

<p><u>Grade, Subject:</u> Geometry, 9-12</p>	
<p><u>Strand (Unit):</u> Unit G1: Introduction and Construction</p>	
<p><u>Big Idea:</u> Points, Lines, Planes, Angles</p>	
<p><u>PA Content Standards:</u> G.2.2.1 - Use and/or compare measurements of angles.</p>	<p><u>PA Core Standards:</u> CC.2.2.HS.D.8 - Apply inverse operations to solve equations or formulas for a given variable. CC.2.3.HS.A.3 – Verify and apply geometric theorems as they relate to geometric figures. CC.2.3.HS.A.14 - Apply geometric concepts to model and solve real world problems. CC.2.1.HS.F.5 – Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. 13.3.11.E: Evaluate time management strategies and their application to both personal and work situations. 13.1.11.E: Justify the selection of a career.</p>
<p><u>Essential Questions:</u></p> <ol style="list-style-type: none"> 1. What are the basic building blocks of Geometry and how are they related? 2. What does it mean for two items to be congruent? 3. What are constructions and how are they used to create figures? 4. What are the different classification of angles, how are they related, and how are they measured? 5. What does it mean for two lines or planes to be parallel? 6. How can postulates be used? 	<p><u>Understandings (SWKT...):</u> Students will know</p> <ol style="list-style-type: none"> 1. The proper identification and notation for points, lines, planes, collinear points, coplanar points, coplanar lines, line segments, rays, opposite rays, intersections of lines and planes, different types of lines (parallel, skew, perpendicular, oblique), and angles (acute, right, obtuse, straight). 2. How to determine whether two segments or angles are congruent. 3. Which tools are used in Geometric constructions. 4. How to differentiate between the classifications of angles (complementary, supplementary, linear pair, vertical, adjacent). 5. How to classify angles as same side interior, same side exterior, alternate interior, alternate exterior, and corresponding angles and their relationships.

<p><u>Vocabulary:</u> Point, line, plane, collinear, coplanar, segment, ray, opposite rays, intersection, parallel, skew, perpendicular, oblique, acute angle, right angle, obtuse angle, straight angle, midpoint, angle bisector, complementary angles, supplementary angles, linear pair, vertical angles, adjacent angles, same side interior angles, same side exterior angles, alternate interior angles, alternate exterior angles, corresponding angles, postulate, straightedge, compass</p>	<p><u>Skills (SWBAT...):</u> Students will be able to</p> <ol style="list-style-type: none"> 1. Use the Ruler and Segment Addition Postulates to find lengths and solve problems; Utilize the Angle Addition Postulate to find the measure of angles and to solve problems. 2. Use the definitions of midpoints and angle bisectors to solve problems. 3. 4. Use the properties of the different types of angles to solve problems. 5. Apply the properties of the angle pairs formed by parallel lines to solve problems. 6. Make valid statements using given information and the postulates; Prove theorems using previously learned theorems.
<p><u>Assessments:</u> Homework Assignments Quizzes Test</p>	<p><u>Resources:</u> Geometry textbook Calculator Compass/Protractor/Ruler Teacher-created materials Chromebook</p>

<p>Grade, Subject: Geometry, 9-12</p>	
<p>Strand (Unit): Unit G2: Geometric Relationships and Properties in Triangles</p>	
<p>Big Idea: Triangles</p>	
<p>PA Content Standards: G.1.2.1 - Recognize and/or apply properties of angles, polygons, and polyhedra. G.1.3.1 - Use properties of congruence, correspondence, and similarity in problem-solving settings involving two- and three-dimensional figures. G.1.3.2 - Write formal proofs and/or use logic statements to construct or validate arguments.</p>	<p>PA Core Standards: CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures. 13.3.11.E: Evaluate time management strategies and their application to both personal and work situations. 13.1.11.E: Justify the selection of a career.</p>
<p>Essential Questions:</p> <ol style="list-style-type: none"> 1. How can triangles be classified, what are the properties of each type, and how are their sides and angles related? 2. What does it mean for two triangles to be congruent or similar? 3. What special segments exist within a triangle and what special properties do they have? 4. How can midsegments, angle bisectors, perpendicular bisectors, and medians of a triangle be constructed? 	<p>Understandings (SWKT...):</p> <ol style="list-style-type: none"> 1. How to classify a triangle as scalene, isosceles, or equilateral and acute, right, obtuse, or equiangular using diagrams and formulas. 2. Know the theorems used to prove triangle congruence or similarity. 3. Know the properties of midsegments, angle bisectors, perpendicular bisectors, medians, and altitudes.
<p>Vocabulary: Scalene triangle, isosceles triangle, equilateral triangle, acute triangle, right triangle, obtuse triangle, equiangular triangle, congruence statement, congruent triangles, proof, similar triangles, scale factor, midsegments, angle bisectors, perpendicular bisectors, medians, altitudes, incenter, circumcenter, centroid</p>	<p>Skills (SWBAT...):</p> <ol style="list-style-type: none"> 1. Find missing angle measurements (inside and outside) and side lengths of a triangle and be able to compare them. 2. Prove triangles congruent or similar and find missing measurements. 3. Use the properties of midsegments, angle bisectors, perpendicular bisectors, medians, and altitudes to set-up and solve problems. 4. Use a straightedge and compass to construct a midsegment, angle bisector, perpendicular bisector, and median.

