Hesperia Community Schools

Grade: Teacher: Course:

Timeline	GLCE"s/HSCE's CCSS	Content What topic(s) is being covered? What do students need to know?	Essential Skills: What do students have to be able to do to connect the content to the skills?	Vocabulary	Assessment: What evidence (products and/or performances is collected to establish that the content and skills have been learned?	Resources What materials, texts, videos, internet, or software support instruction?
S1W1 Through S1W15	G1.1.1 Solve multistep problems and construct proofs involving vertical angles, linear pairs of angles, supplementary angles, complementary angles, and right angles. G1.1.2 Solve multistep problems and construct proofs involving corresponding angles, alternate interior angles, alternate exterior angles, and same-side (consecutive) interior angles. G1.1.5 Given a line segment in terms of its endpoints in the coordinate plane, determine its	Chapter 1 Pgs. 6 – 65 1-1 Understanding Lines and Planes 1-2 Measuring and Constructing Segments 1-3 Measuring and Constructing Angles 1-4 Pairs of Angles 1-5 Using Formulas in Geometry 1-6 Midpoint and Distance in Geometry 1-7 Transformations in the Coordinate Plane	TLW solve multistep problems and write proofs involving angles: vertical angles, linear pairs of angles, supplementary, complementary and right angles.	Segment, angle, distance, midpoint, bisector, complementary, supplementary, vertical angles	Gradient Tests (50, 100, 200)	Holt Geometry, Michigan Ed. 2007 Powerpoint presentations, On-line textbook and resources - chapter 1

	length and midpoint. G1.1.6 Recognize Euclidean geometry as an axiom system. Know the key axioms and understand the meaning of and distinguish between undefined terms (e.g., point, line, and plane), axioms, defi nitions, and theorems. G1.2.2 - Construct and justify arguments and solve multistep problems involving angle measure, side length, perimeter, and area of all types of triangles.					
S1W1 Through S1W15	L3.1.1 Distinguish between inductive and deductive reasoning, identifying and	Chapter 2 Pgs. 74-134 2-1 Using Inductive Reasoning to Make Conjectures 2-2 Conditional Statements 2-3 Using Deductive	TLW distinguish between inductive and deductive reasoning. TLW use the appropriate language of geometry to explain the logical structure	Inductive reasoning, deductive reasoning, conditional statements, converse, inverse,	Gradient Tests (50, 100, 200)	

	providing examples of each. L3.1.3 Define and explain the roles of axioms (postulates), definitions, theorems, counterexamples, and proofs in the logical structure of mathematics. Identify and give examples of each. L3.2.4 Write the converse, inverse, and contrapositive of an “If..., then...” statement. Use the fact, in mathematical and everyday settings, that the contrapositive is logically equivalent to the original while the inverse and converse are not. L3.3.1 Know the basic structure for the proof of an	Reasoning to Verify Conjectures 2-4 Biconditional Statements and Definitions 2-5 Algebraic Proof 2-6 Geometric Proof 2-7 Flowchart and Paragraph Proofs	of mathematics. TLW identify and explain the basic components and postulates of Euclidean geometry. TLW use terms of basic logic. TLW use the connectives "not," "and," "or," and "if...then" in mathematical and everyday settings, including the truth table of each and how to logically negate statements involving these connectives. TLW use the quantifiers "there exists" and "all" in mathematical and everyday settings and demonstrate how to logically negate statements involving them. TLW write the converse, inverse, and contrapositive of an "If...then" statement and show their relationships to the original statement. TLW demonstrate the basic structure for the proof of an "If...then" statement. TLW explain the roles of axioms, definitions,	contrapositive, conjectures, counterexamples, if-then statements, syllogism, truth tables		

