Geometry/Honors Geometry At-a-Glance

Marking Period 1

Unit 1: Constructions, Congruence and Transformations	
Sept	• Unit 1 Topic 1: Foundations of Euclidean Geometry Students begin formalizing definitions of basic geometric figures while applying reasoning to complete geometric constructions. Emphasis is placed on the use of multiple tools to build understanding of why each construction works. These constructions, precise definitions, and vocabulary, are precursors to work with proof later in this course.
	• Unit 1 Topic 2: Rigid Transformations Students apply their understanding of constructions and precise knowledge of basic geometric figures to experiment with rigid transformations in the coordinate plane. Students build a deep understanding of each rigid transformation and its relationship with functions from Algebra 1. Special relationships among transformations in the coordinate plane are examined and constructions of regular polygons drive the exploration of rotational and reflectional symmetries.
Oct	• Unit 1 Topic 3: Congruence and Triangles Students establish triangle congruence criteria, based on analyses of rigid motions and formal constructions. They compare examples of rigid and non-rigid transformations to establish congruency and build the foundation for the development of formal proof. Development of formal proof is the emphasis of this learning sequence.
	• Unit 1 Topic 4: Proofs and Applications Students prove theorems using a variety of formats and solve problems about triangles, quadrilaterals, and other polygons. Precise geometric vocabulary and student knowledge of constructions, rigid transformations, and congruence are applied to prove geometric theorems.

Marking Period 2

Nov	• Unit 1 Topic 4: Proofs and Applications *Continued*
Unit 2: Similarity, Right Triangles, and Trigonometry	
Nov/ Dec	• Unit 2 Topic 1: Similarity Students apply their earlier experience with dilations and proportional reasoning to build a formal understanding of similarity. They identify criteria for similarity of triangles, use similarity to solve problems, and apply similarity in right triangles to understand right triangle trigonometry.
Dec/ Jan	• Unit 2 Topic 2: Right Triangles and Trigonometry Students identify criteria for similarity of triangles, use similarity to solve problems, and apply similarity to understand right triangle trigonometry, with particular attention to special right triangles and the Pythagorean theorem.

Marking Period 3

Unit 3: Extending to Three Dimensions	
Jan/ Feb	• Unit 3 Topic 1: Three Dimensional Measurement Students' experience with two-dimensional and three-dimensional objects is extended to include informal explanations of circumference, area, volume, and density formulas. Additionally, students apply their knowledge of two-dimensional shapes to consider the shapes of cross-sections and the result of rotating a two-dimensional object about a line.
Unit 4: Coordinate Geometry	
Mar	• Unit 4 Topic 1: Conic Sections Students connect what they have learned about cross-sections of three-dimensional shapes to cross-sections of double cones (i.e., conic sections). Students connect geometric and algebraic definitions of parabolas. Students use the distance formula to write the equation of a circle and draw the graph in the coordinate plane. Students may explore the definitions, equations, and graphs of ellipses and hyperbolas as well (required for Honors).

Marking Period 4

Apr	• Unit 4 Topic 2: Coordinate Geometry Students use a rectangular coordinate system to verify geometric relationships, including properties of special triangles and quadrilaterals and slopes of parallel and perpendicular lines.
Unit 5: Circles	
Apr/ May	• Unit 5 Topic 1: Circles and Angles Students prove basic theorems about circles, including that a tangent line is perpendicular to a radius, the inscribed angle theorem, and theorems about chords, secants, and tangents as they relate to segment lengths and angle measures.
May/ Jun	• Unit 5 Topic 2: Arc Lengths and Area Students apply their understandings regarding similarity of circles to determine the proportional relationship between arc length and radii of circles (i.e., radian measure). When computing the arc length, the area of a sector, and the area of a segment in a circle, students demonstrate multiple paths to determine the correct length or area.