<p>Assessments: Homework Assignments Quizzes Test</p>	<p>Resources: Geometry textbook Calculator Compass/Protractor/Ruler Teacher-created materials Chromebook</p>
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Elizabethtown Area School District Curriculum

Date Adopted:

<p>Grade, Subject: Geometry, 9-12</p>	
<p>Strand (Unit): Unit G3: Trigonometric Ratios (Solving Triangles)</p>	
<p>Big Idea: Right Triangle Trigonometry</p>	
<p>PA Content Standards: G.2.1.1 - Solve problems involving right triangles.</p>	<p>PA Core Standards: CC.2.2.8.B.1 - Apply concepts of radicals and integer exponents to generate equivalent expressions. CC.2.3.HS.A.3 – Verify and apply geometric theorems as they relate to geometric figures. CC.2.3.8.A.3 – Understand and apply the Pythagorean Theorem to solve problems. CC.2.3.HS.A.14 – Apply geometric concepts to model and solve real world problems. CC.2.3.HS.A.7 – Apply trigonometric ratios to solve problems involving right triangles.</p>

	<p>13.3.11.E: Evaluate time management strategies and their application to both personal and work situations.</p> <p>13.1.11.E: Justify the selection of a career.</p>
<p>Essential Questions:</p> <ol style="list-style-type: none"> 1. How can missing sides and angles of a right triangle be found? 2. How can the classification of a triangle be determined from its sides? 3. What relationships exist with the sides of special right triangles? 4. What are the three trig ratios and how can they be used? 	<p>Understandings (SWKT...):</p> <ol style="list-style-type: none"> 1. 2. Classify a triangle as acute, right, or obtuse when given the side lengths or coordinates that form the triangle. 3. Know how to label the sides of a 45°-45°-90° and 30°-60°-90° triangles. 4. SOH-CAH-TOA
<p>Vocabulary:</p> <p>Trigonometry, right triangle, Pythagorean Theorem, hypotenuse, sine, cosine, tangent, adjacent, opposite, special right triangle, angle of elevation</p>	<p>Skills (SWBAT...):</p> <ol style="list-style-type: none"> 1. Use Pythagorean Theorem to find missing sides of a right triangle and apply to real-world problems. 2. 3. Use the 45°-45°-90° and 30°-60°-90° triangle side ratios to set-up and solve problems. 4. Use right triangle trigonometry to solve triangles.
<p>Assessments:</p> <p>Homework Assignments Quizzes Test</p>	<p>Resources:</p> <p>Geometry textbook Calculator Teacher-created materials Chromebook</p>

