

COURSE: Geometry

Grade Level: High School

MAIN/ GENERAL TOPIC	SUB-TOPIC:	ESSENTIAL QUESTIONS:	WHAT THE STUDENTS WILL KNOW:	WHAT THE STUDENT WILL BE ABLE TO DO:	Assessments :	WHEN STUDENT DOES IT:
Tools of Geometry	-Points, Lines, and Planes -Linear Measure -Distance and Midpoints -Angle Relationships -Two-Dimensional Figures -Three-Dimensional Figures	-How do the distance and midpoint formulas help us to solve real life problems? -How do perimeter and area help us to solve real life problems?	- Definitions and symbols of points, lines, and planes -The distance and midpoint formulas - Definitions of different types of angles - Definitions and properties of polygons -Formulas for perimeter and area of polygons	-Name points, lines, and planes -Find the distance between two points -Find the midpoint given two points -Recognize and use right, acute, obtuse, vertical, supplementary, and complementary angles to solve problems -Identify and name polygons -Find the perimeter and area of polygons -Find the perimeter and area of polygons using the distance formula	-Practice problems -Quizzes/ tests -Class activities	15 days
Reasoning and Proof	-Inductive Reasoning and Conjecture -Logic -Conditional Statements -Deductive Reasoning -Logic Proofs -Triangle Proofs -Parallelogram proofs	- How does the process of logic proof help us to analytically solve a problem?	-The difference between the inverse, converse, and contrapositive of statements -The symbols used in logic proofs	-Write the inverse, converse, and contrapositive of a statement -Complete logic proofs -Complete truth tables	-Practice problems -Quizzes/ tests -Class activities	15 days
Parallel and Perpendicular Lines	-Parallel lines and transversals -Angles and parallel lines -Slopes of lines -Equations of lines -Solving quadratic-linear systems	-What is slope? -How do the concepts of parallel and perpendicular help us to develop our spatial sense and solve real life problems?	-Know the definition of parallel and perpendicular -Know angles that are formed by parallel and perpendicular lines	-Name the angles formed by parallel and perpendicular lines -Complete proofs involving parallel lines -Prove lines are parallel -Calculate the slope of a line -Write the equation of a line -Write the equation of a line parallel or perpendicular to a given line -Solve quadratic-linear systems graphically	-Practice problems -Quizzes/ tests -Class activities	12 days
Relationships in Triangles	-Bisectors of Triangles -Medians and Altitudes of Triangles	How do bisectors, medians, and altitudes help us to solve spatial problems?	-Definitions of bisector, median, and altitude of a triangle	-Use properties of bisectors, medians, and altitudes to solve problems	-Practice problems -Quizzes/ tests -Class activities	12 days
Congruent Triangles	-Classifying Triangles -Angles of Triangles -Congruent Triangles -Proving Triangles Congruent Using SSS, SAS, ASA, AAS, HL -Isosceles and Equilateral Triangles	-How does the process of formal proof help us to analytically solve a problem?	-Determine whether an equation is linear -Determine whether a relation is a function -Recognize arithmetic sequences and patterns	-Prove triangles congruent using ASA, SSS, SAS, AAS, and HL -Complete coordinate proofs involving triangles	-Practice problems -Quizzes/ tests -Class activities	20 days

Quadrilaterals	<ul style="list-style-type: none"> -Angles of polygons -Parallelograms -Tests for parallelograms -Rectangles -Rhombi and squares -Trapezoids and kites 	-How do coordinate proofs help us to develop our spatial abilities?	-Know the definition and properties of parallelograms, rectangles, rhombi, squares, trapezoids, and kites	<ul style="list-style-type: none"> -Complete proofs involving parallelograms -Complete coordinate proofs involving quadrilaterals 	<ul style="list-style-type: none"> -Practice problems -Quizzes/ tests -Class activities 	10 days
Proportions and Similarity	<ul style="list-style-type: none"> -Ratios and proportions -Similar polygons -Similar triangles -Parallel lines and proportional parts -Parts of similar triangles -Scale drawings and models 	<ul style="list-style-type: none"> -How do scale models help to solve real world problems? -How are scale models used in every day life? 	<ul style="list-style-type: none"> -Know if polygons are similar -Know if triangles are similar 	<ul style="list-style-type: none"> -Compute lengths of the sides of a triangle using proportional parts and proportions - Read a scale drawing and compute actual distance, height -Complete proofs involving similar triangles 	<ul style="list-style-type: none"> -Practice problems -Quizzes/ tests -Class activities 	6 days
Right Triangles and Similarity	<ul style="list-style-type: none"> -Geometric mean -Mean proportional -Pythagorean Theorem and its converse -Special right triangles 	-How does the Pythagorean theorem and the relationship of sides in special right triangles help us to solve real world problems?	-Know which geometric mean formula to use in order to calculate the length of a leg or altitude	<ul style="list-style-type: none"> -Compute the geometric mean between two numbers -Compute the length of the altitude/leg using the geometric mean formulas -Solve for the sides of a 45-45-90 and 30-60-90 triangles 	<ul style="list-style-type: none"> -Practice problems -Quizzes/ tests -Class activities 	8 days
Locus and Compound Loci	<ul style="list-style-type: none"> -Locus -Compound loci 	-How does locus help to develop our spatial abilities?	-Know the definition of locus	<ul style="list-style-type: none"> -Find the locus of points from points and lines - Find the locus of points from points and lines on the coordinate plane 	<ul style="list-style-type: none"> -Practice problems -Quizzes/ tests -Class activities 	8 days
Circles	<ul style="list-style-type: none"> -Circles and circumference -Measuring angles and arcs -Arcs and chords -Inscribed angles -Tangents -Secants, tangents, and angle measures -Special segments in a circle -Equations of circles 	-How do the measurements of circles help us to solve real world problems?	<ul style="list-style-type: none"> -Know the definition of tangent, secant, arc, chord, and inscribed angle -Know the standard equation of a circle 	<ul style="list-style-type: none"> -Calculate the length of arcs, chords, tangents, and secants -Calculate the measure of inscribed angles -Write the equation of a circle -Graph circles -Complete proofs involving circles 	<ul style="list-style-type: none"> -Practice problems -Quizzes/ tests -Class activities 	23 days
Transformations and Symmetry	<ul style="list-style-type: none"> -Reflections -Translations -Rotations -Symmetry -Dilations -Composition of Transformations 	<ul style="list-style-type: none"> -Where are transformations and symmetry present in every day life? -How do transformations and symmetry help us to develop our spatial abilities? 	- Know the definition of symmetry, translation, rotation, reflection, and dilation	<ul style="list-style-type: none"> -Determine whether a geometric figure has symmetry - Reflect, translate, rotate, and dilate geometric figures -Perform multiple transformations in a single problem 	<ul style="list-style-type: none"> -Practice problems -Quizzes/ tests -Class activities 	8 days
Areas of Polygons and Circles	<ul style="list-style-type: none"> -Areas of parallelograms and triangles -Areas of trapezoids, rhombi, and kites -Areas of circles -Areas of regular polygons -Areas of similar figures 	-How does area help us to solve real life problems?	-Know formulas for the area of parallelograms, trapezoids, rhombi, kites, circles, and polygons	-Compute the area of parallelograms, triangles, trapezoids, rhombi, kites, and circles	<ul style="list-style-type: none"> -Practice problems -Quizzes/ tests -Class activities 	9 days

Extending Surface Area and Volume	<ul style="list-style-type: none"> -Surface areas of prisms and cylinders -Surface areas of pyramids and cones -Volumes of prisms and cylinders -Volumes of pyramids and cones -Surface areas and volumes of spheres -Spherical geometry 	<ul style="list-style-type: none"> -What is surface area? -What is the difference between area and surface area? 	-Know formulas for surface area and volume	<ul style="list-style-type: none"> -Calculate surface areas of prisms, cylinders, pyramids, and cones -Calculate the volume of prisms, cylinders, pyramids, spheres and cones 	<ul style="list-style-type: none"> -Practice problems -Quizzes/ tests -Class activities 	10 days
Constructions	<ul style="list-style-type: none"> -Constructions involving angles -Constructions involving segments -Constructions involving triangles 	<ul style="list-style-type: none"> -How are constructions used in every day life? -What jobs involve drawing constructions? 	-The steps to prove and justify constructions	<ul style="list-style-type: none"> -Construct an angle bisector -Construct a median -Construct an equilateral triangle -Construct a perpendicular bisector -Construct a midpoint -Construct a segment bisector -Construct a line perpendicular to a given line through a given point -Construct a line parallel to a given line through a given point -Construct a triangle given the length of the three sides -Prove and justify constructions 	<ul style="list-style-type: none"> -Practice problems -Quizzes/ tests -Class activities 	8 days
Regents Review				-Incorporate, integrate and utilize the knowledge and skills that they have acquired throughout the year	<ul style="list-style-type: none"> -Chapter Tests -Previous Geometry Regents Exams 	15