

Geometry Course Outline

Unit 1: Foundations of Geometry

- History of geometry
- Segments, Segment Addition Postulate
- Angles, Angle Addition Postulate
- Angle relationships
- Constructions
- Algebra review: solving linear equations

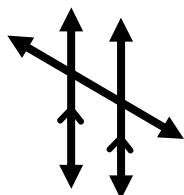


Unit 2: Reasoning

- Inductive reasoning
- Conditional and biconditional statements
- Deductive reasoning, laws of reasoning
- Algebraic properties and proofs
- Properties of equality and congruence
- Proving segment and angles

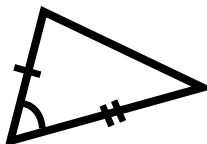
$$\overline{AB} \cong \overline{BA}$$

Unit 3: Parallel / Perpendicular Lines



- Angles within parallel lines
- Proving lines parallel and perpendicular
- Algebra review: slope, linear functions, equation of a line
- Lines in coordinate plane

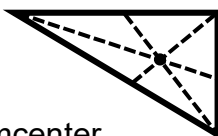
Unit 4: Triangles



- Classifying triangles
- Triangle Angle Sum Theorem
- Isosceles Triangle Theorem
- Triangle Congruences
- Proving Triangles congruent
- CPCTC

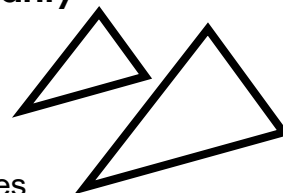
Unit 5: Triangle Relationships

- Midsegment Theorem
- Triangle Inequality Theorem
- Hinge Theorem
- Points of Concurrency – circumcenter, incenter, orthocenter, centroid



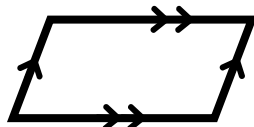
Unit 6: Similarity

- Ratio, proportions, and geometric mean
- Similar figures
- Proving triangles similar
- Proportions in parallel lines, similar triangles, and right triangles

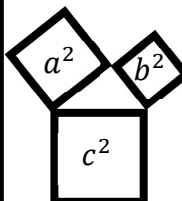


Unit 7: Polygons

- Polygon Angle Sum
- Quadrilateral properties of parallelograms, rectangles, rhombuses, squares, trapezoids, and kites
- Quadrilaterals in coordinate plane



Unit 8: Right Triangle Trigonometry



- Algebra review: Squareroots
- Pythagorean Theorem
- Special Right Triangles
- Trigonometric Ratios
- Angles of Elevation and Depression

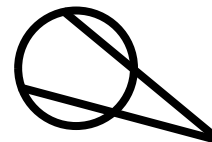
Unit 9: Surface Area and Volume

- Perimeter and area of triangles, quadrilaterals, circles, and regular polygons
- Surface Area and volume of prisms, cylinders, pyramids, cones, and spheres
- 2D and 3D composite figures
- Similar figures and similar solids

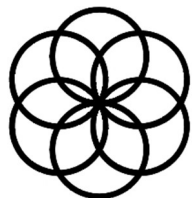


Unit 10: Circles

- Central angles and arc length
- Inscribed angles
- Angle relationships formed by chords, secants, and tangents
- Segment relationships formed by chords, secants, and tangents
- Algebra review: factoring, solving quadratics
- Equations of circles



Unit 11: Transformations



- Translations
- Reflections
- Rotations
- Glide reflections

- Dilations
- Symmetry
- Frieze Patterns

