Subject:	Geometry	Year:	2016/17
Unit:	Pythagoras and Review (PY)	Teacher:	Shaun Carter

Oklahoma Academic Standards

G.RT.1 Develop and verify mathematical relationships of right triangles and trigonometric ratios to solve real-world and mathematical problems.

G.RT.1.1 Apply the distance formula and the Pythagorean Theorem and its converse to solve real-world and mathematical problems, as approximate and exact values, using algebraic and logical reasoning (include Pythagorean Triples).

Old Standards (PASS)

Standard 3: Triangles and Trigonometric Ratios - The student will use the properties of right triangles and trigonometric ratios to solve problems.

1. *Use the Pythagorean Theorem and its converse to find missing side lengths and to determine acute, right, and obtuse triangles, and verify using algebraic and deductive proofs.*

Skill List

		Initial Score	*Update Score*
PY1	I can rearrange equations in order to solve them.		
PY2	I can simplify expressions involving exponents and radicals.		
PY3	I can plot ordered pairs and linear equations on the Cartesian plane.		
PY4	I can solve problems involving ratio and proportion.		
PY5	I can use the Pythagorean Theorem to show whether triangles have right angles.		
PY6	I can find distances in triangles using the Pythagorean Theorem.		
PY7	I can find the distance between two points on the Cartesian plane.		

Subject:	Geometry	**Year:**	2016/17
Unit:	Reasoning and Logic (RL)	**Teacher:**	Shaun Carter

Oklahoma Academic Standards

G.RL.1 Use appropriate tools and logic to evaluate mathematical arguments.

G.RL.1.1 Understand the use of undefined terms, definitions, postulates, and theorems in logical arguments/proofs.

G.RL.1.2 Analyze and draw conclusions based on a set of conditions using inductive and deductive reasoning. Recognize the logical relationships between a conditional statement and its inverse, converse, and contrapositive.

G.RL.1.3 Assess the validity of a logical argument and give counterexamples to disprove a statement.

Old Standards (PASS)

Standard 1: Logical Reasoning - The student will use deductive and inductive reasoning to solve problems.

1. *Identify and use logical reasoning skills (inductive and deductive) to make and test conjectures, formulate counter examples, and follow logical arguments.*
2. *State, use, and examine the validity of the converse, inverse, and contrapositive of "if-then" statements.*
3. *Compare the properties of Euclidean geometry to non-Euclidean geometries (for example, elliptical geometry, as shown on the surface of a globe, does not uphold the parallel postulate). [NOT TESTED]*

Skill List

		Initial Score	*Update Score*
RL1	I can use ***definitions***, ***postulates***, and ***theorems*** in logical arguments/proofs.		
RL2	I can propose conjectures using ***inductive*** reasoning.		
RL3	I can draw conclusions using ***deductive*** reasoning.		
RL4	I can use a conditional statement to find its ***inverse***, ***converse***, and ***contrapositive*** statements.		
RL5	I can examine logical arguments and assess their validity.		
RL6	I can disprove logical statements by providing ***counterexamples***.		
RL7	I can identify and model the undefined terms of geometry: ***points***, ***lines***, and ***planes***.		

Subject:	Geometry	Year:	2016/17
Unit:	Lines and Angles (LA)	Teacher:	Shaun Carter

Oklahoma Academic Standards

G.2D.1 Discover, evaluate and analyze the relationships between lines, angles, and polygons to solve real-world and mathematical problems; express proofs in a form that clearly justifies the reasoning, such as two-column proofs, paragraph proofs, flow charts, or illustrations.

G.2D.1.1 Apply the properties of parallel and perpendicular lines, including properties of angles formed by a transversal, to solve real-world and mathematical problems and determine if two lines are parallel, using algebraic reasoning and proofs.

G.2D.1.2 Apply the properties of angles, including corresponding, exterior, interior, vertical, complementary, and supplementary angles to solve real-world and mathematical problems using algebraic reasoning and proofs.

Old Standards (PASS)

Standard 2: Properties of 2-Dimensional Figures - The student will use the properties and formulas of geometric figures to solve problems.