	"If..., then..." statement (assuming the hypothesis and ending with the conclusion) and that proving the contrapositive is equivalent. L3.3.2 Construct proofs by contradiction. Use counterexamples, when appropriate, to disprove a statement. L4.1.1 Distinguish between inductive and deductive reasoning, identifying and providing examples of each.		theorems, counterexamples, and proof in the logical structure of mathematics. TLW construct proofs by contradiction. TLW explain the difference between a necessary and a sufficient condition within the statement of a theorem. TLW differentiate between statistical arguments and logical arguments.			
S1W1 Through S1W15	G1.1.1 Solve multistep problems and construct proofs involving vertical angles, linear pairs of angles, supplementary angles,	Geometry Holt Chapter 3 Pgs. 146-206 3-1 Lines and Angles 3-2 Angles Formed by parallel Lines and Transversals 3-3 Proving Line Parallel 3-4 Perpendicular Lines 3-5 Slopes of Lines	TLW solve multistep problems and write proofs involving angles: corresponding, alternate interior, alternate exterior and same-side (consecutive) interior angles. TLW perform and justify	Alternate exterior angles, Alternate interior angles, Corresponding angles, Distance from a point to a line, Parallel lines, Parallel planes,	Gradient Tests (50, 100, 200)	

	complementary angles, and right angles. G1.1.2 Solve multistep problems and construct proofs involving corresponding angles, alternate interior angles, alternate exterior angles, and same-side (consecutive) interior angles.	3-6 Lines in the Coordinate Plane	constructions. Given a line and point, TLW construct a line through a point that is parallel to the original line, construct a line through a point that is perpendicular to the original line, using a straightedge and compass. Given a line segment in terms of its endpoints in the coordinate plane, TLW determine its length and midpoint.	Perpendicular bisector, Perpendicular lines, Point-slope form, Rise, Run, Same-side interior angles, Skew lines, Slope, Slope-intercept form, Transversal.		
S1W4 Through S1W16	G1.2.1 Prove that the angle sum of a triangle is 180° and that an exterior angle of a triangle is the sum of the two remote interior angles. G1.2.2 Construct and justify arguments and solve multistep problems involving angle measure, side length, perimeter, and area of all	Geometry Holt Chapter 4 Pgs. 216-288 4-1 Classifying Triangles 4-2 Angle Relationships in Triangles 4-3 Congruent Triangles 4-4 Triangle Congruence: SSS and SAS 4-5 Triangle Congruence ASA, AAS, and HL 4-6 Triangle Congruence: CPCTC 4-7 Introduction to Coordinate Proof 4-8 Isosceles and Equilateral Triangles	TLW prove that the angle sum of a triangle is 180º and that an exterior angle of a triangle is the sum of two remote interior angles. TLW construct and justify arguments and solve multistep problems involving angle measure, side, length, perimeter, and area of all types of triangles. TLW prove that triangles are congruent using the SSS, SAS, ASA, and AAS criteria and that right triangles are congruent using the hypotenuse-leg	Acute triangle, Auxiliary line, Base, Base angle, Congruent polygons, Coordinate proof, Corollary, Corresponding angles, Corresponding sides, CPCTC, Equiangular triangle, Equilateral triangle, Exterior, Exterior angle, Included angle, Included side, Interior, Interior angle, Isosceles triangle, Legs of an isosceles	Gradient Tests (50, 100, 200)	

	types of triangles. G2.3.1 Prove that triangles are congruent using the SSS, SAS, ASA, and AAS criteria and that right triangles are congruent using the hypotenuse-leg criterion. G2.3.2 Use theorems about congruent triangles to prove additional theorems and solve problems, with and without use of coordinates.		criterion TLW use theorems about congruent triangles to prove additional theorems and solve problems, with and without the use of coordinates. TLW solve multistep problems and construct proofs about properties of medians, altitudes, and perpendicular bisectors to sides of a triangle, and the angle bisectors of a triangle. TLW prove that triangles are similar by using SSS, SAS, and AA conditions for similarity. TLW use theorems about similar triangles to solve problems with and without use of coordinates.	triangle, Obtuse triangle, Remote interior angle, Right triangle, Scalene triangle, Triangle rigidity, Vertex angle.		
S1W5 Through S1W17	G1.2.3 Know a proof of the Pythagorean Theorem, and use the Pythagorean Theorem and its converse to solve multi-step	Geometry Holt Chapter 5 Pgs. 297-370 5-1 Perpendicular and Angle Bisectors 5-2 Bisectors of Triangles 5-3 Medians and Altitudes of Triangles 5-4 The Triangle Midsegment Theorem	TLW know a proof of the Pythagorean Theorem and use the Pythagorean Theorem and its converse to solve multistep problems. TLW prove and use the relationships among the side lengths and the angles	Altitude of a triangle, Centroid of a triangle, Circumcenter of a triangle, Circumscribed, Concurrent, Equidistant, Incenter of a triangle, Indirect	Gradient Tests (50, 100, 200)	

