



Course Name:

Geometry CP/Honors

Curriculum Proposal Date:

October 10, 2022

Curriculum Developed by:

Lori Babel, Kelly Lesko

GEOMETRY CP/HONORS - THE BASICS

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards	Transfer	
CC.2.3.HS.A.11 Apply coordinate geometry to prove simple geometric theorems algebraically. CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures.	<i>Students will be able to independently use their learning to keep considering...</i> <ul style="list-style-type: none"> <input type="checkbox"/> G.2.1.2 Solve problems using analytic geometry. <input type="checkbox"/> G.2.2.1 Use and/or compare measurements of angles. 	
	Meaning	
	UNDERSTANDINGS <i>Students will understand that...</i> <ul style="list-style-type: none"> <input type="checkbox"/> Points, lines, and planes are the foundations of Geometry and are connected to infinitely many real world examples. <input type="checkbox"/> The rules and relationships of angles, pairs of angles and how to find missing angle measures. 	ESSENTIAL QUESTIONS <i>Students will keep considering...</i> <ul style="list-style-type: none"> <input type="checkbox"/> What are the basic tools of geometry? <input type="checkbox"/> What symbols, formulas and vocabulary are important for communicating within the context of Geometry? <input type="checkbox"/> How do the rules of geometry apply to the coordinate plane?
	Acquisition	
<i>Students will know...</i> <ul style="list-style-type: none"> <input type="checkbox"/> Notation, definition, and relationship of the following terms: undefined term, point, line, plane, collinear, non-collinear, coplanar, non-coplanar, ray, line segment, opposite rays, intersection, betweenness of points, perpendicular lines, angle, vertex, side, degree, adjacent angles, vertical angles, linear pair, angle bisector, complementary angles, supplementary angles, acute angles, right angles, obtuse angles, straight angle, congruence, angle bisector, vertical angles, linear pair, supplementary angles, complementary angles, segment addition postulate, segment bisector, angle addition postulate, perimeter, area, x-and y-coordinates, distance, distance formula, midpoint, midpoint formula. 	<i>Students will be skilled at...</i> <ul style="list-style-type: none"> <input type="checkbox"/> G.2.1.2.1 Calculate the distance and/or midpoint between two points on a number line or on a coordinate plane. <input type="checkbox"/> G.2.2.1.1 Use properties of angles formed by intersecting lines to find the measures of missing angles. <input type="checkbox"/> Identifying and modeling points, lines, and planes <input type="checkbox"/> Identifying intersecting lines and planes <input type="checkbox"/> Finding the distance between two points <input type="checkbox"/> Finding the midpoint of a segment <input type="checkbox"/> Using the midpoint and segment bisector to find measures of segments <input type="checkbox"/> Measure and classify angles <input type="checkbox"/> Using congruent angles and the bisector of an angle <input type="checkbox"/> Identifying and using special pairs of angles <input type="checkbox"/> Identifying perpendicular lines 	

GEOMETRY CP/HONORS - PROOFS

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards	Transfer	
CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures.	<p><i>Students will be able to independently use their learning to keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> G.1.3.2 Write formal proofs and/or use logic statements to construct or validate arguments. 	
	Meaning	
	<p>UNDERSTANDINGS <i>Students will understand that...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> There are mathematical ways of thinking that can be applied outside of math class. <input type="checkbox"/> Logical reasoning is a tool you can use to build confidence and support for your beliefs. <input type="checkbox"/> Correct reasoning is the universal language of truth and facts. <input type="checkbox"/> Statements, converses, inverses, and contrapositives can be used to construct valid arguments relating to geometric theorems 	<p>ESSENTIAL QUESTIONS <i>Students will keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> How to make conjectures and find counterexamples for statements? <input type="checkbox"/> How to use deductive reasoning to reach conclusions? <input type="checkbox"/> Why are proofs necessary? <input type="checkbox"/> Why are justifications necessary when constructing proofs?
	Acquisition	
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Meaning and relationship of the following terms: postulate, theorem, counterexample, conjecture, hypothesis, conclusion, conditional, truth value, given, proof, indirect proof, proof by contradiction, inductive reasoning, deductive reasoning, negation, conjunction, disjunction, biconditional 	<p><i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> G.1.3.2.1 Write, analyze, complete, or identify formal proofs (e.g., direct and/or indirect proofs/proofs by contradiction). <input type="checkbox"/> Making conjectures based on inductive and deductive reasoning <input type="checkbox"/> Finding the truth value of a conditional statement <input type="checkbox"/> Finding counterexamples <input type="checkbox"/> Analyzing if-then statements <input type="checkbox"/> Writing proofs using segment addition and segment congruence <input type="checkbox"/> Writing proofs using angle postulate, angle properties, and angle congruence <input type="checkbox"/> Writing an indirect proof 	

