All Things Algebra® GEOMETRY CURRICULUM

Unit 1: Geometry Basics

- Points, Lines, Planes
- Segment Addition Postulate
- Distance Formula
- Midpoint Formula
- Partitioning a Segment
- Intro to Angles
- Angle Addition Postulate
- Angle Relationships (Complementary, Supplementary, Vertical, Linear Pair)
- Constructions

Unit 2: Logic & Proof

- Inductive Reasoning, Conjectures, Counterexamples
- Compound Statements & Truth Tables
- Conditional Statements & Bi-Conditional Statements
- Venn Diagrams
- Law of Syllogism & Law of Detachment
- Properties of Equality
- Algebraic Proofs
- Intro to Properties of Congruence
- Segment Proofs
- Angle Proofs

Unit 3: Parallel & Perpendicular Lines

- Parallel Lines & Transversals
- Angles & Parallel Lines
- Proving Lines are Parallel
- Slope Review
- Parallel vs. Perpendicular
- Equations of Lines (including Slope-Intercept, Standard Form, and Point-Slope Form)

Unit 4: Congruent Triangles

- Classifying Triangles
- Angles of Triangles
- Isosceles & Equilateral Triangles
- Congruent Triangles
- Triangle Congruence (SSS, SAS, ASA, AAS, HL)
- Angle and Segment Congruence by CPCTC

Unit 5: Relationships in Triangles

- Triangle Midsegments
- Perpendicular Bisectors & Angle Bisectors
- Centers of Triangles: Circumcenter & Incenter
- Medians, Altitudes, Centroid, & Orthocenter
- Triangle Inequalities
- Triangle Inequalities with Algebra

Unit 6: Similar Triangles

- Ratios & Proportions
- Similar Figures
- Proving Triangles are Similar: SSS, SAS, AA
- Similar Triangle Proofs
- Parallel Lines & Proportional Parts
- Parts of Similar Triangles

© Gina Wilson (All Things Algebra®, LLC), 2020

Unit 7: Trigonometry	**Unit 8:** Quadrilaterals
• Pythagorean Theorem & Converse • Special Right Triangles • Similar Right Triangles • Geometric Mean • Trigonometry: Ratios & Finding Missing Sides • Trigonometry: Finding Missing Angles • Angles of Elevation & Depression • Law of Sines • Law of Cosines	• Interior & Exterior Angles of Polygons • Parallelograms • Parallelogram Proofs • Rectangles • Rhombi • Squares • Quadrilaterals in the Coordinate Plane • Trapezoids • Kites
Unit 9: Transformations	**Unit 10:** Circles
• Translations • Reflections (using the x-axis, y-axis, vertical and horizontal lines, and the lines y = x and y = -x) • Rotations using the origin as the center • Rotations using any point as the center • Dilations using the origin as the center • Dilations using any point as the center • Sequences of Transformations • Symmetry (Line, Point, Rotational)	• Vocabulary • Intro to Circles • Area & Circumference • Central Angles & Arc Measures • Arc Length • Chords & Arcs • Inscribed Angles • Tangents • Angles formed by Chords, Secants, & Tangents • Segment Lengths formed by Chords, Secants, & Tangents • Equations of Circles
Unit 11: Volume & Surface Area	**Unit 12:** Probability
• Area of Plane Figures (including Triangles, Parallelograms, Rectangles, Squares, Trapezoids, Rhombi, Kites) • Area of Circles & Sectors of Circles • Area of Composite Figures & Shaded Regions • Area on the Coordinate Plane • Area of Regular Figures (using the Apothem) • Volume of Prisms & Cylinders • Volume of Pyramids & Cones • Density • Surface Area of Prisms & Cylinders • Surface Area of Pyramids & Cones • Surface Area & Volume of Spheres • Similar Solids • Effects of Changing a Dimension	• Introduction to Sets and Basic Set Theory • Counting Outcomes • Theoretical Probability • Experimental Probability • Geometric Probability • Compound Probability (Independent & Dependent) • Conditional Probability • Two-Way Tables • Permutations • Combinations • Probability with Permutations & Combinations

© Gina Wilson (All Things Algebra®, LLC), 2020