	problems. G1.2.4 Prove and use the relationships among the side lengths and the angles of 30º-60º- 90º triangles and 45º-45º- 90º triangles.	5-5 Indirect Proof and Inequalities in One Triangle 5-6 Inequalities in Two Triangles 5-7 The Pythagorean Theorem 5-8 Applying Special Right Triangles	of 30º-60º-90º triangles and 45º-45º-90º triangles.	proof, inscribed, Locus, Median of a triangle, midsegment of a triangle, Orthocenter of a triangle, point of concurrengy, Pythagorean triple.		
S1W6 Through S1W18	G1.4.1 Solve multistep problems and construct proofs involving angle measure, side length, diagonal length, perimeter, and area of squares, rectangles, parallelograms, kites, and trapezoids. G1.4.2 Solve multistep problems and construct proofs involving quadrilaterals using Euclidean methods or coordinate geometry. G1.4.3 Describe and justify hierarchical	Geometry Holt Chapter 6 Pgs. 377-448 6-1 Properties and Attributes of Polygons 6-2 Properties of Parallelograms 6-3 Conditions for Parallelograms 6-4 Properties of Special Parallelograms 6-5 Properties of Kites and Trapezoids	TLW describe and justify hierarchical relationships among quadrilaterals. TLW solve multistep problems and construct proofs involving angle measure, side length, diagonal length, perimeter, and area of quadrilaterals. TLW convert units of measurement within and between systems, explain how arithmetic operations on measurements affect units, and carry through calculations correctly. TLW solve multistep problems and construct proofs involving quadrilaterals using Euclidean methods or coordinate geometry. TLW prove theorems about the interior and exterior	Base of a trapezoid, Base angle of a trapezoid, Concave, Convex, Diagonal, Isosceles trapezoid, kite, Leg of a trapezoid, Midsegment of a trapezoid, Parallelogram, Rectangle, regular polygon, Rhombus, Side of a polygon, square, trapezoid, vertex of a polygon	Gradient Tests (50, 100, 200)	

	relationships among quadrilaterals. G1.4.4 Prove theorems about the interior and exterior angle sums of a quadrilateral. G1.5.1 Know and use subdivision or circumscription methods to find areas of polygons. G1.5.2 Know, justify, and use formulas for the perimeter and area of a regular n-gon and formulas to find interior and exterior angles of a regular *n*-gon and their sums.		angle sums of a quadrilateral. TLW use subdivision or circumscription methods to find areas of polygons. TLW justify and use formulas for the perimeter and area of a regular n-gon and formulas to find interior and exterior angles of a regular n-gon and their sums. TLW apply the theorem stating that the effect of a scale factor k relating one two-dimensional figure to another or one three-dimensional figure to another, on the length, area, and volume of the figures is to multiply each by k, k2, and k3 respectively. TLW demonstrate the relationships between the area formula of a triangle, the area formula of a parallelogram, and the area formula of a trapezoid.			
S2W1 Through S2W15	G2.3.3 Prove that triangles are similar by using SSS, SAS, and AA	Geometry Holt Chapter 7 Pgs. 451-508 7-1 Ratio and Proportion	TLW know and apply the theorem stating that the effect of a scale factor of k relating one two-dimensional figure to	Cross products, dilation, extremes, indirect measurement, means, proportion,	Gradient Tests (50, 100, 200)	

