-SSE.1a, NC.M2.G-SRT.8,	The student will be able to review their understanding of trigonometry.

		NC.M2.G-SRT.6, NC.M2.G-CO.10	
9	Unit Review	NC.M2.G-SRT.12, NC.M2.A-SSE.1a, NC.M2.G-SRT.8, NC.M2.G-SRT.6, NC.M2.G-CO.10	The student will be able to review their understanding of trigonometry.
10	Unit Test	NC.M2.G-SRT.12, NC.M2.A-SSE.1a, NC.M2.G-SRT.8, NC.M2.G-SRT.6, NC.M2.G-CO.10	The student will be able to demonstrate their understanding of trigonometry.

Unit 11 - Probability

Day	Topics Covered	Standard Title	Standard Objective
1	Independent Events, Theoretical vs. Experimental Probability, Venn Diagrams, Addition Rule	NC.M2.S-IC.2	The student will be able to use simulation to determine whether the experimental probability generated by sample data is consistent with the theoretical probability based on known information about the population.
		NC.M2.S-CP.1	The student will be able to describe events as subsets of the outcomes in a sample space using characteristics of the outcomes or as unions, intersections and complements of other events.
		NC.M2.S-CP.3b	The student will be able to understand that event A is independent from event B if the probability of event A does not change in response to the occurrence of event B. That is P(A|B)=P(A).
		NC.M2.S-CP.7	The student will be able to apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in context.
		NC.M2.S-CP.8	The student will be able to apply the general Multiplication Rule P(A and B) = P(A)P(B|A) = P(B)P(A|B), and interpret the answer in context. Include the case where A and B are independent: P(A and B) = P(A) P(B).
2	Multiplication Rule, Conditional Probability, Mutually Exclusive/Inclusive Events	NC.M2.S-CP.5	The student will be able to recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.
		NC.M2.S-CP.6	The student will be able to find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in context.
		NC.M2.S-CP.8	The student will be able to apply the general Multiplication Rule

			P(A and B) = P(A)P(B|A) = P(B)P(A|B), and interpret the answer in context. Include the case where A and B are independent: P(A and B) = P(A) P(B).
3	Practice	NC.M2.S-IC.2	The student will be able to use simulation to determine whether the experimental probability generated by sample data is consistent with the theoretical probability based on known information about the population.
		NC.M2.S-CP.1	The student will be able to describe events as subsets of the outcomes in a sample space using characteristics of the outcomes or as unions, intersections and complements of other events.
		NC.M2.S-CP.3b	The student will be able to understand that event A is independent from event B if the probability of event A does not change in response to the occurrence of event B. That is P(A|B)=P(A).
		NC.M2.S-CP.7	The student will be able to apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in context.
		NC.M2.S-CP.8	The student will be able to apply the general Multiplication Rule P(A and B) = P(A)P(B|A) = P(B)P(A|B), and interpret the answer in context. Include the case where A and B are independent: P(A and B) = P(A) P(B).
		NC.M2.S-CP.5	The student will be able to recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.
		NC.M2.S-CP.6	The student will be able to find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in context.

4	Two Way Tables	NC.M2.S-CP.3a NC.M2.S-CP.4	The student will be able to use a 2-way table to develop understanding of the conditional probability of A given B (written P(A|B)) as the likelihood that A will occur given that B has occurred. That is, P(A|B) is the fraction of event B's outcomes that also belong to event A. The student will be able to represent data on two categorical variables by constructing a two-way frequency table of data. Interpret the two-way table as a sample space to calculate conditional, joint and marginal probabilities. Use the table to decide if events are independent.
5	Unit Review	NC.M2.S-IC.2, NC.M2.S-CP.1, NC.M2.S-CP.3a, NC.M2.S-CP.3b, NC.M2.S-CP.4,NC.M2.S-CP.5, NC.M2.S-CP.6, NC.M2.S-CP.7, NC.M2.S-CP.8,	The student will be able to review their understanding of probability.
6	Unit Test	NC.M2.S-IC.2, NC.M2.S-CP.1, NC.M2.S-CP.3a, NC.M2.S-CP.3b, NC.M2.S-CP.4,NC.M2.S-CP.5, NC.M2.S-	The student will be able to demonstrate their understanding of probability.

		CP.6, NC.M2.S-CP.7, NC.M2.S-CP.8,	