2. *Line and Angle Relationships*
   - a. *Use the angle relationships formed by parallel lines cut by a transversal to solve problems.*
   - b. *Use the angle relationships formed by two lines cut by a transversal to determine if the two lines are parallel and verify, using algebraic and deductive proofs.*
   - c. *Use relationships between pairs of angles (for example, adjacent, complementary, vertical) to solve problems.*

Skill List

		Initial Score	*Update Score*
LA1	I can identify the relationships between pairs of angles formed by lines of traversal.		
LA2	I can use theorems involving ***parallel lines*** to find angle measures.		
LA3	I can determine if lines are parallel by constructing a formal proof.		
LA4	I can solve problems involving parallel and ***perpendicular lines***.		
LA5	I can solve problems involving parallel lines and triangles.		

Subject:	Geometry	Year:	2016/17
Unit:	Polygons (PG)	Teacher:	Shaun Carter

Oklahoma Academic Standards

G.2D.1 Discover, evaluate and analyze the relationships between lines, angles, and polygons to solve real-world and mathematical problems; express proofs in a form that clearly justifies the reasoning, such as two-column proofs, paragraph proofs, flow charts, or illustrations.

G.2D.1.3 Apply theorems involving the interior and exterior angle sums of polygons and use them to solve real-world and mathematical problems using algebraic reasoning and proofs.

G.2D.1.4 Apply the properties of special quadrilaterals (square, rectangle, trapezoid, isosceles trapezoid, rhombus, kite, parallelogram) and use them to solve real-world and mathematical problems involving angle measures and segment lengths using algebraic reasoning and proofs.

G.2D.1.6 Apply the properties of polygons to solve real-world and mathematical problems involving perimeter and area (e.g., triangles, special quadrilaterals, regular polygons up to 12 sides, composite figures).

Old Standards (PASS)

Standard 2: Properties of 2-Dimensional Figures - The student will use the properties and formulas of geometric figures to solve problems.

3. Polygons and Other Plane Figures

- *a. Identify, describe, and analyze polygons (for example, convex, concave, regular, pentagonal, hexagonal, n-gonal).*
- *b. Apply the interior and exterior angle sum of convex polygons to solve problems, and verify using algebraic and deductive proofs.*
- *c. Develop and apply the properties of quadrilaterals to solve problems (for example, rectangles, parallelograms, rhombi, trapezoids, kites).*
- *d. Use properties of 2-dimensional figures and side length, perimeter or circumference, and area to determine unknown values and correctly identify the appropriate unit of measure of each.*

Skill List

		Initial Score	*Update Score*
PG1	I can explain the ***interior angle sum*** and ***exterior angle sum*** theorems of polygons.		
PG2	I can solve problems by applying the interior and exterior angle sum theorems.		
PG3	I can identify special quadrilaterals and use their properties to prove this logically.		
PG4	I can use the properties of special quadrilaterals to solve problems involving angle measures and segment lengths.		
PG5	I can apply the properties of polygons to solve problems involving perimeter.		
PG6	I can apply the properties of polygons to solve problems involving area.		

Subject:	Geometry	**Year:**	2016/17
Unit:	Congruency and Similarity (CS)	**Teacher:**	Shaun Carter

Oklahoma Academic Standards

G.2D.1 Discover, evaluate and analyze the relationships between lines, angles, and polygons to solve real-world and mathematical problems; express proofs in a form that clearly justifies the reasoning, such as two-column proofs, paragraph proofs, flow charts, or illustrations.

G.2D.1.7 Apply the properties of congruent or similar polygons to solve real-world and mathematical problems using algebraic and logical reasoning.

G.2D.1.8 Construct logical arguments to prove triangle congruence (SSS, SAS, ASA, AAS and HL) and triangle similarity (AA, SSS, SAS).

Old Standards (PASS)

Standard 2: Properties of 2-Dimensional Figures - The student will use the properties and formulas of geometric figures to solve problems.