	conditions for similarity. G2.3.4 Use theorems about similar triangles to solve problems with and without use of coordinates.	7-2 Ratios in Similar Polygons 7-3 Triangle Similarity: AA, SSS, and SAS 7-4 Applying Properties of Similar Triangles 7-5 Using Proportional Relationships 7-6 Dilations and Similarity in the Coordinate Plane	another or one three-dimensional figure to another, on the length, area, and volume of the figures is to multiply each by k, k2, and k3, respectively. TLW apply the theorem stating that the effect of a scale factor of k relating one two-dimensional figure to another or one three-dimensional figure to another, on the length, area, and volume of the figures is to multiply each by k, k2, and k3 respectively.	ratio, scale, scale drawing, scale factor, similar, similar polygons, similarity ratio		
S2W2 Through S2W16	G1.3.1 Define the sine, cosine, and tangent of acute angles in a right triangle as ratios of sides. Solve problems about angles, side lengths, or areas using trigonometric ratios in right triangles. G1.3.2 Know and use the Law of Sines and the Law of Cosines and use them to solve problems. Find the area of	Geometry Holt Chapter 8 Pgs. 515-582 8-1 Similarity in Right Triangles 8-2 Trigonometric Ratios 8-3 Solving Right Triangles 8-4 Angles of Elevation and Depression 8-5 Law of sines and Law of cosines 8-6 Vectors	TLW define the sine, cosine, and tangent of acute angles in a right triangle as ratios of sides, and solve problems about angles, side lengths, or areas using trigonometric ratios in right triangles. TLW determine the exact values of sine, cosine, and tangent for 0º, 30º, 45º, 60º, and their integer multiples and apply in various contexts. TLW use vectors to represent quantities that have magnitude and direction, interpret direction	Angle of depression, angle of elevation, component form, cosine, direction, equal vectors, geometric mean, magnitude parallel vectors, resultant vector, sine tangent trigonometric ratio, vector	Gradient Tests (50, 100, 200)	

	a triangle with sides *a* and *b* and included angle q using the formula Area = (1/2) *ab*sin q. G1.3.3 Determine the exact values of sine, cosine, and tangent for 0°, 30°, 45°, 60°, and their integer multiples and apply in various contexts.		and magnitude of a vector numerically, and calculate the sum and difference of two vectors. TLW explain the importance of the irrational numbers √2 and √3 in basic right triangle trigonometry, the importance of because of its role in circle relationships. TLW use the Law of Sines and the Law of Cosines and use them to solve problems, finding the area of a triangle with sides 'a' and 'b' and included angle θ using the formula Area = ( ) absinθ.			
S2W6 Through S2W17	G1.8.1 Solve multistep problems involving surface area and volume of pyramids, prisms, cones, cylinders, hemispheres, and spheres. G1.8.2 Identify symmetries of pyramids, prisms, cones, cylinders,	Geometry Holt Chapter 10 Pgs. 651-740 10-1 Solid Geometry 10-2 Representations of Three-Dimensional Figures 10-3 Formulas in Three Dimensions 10-4 Surface Area of Prisms and Cylinders 10-5 Surface Area of Pyramids and cones 10-6 Volume of Prisms and Cylinders	TLW identify or sketch a possible three-dimensional figure, given two-dimensional views and create a two-dimensional representation of a three-dimensional figure. TLW identify symmetries of pyramids, prisms, cones, cylinders, hemispheres, and spheres. TLW identify or sketch cross sections of three-	Altitude, altitude of a cone, altitude of a pyramid, axis of a cone, axis of a cylinder, center of a sphere cone cross section, cube cylinder edge, face, great circle, hemisphere, horizon, isometric drawing, lateral edge, lateral face, lateral surface, net, oblique cone,	Gradient Tests (50, 100, 200)	

	hemispheres, and spheres. G2.1.3 Know and use the relationship between the volumes of pyramids and prisms. G2.2.1 Identify or sketch a possible three dimensional figure, given two-dimensional views. Create a two-dimensional representation of a three dimensional figure. G2.3.5 Know and apply the theorem stating that the effect of a scale factor of *k* relating one two dimensional figure to another or one three dimensional figure to another, on the length, area, and volume of the figures, is	10-7 Volume of Pyramids and cones 10-8 Spheres	dimensional figures and identify or sketch solids formed by revolving two-dimensional figures around them. TLW solve multistep problems involving surface area and volume of pyramids, prisms, cones, cylinders, hemispheres, and spheres. TLW use the relationship between the volumes of pyramids and prisms and between cones and cylinders.	oblique cylinder, oblique prism, orthographic drawing, perspective drawing, polyhedron, prism, pyramid, radius of a sphere, regular pyramid, right cone, right cylinder, right prism, slat height of a regular pyramid, slant height of a right cone, space, sphere, surface area, vanishing point, vertex, vertex of a cone, vertex of a pyramid volume		

