

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

Unit 7: Quadrilaterals	Unit 8: Trigonometry
<ul style="list-style-type: none"> • Interior & Exterior Angles of Polygons • Parallelograms • Parallelogram Proofs • Rectangles • Rhombi • Squares • Quadrilaterals in the Coordinate Plane • Trapezoids • Kites 	<ul style="list-style-type: none"> • 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
Unit 9: Transformations	Unit 10: Circles
<ul style="list-style-type: none"> • 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) 	<ul style="list-style-type: none"> • 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 (NEW – September 2020)
<ul style="list-style-type: none"> • Area of Plane Figures (including Triangles, Parallelograms, Rectangles, Squares, Trapezoids, and Circles) • Area of Sectors • Area of Composite Figures & Shaded Regions • Area of Regular Figures (using the Apothem) • Surface Area of Prisms & Cylinders • Surface Area of Pyramids & Cones • Volume of Prisms & Cylinders • Volume of Pyramids & Cones • Surface Area & Volume of Spheres • Similar Solids • Effects of Changing a Dimension 	<ul style="list-style-type: none"> • 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