Dover Area School District Curriculum K-U-D
Honors Geometry

Standards	Eligible Content	Know	Understand	Do
CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures.	G.2.1.2.1: Calculate the distance and/or midpoint between two points on a number line or on a coordinate plane.	How to apply distance and midpoint formula	Foundational postulates, theorems, formulas, and definitions of geometry.	Calculate the distance and/or midpoint between two points on a number line or on a coordinate plane.
CC.2.3.HS.A.14 - Apply geometric concepts to model and solve real world problems. CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures.	G.1.2.1: Recognize and/or apply properties of angles, polygons, and polyhedra.	How to name points, lines, planes, and angles	Figures contain points, lines and planes	Identify points, lines and planes in a figure
CC.2.3.8.A.2 - Understand and apply congruence, similarity, and geometric transformations using various tools.	G.2.2.1.1 Use properties of angles formed by intersecting lines to find the measures of missing angles.	How to identify angle relationships. Apply segment and angle addition postulate	Relationships in angles	Use angle relationships to solve problems. Solve for segment and angle measures
CC.2.3.8.A.2 - Understand and apply congruence, similarity, and geometric transformations using various tools.	G.1.3.2.1: Write, analyze, complete, or identify formal proofs (e.g., direct and/or indirect proofs/proofs by contradiction).	Conditional can be false given a counterexample. Different variations of a conditional statement. Deductive reasoning can be used to prove a statement true or false. How to write two column proofs. The connection between statements and reasons in a two column proof. Conditional statements and their truth values	Application of inductive and deductive reasoning.	Write, analyze, complete, or identify formal proofs. Identify patterns to write conjectures. Use counterexamples. Write conditional statements and their related conditional statements. Identify and write biconditional statements. Form conclusions using laws of logic.
CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures.	G.2.2.1.1 - Use properties of angles formed by intersecting lines to find the measure of missing angles. G.2.2.1.2 Use properties of angles formed when two parallel lines cut by a transversal to find the measures of missing angles. G.1.3.2.1: Write, analyze, complete, or identify formal proofs (e.g., direct and/or indirect proofs/proofs by contradiction).	Angle relationships given parallel lines and a transversal How to prove lines parallel.	Angle relationships between parallel lines and transversals.	Use properties of angles formed when two parallel lines are cut by a transversal to find the measures of missing angles. Write, analyze, complete, or identify formal proofs
CC.2.3.HS.A.11 - Apply coordinate geometry to prove simple geometric theorems algebraically.	G.2.1.2.2 - Relate slope to perpendicularity and/or parallelism (limit to linear algebraic equations). 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.	The relationships of parallel and perpendicular lines	Relationship between linear equations and graphs and how each portray characteristics related to slope.	Identify parallel and perpendicular lines on the coordinate plane. Write equations of parallel and perpendicular lines. Graph linear equations from various forms
CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures. CC.2.3.HS.A.13 - Analyze relationships between two-dimensional and three-dimensional objects.	G.1.2.1.1 - Identify and/or use properties of triangles. G.1.2.1.3 - Identify and/or use properties of isosceles and equilateral triangles	Vocabulary for classifying triangles. Angle relationships given interior and exterior angles of a triangle. The triangle inequality theorem. How sides and angles are related in triangles. Segments created in triangles. Relationships in center of triangles. Properties of isosceles and equilateral triangles.	Characteristics of triangles. Theorems related to triangles.	Identify and/or use properties of isosceles and equilateral triangles. Solve problems using properties of angles in triangles. Identify segments in triangles and apply to solve problems. Order sides and angles of triangles. Apply the triangle inequality theorem
CC.2.3.8.A.2 - Understand and apply congruence, similarity, and geometric transformations using various tools.	G.1.3.2.1: Write, analyze, complete, or identify formal proofs (e.g., direct and/or indirect proofs/proofs by contradiction). G.1.3.1.1 - Identify and/or use properties of congruent and similar polygons or solids.	How the congruence statement determines the correspondence between triangles. Different ways to prove triangles congruent.	How to prove triangles congruent	Write congruence statements. Identify triangle congruence types. Write, analyze, complete, or identify formal proofs.
CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures. CC.2.3.HS.A.13 - Analyze relationships between two-dimensional and three-dimensional objects.	G.1.2.1.4 - Identify and/or use properties of regular polygons	The relationship between interior and exterior angles	Different polygons have special relationships	Identify and/or use properties of regular polygons. Solve for the sum of the angles in a polygon.
CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures. CC.2.3.HS.A.13 - Analyze relationships between two-dimensional and three-dimensional objects.	G.1.2.1.2 - Identify and/or use properties of quadrilaterals	Properties of quadrilaterals. The different ways of manipulating polygons.	Different polygons have special relationship between their sides, diagonals and angles	Identify and/or use properties of quadrilaterals
CC.2.3.HS.A.1 Use geometric figures and their properties to represent transformations in the plane. CC.2.3.8.A.2 - Understand and apply congruence, similarity, and geometric transformations using various tools. CC.2.3.HS.A.2 - Apply rigid transformations to determine and explain congruence.	G.1.3.1.1- Identify and/or use properties of congruent and similar polygons or solids. G.1.3.1.2- Identify and/or use proportional relationships in similar figures.	Different types of symmetry	How different transformation affects size and orientation of figures.	Transform a figure. Write a rule given a transformation. Identify line, point and rotational symmetry.
CC.2.3.HS.A.6 Verify and apply theorems involving similarity as they relate to plane figures.	G.1.3.1.1 - Identify and/or use properties of congruent and similar polygons or solids. G.1.3.1.2 - Identify and/or use proportional relationships in similar figures.	The relationship between sides and angles in similar figures. How to prove triangles are similar.	Relationships between similar figures.	Identify and/or use proportional relationships in similar figures. Identify similar triangles .
CC.2.3.HS.A.7 Apply trigonometric ratios to solve problems involving right triangles. CC.2.3.8.A.3 - Understand and apply the Pythagorean Theorem to solve problems.	G.2.1.1.1 - Use the Pythagorean theorem to write and/or solve problems involving right triangles. G.2.1.1.2 Use trigonometric ratios to write and/or solve problems involving right triangles	How to solve for sides and angles in right triangles. Solving methods differ for right triangles. The relationships of sides and angles in non-right triangles. Law of sines and cosines	Applications of right and non-right triangles.	Use the Pythagorean theorem to write and/or solve problems involving right triangles. Use trigonometric ratios to write and/or solve problems involving right and oblique triangles. Use special right triangles to solve problems involving right triangles

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CC.2.3.HS.A.8 Apply geometric theorems to verify properties of circles. CC.2.3.HS.A.9 Extend the concept of similarity to determine arc lengths and areas of sectors of circles. CC.2.3.HS.A.8 - Apply geometric theorems to verify properties of circles	G.1.1.1.1 - Identify, determine, and/or use the radius, diameter, segment, and/or tangent of a circle. G.1.1.1.2- Identify, determine, and/or use the arcs, semicircles, sectors, and/or angles of a circle. G.1.1.1.3- Use chords, tangents, and secants to find missing arc measures or missing segment measures.	Circles and their parts. Properties of circles. The equation of a circle. The different ways circles and their parts can be measured.	The relationships between circle parts.	Identify, determine, and/or use the radius, diameter, segment, and/or tangent of a circle. Identify, determine, and/or use the arcs, semicircles, sectors, and/or angles of a circle. Use chords, tangents, and secants to find missing arc measures or missing segment measures. Find the area of a sector of a circle. Find the length of an arc of a circle. Write and identify equations of circles on the coordinate plane.
CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures. CC.2.3.HS.A.9 Extend the concept of similarity to determine arc lengths and areas of sectors of circles. CC.2.3.HS.A.14 Apply geometric concepts to model and solve real world problems.	G.2.2.2.1 - Estimate area, perimeter, or circumference of an irregular figure. G.2.2.2.2 - Find the measurement of a missing length, given the perimeter, circumference, or area. G.2.2.2.3 - Find the side lengths of a polygon with a given perimeter to maximize the area of the polygon. G.2.2.2.4 - Develop and/or use strategies to estimate the area of a compound/composite figure. G.2.2.2.5 - Find the area of a sector of a circle. G.1.2.1.4 - Identify and/or use properties of regular polygons. G2.2.4.1 Use area models to find probabilities.	Vocabulary related to two- and three-dimensional figures. How to apply the formulas.	Area and perimeter can be used to identify other dimensional characteristics of shapes.	Find the measurement of a missing length, given the perimeter, circumference, or area. Develop and/or use strategies to find the area of a compound/composite figure.
CC.2.3.HS.A.12 Explain volume formulas and use them to solve problems. CC.2.3.HS.A.13 Analyze relationships between two-dimensional and three-dimensional objects. CC.2.3.HS.A.14 Apply geometric concepts to model and solve real world problems.	G.1.2.1.5 - Identify and/or use properties of pyramids and prisms. G.2.3.1.3- Find the measurement of a missing length given the surface area or volume. G.2.3.1.2 - Calculate the volume of prisms, cylinders, cones, pyramids, and/or spheres. Formulas are provided on a reference sheet. G.2.3.1.1 - Calculate the surface area of prisms, cylinders cones, pyramids, and/or spheres. Formulas are provided on a reference sheet. G.1.1.1.4 - Identify and/or use the properties of a sphere or cylinder. G2.2.4.1 Use area models to find probabilities.	Vocabulary related to two- and three-dimensional figures. How to apply the formulas.	Applying properties of three dimensional shapes to identify other dimensional characteristics like surface area and volume.	Identify and/or use the properties of a sphere or cylinder. Identify and/or use properties of pyramids and prisms. Calculate the surface area of prisms, cylinders, cones, pyramids, and/or spheres. Find the measurement of a missing length given the surface area or volume. Calculate the volume of prisms, cylinders, cones, pyramids, and/or spheres.
CC.2.3.HS.A.13 Analyze relationships between two-dimensional and three-dimensional objects.	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?) G.2.3.2.1 Describe how a change in the linear dimension of a figure affects its surface area or volume (e.g., How does changing the length of the edge of a of cube affect the volume of the cube?).	How similar solids are related	Effects of dimensional change	Identify and/or use properties of congruent and similar polygons or solids. Describe how a change in the linear dimension of a figure affects its perimeter, circumference, and area. Describe how a change in the linear dimension of a figure affects its surface area or volume