	to multiply each by *k*, *k*2, and *k*3, respectively.					
S2W7 Through S2W18	G1.6.2 Solve problems and justify arguments about chords and lines tangent to circles. G1.6.3 Solve problems and justify arguments about central angles, inscribed angles, and triangles in circles. G1.6.4 Know and use properties of arcs and sectors, and find lengths of arcs and areas of sectors.	Geometry Holt Chapter 11 Pgs. 743-814 11-1 Lines That Intersect Circles 11-2 Arcs and Chords 11-3 Sector Area and Arc Length 11-4 Inscribed Angles 11-5 Angle Relationships in Circles 11-6 Segment Relationships in Circles 11-7 Circles in the Coordinate Plane	TLW solve multistep problems involving circumference and area of circles. TLW solve problems and justify arguments about chords. TLW solve problems and justify arguments about central angles, inscribed angles, and triangles in circles. TLW use properties of arcs and sectors and find lengths of arcs and areas of sectors.	Adjacent arcs, arc, arc length, central angle, chord, common tangent, concentric circles, congruent arcs, congruent circles, exterior of a circle, external secant segment, inscribed angle, intercepted arc, minor arc, major arc, point of tangency, secant, secant segment, sector of a circle, semicircle, subtend, tangent of a circle, tangent circles, tangent segment	Gradient Tests (50, 100, 200)	
S1W1 Through S1W15	L1.2.3 Use vectors to represent quantities that have magnitude and direction, interpret direction and magnitude of a vector numerically, and	Geometry Holt Chapter 12 Pgs. 821-894 12-1 Reflections 12-2 Translations 12-3 Rotations 12-4 Compositions of Transformations 12-5 Symmetry 12-6 Tessellations 12-7 Dilations	TLW define reflection, rotation, translation, and glide reflection and find the image of a figure under a given isometry. Given two figures that are images of each other under an isometry, TLW find the isometry and describe it completely.	Center of dilation, composition of transformations, enlargement, frieze pattern, glide reflection, glide reflection symmetry, isometry, line symmetry, line of symmetry, reduction, regular	Gradient Tests (50, 100, 200)	

	calculate the sum and difference of two vectors. G2.3.5 Know and apply the theorem stating that the effect of a scale factor of k relating one two-dimensional figure to another or one three dimensional figure to another, on the length, area, and volume of the figures, is to multiply each by k, k2, and k3, respectively. G3.1.1 Define reflection, rotation, translation, and glide reflection and find the image of a figure under a given isometry. G3.1.2 Given two figures that are images of each other under an		TLW find the image of a figure under the composition of two or more isometries and determine if the resulting figure is a reflection, rotation, translation, or glide reflection image of the original figure. TLW define dilation and find the image of a figure under a given dilation. Given two figures that are images of each other under some dilation, TLW identify the center and magnitude of the dilation. TLW apply the theorem stating that the effect of a scale factor of k relating one two-dimensional figure to another or one three-dimensional figure to another, on the length, area, and volume of the figures is to multiply each by k, k2, and k3 respectively. TLW find the image of a figure under the composition of a dilation and an isometry.	tessellation, rotational symmetry, semiregular tessellation, symmetry, tessellation, translational symmetry		

	isometry, find the isometry and describe it completely. G3.1.3 Find the image of a figure under the composition of two or more isometries and determine whether the resulting figure is a reflection, rotation, translation, or glide reflection image of the original figure. G3.2.1 Know the definition of dilation and find the image of a figure under a given dilation. G3.2.2 Given two figures that are images of each other under some dilation, identify the center and magnitude of the dilation.					

Hesperia Community Schools

Grade: Teacher: Course: