Geometry Year at a Glance

Grading Period	Unit Title	Learning Targets
Throughout the School Year	*Apply mathematics to problems in everyday life *Use a problem-solving model that incorporates analyzing information, formulating a plan, determining a solution, justifying the solution and evaluating the reasonableness of the solution *Select tools to solve problems *Communicate mathematical ideas, reasoning and their implications using multiple representations *Create and use representations to organize, record and communicate mathematical ideas *Analyze mathematical relationships to connect and communicate mathematical ideas *Display, explain and justify mathematical ideas and arguments	
First Grading Period	Foundations for Geometry	Understanding points, lines, planes; Measuring and constructing angles and segments; Pairs of angles; Midpoint and distance in the coordinate plane; Transformations in the coordinate plane.
	Geometric Reasoning	Distinguish between definitions, theorems, and postulates; Using inductive reasoning to make conjectures; Conditional statements; Use of counter examples; Using deductive reasoning to verify conjectures; Biconditional statements and definitions; Two column, flowchart, or paragraph proofs.
	Parallel and Perpendicular Lines	Angles formed by parallel lines and transversals. Proving lines parallel; perpendicular lines. Slopes of lines and lines in the coordinate plane. Incorporate constructions using compass & straightedge.

Second Grading Period	Triangle Congruence	Classifying triangles; Angle relationships in triangles; Congruent triangles; Triangle congruence with SSS, SAS, ASA, AAS, and HL; Triangle congruence with CPCTC.
	Properties and Attributes of Triangles	Isosceles and equilateral triangles; Perpendicular and angle bisectors; bisectors, medians, and altitudes of triangles; triangle midsegment; inequalities in one and two triangles; Pythagorean theorem; and applying special right triangles; Triangle centers.
	Polygons and Quadrilaterals	Properties and attributes of polygons Properties of parallelograms; conditions for parallelograms; properties of special parallelograms; conditions for special parallelograms; and properties of kites and trapezoids.
Third Grading Period	Similarity, Right Triangles, and Trigonometry	Ratio and proportion; ratios in similar polygons; Triangular similarity—AA, SSS, and SAS; Prove theorems about similar triangles, i.e., Triangle Proportionality Theorem; Applying properties of similar triangles; Using proportional relationships; Dilations and similarity in the coordinate plane; Similarity in right triangles; Geometric mean; Trigonometric ratios, sine, cosine, tangent; Solving right triangles.
	Extending Perimeter, Circumference, and Area	Developing formulas for triangles, quadrilaterals, circles, and regular polygons; Composite figures; Perimeter and area in the coordinate plane; Effects of changing dimensions proportionally on area and perimeter; Geometric probability.
	Extending Transformational Geometry	Reflections; translations; rotations; composition of transformations; symmetry; and dilations.
Fourth Grading Period	Spatial Reasoning	Cross sections of three-dimensional figures; Solids generated from rotations of two-dimensional shapes; Surface area and volume of prisms, pyramids, cylinders, cones and spheres; Effects of changing dimensions proportionally on volume and surface area; Compare Euclidian and Spherical geometries, including parallel lines and the sum of the angles of a triangle.

	Circles	Lines that intersect circles; Arcs and chords; Sector area and arc length; Inscribed angles; Angle relationships in circles; Segment relationships in circles; Equations of circles in the coordinate plane; Radian angle measures.
	Probability	Permutations and combinations. Independent and dependent events. Conditional Probability