Unit	Lesson	Lesson Objectives
Geometric Structure and Patterns		
	Euclidean and Non-Euclidean Geometries	
		Compare and contrast the concepts of postulates and theorems
		Compare and contrast the development and structure of Euclidean and non-Euclidean geometries
		Identify and describe basic postulates about points, lines, and planes
		Identify and describe representations of the undefined terms point, line, and plane
		Identify and describe the relationships between points, lines, and planes in space
	Measuring Length	
		Apply the ruler postulate and segment addition postulate to find the lengths of line segments
		Distinguish between lines, rays, and segments
	Measuring Angles	
		Apply the protractor postulate and angle addition postulate to find angle measures
		Name angles and classify them according to their measures
	Bisectors and Congruence	
		Calculate the measure of a line segment using the midpoint theorem
		Calculate the measure of an angle given a bisector
		Identify a midpoint or bisector of a line segment or angle
	Interactive: Five Basic Constructions	
		Use a straightedge and compass to create constructions involving points and lines
	Interactive: Proof Basics	
		Identify proof formats, the essential parts of a proof, and the assumptions that can be made from a given drawing
		Use deductive reasoning to complete a formal proof
Transformational Geometry		
	Introduction to Transformations	
		Compare a preimage and image using the characteristics of isometric transformations
		Describe and identify transformations of geometric figures
	Translations	
		Use an algebraic rule to describe or perform a translation in the coordinate plane
		Use mapping to describe or perform a translation in the coordinate plane
	Reflections	
		Use an algebraic rule to describe or perform a reflection in the coordinate plane
	Rotations	
		Use an algebraic rule to describe or perform a rotation in the coordinate plane

Unit	Lesson	Lesson Objectives
	Dilations	
		Use an algebraic rule to describe or perform a dilation in the coordinate plane
	Compositions	
		Use an algebraic rule to describe or perform a composition of transformations in the coordinate plane
	Project: Frieze Patterns	
		Create a frieze pattern from a basic design element
		Identify the seven classes of frieze patterns
Line and Angle Relationships		
	Special Angle Pairs	
		Calculate angle measures by using definitions and theorems about special angle pairs
		Define and identify special angle pairs
	Congruent Angle Pairs	
		Apply theorems about congruent angle pairs to calculate angle measures
		Identify angle relationships by using theorems about congruent angle pairs
	Parallel Lines and Angles	
		Apply theorems about angles formed by parallel lines cut by a transversal to calculate angle measures
		Identify angle pairs formed by lines cut by a transversal
	Interactive: Proving Angles Congruent	
		Prove angle relationships given parallel lines cut by a transversal
	Proving Lines Parallel	
		Calculate angle measures in order to justify that lines are parallel
		Identify theorems used to justify that lines are parallel
		Prove lines are parallel using various proof formats
	Interactive: Angle Constructions	
		Use a straightedge and compass to create constructions involving angles
Congruency in Triangles		
	Properties of Triangles	
		Apply triangle angle theorems to calculate angle measures
		Classify triangles according to the measures of their sides and angles
	Congruent Figures	
		Calculate angle measures and side lengths of congruent figures
		Identify and apply the properties of congruent figures

Unit	Lesson	Lesson Objectives
	Triangle Congruence: SAS Postulate and SSS Postulate	
		Calculate angle measures and side lengths of congruent triangles
		Identify the SSS postulate and SAS postulate and apply them to examine triangle congruence
		Prove triangles congruent using the SAS and SSS postulates
	Triangle Congruence: ASA Postulate and AAS Theorem	
		Calculate angle measures and side lengths of congruent triangles
		Identify the ASA postulate and AAS theorem and apply them to examine triangle congruence
		Prove triangles congruent using the ASA postulate and AAS theorem
	Congruence in Right Triangles	
		Calculate angle measures and side lengths of congruent right triangles
		Determine if right triangles are congruent by using the HL theorem
		Prove right triangles congruent using the HL theorem
	Using Congruent Triangles: CPCTC	
		Analyze a drawing to determine the triangle congruence postulate or theorem that supports CPCTC
	Interactive: Proving Congruency Using CPCTC	
		Prove segments, angles, or triangles congruent using CPCTC
Triangle Relationships and Similarity		
	Bisectors in a Triangle	
		Apply properties of bisectors of a triangle to solve problems
		Identify the properties of the circumcenter and incenter of a triangle
	Medians and Altitudes of a Triangle	
		Apply properties of medians and altitudes of a triangle to solve problems
		Identify the properties of the orthocenter and centroid of a triangle
	Midsegments of a Triangle	
		Apply the triangle midsegment theorem to solve problems
		Identify the triangle midsegment theorem and use it to justify relationships
	Isosceles Triangles	
		Apply theorems related to isosceles triangles to solve problems
		Identify theorems related to isosceles triangles and use them to justify side and angle relationships
	Interactive: Triangle Constructions	
		Use a straightedge and compass to create constructions involving triangles
	Similar Polygons	
		Identify and apply properties of similar polygons
		Use proportions to solve problems involving similar polygons

Unit	Lesson	Lesson Objectives
	Similar Triangles	
		Calculate angle measures and side lengths of similar triangles
		Identify and apply the AA similarity postulate and the SSS and SAS similarity theorems
	Interactive: Proving Triangles Similar	
		Complete proofs involving similar triangles
	Special Segments and Proportions	
		Solve problems using theorems about special segments and triangles
	Perimeter and Area of Similar Figures	
		Identify the relationships between the side lengths, perimeters, and areas of similar figures
		Use the relationships between similar figures to calculate perimeters and areas
Trigonometry		
	Right Triangle Similarity	
		Apply theorems to solve problems involving geometric means
		Identify similar right triangles formed by an altitude and write a similarity statement
	Pythagorean Theorem	
		Apply the Pythagorean theorem to find side lengths of a right triangle
		Solve problems using the Pythagorean theorem in modeling situations
	Special Right Triangles	
		Solve problems involving special right triangles in modeling situations
		Use properties of 45°-45°-90° and 30°-60°-90° triangles to find side lengths
	Trigonometric Ratios	
		Apply trigonometric relationships to complementary angles to write equivalent expressions
		Determine the exact values of sine, cosine, and tangent for 30°, 45°, and 60°
		Identify and apply the trigonometric ratios of sine, cosine, and tangent
	Solving Right Triangles	
		Solve problems involving right triangles in modeling situations
		Use trigonometric ratios to find missing parts of a right triangle
	Angles of Elevation and Depression	
		Identify angles of elevation and depression in problem situations
		Solve problems involving angles of elevation and depression
	Law of Sines	
		Given the ambiguous case, use the law of sines to solve problems
		Identify the law of sines and apply it to find parts of a triangle

Unit	Lesson	Lesson Objectives
	Law of Cosines	
		Identify the law of cosines and apply it to find parts of a triangle
		Solve problems involving the law of cosines in modeling situations
	Trigonometric Area Formulas	
		Apply Heron's formula to find the area of a triangle
		Calculate the area of a triangle using trigonometry
Quadrilaterals		
	Classifying Quadrilaterals	
		Apply properties of various quadrilaterals to calculate angle measures and side lengths
		Apply the quadrilateral angle sum theorem to calculate angle measures
		Classify and describe relationships within the family of quadrilaterals
	Properties of Parallelograms	
		Apply theorems about parallelograms to calculate angle and segment measures
		Complete proofs involving properties of parallelograms
		Identify theorems about the properties of parallelograms
	Proving a Quadrilateral Is a Parallelogram	
		Identify and apply theorems that determine if a quadrilateral is a parallelogram
		Prove a quadrilateral is a parallelogram
	Special Parallelograms	
		Apply theorems about special parallelograms to calculate angle and segment measures
		Complete proofs involving the diagonals of special parallelograms
		Identify theorems about the diagonals of rectangles, rhombi, and squares
	Interactive: Proving Special Parallelograms	
		Complete proofs involving rectangles, rhombi, and squares
	Trapezoids and Kites	
		Apply theorems about trapezoids and kites to solve problems
		Complete proofs involving properties of trapezoids and kites
		Identify theorems about the properties of trapezoids and kites

Unit	Lesson	Lesson Objectives
Polygons		
	Properties of Polygons	
		Identify and apply theorems involving the angles and sides of a polygon
		Use properties to identify and classify polygons
	Symmetry	
		Calculate angles of rotation of geometric figures
		Identify types of symmetry in geometric figures
	Project: Tessellations	
		Create a tessellation using polygons
		Identify and classify types of tessellations
	Area and Perimeter of Geometric Figures	
		Calculate the perimeters and areas of geometric figures
		Solve problems involving area and perimeter in modeling situations
	Area of Regular Polygons	
		Calculate the area of a regular polygon
		Identify and determine the measures of the parts used to find the areas of regular polygons
		Solve problems involving areas of regular polygons in modeling situations
	Construct Regular Polygons	
		Construct regular polygons inscribed in a circle.
		Prove that all circles are similar.
Circles		
	Introduction to Circles	
		Calculate the circumference and area of a circle
		Identify terms related to circles
		Solve problems related to circles in modeling situations
	Tangents to a Circle	
		Complete proofs involving the relationships between tangents and circles
		Identify and apply theorems about tangents and radii
		Identify common tangents between circles
	Arcs, Chords, and Central Angles	
		Complete proofs involving the relationships between arcs and chords of a circle
		Identify relationships between arcs and central angles and apply them to solve problems
		Identify theorems about arcs and chords and apply them to solve problems

Unit	Lesson	Lesson Objectives
	Inscribed Angles	
		Calculate the measures of angles and their intercepted arcs
		Complete proofs involving the relationships of angles and arcs of a circle
		Identify relationships between inscribed angles and arcs
	Secants, Tangents, and Angles	
		Identify relationships between arcs and angles formed by secants, tangents, and chords
		Solve problems involving angles and arcs formed by secants, tangents, and chords
	Special Segments	
		Calculate the lengths of segments formed by chords, secants, and tangents
		Identify relationships between segments formed by chords, secants, and tangents
	Arc Length and Area of a Sector	
		Calculate arc lengths
		Calculate the areas of sectors and segments of circles
		Relate the degree and radian measures of an angle
	Interactive: Circle Constructions	
		Use a straightedge and compass to create constructions involving circles
Surface Area and Volume		
	Solids	
		Identify and classify solids
		Identify Euler's formula and apply it to the Platonic solids
	Sketching Solids	
		Connect two-dimensional nets to three-dimensional figures
		Identify the orthographic and isometric views of a three-dimensional figure
	Surface Area of Solid Figures	
		Calculate the surface area of composite solids
		Calculate the surface area of prisms, cylinders, pyramids, and cones
		Describe the effect on surface area when the dimensions of a solid figure are changed
	Volume	
		Calculate the volume of prisms, cylinders, pyramids, and cones
		Describe the effect on volume when the dimensions of a solid figure are changed
		Solve problems involving the volume of prisms, cylinders, pyramids, and cones
	Surface Area and Volume of Spheres	
		Calculate the surface area and volume of a sphere
		Solve problems involving the surface area and volume of a sphere

Unit	Lesson	Lesson Objectives
	Cross Sections of Solid Figures	
		Apply Cavalieri's principle to calculate the volume of solid figures
		Identify cross sections of solid figures
	Similar Solids	
		Calculate the surface areas and volumes of similar solids
		Identify the relationships between the surface areas and volumes of similar solids
Analytic Geometry		
	Distance and Midpoint	
		Use the distance formula to solve problems involving geometric shapes
		Use the midpoint formula to solve problems involving geometric shapes
	Slope	
		Solve problems involving the slope of a line in the coordinate plane
		Use coordinate geometry to determine if sides of a geometric figure with given vertices are parallel or perpendicular
	Equations of Lines	
		Relate the geometric and algebraic representations of lines in the coordinate plane
	Parallel Lines	
		Determine if lines are parallel from their given equations
		Write the equation of a line given the equation of another line to which it is parallel and a point on that line
	Perpendicular Lines	
		Determine if lines are perpendicular from their given equations
		Write the equation of a line given the equation of another line to which it is perpendicular and a point on that line
	Geometric Figures in the Coordinate Plane	
		Complete proofs involving geometric figures in the coordinate plane
		Use coordinate geometry to verify the properties of a geometric figure
	Conic Sections: Circles	
		Given specific information about a circle, determine its equation in standard form
		Given the equation of a circle in standard form, identify the center, the radius, and the graph
	Conic Sections: Parabolas	
		Relate the algebraic and geometric representations of parabolas

Unit	Lesson	Lesson Objectives
Set Theory and Probability		
	Set Theory	
		Find subsets, complements, and cross products of sets
		Identify and describe the relationships and the notation used in set theory
	Venn Diagrams and Sets	
		Use symbolic notation to describe events displayed in Venn diagrams involving unions, intersections, and complements
		Use Venn diagrams to explore set relationships
		Use Venn diagrams to solve problems involving sets
	Random Behavior	
		Apply lists, diagrams, and the fundamental counting principle to determine the number of outcomes possible in a given situation
		Identify experimental and theoretical probabilities and apply the law of large numbers to determine probabilities
	Mutually Exclusive and Independent Events	
		Calculate probabilities using the addition rule of mutually exclusive events
		Calculate probabilities using the multiplication rule of independent events
		Identify and describe mutually exclusive and independent events
	Conditional Probability	
		Use calculations to determine if two events are independent
		Use formulas and Venn diagrams to calculate conditional probabilities
		Use general probability rules to calculate probabilities of compound events
	Probability and Two-Way Tables	
		Calculate conditional probabilities from data displayed in a two-way table
		Use a two-way table to determine if two events are independent
	Probability with Combinations and Permutations	
		Quantify outcomes using combinations and permutations
		Use combinations and permutations to compute probabilities of compound events
	Expected Value	
		Calculate expected values.
		Use expected values to make decisions.
	Binomial Distribution	
		Calculate binomial probabilities.
		Identify a binomial experiment.
		Identify the probability of success, probability of failure, and number of trials for a binomial experiment.