WGSD Curriculum – Honors Geometry (no change)
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High Priority Standards (CCSS, State, National, TILS, CREDE, etc.)

CCSS.Math.Content.HSG-CO.A.2 Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).
CCSS.Math.Content.HSG-CO.A.3 Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.
CCSS.Math.Content.HSG-CO.A.4 Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
CCSS.Math.Content.HSG-CO.A.5 Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.
CCSS.Math.Content.HSG-SRT.A.1 Verify experimentally the properties of dilations given by a center and a scale factor.

Learning Goal	**Proficiency Scales**
Students will be able to identify and apply transformations of figures in the coordinate plane.	4. Student demonstrates an in-depth inference or advanced application, or innovates with the learning goal. 3. Student demonstrates mastery of the learning goal by: • drawing a reflection, translation, rotation, and dilation of objects in the coordinate plane. • analyzing figures in terms of their symmetries using concepts of reflection, rotation, and translation and combinations of these. • explaining the effects of each transformation. 2. Student demonstrates he/she is nearing proficiency by: • recognizing and recalling specific vocabulary, such as: angle of rotation, dilation, line of symmetry, reflection, rotation, rotational symmetry,

	translation.
	• performing specific processes such as:
	  • identifying the transformation applied to an object.
	  • reflecting an object across an axis.
	  • rotating an object 180 degrees.
	  • translating an object horizontally, vertically, or diagonally.
	
	1. Students will demonstrate limited understanding of the learning goal.

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High Priority Standards (CCSS, State, National, TILS, CREDE, etc.)

CCSS.Math.Practice.MP2 Reason abstractly and quantitatively.
CCSS.Math.Practice.MP3 Construct viable arguments and critique the reasoning of others.

Learning Goal	**Proficiency Scales**
Students will be able to apply laws of logic to analyze and write arguments.	4. Student demonstrates an in-depth inference or advanced application, or innovates with the learning goal. 3. Student demonstrates mastery of the learning goal by: • applying inductive and deductive reasoning to form conjectures. • verifying conjectures by applying geometric theorems or rejecting them using counterexamples. • analyzing and writing conditional statements and determining their validity. • applying mathematical methods of proof (direct reasoning) to develop justifications for theorems. • applying the concept of indirect proof to establish the truth of a proposition by showing that the proposition's being false would imply a contradiction. 2. Student demonstrates he/she is nearing proficiency by: • recognizing and recalling specific vocabulary, such as: conclusion, conditional statement, conjecture, contrapositive, converse, counterexample, hypothesis, inverse, negation, postulate, proof, indirect proof, theorem, truth value. • performing specific processes such as: o identifying the converse and contrapositive of a conditional

	statement. ○ translating a conditional statement into an if-then statement. ○ determining the validity of a conditional statement. 1. Student demonstrates limited understanding of the learning goals.

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High Priority Standards (CCSS, State, National, TILS, CREDE, etc.)

CCSS.Math.Content.HSG-CO.B.7 Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.
CCSS.Math.Content.HSG-CO.B.8 Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.
CCSS.Math.Content.HSG-CO.C.9 Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints*.

Learning Goal	**Proficiency Scales**

Students will understand congruence and use triangle congruence as a foundation for formal proof.	4. Student demonstrates an in-depth inference or advanced application, or innovates with the learning goal.
	
	3. Student demonstrates mastery of the learning goal by:
	• using theorems to prove triangle congruence.
	• explaining what criteria are needed to prove two or more figures are congruent.
	• applying the properties of congruence to solve problems.
	
	2. Student demonstrates he/she is nearing proficiency by:
	• recognizing and recalling specific vocabulary, such as: midpoint, bisector, congruent, SAS, ASA, SSS, AAS, HL, vertical angles, included angle, included side.
	• performing specific processes such as:
	  • writing congruency statements given congruent figures.
	  • identifying congruent sides and angles given a congruency statement.
	  • determining the appropriate congruence theorem for a given problem.

	1. Student demonstrates limited understanding of the learning goals.

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High Priority Standards (CCSS, State, National, TILS, CREDE, etc.)

CCSS.Math.Content.HSG-SRT.A.2 Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
CCSS.Math.Content.HSG-SRT.A.3 Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.
CCSS.Math.Content.HSG-SRT.B.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
CCSS.Math.Content.HSG-C.A.1 Prove that all circles are similar.

Learning Goal	**Proficiency Scales**

The student will be able to identify similar figures and use similarity to solve problems.	4. Student demonstrates an in-depth inference or advanced application, or innovates with the learning goal.
	3. Student demonstrates mastery of the learning goal by:
	• examining polygons and determining if they are similar.
	• creating proportions and using them to solve problems.
	• inspecting the effect of similarity on parts of triangles such as medians, altitudes, and perpendicular and angle bisectors.
	• analyzing similar figures and describing the resulting effects on perimeter and area when dimensions of a shape are changed proportionally.
	• 2. Student demonstrates he/she is nearing proficiency by:
	• recognizing and recalling specific vocabulary, such as: proportion, ratio, scale factor, similar polygons, SAS~, SSS~, AA~.
	• performing specific processes such as:
	  • identifying criteria for similar polygons.
	  • setting up proportions needed to solve problems.

