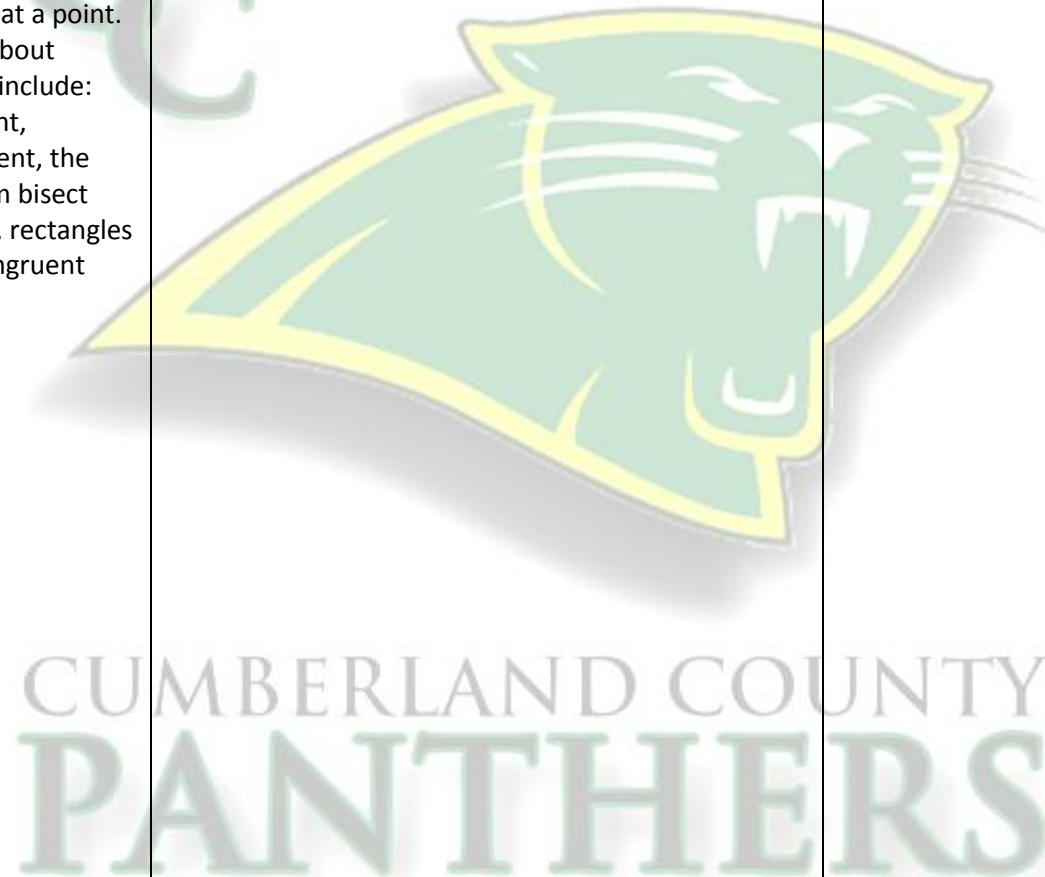


**CUMBERLAND COUNTY SCHOOL DISTRICT
BENCHMARK ASSESSMENT CURRICULUM PACING GUIDE**

School: CCHS	Subject: Geometry	Grade: 11
Benchmark Assessment 1		
Instructional Timeline: Units 1, 2, 3 Term 1 <i>(Determined by learning check schedules)</i>		
Topic(s): Geometry –Foundations of Geometry. Parallel and Perpendicular lines, Congruent Triangles		
Kentucky Core Academic Standards	Learning Targets (I Can Statements)	Key Vocabulary
<p>Unit 1 Foundations of Geometry G.CO.1 – Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around G.GPE.7 Use coordinates to compute perimeters of polygons and area of triangles and rectangles, e.g., using the distance formula. (*Modeling Standard) a circular arc.</p> <p>**In preparation for: G.CO.9 – Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on perpendicular bisector of a line segment are exactly those equidistant from the segment’s endpoints. G.CO.10 – Prove theorems about</p>	<p>Unit 1 Foundations of Geometry</p> <ol style="list-style-type: none"> 1. I can describe, draw, or label a point, line, line segment, ray, and plane including the definitions of parallel and perpendicular lines. (G.CO.1) 2. I can define and label angles and angle pairs. (G.CO.1) 3. I can apply the distance and midpoint formulas in the coordinate plane. ** G.CO.9, G.CO.11 4. I can apply inductive reasoning to make conjectures. ** G.CO.9, G.CO.10 G.CO.11 5. I can write conditional and bi-conditional statements. **G.CO.9, G.CO.10, G.CO.11 	<p>Point, line, plane, collinear points, coplanar, space, segment, ray, opposite rays, postulate, axiom, intersection, coordinate, distance, congruent, segments, midpoint, segment, bisector, angle, measure of an angle, (acute, right, obtuse, straight, congruent) angles, adjacent angles, vertical angles, complementary angles, supplementary angles, linear pair, angle bisector, midpoint, distance between two points, inductive reasoning, conjecture, counter example, conditional, hypothesis, conclusion, truth value, negation, converse, inverse, contrapositive, equivalent statements, bi-conditional, deductive reasoning, Law of detachment, Law of Syllogism, reflexive property, symmetric property, transitive property, proof, two column proof</p>

triangles. Theorems include:
measures of interior angles of a triangle sum to 180; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.
G.CO.11- Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.



<p>Unit #2 Parallel & Perpendicular Lines</p> <p>G.CO.1 – Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.</p> <p>G.CO.9 – Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on perpendicular bisector of a line segment are exactly those equidistant from the segment’s endpoints.</p> <p>G.CO.10 Prove theorems about triangles. <i>Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.</i></p> <p>G.GPE.5 – Prove the slope criteria for parallel and perpendicular lines and uses them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point)</p>	<p>Unit #2 Parallel & Perpendicular Lines</p> <ol style="list-style-type: none"> 1. I can identify angles formed by two lines and a transversal. (G.CO.1) 2. I can prove theorems about parallel lines and use the properties to find angle measures. (G.CO.9) 3. I can relate parallel and perpendicular lines. (G.MG.3) 4. I can use parallel lines to prove theorems and find angles in triangles. (Triangle Sum & Exterior Angles) (G.CO.10) 5. I can write and graph linear equations of lines that are parallel and perpendicular and determine whether lines are parallel or perpendicular by their equations.(G.GRE.5) 	<p>Parallel, skew, transversal, angles (alternate interior, alternate exterior, corresponding, same side interior), auxiliary line, exterior angle of a polygon, remote interior angles, slope, point slope form, slope intercept form,</p>
---	--	---

G.MG.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).>(*Modeling Standard)



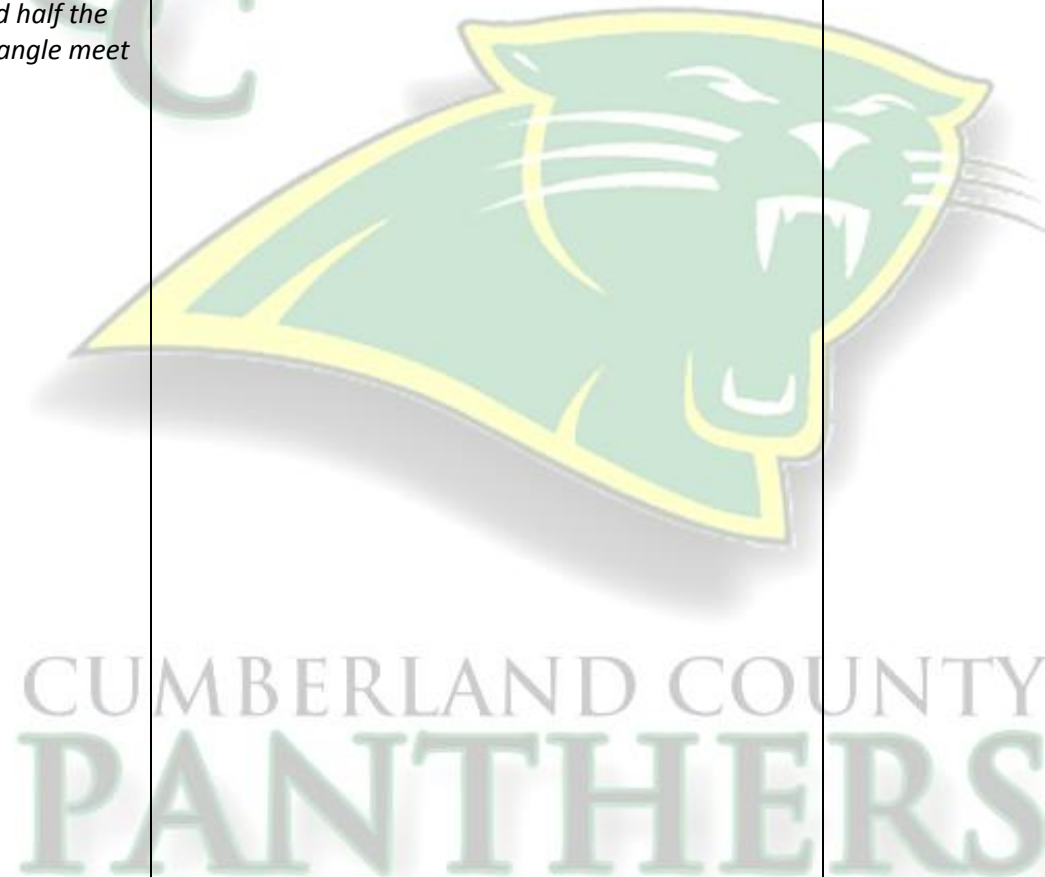
<p>Unit # 3 Congruent Triangles</p> <p>G.SRT.5 – Use congruence and similarity criteria for triangles to solve problems and to prove relationships in triangles. <i>Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.</i> geometric figures.</p> <p>G.SRT.5 – Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.</p>	<p>Unit # 3 Congruent Triangles</p> <ol style="list-style-type: none"> 1. I can determine congruent parts of triangles and use SSS, SAS, AAS, ASA, and CPCTC to show congruence.(G.SRT.5) 2. I can use and apply properties of equilateral and isosceles triangles.(G.CO.10) 3. I can prove right triangles are congruent using the HL theorem. (G.SRT.5) 4. I can prove two triangles congruent using other triangles (G.SRT.5) 	<p>Congruent polygons, congruent triangles, (ASA, AAS, SSS, SAS) triangle congruence, legs of isosceles triangle, base of an isosceles triangle, vertex angle of an isosceles triangle, base angles of an isosceles triangles, corollary, hypotenuse, legs of a right triangle,</p>
--	---	---

CUMBERLAND COUNTY
PANTHERS

**CUMBERLAND COUNTY SCHOOL DISTRICT
BENCHMARK ASSESSMENT CURRICULUM PACING GUIDE**

School: CCHS	Subject: Geometry	Grade: 11
Benchmark Assessment 2		
Instructional Timeline: Units 4,5,6 Term 2 <u>Dependent upon learning check schedule</u>		
Topics: Relationships within triangles, similarity, polygons, and quadrilaterals		
Kentucky Core Academic Standards	Learning Targets (I Can Statements)	Key Vocabulary
Unit# 4 Relationships within Triangles G.CO.10 Prove theorems about triangles. <i>Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.</i> G.CO.9 – Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on perpendicular bisector of a line segment are exactly those equidistant from the segment’s endpoints. G.C.3 Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a	Unit# 4 Relationships within Triangles 1. I can use properties of midsegments to solve problems. (G.CO.10) 2. I can identify and use properties of perpendicular bisectors and angle bisectors. (G.CO.9 , G.C.3) 3. I can identify properties of medians and altitudes of triangles. G.CO.10 4. I can solve problems involving inequalities of sides in angles of one or two triangles. G.CO.10	Midsegment of a triangle, equidistant, distance from a point to a line, concurrent, point of concurrency, circumcenter of a triangle, circumscribed, incenter, inscribed, median of a triangle, centroid of a triangle, altitude of a triangle, orthocenter of a triangle,

quadrilateral inscribed in a circle.
G.CO.10 Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180° ; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.*



<p><u>Unit 5 Similarity</u> G.SRT.4 – Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity. G.SRT.5 – Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures. Also: G.GPE.5</p>	<p><u>Unit 5 Similarity</u></p> <ol style="list-style-type: none"> 1. I can write ratios and solve proportions. G.SRT.5 2. I can identify and apply similar polygons G.SRT.5 3. I can find and use relationships (AA, SAS, SSS) in similar triangles to solve problems. G.SRT.5 4. I can use the Side-Splitter theorem and the Triangle-Angle-Bisector theorem to solve problems. G.SRT.4 	<p>Ratio, proportion, means, extremes, Cross products, property, similar figures, similar polygons, scale factor, scale, scale drawing, indirect measurement, geometric mean</p>
---	--	--



<p><u>Unit 6 Polygons and Quadrilaterals</u> G.SRT.5– Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures. G.CO.11- Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals. G.SRT.5 – Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures. G.GPE.7 –Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.</p>	<p><u>Unit 6 Polygons and Quadrilaterals</u></p> <ol style="list-style-type: none"> 1. I can find the sum of the measures of interior and exterior angles of a polygon and use them to solve problems. G.SRT.5 2. I can use relationships among sides, angles, and diagonals of parallelograms to solve problems and prove that a quadrilateral is a parallelogram. G.CO.11 3. I can use properties of rectangles, rhombi, and squares to solve problems and classify quadrilaterals. G.CO.11 4. I can verify and use properties of trapezoids and kites. G.SRT.5 5. I can use the coordinate plane to classify quadrilaterals. G.GPE.7 	<p>Equilateral, equiangular, regular polygon, parallelogram, opposite (sides and angles) consecutive angles, rhombus, rectangle, square, trapezoid, base, leg, base angle, isosceles, trapezoid, midsegment of a trapezoid, kite</p>
---	---	--

**CUMBERLAND COUNTY SCHOOL DISTRICT
BENCHMARK ASSESSMENT CURRICULUM PACING GUIDE**

School: CCHS	Subject: Geometry	Grade: 11
Benchmark Assessment 3		
Instructional Timeline: ACT REVIEW (2 units) , Unit 9 Term 3 Dependent Upon Learning Check Schedule		
Topic(s):ACT Cumulative Review, Right triangles and trigonometry		
Kentucky Core Academic Standards	Learning Targets (I Can Statements)	Key Vocabulary
<u>ACT REVIEW (2 units)</u> <u>Unit 1 Pre-Algebra/Elementary algebra</u> A.1.a.: Identify properties of real numbers and use them and the correct order of operations to simplify expressions A.1.a.: Set up and solve problems following the correct order of operations (including proportions, percent, and absolute value) with rational numbers (integers, fractions, decimals) A.1.b.: Find the greatest common factor and least common multiple of a set of whole numbers A.1.b.: Multiply monomials and binomials A.1.c.: Factor trinomials in the form ax^2+bx+c A.1.c.: Use rational numbers to demonstrate knowledge of additive and multiplicative inverses A.1.d.: Simplify ratios A.1.d.: Solve single-step and multistep equations and inequalities	<u>ACT REVIEW (2 units)</u> <u>Unit 1 Pre-Algebra/Elementary algebra</u> 1. I can translate and solve linear word problems in one variable 2. I can solve problems involving signed numbers and absolute value. 3. I can solve problems involving mean , median and mode. 4. I can factor numbers into prime factors and use them to calculate the GCF and LCM. 5. I can compare and order rational and irrational numbers. 6. I can solve percent problems. 7. I can find the probability of independent and independent events. 8. I can solve problems involving ratios and proportions. 9. I can solve problems involving powers and radicals 10. I can find the value of an expression or equation by substituting values 11. I can factor quadratic expressions and solve quadratic equations. 12. I can perform operations on polynomials. 13. I can translate word problems and solve word	Linear equation, signed number, absolute value, expression, equation, order of operations, mean, median, mode, prime factorization, Greatest common factor (GCF), factor, Least common multiple(LCM), ascending order, descending order, probability, independent event, dependent event, combination, permutation, ratios, proportions, means, extremes, cross products, base, exponent, radical sign, radicand, perfect square, perfect cube, square root, square of a number, cube root, cube of a number, quadratic expression/equation, degree of a polynomial, leading coefficient, like terms, polynomial, logarithm, properties of exponents,

in one variable

A.1.e.: Solve systems of two linear equations using various methods, including elimination, substitution, and graphing

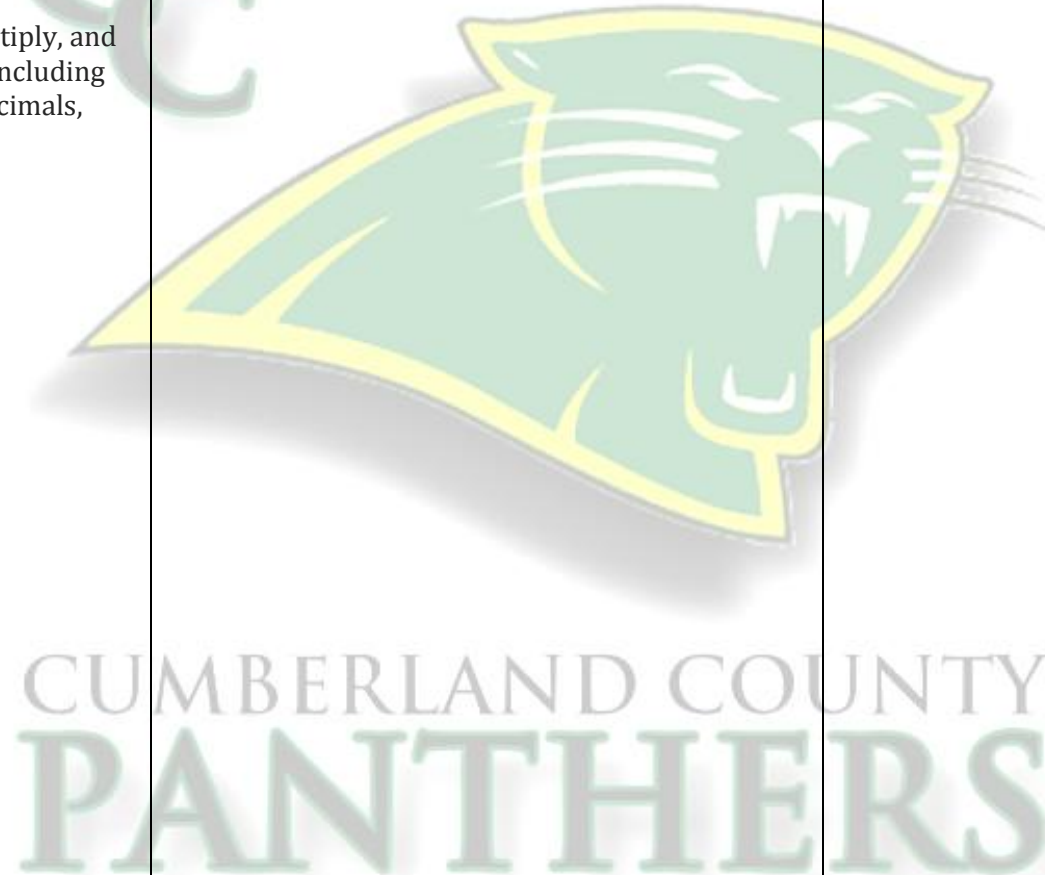
A.1.e.: Use scientific notation when working with very large or very small quantities

A.1.f.: Add, subtract, multiply, and divide rational numbers, including integers, fractions, and decimals, without calculators

problems involving relationships between two variables.

14. I can simplify and solve problems involving exponents and logarithms.

15. I can solve problems involving tables and charts.



<p><u>ACT REVIEW UNIT 2 Intermediate algebra and geometry</u></p> <p>A.1.e.: Solve systems of two linear equations using various methods, including elimination, substitution, and graphing</p> <p>A.1.f.: Write linear equations in standard form and slope-intercept form when given two points, a point and the slope, or the graph of the equation</p> <p>A.1.g.: Graph a linear equation using a table of values, x- and y intercepts, or slope-intercept form</p> <p>A.1.h.: Find the distance and midpoint between two points in the coordinate plane</p> <p>A.1.i.: Use sine, cosine, and tangent ratios to find the sides or angles of right triangles</p> <p>A.1.j.: Use inductive reasoning to make conjectures and deductive reasoning to arrive at valid conclusions</p> <p>F.1.a.: Use properties of exponents (including zero and negative exponents) to evaluate and simplify expressions</p> <p>F.1.b.: Evaluate and simplify rational expressions</p> <p>F.1.c.: Add, subtract, multiply, and divide rational expressions</p> <p>F.1.d.: Find rational number square roots (without calculators) and approximate irrational square roots (with and without calculators)</p>	<p><u>ACT REVIEW UNIT 2 Intermediate algebra and geometry</u></p> <ol style="list-style-type: none"> 1. I can solve problems involving complex numbers. 2. I can evaluate functions 3. I can determine domain and range of functions using graphs. 4. I can solve inequalities 5. I can solve problems involving matrices. 6. I can factor and solve quadratic inequalities. 7. I can solve a system of equations. 8. I can simplify and solve rational expressions and equations. 9. I can solve radical equations 10. I can determine the distance and midpoint between two points 11. I can identify graphs and equations of parabolas, hyperbolas, ellipses and circles. 12. I can graph points and inequalities on a number line and solve problems involving graphs on a coordinate plane. 13. I can solve problems involving linear equations. 14. I can find area and volume of geometric figures 15. I can use trigonometric ratios to solve problems. 	<p>Imaginary number, complex number, conjugate, function, function notation, evaluate, domain, range, matrix, scalar, inverse matrix, determinant, system of equations, rational expressions, radical equations, parabola, hyperbola, ellipse, circle, trigonometry, sine, cosine, tangent.</p>
--	---	---

