Reavis High School
Geometry I Curriculum Snapshot

Unit 1: Basics of Geometry

14 Days	The unit begins with a study of patterns and inductive reasoning. The Segment Addition Postulate, Ruler Postulate, and Distance Formula are used to find the distance between two points. Angle postulates are used to find the measures of angles. Angles are classified as acute, right, obtuse, or straight. Vertical angles, linear pairs, complementary angles, and supplementary angles are identified. The Midpoint Formula is used to find the coordinate of the midpoint of a segment.

Unit 2: Reasoning and Statements

9 Days	The goals of this chapter include recognizing, analyzing, and writing conditional statements as well as writing postulates using conditional statements. Students recognize and use definitions and biconditional statements to represent logical thinking. They use symbolic notation to represent logical statements and use laws of logic to draw conclusions from arguments. Students use properties from algebra and geometry to measure and justify segment and angle relationships and congruence.

Unit 3: Perpendicular and Parallel Lines

11 Days	Students will investigate the relationships between lines and angles on a plane and in space. They will study the angles formed when two lines are cut by a transversal. Students will apply properties of parallel lines to solve real-life problems. They will use Sketchpad to construct parallel lines and explore relationships created by a transversal. Students will find the slope of lines and use slope to identify parallel and perpendicular lines in a coordinate plane. They will write equations of parallel and perpendicular lines in a coordinate plane.

Unit 4: Proofs

12 Days	Students will learn how to write two-column proofs. They will prove results using the properties of equality and congruence. They will also prove theorems about perpendicular and parallel lines.

Unit 5: Congruent Triangles

14 Days	Students will prove triangles congruent and use congruent triangles in real-life problems. Students first classify triangles and find angle measures. They identify congruent figures and corresponding parts of figures and learn to correctly name triangles. Students prove triangles are congruent using SSS, SAS, ASA, and AAS. They use congruent postulates to solve real-life problems. They use congruent triangles to plan and write proofs and to prove the validity of constructions. They use properties of isosceles, equilateral, and right triangles.

Unit 6: Properties of Triangles

14 Days	Students begin by studying perpendicular bisectors and angle bisectors in general, and then they relate these to triangles in particular. Students learn that the perpendicular bisectors of a triangle are congruent, as they are in angle bisectors, followed with medians and altitudes to learn that these three segments associated with a triangle are also congruent. Students study the Midsegment Theorem and learn about various triangle inequalities.

Unit 7: Quadrilaterals

16 Days	Students will be able to identify complex, concave, and regular polygons and will examine properties of interior angles of quadrilaterals. Students will use the properties of parallelograms to solve for missing side lengths and angle measures . Students will use the distance and slope formulas with coordinate geometry to show figures are parallelograms or other special quadrilaterals. They will examine properties of the sides, angles, and diagonals of special parallelograms such as rhombuses, rectangles, squares, trapezoids, and kites. Students will identify special quadrilaterals based on limited information. They will apply formulas for the areas of squares, rectangles, parallelograms, triangles, trapezoids, kites, and rhombuses.

Unit 8: Similarity

12 Days	Students will explore the concept of similarity by simplifying ratios, solving proportions, and using properties of proportions to solve real-life problems. Similar triangles are explored further by using the AA Similarity Postulate, the SSS Similarity Theorem, and the SAS Similarity Theorem. Similar triangles are used to solve indirect measurement problems. Proportionality theorems involving parallel lines, angle bisectors, and transversals are examined and used to calculate segment lengths. Students identify dilations and use properties of dilations in real-life applications.

Unit 9: Right Triangles and Trigonometry

16 Days	Students will solve problems involving similar right triangles using the geometric mean and indirect measurement. Students prove the Pythagorean Theorem and use it and its converse to solve problems. Students find the lengths of sides of special right triangles and use them to solve real-life problems. They find the sine, cosine, and tangent ratios and use them to solve real-life problems.

Unit 10: Circles

12 Days	The goals of this chapter include identifying segments and lines relating to circles using properties of inscribed angles. The students use tangents, arcs, chords, and properties of inscribed polygons to solve problems related to circles, angles, and arc measures. Students find the lengths of the segments of chords, tangents, and secants. Students use knowledge of circumference and area to calculate arc length and a sector of a circle.

Unit 11: Surface Area and Volume

13 Days	Students investigate the surface area and volume of solids. First, they will learn to distinguish polyhedra from other solids and to classify polyhedra. They will identify Platonic solids and use Euler's Theorem. Students will use nets to help them explore the surface area of prisms and cylinders. They will use the Pythagorean Theorem to identify the surface area of pyramids and use proportions involving circles to identify the surface area of cones. They will then develop methods for finding the volume of prisms and cylinders. Students will find the volume of pyramids and cones. Students will finally investigate similar solids including scale factors and how surface and volume relate to the dimensions of similar solids.