	• identifying proportional segments and congruent angles given a similarity statement. 1. Student demonstrates limited understanding of the learning goals.

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High Priority Standards (CCSS, State, National, TILS, CREDE, etc.)

CCSS.Math.Content.HSG-SRT.C.6 Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.
CCSS.Math.Content.HSG-SRT.C.7 Explain and use the relationship between the sine and cosine of complementary angles.
CCSS.Math.Content.HSG-SRT.C.8 Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.

Learning Goal	**Proficiency Scales**
Students will be able to define trigonometric ratios and solve problems involving right triangles.	4. Student demonstrates an in-depth inference or advanced application, or innovates with the learning goal. 3. Student demonstrates mastery of the learning goal by: • explaining and using the trigonometric ratios (sine, cosine, and tangent) to find missing sides and angles of right triangles. • using the Pythagorean Theorem to determine if a triangle is a right triangle. • applying the properties of special right triangles. 2. Student demonstrates he/she is nearing proficiency by: • recognizing and recalling specific vocabulary, such as: angle of depression, angle of elevation, cosine, Pythagorean triple, sine, tangent, secant, cosecant, cotangent, reciprocal function, 30-60-90 triangle, 45-45-90 triangle. • performing specific processes such as: o identifying all six trigonometric ratios for a given figure. o using the Pythagorean Theorem to find missing sides of a right triangle. 1. Student demonstrates limited understanding of the learning goals.

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High Priority Standards (CCSS, State, National, TILS, CREDE, etc.)

CCSS.Math.Content.HSG-CO.A.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
CCSS.Math.Content.HSG-C.A.2 Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.*
CCSS.Math.Content.HSG-C.A.4 (+) Construct a tangent line from a point outside a given circle to the circle.
CCSS.Math.Content.HSG-C.B.5 Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.
CCSS.Math.Content.HSG-GMD.A.1 Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.

Learning Goal	**Proficiency Scales**
Students will understand and apply properties of circles.	4. Student demonstrates an in-depth inference or advanced application, or innovates with the learning goal. 3. Student demonstrates mastery of the learning goal by: • using the properties of tangent lines to solve problems. • applying the circumference and area formulas to find missing parts. • explaining that pi is the ratio of the circumference to the diameter of any circle. • finding arc length and sector area of a circle and providing the answer in exact and approximate measurements. • finding degree measures of inscribed angles, intercepted arcs, and angles formed by lines intersecting inside, on, or outside the circle.

	2. Student demonstrates he/she is nearing proficiency by: • recognizing and recalling specific vocabulary, such as: minor arc, major arc, arc length, center, chord, secant, circumference, diameter, pi, radius, sector area, tangent, inscribed angles, inscribed and circumscribed polygons. • performing specific processes such as: o finding circumference and area of circles. o identifying the parts of a circle. 1. Student demonstrates limited understanding of the learning goals.

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High Priority Standards (CCSS, State, National, TILS, CREDE, etc.)

CCSS.Math.Content.HSG-GMD.A.1 Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone
CCSS.Math.Content.HSG-MG.A.1 Use geometric shapes, their measures, and their properties to describe objects
CCSS.Math.Content.HSG-MG.A.2 Apply concepts of density based on area and volume in modeling situations

Learning Goal	**Proficiency Scales**
Students will be able to justify two and three dimensional measurement formulas and apply the formulas to solve problems.	4. Student demonstrates an in-depth inference or advanced application, or innovates with the learning goal. 3. Student demonstrates mastery of the learning goal by: • explaining how the formulas are derived and why they work. • applying the measurement formulas to find missing parts of two and three dimensional figures. • applying the measurement formulas to compare two or more shapes' areas and/or volumes. • finding the areas and/or volumes of composite figures. 2. Student demonstrates he/she is nearing proficiency by: • recognizing and recalling specific vocabulary, such as: area, base, composite figure, cone, cylinder, height, lateral area, parallelogram, rectangle, slant height, sphere, surface area, trapezoid, triangle, pyramid, oblique. • performing specific processes such as: o finding perimeter and area of two dimensional shapes. o finding the surface area and volume of three dimensional solids. 1. Student demonstrates limited understanding of the learning goals.

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WGSD Curriculum – Honors Geometry (changed)
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High Priority Standards (CCSS, State, National, TILS, CREDE, etc.)

CCSS.Math.Content.HSG-CO.A.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
CCSS.Math.Content.HSG-CO.C.11 Prove theorems about parallelograms. *Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals*.

Learning Goal	**Proficiency Scales**

The students will be able to use coordinate geometry to identify relationships among lines and polygons.	4. Student demonstrates an in-depth inference or advanced application, or innovates with the learning goal.
	3. Student demonstrates mastery of the learning goal by:
	• using slope and distance formulas to classify polygons.
	• writing equations of parallel and perpendicular lines.
	2. Student demonstrates he/she is nearing proficiency by:
	• recognizing and recalling specific vocabulary, such as: parallel, perpendicular, slope, distance, quadrilateral, parallelogram, rectangle, square, trapezoid, kite, rhombus, diagonals, opposite, reciprocal.
	• performing specific processes such as:
	  • determining if lines are parallel or perpendicular.
	  • calculating the slope between two points.
	1. Student demonstrates limited understanding of the learning goals.

Learning Targets
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