<p>Grade, Subject: Geometry, 9-12</p>	
<p>Strand (Unit): Unit G4: Coordinate Geometry</p>	
<p>Big Idea: Coordinate Geometry and Quadrilaterals</p>	
<p>PA Content Standards: G.1.2.1 - Recognize and/or apply properties of angles, polygons, and polyhedra. G.2.1.2 - Solve problems using analytic geometry.</p>	<p>PA Core Standards: CC.2.2.HS.D.8 - Apply inverse operations to solve equations or formulas for a given variable. CC.2.3.HS.A.3 - Verify and apply geometric theorems as they relate to geometric figures. CC.2.3.HS.A.14 - Apply geometric concepts to model and solve real world problems. CC.2.2.HS.D.7 - Create and graph equations or inequalities to describe numbers or relationships. CC.2.2.HS.D.10 - Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically. CC.2.3.HS.A.11 - Apply coordinate geometry to prove simple geometric theorems algebraically. 13.3.11.E: Evaluate time management strategies and their application to both personal and work situations. 13.1.11.E: Justify the selection of a career.</p>
<p>Essential Questions:</p> <ol style="list-style-type: none"> 1. How can the midpoint and distance between two objects be found? 2. How can the equation of a line be found? 3. How can properties of triangles be proven? 4. How can a figure be proven to be a parallelogram, rectangle, rhombus, square, trapezoid, isosceles trapezoid, or kite on the coordinate plane? 5. What are the properties of special quadrilaterals and how can they be proven? 	<p>Understandings (SWKT...):</p> <ol style="list-style-type: none"> 1. 2. 3. Classify triangles on the coordinate plane by their sides and angles and verify their properties. 4. 5. Identify the properties of special quadrilaterals.

<p><u>Vocabulary:</u> Midpoint, slope, y-intercept, parallel, perpendicular, parallelogram, rectangle, rhombus, square, trapezoid, isosceles trapezoid, kite</p>	<p><u>Skills (SWBAT...):</u></p> <ol style="list-style-type: none"> 1. Use the midpoint and distance formulas to find the midpoint or distance between two points. 2. Write the equation of a line. 3. 4. Determine which special quadrilateral a figure is, and justify the reason. 5. Prove and use the properties of special quadrilaterals.
<p><u>Assessments:</u> Homework Assignments Quizzes Test</p>	<p><u>Resources:</u> Geometry textbook Calculator Teacher-created materials Chromebook</p>

Elizabethtown Area School District Curriculum

Date Adopted:

<p><u>Grade, Subject:</u> Geometry, 9-12</p>	
<p><u>Strand (Unit):</u> Unit G5: Circles</p>	

<p><u>Big Idea:</u> Circles</p>	
<p><u>PA Content Standards:</u> G.1.1.1 - Identify and/or use parts of circles and segments associated with circles, spheres, and cylinders.</p>	<p><u>PA Core Standards:</u> CC.2.3.HS.A.3 – Verify and apply geometric theorems as they relate to geometric figures. CC.2.3.HS.A.8 – Apply geometric theorems to verify properties of circles. CC.2.3.7.A.1 – Solve real-world and mathematical problems involving angle measure, area, surface area, circumference, and volume. CC.2.3.HS.A.9 – Extend the concept of similarity to determine arc lengths and areas of sectors. 13.3.11.E: Evaluate time management strategies and their application to both personal and work situations. 13.1.11.E: Justify the selection of a career.</p>
<p><u>Essential Questions:</u></p> <ol style="list-style-type: none"> 1. What are the different features of circles called? 2. How are the measures of arcs, angles, and segments inside and outside a circle found? 3. How are circles placed on the coordinate plane? 4. How are lengths and areas of circles found? 	<p><u>Understandings (SWKT...):</u></p> <ol style="list-style-type: none"> 1. Name features of circles: circle, radius, diameter, chord, tangent, secant, central angle, minor arc, semicircle, major arc, and adjacent arcs.
<p><u>Vocabulary:</u> Circle, center, radius, diameter, tangent, secant, chord, arc, major arc, minor arc, semicircle, adjacent arcs, arc length, area, circumference, sector</p>	<p><u>Skills (SWBAT...):</u></p> <ol style="list-style-type: none"> 1. 2. Find the measures of arcs, angles, and segments inside and outside of a circle. 3. Write the equation of a circle described or seen in a graph in standard form. 4. Calculate the circumference, arc length, area of circles, and area of sectors of a circle.

<p>Assessments: Homework Assignments Quizzes Test</p>	<p>Resources: Geometry textbook Calculator Teacher-created materials Chromebook</p>
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Date Adopted:

<p>Grade, Subject: Geometry, 9-12</p>	
<p>Strand (Unit): Unit G6: Geometric Measurement and Dimension</p>	
<p>Big Idea: Perimeter, Area, Volume</p>	
<p>PA Content Standards: G.1.1.1 - Identify and/or use parts of circles and segments associated with circles, spheres, and cylinders. G.1.2.1 - Recognize and/or apply properties of angles, polygons, and polyhedra. G.2.2.2 - Use and/or develop procedures to determine or describe measures of perimeter, circumference, and/or area. (May require conversions within the same system.) G.2.3.1 Use and/or develop procedures to determine or describe measures of surface area and/or volume. (May require conversions</p>	<p>PA Core Standards: CC.2.3.HS.A.3 – Verify and apply geometric theorems as they relate to geometric figures. CC.2.3.7.A.1 – Solve real-world and mathematical problems involving angle measure, area, surface area, circumference, and volume. CC.2.3.HS.A.7 – Apply trigonometric ratios to solve problems involving right triangles. CC.2.3.HS.A.9 – Extend the concept of similarity to determine arc lengths and areas of sectors. CC.2.2.HS.D.8 – Apply inverse operations to solve equations or formulas for a given</p>

<p>within the same system.)</p>	<p>variable. CC.2.3.HS.A.13 – Analyze relationships between two-dimensional and three-dimensional objects. 13.3.11.E: Evaluate time management strategies and their application to both personal and work situations. 13.1.11.E: Justify the selection of a career.</p>
<p><u>Essential Questions:</u></p> <ol style="list-style-type: none"> 1. What are perimeter and area and how are they found? 2. What are lateral area, surface area, and volume and how are they found? 	<p><u>Understandings (SWKT...):</u></p> <ol style="list-style-type: none"> 1. Find the perimeter and area of a variety of Geometric figures; use a formula and a known quantity to solve for an unknown quantity. 2. Find the lateral area, surface area, and volume of a variety of Geometric figures; use a formula and a known quantity to solve for an unknown quantity.
<p><u>Vocabulary:</u> Perimeter, area, polygon, apothem, lateral area, surface area, volume, prism, cylinder, pyramid, cone, sphere, hemisphere</p>	<p><u>Skills (SWBAT...):</u></p> <ol style="list-style-type: none"> 1. Find the perimeter and area of a variety of Geometric figures; use a formula and a known quantity to solve for an unknown quantity. 2. Find the lateral area, surface area, and volume of a variety of Geometric figures; use a formula and a known quantity to solve for an unknown quantity.
<p><u>Assessments:</u> Homework Assignments Quizzes Test</p>	<p><u>Resources:</u> Geometry textbook Calculator Teacher-created materials Chromebook</p>

<p><u>Grade, Subject:</u> Geometry, 9-12</p>	
<p><u>Strand (Unit):</u> Unit G7: Transformations</p>	
<p><u>Big Idea:</u> Transformations</p>	
<p><u>PA Content Standards:</u> G.1.3.1 - Use properties of congruence, correspondence, and similarity in problem-solving settings involving two- and three-dimensional figures.</p>	<p><u>PA Core Standards:</u> CC.2.3.HS.A.1 – Use geometric figures and their properties to represent transformations in the plane. CC.2.3.HS.A.2 – Apply rigid transformations to determine and explain congruence. CC.2.3.HS.A.11 – Apply coordinate geometry to prove simple geometric theorems algebraically. CC.2.3.8.A.2 – Understand and apply congruence, similarity, and geometric transformations using various tools. 13.3.11.E: Evaluate time management strategies and their application to both personal and work situations. 13.1.11.E: Justify the selection of a career.</p>
<p><u>Essential Questions:</u></p> <ol style="list-style-type: none"> 1. What is a transformation? 2. What are reflections, translations, rotations, and dilations and what properties do they have? 3. What types of symmetry could a figure have? 	<p><u>Understandings (SWKT...):</u></p> <ol style="list-style-type: none"> 1. Identify and find the measures of corresponding parts in a transformation. 2. 3. Determine whether a figure has line, rotational, or point symmetry.

<p><u>Vocabulary:</u> Transformation, isometry, pre-image, image, reflection, line of reflection, translation, vector, rotation, center of rotation, angle of rotation, reflectional/line symmetry, rotational symmetry, point symmetry, dilation, center of dilation, scale factor, enlargement, reduction</p>	<p><u>Skills (SWBAT...):</u></p> <ol style="list-style-type: none">1.2. Reflect, translate, rotate, or dilate a given figure.3. Identify the lines of line symmetry or the angles of rotational symmetry that a figure has.
<p><u>Assessments:</u> Homework Assignments Quizzes Test</p>	<p><u>Resources:</u> Geometry textbook Calculator Compass/Protractor/Ruler Teacher-created materials Chromebook</p>