

Learning Plan Document for Off-Site Course Description and WINGS

Grade Level	High School
Class Title	Geometry 1-2
Subject	Geometry
Class Description	<p>Prerequisite: Successful completion of Algebra 1-2</p> <p>This class meets the graduation requirement for the State of Washington and Kennewick School District and meets at least one Common Core Standard. This course is a yearlong course for 2020-2021. Students who successfully complete the course have the potential to earn 1.0 credit.</p> <p>Students enrolled in Geometry will enhance their logical reasoning and spatial visualization skills, which will be needed in higher level math classes and everyday life.</p> <p>This course is a study of proofs in geometric settings followed by applications relating to areas, perimeters, circumference, and angle measures of various polygons and circles. Some study is done in relation to spatial topics such as prisms, pyramids, spheres, cylinders, and cones. Also included is a section on coordinate geometry and a review of selected algebraic topics as they relate to the study of geometry.</p> <p>This class will work toward one or more of the Washington State K-12 Learning Standards for Mathematics. This will be a year-long class, spanning the 2020-2021 school year.</p> <p>The estimated hours for this class are 5 hours per week.</p>
Learning Materials	<p>Apex and Alex on line courses for off-site learning are a complete curriculum. Other off-site learning materials follow district adopted materials.</p>
Learning Goals/Performance Objectives	<p>The content is based on the National Curriculum area of Mathematics: Teachers Association and is aligned to state standards.</p> <p>G.1.A Distinguish between inductive and deductive reasoning.</p> <p>G.1.B Use inductive reasoning to make conjectures, to test the plausibility of a geometric statement, and to help find a counterexample.</p> <p>G.1.C Use deductive reasoning to prove that a valid geometric statement is true.</p> <p>G.1.D Write the converse, inverse, and contrapositive of a valid proposition and determine their validity.</p>

G.1.E Identify errors or gaps in a mathematical argument and develop counterexamples to refute invalid statements about geometric relationships.

G.1.F Distinguish between definitions and undefined geometric terms and explain the role of definitions, undefined terms, postulates (axioms), and theorems.

G.2.A Know, prove, and apply theorems about parallel and perpendicular lines.

G.2.B Know, prove, and apply theorems about angles, including angles that arise from parallel lines intersected by a transversal.

G.2.C Explain and perform basic compass and straightedge constructions related to parallel and perpendicular lines.

G.2.D Describe the intersections of lines in the plane and in space, of lines and planes, and of planes in space.

G.3.A Know, explain, and apply basic postulates and theorems about triangles and the special lines, line segments, and rays associated with a triangle.

G.3.B Determine and prove triangle congruence, triangle similarity, and other properties of triangles.

G.3.C Use the properties of special right triangles ( $30^\circ$ - $60^\circ$ - $90^\circ$ ; and  $45^\circ$ - $45^\circ$ - $90^\circ$ ; ) to solve problems.

G.3.D Know, prove, and apply the Pythagorean Theorem and its converse.

G.3.E Solve problems involving the basic trigonometric ratios of sine, cosine, and tangent.

G.3.F Know, prove, and apply basic theorems about parallelograms.

G.3.G Know, prove, and apply theorems about properties of quadrilaterals and other polygons.

G.3.H Know, prove, and apply basic theorems relating circles to tangents, chords, radii, secants, and inscribed angles.

G.3.I Explain and perform constructions related to the circle.

G.3.J Describe prisms, pyramids, parallelepipeds, tetrahedra, and regular polyhedra in terms of their faces, edges, vertices, and properties.

G.3.K Analyze cross-sections of cubes, prisms, pyramids, and spheres and identify the resulting shapes.

G.4.A Determine the equation of a line in the coordinate plane that is described geometrically, including a line through two given points, a line through a given point parallel to a given line, and a line through a given point perpendicular to a given line.

G.4.B Determine the coordinates of a point that is described geometrically.

G.4.C Verify and apply properties of triangles and quadrilaterals in the coordinate plane.

G.4.D Determine the equation of a circle that is described geometrically in the coordinate plane and, given equations for a circle and a line, determine the coordinates of their intersection(s).

G.5.A Sketch results of transformations and compositions of transformations for a given two-dimensional figure on the coordinate plane, and describe the rule(s) for performing translations or for performing reflections about the coordinate axes or the line  $y = x$ .

G.5.B Determine and apply properties of transformations.

G.5.C Given two congruent or similar figures in a coordinate plane, describe a composition of translations, reflections, rotations, and dilations that superimposes one figure on the other.

G.5.D Describe the symmetries of two-dimensional figures and describe transformations, including reflections across a line and rotations about a point.

G.6.A Derive and apply formulas for arc length and area of a sector of a circle.

G.6.B Analyze distance and angle measures on a sphere and apply these measurements to the geometry of the earth.

G.6.C Apply formulas for surface area and volume of three-dimensional figures to solve problems.

G.6.D Predict and verify the effect that changing one, two, or three linear dimensions has on perimeter, area, volume, or surface area of two- and three-dimensional figures.

G.6.E Use different degrees of precision in measurement, explain the reason for using a certain degree of precision, and apply estimation strategies to obtain reasonable measurements with appropriate precision for a given purpose.

G.6.F Solve problems involving measurement conversions within and between systems, including those involving derived units, and analyze solutions in terms of reasonableness of solutions and appropriate units.

G.7.A Analyze a problem situation and represent it mathematically

G.7.B Select and apply strategies to solve problems.

G.7.C Evaluate a solution for reasonableness, verify its accuracy, and interpret the solution in the context of the original problem.

G.7.D Generalize a solution strategy for a single problem to a class of related problems, and apply a strategy for a class of related problems to solve specific problems.

G.7.E Read and interpret diagrams, graphs, and text containing the symbols, language, and conventions of mathematics.

G.7.F Summarize mathematical ideas with precision and efficiency for a given audience and purpose.

	<p>G.7.G Synthesize information to draw conclusions and evaluate the arguments and conclusions of others.</p> <p>G.7.H Use inductive reasoning to make conjectures, and use deductive reasoning to prove or disprove conjectures.</p> <p>A team of certificated teachers who are highly qualified in this subject matter has reviewed this WSLP.</p>
<p>Learning Activities</p>	<p>Students will learn and practice new lessons, use appropriate tools to solve problems, and apply learning.</p>
<p>Progress Criteria/Methods of Evaluation</p>	<p>Monthly assessments will be provided by the teacher to the student to indicate satisfactory or unsatisfactory progress based on a schedule for completion of assignments and accuracy of work products.</p> <p>Final Grading: Course grades are <u>weighted towards summative tests in the courses.</u>  90-100 A [93-100=4.0, 90-92=3.7]  89-80 B [B+ 87-89=3.3, B 83-86 = 3.0, B- 80-82=2.7]  79-70 C [C+ 77-79=2.3, C 73-76=2.0 C-70-72=1.7]  67-69 D+  60 – 66 D  Below 60 = NC no credit for failing course  Online courses for a proficient passing grade may vary according to course completion. Your APEX/Aleks and off site HQ will work to establish norms per on line product.</p>