GEOMETRY CP/HONORS - PARALLEL LINES

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards	Transfer	
<p>CC.2.3.8.A.2 Understand and apply congruence, similarity, and geometric transformations using various tools.</p> <p>CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures.</p>	<p><i>Students will be able to independently use their learning to keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> G.2.2.1 Use and/or compare measurements of angles <input type="checkbox"/> G.1.3.2 Write formal proofs and/or use logic statements to construct or validate arguments. 	
	Meaning	
	<p>UNDERSTANDINGS</p> <p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Special relationships apply to angles formed by parallel and intersecting lines and planes 	<p>ESSENTIAL QUESTIONS</p> <p><i>Students will keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> What geometric conditions are sufficient and necessary to prove lines parallel? <input type="checkbox"/> What are the angle relationships when parallel lines are cut by a transversal?
	Acquisition	
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Meaning and relationship of the following terms: parallel lines, perpendicular lines, skew lines, parallel planes, interior angles, exterior angles, corresponding angles, alternate interior angles, alternate exterior angles, consecutive (same-side) interior angles, transversal. 	<p><i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> G.2.2.1.2 Use properties of angles formed when two parallel lines are cut by a transversal to find the measures of missing angles. <input type="checkbox"/> G.1.3.2.1 Write, analyze, complete, or identify formal proofs (e.g., direct and/or indirect proofs/proofs by contradiction). <input type="checkbox"/> Identifying relationships between multiple lines and planes <input type="checkbox"/> Using angles created by transversal intersecting parallel lines to prove theorems about lines and angles <input type="checkbox"/> Identifying the difference between parallel, perpendicular, and skew lines <input type="checkbox"/> Naming angle pairs created by parallel lines and a transversal <input type="checkbox"/> Using algebra to find angle measurements <input type="checkbox"/> Using converse theorems to prove lines parallel <input type="checkbox"/> Using properties of geometric figures involving parallel lines to solve for a missing quantity 	

GEOMETRY CP/HONORS - TRIANGLE BASICS

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards	Transfer		
<p>CC.2.3.8.A.2 Understand and apply congruence, similarity, and geometric transformations using various tools.</p> <p>CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures.</p> <p>CC.2.3.HS.A.13 Analyze relationships between two-dimensional and three-dimensional objects</p> <p>CC.2.3.HS.A.1 Use geometric figures and their properties to represent transformations in the plane.</p> <p>CC.2.3.HS.A.2 Apply rigid transformations to determine and explain congruence.</p> <p>CC.2.3.HS.A.5 Create justifications based on transformations to establish similarity of plane figures.</p> <p>CC.2.3.HS.A.6 Verify and apply theorems involving similarity as they relate to plane figures.</p>	<p><i>Students will be able to independently use their learning to keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> G.1.2.1 Recognize and/or apply properties of angles, polygons, and polyhedra. <input type="checkbox"/> G.1.3.1 Use properties of congruence, correspondence, and similarity in problem-solving settings involving two- and three dimensional figures. <input type="checkbox"/> G.1.3.2 Write formal proofs and/or use logic statements to construct or validate arguments. 		
	Meaning		
	<p>UNDERSTANDINGS</p> <p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> The classifications and given information about triangles can be used to prove congruency. 	<p>ESSENTIAL QUESTIONS</p> <p><i>Students will keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> What properties exist for triangles? <input type="checkbox"/> How can congruency of two triangles be determined? 	
	Acquisition		
	<p><i>Students will know...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Meaning and relationship of the following terms: acute triangle, right triangle, obtuse triangle, equilateral triangle, equiangular triangle, scalene triangle, isosceles triangle (legs, base angle, vertex angle), interior angle, exterior angle, remote interior angle, interior angle sum, exterior angle sum, corresponding angles, corresponding sides, congruent polygons, congruent triangles, Side-Side-Side (SSS), Side-Angle-Side (SAS), Angle-Side-Angle (ASA), Angle-Angle-Side (AAS), Hypotenuse-Leg (HL), included angles, included sides, corresponding parts of congruent triangles are congruent (CPCTC), third angles theorem 	<p><i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> G.1.2.1.1 Identify and/or use properties of triangles <input type="checkbox"/> G.1.2.1.3 Identify and/or use properties of isosceles and equilateral triangles. <input type="checkbox"/> G.1.3.1.1 Identify and/or use properties of congruent and similar polygons or solids. <input type="checkbox"/> G.1.3.2.1 Write, analyze, complete, or identify formal proofs (e.g., direct and/or indirect proofs/proofs by contradiction). <input type="checkbox"/> Identifying and classifying triangles by side and angle measures <input type="checkbox"/> Applying the Triangle Angle Sum Theorem and the Exterior Angle Theorem <input type="checkbox"/> Naming and using the corresponding parts of congruent triangles <input type="checkbox"/> Proving triangles congruent (using the definition of congruent polygons, SSS, SAS, ASA, AAS, HL <input type="checkbox"/> Using properties of isosceles and equilateral triangles to find missing measures of triangles <input type="checkbox"/> Using the definition of congruence or triangle congruences (ASA, SAS, SSS, AAS) in terms of transformations (rotation, reflection, or both) to show that two triangles are congruent. 	

GEOMETRY CP/HONORS - POLYGONS

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards	Transfer	
<p>CC.2.3.8.A.2 Understand and apply congruence, similarity, and geometric transformations using various tools.</p> <p>CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures.</p> <p>CC.2.3.HS.A.6 Verify and apply theorems involving similarity as they relate to plane figures.</p> <p>CC.2.3.HS.A.13 Analyze relationships between two-dimensional and three-dimensional objects.</p> <p>CC.2.3.8.A.3 Understand and apply the Pythagorean theorem to solve problems.</p> <p>CC.2.3.HS.A.11 Apply coordinate geometry to prove simple geometric theorems algebraically.</p>	<p><i>Students will be able to independently use their learning to keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> G.1.2.1 Recognize and/or apply properties of angles, polygons, and polyhedra. <input type="checkbox"/> G.1.3.2 Write formal proofs and/or use logic statements to construct or validate arguments. <input type="checkbox"/> G.2.1.2 Solve problems using analytic geometry 	
	Meaning	
	<p>UNDERSTANDINGS <i>Students will understand that...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> We classify polygons by examining their sides and angles. 	<p>ESSENTIAL QUESTIONS <i>Students will keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> How do we use the sum of the measures of the interior and exterior angles of a polygon? <input type="checkbox"/> How do we identify and apply properties of polygons? <input type="checkbox"/> How can we use coordinates to prove simple geometric theorems algebraically (for example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle)?
Acquisition		
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Meaning and relationship of the following terms: convex, concave, polygon, regular polygon, equilateral polygon, equiangular polygon, diagonal, quadrilateral, parallelogram, rhombus, rectangle, square, kite, trapezoid (base, legs, base angles), isosceles trapezoid, midsegment of a trapezoid, polygon interior angle theorem, polygon exterior angle sum theorem 	<p><i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> G.1.2.1.2 Identify and/or use properties of quadrilaterals. <input type="checkbox"/> G.1.3.2.1 Write, analyze, complete, or identify formal proofs (e.g., direct and/or indirect proofs/proofs by contradiction). <input type="checkbox"/> G.2.1.2.1 Calculate the distance and/or midpoint between two points on a number line or on a coordinate plane. <input type="checkbox"/> G.2.1.2.2 Relate slope to perpendicularity and/or parallelism (limit to linear algebraic equations). <input type="checkbox"/> G.2.1.2.3 Use slope, distance, and/or midpoint between two points on a coordinate plane to establish properties of a two-dimensional shape. <input type="checkbox"/> The properties of parallelograms and how they can be used to find missing side and angle measures <input type="checkbox"/> Finding the slope of a line <input type="checkbox"/> Recognizing, identifying, and applying properties of polygons <input type="checkbox"/> Proving a quadrilateral is a parallelogram, rhombus, square, or rectangle <input type="checkbox"/> Using the properties of kites and trapezoids to find missing side and angle measures <input type="checkbox"/> Using the slope of the line to determine if line are parallel, perpendicular, or neither <input type="checkbox"/> Finding and using the sum of the measures of interior/exterior angles of a polygon <input type="checkbox"/> Determining what is a parralelogram and what is not (kite, trapezoid) 	