6. *Similarity*
   - a. *Determine and verify the relationships of similarity of triangles, using algebraic and deductive proofs.*
   - b. *Use ratios of similar 2-dimensional figures to determine unknown values, such as angles, side lengths, perimeter or circumference, and area.*
7. *Congruence*
   - a. *Determine and verify the relationships of congruency of triangles, using algebraic and deductive proofs.*
   - b. *Use the relationships of congruency of 2-dimensional figures to determine unknown values, such as angles, side lengths, perimeter or circumference, and area.*

Skill List

		Initial Score	*Update Score*
CS1	I can solve problems using the properties of congruent polygons.		
CS2	I can solve problems using the properties of similar polygons.		
CS3	I can construct logical arguments to prove triangle congruence.		
CS4	I can construct logical arguments to prove triangle similarity.		
CS5	I can prove statements about geometric shapes by first establishing triangle congruence or triangle similarity.		

Subject:	Geometry	**Year:**	2016/17
Unit:	Circles (CI)	**Teacher:**	Shaun Carter

Oklahoma Academic Standards
G.C.1 Solve real-world and mathematical problems using the properties of circles. **G.C.1.1** Apply the properties of circles to solve problems involving circumference and area, approximate values and in terms of π, using algebraic and logical reasoning. **G.C.1.2** Apply the properties of circles and relationships among angles; arcs; and distances in a circle among radii, chords, secants and tangents to solve problems using algebraic and logical reasoning.
Old Standards (PASS)
Standard 2: Properties of 2-Dimensional Figures - The student will use the properties and formulas of geometric figures to solve problems. *8. Circles* *a. Find angle measures and arc measures related to circles.* *b. Find angle measures and segment lengths using the relationships among radii, chords, secants, and tangents of a circle.*

Skill List

		Initial Score	*Update Score*
CI1	I can solve problems involving the ***circumference*** of a circle and the length of and ***arc***.		
CI2	I can solve problems involving the areas of circles and ***sectors***.		
CI3	I can prove statements involving circles and ***tangents***.		
CI4	I can prove statements involving ***chords***, ***secants*** and ***arcs***.		
CI5	I can prove statements involving ***inscribed angles***.		

Subject:	Geometry	**Year:**	2016/17
Unit:	Coordinate Geometry (CG)	**Teacher:**	Shaun Carter

Oklahoma Academic Standards

G.2D.1 Discover, evaluate and analyze the relationships between lines, angles, and polygons to solve real-world and mathematical problems; express proofs in a form that clearly justifies the reasoning, such as two-column proofs, paragraph proofs, flow charts, or illustrations.

G.2D.1.5 Use coordinate geometry to represent and analyze line segments and polygons, including determining lengths, midpoints, and slopes of line segments.

G.2D.1.9 Use numeric, graphic and algebraic representations of transformations in two dimensions, such as reflections, translations, dilations, and rotations about the origin by multiples of 90°, to solve problems involving figures on a coordinate plane and identify types of symmetry.

G.C.1 Solve real-world and mathematical problems using the properties of circles.

G.C.1.3 Recognize and write the radius r, center (h,k), and standard form of the equation of a circle $(x-h)^2+(y-k)^2=r^2$ with and without graphs.

G.C.1.4 Apply the distance and midpoint formula, where appropriate, to develop the equation of a circle in standard form.

Old Standards (PASS)

Standard 5: Coordinate Geometry - The student will solve problems with geometric figures in the coordinate plane.

1. *Find the distance between two points; the midpoint of a segment; and calculate the slopes of parallel, perpendicular, horizontal, and vertical lines.*
2. *Properties of Figures*
   a. *Given a set of points determine the type of figure formed based on its properties.*
   b. *Use transformations (reflection, rotation, translation) on geometric figures to solve problems within coordinate geometry.*

Skill List

		Initial Score	*Update Score*
CG1	I can find lengths, midpoints and slopes of line segments.		
CG2	I can describe and analyze polygons using coordinates.		
CG3	I can describe ***reflections*** and ***dilations*** using numeric, graphic and algebraic representations.		
CG4	I can describe ***translations*** using numeric, graphic and algebraic representations.		
CG5	I can describe ***rotations*** using numeric, graphic and algebraic representations.		
CG6	I can identify different types of ***symmetry***.		
CG7	I can use geometric formulas to develop and prove the equation of a circle.		
CG8	I can represent circles graphically, numerically and algebraically.		

Subject:	Geometry	**Year:**	2016/17
Unit:	Three-Dimensional Shapes (TD)	**Teacher:**	Shaun Carter

Oklahoma Academic Standards

G.3D.1 Solve real-world and mathematical problems involving three-dimensional figures.

G.3D.1.1 Solve real-world and mathematical problems using the surface area and volume of prisms, cylinders, pyramids, cones, spheres, and composites of these figures. Use nets, measuring devices, or formulas as appropriate.

G.3D.1.2 Use ratios derived from similar three-dimensional figures to make conjectures, generalize, and to solve for unknown values such as angles, side lengths, perimeter or circumference of a face, area of a face, and volume.

Old Standards (PASS)

Standard 4: Properties of 3-Dimensional Figures - The student will use the properties and formulas of geometric figures to solve problems.

1. *Polyhedra and Other Solids*
    a. *Identify, describe, and analyze polyhedra (for example, regular, decahedral).*
    b. *Use properties of 3-dimensional figures; side lengths, perimeter or circumference, and area of a face; and volume, lateral area, and surface area to determine unknown values and correctly identify the appropriate unit of measure of each.*
2. *Similarity: Use ratios of similar 3-dimensional figures to determine unknown values, such as angles, side lengths, perimeter or circumference of a face, area of a face, and volume.*
3. *Create a model of a 3-dimensional figure from a 2-dimensional drawing and make a 2-dimensional representation of a 3-dimensional object (for example, nets, blueprints, perspective drawings).*

Skill List

		Initial Score	*Update Score*
TD1	I can create nets for three-dimensional shapes and solve problems using ***surface area***.		
TD2	I can solve problems using the ***volume*** of three-dimensional shapes.		
TD3	I can make conjectures about the ratios of measurements of similar three-dimensional figures.		
TD4	I can solve for unknown values using the properties of similar three-dimensional figures.		

Subject:	Geometry	Year:	2016/17
Unit:	Trigonometry (TR)	Teacher:	Shaun Carter

Oklahoma Academic Standards

G.RT.1 Develop and verify mathematical relationships of right triangles and trigonometric ratios to solve real-world and mathematical problems.

G.RT.1.2 Verify and apply properties of right triangles, including properties of 45-45-90 and 30-60-90 triangles, to solve problems using algebraic and logical reasoning.

G.RT.1.3 Use the definition of the trigonometric functions to determine the sine, cosine, and tangent ratio of an acute angle in a right triangle. Apply the inverse trigonometric functions as ratios to find the measure of an acute angle in right triangles.

G.RT.1.4 Apply the trigonometric functions as ratios (sine, cosine, and tangent) to find side lengths in right triangles in real-world and mathematical problems.

Old Standards (PASS)

Standard 3: Triangles and Trigonometric Ratios - The student will use the properties of right triangles and trigonometric ratios to solve problems.

2. *Apply the 45-45-90 and 30-60-90 right triangle relationships to solve problems, and verify using algebraic and deductive proofs.*
3. *Express the trigonometric functions as ratios and use sine, cosine, and tangent ratios to solve real-world problems.*
4. *Use the trigonometric ratios to find the area of a triangle. [NOT TESTED]*

Skill List

		Initial Score	*Update Score*
TR1	I can recall the ratios in 45-45-90 and 30-60-90 triangles and use them to solve problems.		
TR2	I can identify the sides of right triangles (***opposite***, ***adjacent*** and ***hypotenuse***) and use these to find trigonometric ratios.		
TR3	I can find unknown lengths in right triangles using an angle and another length.		
TR4	I can find unknown angles in right triangles using two lengths.		
TR5	I can solve problems by framing them as right triangle problems.		