F.1.e.: Evaluate and simplify radical expressions
F.1.f.: Multiply radical expressions
F.1.g.: Simplify an algebraic quotient by rationalizing an irrational monomial denominator
I.1.a.: Add, subtract, and multiply matrices
I.1.b.: Use addition, subtraction, and multiplication of matrices to solve real-world problems
I.1.c.: Calculate the determinant of 2×2 and 3×3 matrices
I.1.d.: Find the inverse of a 2×2 matrix
I.1.e.: Solve systems of equations by using inverses of matrices and determinants
I.1.f.: Use technology to perform operations on matrices, find determinants, and find inverses



CUMBERLAND COUNTY
PANTHERS

<p><u>Unit9 Right Triangles and Trigonometry</u></p> <p>G.SRT.8 – Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.</p> <p>G.SRT.8 – Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.</p> <p>G.SRT.7 – Explain and use the relationship between the sine and cosine of complementary angles.</p> <p>G.MG.1 – Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).</p> <p>G.SRT.8 – Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.</p> <p>G.SRT.10 - Prove the Laws of Sines and Cosines and use them to solve problems. (Show derivation of each.)</p> <p>G.SRT. 11 – Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces</p>	<p><u>Unit 9 Right Triangles and Trigonometry</u></p> <ol style="list-style-type: none"> 1. I can use the Pythagorean Theorem and its converse to solve problems. G.SRT.8 2. I can use the properties of 45-45-90 and 30-60-90 triangles to solve problems. G.SRT.8 3. I can use sine, cosine, and tangent ratios to determine side lengths and angle measures in right triangles. G.SRT.7, G.MG.1, G.SRT.8 4. I can use angles of elevation and depression to solve problems. 5. I can apply the Law of Sines. G.SRT.10, G.SRT. 11 6. I can apply the Law of Cosines. G.SRT.10, G.SRT. 11 	<p>Pythagorean triple, trigonometric ratios, sine, cosine, tangent, angle of elevation, angle of depression, law of sines, law of cosines.</p>
--	---	--



**CUMBERLAND COUNTY SCHOOL DISTRICT
BENCHMARK ASSESSMENT CURRICULUM PACING GUIDE**

School: CCHS	Subject: Geometry	Grade: 11
Benchmark Assessment 4		
Instructional Timeline: Units 10, 11 (as time permits) Term 4 <u>Dependent upon Learning check schedule</u>		
Topic(s): Area, Surface Area and Volume		
Kentucky Core Academic Standards	Learning Targets (I Can Statements)	Key Vocabulary
<p>Unit #10 Area</p> <p>G.C.5 – Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.</p> <p>G.CO.1 – Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.</p> <p>G.MG.1 – Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).</p> <p>G.SRT.9 – Derive the formula $A = \frac{1}{2}ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.</p>	<p>Unit #10 Area</p> <ol style="list-style-type: none"> 1. I can find the area of triangles and quadrilaterals 2. I can find areas of regular polygons. 3. I can find perimeters and areas of similar figures 4. I can find areas of regular polygons and triangles using trigonometry. and the circumference and arc length of circles. 5. I can find the area of circles, sectors, and segments of circles. 	<p>Apothem, arc length, central angle, concentric circles, diameter, congruent arcs, major arc, minor arc, radius, sector of a circle, segment of a circle</p>

<p><u>Unit 11 Surface area and volume (as time permits)</u></p> <p>G.GMD.4 – Identify the shapes of two-dimensional cross-sections of three dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.</p> <p>G.MG.1 – Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).</p> <p>G.GMD.1 – Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri’s principle, and informal limit arguments.</p> <p>G.GMD.3- Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.</p> <p>G.MG.2 – Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot)</p>	<p><u>Unit 11 Surface area and volume (as time permits)</u></p> <ol style="list-style-type: none"> 1. I can identify cross-sections of various objects. 2. I can find the surface area of prisms and cylinders. 3. I can find the surface area of pyramids and cones. 4. I can find the volume of prisms and cylinders. 5. I can find the volume of pyramids and cones. 6. I can find the surface area and volume of a sphere. 7. I can compare and find the areas and volumes of similar solids. 	<p>Cone, cross section, cylinder, face, polyhedron, prism, pyramid, similar solids, sphere, surface area, volume</p>
---	---	--