GEOMETRY CP/HONORS - SIMILARITY

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards	Transfer	
<p>CC.2.3.HS.A.1 Use geometric figures and their properties to represent transformations in the plane.</p> <p>CC.2.3.HS.A.2 Apply rigid transformations to determine and explain congruence.</p> <p>CC.2.3.HS.A.5 Create justifications based on transformations to establish similarity of plane figures.</p> <p>CC.2.3.HS.A.6 Verify and apply theorems involving similarity as they relate to plane figures.</p>	<p><i>Students will be able to independently use their learning to keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> G.1.3.1 Use properties of congruence, correspondence, and similarity in problem-solving settings involving two- and three dimensional figures. 	
	Meaning	
	<p>UNDERSTANDINGS</p> <p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Similar figures can be used to model real-life situations. 	<p>ESSENTIAL QUESTIONS</p> <p><i>Students will keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> How do we identify similar polygons and use ratios/proportions to find missing lengths and angle measures?
	Acquisition	
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Meaning and relationship of the following terms: altitude, median, angle bisector, ratio, proportion, cross products, similar, similar polygons, similarity ratio, scale-factor, Angle-Angle Similarity (AA~), Side-Side-Side Similarity (SSS~), Side-Angle-Side Similarity (SAS~) <input type="checkbox"/> There is a difference between congruent triangles and similar triangles which relates to how the triangle is transformed 	<p><i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> G.1.3.1.1 Identify and/or use properties of congruent and similar polygons or solids. <input type="checkbox"/> G.1.3.1.2 Identify and/or use proportional relationships in similar figures. <input type="checkbox"/> G.1.3.2.1 Write, analyze, complete, or identify formal proofs (e.g., direct and/or indirect proofs/proofs by contradiction). <input type="checkbox"/> Applying properties of similarity in the coordinate plane <input type="checkbox"/> Applying proportions to identify similar figures <input type="checkbox"/> Solving problems using the properties of similar polygons <input type="checkbox"/> Identifying similar triangles using Angle-Angle Similarity (AA~), Side-Side-Side Similarity (SSS~), and Side-Angle-Side Similarity (SAS~) <input type="checkbox"/> Using similar triangles to solve problems <input type="checkbox"/> Using proportional parts within triangles and with parallel lines <input type="checkbox"/> Using ratios to make indirect measurements <input type="checkbox"/> Recognizing and using proportional relationships of angle bisectors, altitudes, and medians of similar triangles <input type="checkbox"/> Using the triangle angle bisector theorem 	

GEOMETRY CP/HONORS - RIGHT TRIANGLE AND TRIGONOMETRY

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards	Transfer	
<p>CC.2.2.HS.C.9 Prove the Pythagorean identity and use it to calculate trigonometric ratios.</p> <p>CC.2.3.HS.A.7 Apply trigonometric ratios to solve problems involving right triangles.</p>	<p><i>Students will be able to independently use their learning to keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> G.2.1.1 Solve problems involving right triangles. 	
	Meaning	
	<p>UNDERSTANDINGS</p> <p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> The sides of a right triangle have a broad range of relationships that lead to many applications and uses. 	<p>ESSENTIAL QUESTIONS</p> <p><i>Students will keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> How do we use the pythagorean theorem and its converse? <input type="checkbox"/> How do we use trigonometry to find missing measures of triangles? <input type="checkbox"/> What are the different methods that can be used to solve a right triangle?
	Acquisition	
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Meaning and relationship of the following terms: pythagorean theorem, pythagorean triple, sine, cosine, tangent, inverse sine, inverse cosine, inverse tangent, trigonometric ratios, angle of elevation, angle of depression 	<p><i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> G.2.1.1.1 Use the Pythagorean theorem to write and/or solve problems involving right triangles. <input type="checkbox"/> G.2.1.1.2 Use trigonometric ratios to write and/or solve problems involving right triangles. <input type="checkbox"/> Using the pythagorean theorem and the converse of the pythagorean theorem <input type="checkbox"/> Using the special right triangles (45-45-90 & 30-60-90) to find missing measures of triangles <input type="checkbox"/> Using the sine, cosine, tangent, and their inverses to find missing measures of triangles <input type="checkbox"/> Modeling a practical situation involving right triangles using the trigonometric functions and the Pythagorean theorem <input type="checkbox"/> Solving real-world problems using angles of elevation and depression <input type="checkbox"/> How can we use the properties of special right triangles to find missing lengths of composite figures? 	

