Scope and Sequence
Mathematics
Geometry 300

Description: The course is designed to stress relationships between figures in 2 and 3 dimensions, transformational geometry, parallel and perpendicular lines, circles, congruent and similar polygons, coordinate geometry, right triangle trigonometry and measurement formulas. A scientific or graphing calculator is necessary for this course.

Departmental assessments are given to measure individual student, class, and grade level achievement in math. Data are collected by each teacher and used to monitor progress and make plans for instruction. At the grade level, the data are used to monitor and adjust curriculum and instruction. End of quarter, end of semester, and/or end of course exams may be used.

Unit Name/Description	Content and/or Skills
Introduction to Geometry	Find and describe patterns
	Use inductive reasoning to make conjectures
	Understand and use geometric terminology
	Sketch intersection of lines and planes
	Discover the distance formula, midpoint formula, segment and angle postulates
	Classify angles
	Bisect a segment and angle
	Identify special pairs of angles
	Find the perimeter of common plane figures

Parallel and Perpendicular Lines	Identify relationships between lines
	Identify angles formed by transversals
	Compare different types of proofs
	Prove results about perpendicular lines
	Prove and use results about parallel lines and transversals
	Prove that two lines are parallel
	Find the slopes of lines
	Write the equations of parallel and perpendicular lines.
Congruent Triangles	Classify triangles by their sides and angles
	Find angle measures in triangles
	Identify congruent figures and corresponding parts
	Prove that two triangles are congruent
	Use congruent triangles to plan and write proofs
	Use properties of isosceles, equilateral and right triangles
Reasoning, Proof, and Constructions	Recognize and analyze a conditional statement
	Write postulates about points, lines and planes using conditional statements
	Recognize and use definitions and biconditional statements
	Use symbolic notation to represent logical statements
	Form conclusions using the laws of logic
	Use properties from algebra in proofs
	Use properties of lengths and measures in proofs
	Write reasons for steps in proofs
	Prove properties about special pairs of angles

Triangle Relationships	Use properties of perpendicular bisectors of a triangle
	Use properties of angle bisectors of a triangle
	Use properties of medians of a triangle
	Use properties of altitudes of a triangle
	Use properties of midsegments of a triangle
	Use triangle measurements to decide largest and smallest angle and side
	Apply the triangle inequality theorem
Right Triangle Trigonometry	Solve problems involving similar right triangles
	Find the geometric mean between two numbers
	Prove the Pythagorean Theorem
	Apply the Pythagorean Theorem and its converse
	Use side lengths to classify triangles by their angle measures
	Find the side lengths of special right triangles
	Find the sine, cosine and the tangent of an acute angle
	Solve a right triangle
	Solve non-right triangles using the Law of Sines and the Law of Cosines
Midterm Exam	Departmental Review and Exam
Similarity	Find and simplify the ratio of two numbers
	Use proportions to solve real-life problems
	Discover the properties of proportions
	Identify similar polygons
	Identify and prove that two triangles are similar
	Use proportionality theorems to calculate segment lengths
Transformations	Name the image and preimage of a mapping
	Recognize an isometry or congruence transformation

	Name a reflection image with respect to a line Recognize line symmetry and point symmetry Draw reflection images, lines of symmetry and points of symmetry Name and draw translation images of figures with respect to parallel lines Name and draw rotation images of figures with respect to intersecting lines Use scale factors to determine if a dilation is an enlargement, a reduction or a congruence transformation Find the center and scale factor for a given dilation Find the dilation image for a given center and scale factor.
Quadrilaterals and other Polygons	Identify, name and describe polygons Find the sum of the interior angles of a quadrilateral Use properties of parallelograms Prove that a quadrilateral is a parallelogram Discover properties of special parallelograms Use the properties of trapezoids and kites Prove that a quadrilateral is a special quadrilateral
Circles	Name parts of circles Find degree measure of arcs and central angles Recognize and use relationships between arcs chords and diameters Recognize and find the measures of inscribed angles Use properties of tangents Find the measure of angles formed by the intersections of secants and tangents in relation to intersected angles Use properties of chords, secants and tangents
Polygons and Probability	Classify and identify parts of polygons and polyhedrons

	Find the measure of angles in polygons
	Find the area of parallelograms, rectangles, squares, circles
	Find the area of triangles, rhombi, and trapezoids
	Find the circumference and area of a circle
	Find geometric probabilities
Volume	Find the lateral areas and total surface areas of right prisms
	Find the lateral areas and total surface areas of right cylinders
	Find the lateral areas and surface areas of regular pyramids
	Find the lateral areas and total surface areas of right circular cones
	Find the volume of right prisms
	Find the volume of right cylinders
	Find the volume of circular cones
	Find the volume of pyramids
	Find the surface area and volume of spheres
Final Exam	Departmental Review and Exam