Geometry Unit/Bundle Plan 2019-2020

Unit/Bundle 1: Tools & Transformations (5 weeks/2.5 weeks block)

KY.HS.G.2 Representing transformations in the plane. **a). Describe transformations as functions that take points in the plane as inputs and give other points as outputs** **b). Compare transformations that preserve distance and angle measures to those that do not.** **c). Given a rectangle, parallelogram, trapezoid, or regular polygon, formally describe the rotations and reflections that carry it onto itself, using properties of these figures.**	**Priority Standard**
KY.HS.G.4 Understand the effects of transformations of geometric figures. a). Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure. b). Specify a sequence of transformations that will carry a given figure onto another. c). Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure. Given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	Supporting Standard
KY.HS.G.1 Know and apply precise definitions of the language of Geometry: a). Understand properties of line segments, angles and circle. b). Understand properties of and differences between perpendicular and parallel lines.	Supporting Standard in Multiple Units
KY.HS.G.22 Justify and apply the slope criteria for parallel and perpendicular lines and use them to solve geometric problems.	Supporting Standard in Multiple Units

Unit/Bundle 2: Parallel/Perpendicular (Coordinate Geometry) (5 weeks/2.5 weeks block)

KY.HS.G.6 Apply theorems for lines, angles, triangles, parallelograms.	**Priority Standard**
KY.HS.G.21 Use coordinates to justify and prove simple geometric theorems algebraically.	**Priority Standard**
KY.HS.G.22 Justify and apply the slope criteria for parallel and perpendicular lines and use them to solve geometric problems.	**Priority Standard**
KY.HS.G.23 Find measurements among points within the coordinate plane. a). Use points from the coordinate plane to find the coordinates of a midpoint of a line segment and the distance between the endpoints of a line segment. b). Find the point on a directed line segment between two given points that partitions the segment in a given ratio.	Supporting Standard
KY.HS.G.24 Use coordinates within the coordinate plane to calculate measurements of two-dimensional figures. a). Compute the perimeters of various polygons. b). Compute the areas of triangles, rectangles and other quadrilaterals.★	Supporting Standard
KY.HS.G.1 Know and apply precise definitions of the language of Geometry: a). Understand properties of line segments, angles and circle. b). Understand properties of and differences between perpendicular and parallel lines	Supporting Standard in Multiple Unit
KY.HS.G.7 Prove theorems about geometric figures. a). Construct formal proofs to justify theorems for lines, angles and triangles.	Supporting Standard in Multiple Unit

Benchmark #1 Administered (Units 1 -2)

Unit/Bundle 3: Parallel/Perpendicular (Coordinate Geometry) (4 weeks/2 weeks block)

KY.HS.G.5 Know and apply the concepts of triangle congruence: **a). Use the definition of congruence in terms 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.** **b). Explain how the criteria for triangle congruence (ASA, SAS and SSS) follow from the definition of congruence in terms of rigid motions.**	**Priority Standard**
KY.HS.G.6 Apply theorems for lines, angles, triangles, parallelograms.	Supporting Standard in Multiple Unit
KY.HS.G.7 Prove theorems about geometric figures. a). Construct formal proofs to justify theorems for lines, angles and triangles.	Supporting Standard in Multiple Unit

Unit/Bundle 4: Triangle Similarity (4 weeks/2 weeks block)

KY.HS.G.9 Understand properties of dilations. **a). Verify the properties that result from that dilations 5 given by a center and a scale factor.** **b). Verify that a dilation produces an image that is similar to the pre-image.**	**Priority Standard**
KY.HS.G.11c Understand theorems about triangles. Use similarity criteria for triangles to solve problems and to prove relationships in geometric figures.	**Priority Standard**
KY.HS.G.10 Apply the properties of similarity transformations to establish the AA criterion for two triangles to be similar.	Supporting Standard

Unit/Bundle 5: Right Triangles/Trig (5 weeks/2.5 weeks block)

KY.HS.G.12 c Understand properties of right triangles. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. ★	**Priority Standard**
KY.HS.G.12 Understand properties of right triangles. a). Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles (sine, cosine and tangent). b). Explain and use the relationship between the sine and cosine of complementary angles.	Supporting Standard
KY.HS.G.11 Understand theorems about triangles. a). Apply theorems about triangles.	Supporting Standard
KY.HS.N.5 Define appropriate units in context for the purpose of descriptive modeling.★	Supporting Standard in Multiple Units
KY.HS.N.6 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. ★	Supporting Standard in Multiple Units

Benchmark #2 Administered (Units 1 - 5)

Unit/Bundle 6: Quadrilaterals (4 weeks/2 weeks block)

KY.HS.G.6 Apply theorems for lines, angles, triangles, parallelograms.	**Priority Standard**
KY.HS.G.29 Use geometric shapes, their measures and their properties to describe objects in real-world setting s.	Supporting Standard in Multiple Units
KY.HS.G.30 Apply concept s of density based on area and volume in modeling situations, using appropriate units of measurement.	Supporting Standard in Multiple Units
KY.HS.G.31 Apply geometric methods to solve design problems. ★	Supporting Standard in Multiple Units
KY.HS.G.21 Use coordinates to justify and prove simple geometric theorems algebraically.	Supporting Standard in Multiple Units

Unit/Bundle 7: Circles (4 weeks/2 weeks block)

KY.HS.G.16 Identify and describe relationships among angles and segments within the context of circles involving: **a). Recognize differences between and properties of inscribed, central and circumscribed angles.** **c). Understand the relationship between the radius of a circle and the line drawn through the point of tangency on that radius.**	**Priority Standard**
KY.HS.G.19 Understand the relationship between the algebraic form and the geometric representation of a circle. **a). Write the equation of a circle of given center and radius using the Pythagorean Theorem.**	**Priority Standard**
KY.HS.G.16 b Identify and describe relationships among angles and segments within the context of circles involving: Understand relationships between inscribed angles and the diameter of a circle.	Supporting Standard
KY.HS.G.15 Verify using dilations that all circles are similar.	Supporting Standard
KY.HS.G.30 Apply concepts of density based on area and volume in modeling situations, using appropriate units of measurement.	Supporting Standard
KY.HS.G.8 Create and apply geometric constructions. a). Make formal geometric constructions with a variety of tools and methods. b). Apply basic construction procedures to construct more complex figures.	Supporting Standard in Multiple Units
KY.HS.G.25 Analyze and determine the validity of arguments for the formulas for the various figures and shapes. a). Finding the circumference and area of a circle.	Supporting Standard in Multiple Units

Benchmark #3 Administered (Units 1 - 7)

Unit/Bundle 8: Solids (4 weeks/2 weeks block)

KY.HS.G.25 b Analyze and determine the validity of arguments for the formulas for the various figures and shapes. Finding the volume of a sphere, prism, cylinder, pyramid, and cone.	**Priority Standard**
KY.HS.G.27 Use volume formulas to solve problems for cylinders, pyramids, cones, spheres, prisms ★	Supporting Standard
KY.HS.G.28 Identify the shapes of two -dimensional cross-sections of three-dimensional objects and identify three -dimensional objects generated by rotations of two -dimensional objects.	Supporting Standard
KY.HS.G.29 Use geometric shapes, their measures and their properties to describe objects in real-world settings.	Supporting Standard in Multiple Units
KY.HS.G.30 Apply concepts of density based on area and volume in modeling situations, using appropriate units of measurement.	Supporting Standard in Multiple Units
KY.HS.N.5 Define appropriate units in context for the purpose of descriptive modeling.★	Supporting Standard in Multiple Units
KY.HS.N.6 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. ★	Supporting Standard in Multiple Units