GEOMETRY CP/HONORS - CIRCLES

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards	Transfer	
<p>CC.2.2.HS.C.1 Use the concept and notation of functions to interpret and apply them in terms of their context.</p> <p>CC.2.3.HS.A.8 Apply geometric theorems to verify properties of circles.</p> <p>CC.2.3.HS.A.9 Extend the concept of similarity to determine arc lengths and areas of sectors of circles.</p>	<p><i>Students will be able to independently use their learning to keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> G.1.1.1 Identify and/or use parts of circles and segments associated with circles, spheres, and cylinders. <input type="checkbox"/> G.2.2.2 Use and/or develop procedures to determine or describe measures of perimeter, circumference, and/or area. (May require conversions within the same system.) 	
	Meaning	
	<p>UNDERSTANDINGS</p> <p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> The properties of angles, arcs, chords, tangents, radii, and secants can be used to solve problems involving circles. 	<p>ESSENTIAL QUESTIONS</p> <p><i>Students will keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> What are the relationships between a circle and its arcs, lines, segments and angles? <input type="checkbox"/> How do we define and use secants and tangents? <input type="checkbox"/> How do we use those relationships to solve problems?
	Acquisition	
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Meaning and relationship of the following terms: center, concentric circles, radius, diameter, chord, tangent, secant, arc, circle, arc measure, minor arc, arc, adjacent arcs, major arc, semicircle, sector a circle, segment of a circle, arc length, inscribed angle, intercepted arc, secant segment, area of a circle, point of tangency, circumference, circumscribed 	<p><i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> G.1.1.1.1 Identify, determine, and/or use the radius, diameter, segment, and/or tangent of a circle. <input type="checkbox"/> G.1.1.1.2 Identify, determine, and/or use the arcs, semicircles, sectors, and/or angles of a circle. <input type="checkbox"/> G.1.1.1.3 Use chords, tangents, and secants to find missing arc measures or missing segment measures. <input type="checkbox"/> G.2.2.2.5 Find the area of a sector of a circle. <input type="checkbox"/> Identifying, recognizing and using parts of circles <input type="checkbox"/> Solving problems involving the circumference of a circle <input type="checkbox"/> Finding arc lengths <input type="checkbox"/> Recognizing and using relationships between arcs and chords <input type="checkbox"/> Finding measures of inscribed angles, angles of inscribed polygons and circumscribed polygons <input type="checkbox"/> Finding measures of angles formed by lines intersecting on, inside, or outside of the circle <input type="checkbox"/> Finding measures of segments that intersect on, inside or outside of the circle? <input type="checkbox"/> Finding the area of a circle and a sector of a circle <input type="checkbox"/> Relating the tangent of a circle to the circle's radius at the point of tangency 	

GEOMETRY CP/HONORS - AREA

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards	Transfer	
<p>CC.2.2.HS.C.1 Use the concept and notation of functions to interpret and apply them in terms of their context.</p> <p>CC.2.3.8.A.2 Understand and apply congruence, similarity, and geometric transformations using various tools.</p> <p>CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures.</p> <p>CC.2.3.HS.A.8 Apply geometric theorems to verify properties of circles.</p> <p>CC.2.3.HS.A.13 Analyze relationships between two-dimensional and three-dimensional objects.</p> <p>CC.2.3.HS.A.14 Apply geometric concepts to model and solve real-world problems.</p>	<p><i>Students will be able to independently use their learning to keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> G.1.2.1 Recognize and/or apply properties of angles, polygons, and polyhedra. <input type="checkbox"/> G.2.2.2 Use and/or develop procedures to determine or describe measures of perimeter, circumference, and/or area. (May require conversions within the same system.) <input type="checkbox"/> G.2.2.3 Describe how a change in one dimension of a two dimensional figure affects other measurements of that figure. <input type="checkbox"/> G.2.2.4 Apply probability to practical situations. 	
	Meaning	
	<p>UNDERSTANDINGS</p> <p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Area, perimeter, and circumference can be applied in modeling real world situations when problem solving. 	<p>ESSENTIAL QUESTIONS</p> <p><i>Students will keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> What strategies and formulas can be used to find perimeter and area of polygons? <input type="checkbox"/> How can we use the properties of known figures to find missing measures of composite figures? <input type="checkbox"/> How do we use coordinates to compute perimeters of polygons and areas of triangles and parallelograms (rectangles, rhombuses, squares)? <input type="checkbox"/> How can geometric probability be used to predict results in real world situations?
	Acquisition	
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Meaning and relationship of the following terms: area, perimeter, apothem, regular, central angle, composite figure, altitude, area of a sector, radius, diameter, circumference, base, height, composite figure, geometric probability 	<p><i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> G.1.2.1.4 Identify and/or use properties of regular polygons. <input type="checkbox"/> G.2.2.2.1 Estimate area, perimeter, or circumference of an irregular figure. <input type="checkbox"/> G.2.2.2.2 Find the measurement of a missing length, given the perimeter, circumference, or area. <input type="checkbox"/> G.2.2.2.3 Find the side lengths of a polygon with a given perimeter to maximize the area of the polygon <input type="checkbox"/> G.2.2.2.4 Develop and/or use strategies to estimate the area of a compound/composite figure <input type="checkbox"/> G.2.2.3.1 Describe how a change in the linear dimension of a figure affects its perimeter, circumference, and area (e.g., How does changing the length of the radius of a circle affect the circumference of the circle?). <input type="checkbox"/> G.2.2.4.1 Use area models to find probabilities. <input type="checkbox"/> Describing the effect on perimeter, area, and circumference when one or more dimensions are changed <input type="checkbox"/> Finding perimeter, and area of polygons <input type="checkbox"/> Using sums of areas of standard shapes to calculate the areas of complex shapes 	

GEOMETRY CP/HONORS - 3D SHAPES

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards	Transfer	
<p>CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures</p> <p>CC.2.3.HS.A.8 Apply geometric theorems to verify properties of circles.</p> <p>CC.2.3.HS.A.9 Extend the concept of similarity to determine arc lengths and areas of sectors of circles.</p> <p>CC.2.3.HS.A.13 Analyze relationships between two-dimensional and three-dimensional objects.</p> <p>CC.2.3.8.A.1 Apply the concepts of volume of cylinders, cones, and spheres to solve real-world and mathematical problems.</p> <p>CC.2.3.HS.A.12 Explain volume formulas and use them to solve problems.</p> <p>CC.2.3.HS.A.14 Apply geometric concepts to model and solve real world problems</p>	<p><i>Students will be able to independently use their learning to keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> G.1.1.1 Identify and/or use parts of circles and segments associated with circles, spheres, and cylinders <input type="checkbox"/> G.1.2.1 Recognize and/or apply properties of angles, polygons, and polyhedra. <input type="checkbox"/> G.2.3.1 Use and/or develop procedures to determine or describe measures of surface area and/or volume. (May require conversions within the same system.) 	
	Meaning	
	<p>UNDERSTANDINGS</p> <p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Geometric solids can be measured using lateral area, surface area and volume. 	<p>ESSENTIAL QUESTIONS</p> <p><i>Students will keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> How are geometric solids measured? <input type="checkbox"/> How do you know which measure to use?
	Acquisition	
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Meaning and relationship of the following terms: face, edge, vertex, height, altitude, slant height, prism, base, cylinder, pyramid, cone, sphere, cube, surface area, volume, lateral area, diameter, radius 	<p><i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> G.1.1.1.4 Identify and/or use the properties of a sphere or cylinder. <input type="checkbox"/> G.1.2.1.5 Identify and/or use properties of pyramids and prisms. <input type="checkbox"/> G.2.3.1.1 Calculate the surface area of prisms, cylinders, cones, pyramids, and/or spheres. Formulas are provided on a reference sheet. <input type="checkbox"/> G.2.3.1.2 Calculate the volume of prisms, cylinders, cones, pyramids, and/or spheres. Formulas are provided on a reference sheet. <input type="checkbox"/> G.2.3.1.3 Find the measurement of a missing length given the surface area or volume. <input type="checkbox"/> Identifying and naming three-dimensional figures <input type="checkbox"/> Finding surface area, lateral area and volume <input type="checkbox"/> Finding a missing measure of a three-dimensional figure, given the surface area or volume 	