



Honors Geometry

Diocese of Greensburg Curriculum

Unit	Standards	Content	Skills
<p>Tools of Geometry</p>	<p>NCTM: Mathematics NCTM: Grades 9 - 12</p> <p>Geometry</p> <p>Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships</p> <p>explore relationships (including congruence and similarity) among classes of two- and three-dimensional geometric objects, make and test conjectures about them, and solve problems involving them;</p> <p>Specify locations and describe spatial relationships using coordinate geometry and other representational systems</p> <p>use Cartesian coordinates and other coordinate systems, such as navigational, polar, or spherical systems, to analyze geometric situations;</p> <p>investigate conjectures and solve problems involving two- and three-dimensional objects represented with Cartesian coordinates.</p> <p>Use visualization, spatial reasoning, and geometric modeling to solve problems</p> <p>draw and construct representations of two- and three-dimensional geometric objects using a variety of tools;</p>	<p>Points, Lines, Rays, Segments, and Planes</p> <ul style="list-style-type: none"> • Opposite Rays • Distance on a line <p>Measuring</p> <ul style="list-style-type: none"> • Angles with a protractor • Lines in metric and standard <p>Coordinate Geometry</p> <ul style="list-style-type: none"> • Midpoint • Slope <p>Angles</p> <p>Angle Pairs</p> <ul style="list-style-type: none"> • Complimentary • Supplementary • Vertical <p>Naming Shapes</p> <ul style="list-style-type: none"> • Triangles by sides • Triangles by angles • By number of sides <p>Convex and Concave Polygons</p>	<p>The students will be able to:</p> <p>Knowledge</p> <ul style="list-style-type: none"> • Define point, line, plane, ray, and segment. • Define midpoint and slope. • Define an angle. <p>Comprehension</p> <ul style="list-style-type: none"> • Identify and describe point, line, line segment, ray, plane, and angles • Identify and describe adjacent, vertical, complementary, and supplementary angles • Identify various triangles by sides and angles. • Identify various shapes based upon the number of sides. <p>Application</p> <ul style="list-style-type: none"> • Calculate and compare the measures of pairs of angles. • Calculate the midpoint, distance and slope. • Compare lengths of segments. <p>Analysis</p> <ul style="list-style-type: none"> • Model complementary, supplementary, and vertical angles • Measure angles and segments <p>Synthesis</p> <ul style="list-style-type: none"> • Create convex and concave polygons

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<p>Reasoning and Proof</p>	<p>NCTM: Mathematics NCTM: Grades 9 - 12</p> <p>Geometry Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships</p> <p>explore relationships (including congruence and similarity) among classes of two- and three-dimensional geometric objects, make and test conjectures about them, and solve problems involving them;</p> <p>establish the validity of geometric conjectures using deduction, prove theorems, and critique arguments made by others;</p> <p>Process Standards Reasoning and Proof</p> <p>Recognize reasoning and proof as fundamental aspects of mathematics</p> <p>Make and investigate mathematical conjectures</p> <p>Develop and evaluate mathematical arguments and proofs</p> <p>Select and use various types of reasoning and methods of proof</p> <p>Used with permission of the National Council of Teachers of Mathematics. This use does not imply</p>	<p>Patterns Conditionals Converses Biconditionals Deductive Reasoning Algebraic Proofs Using Angles in Proofs</p> <ul style="list-style-type: none"> • Vertical Angles • Supplementary Angles • Complimentary Angles <p>Inductive Reasoning</p>	<p>The students will be able to:</p> <p>Comprehension</p> <ul style="list-style-type: none"> • Understand conditionals, converses, inverses, and contrapositives. • Recognize conditional statements and their parts. • Understand the difference between deductive and inductive reasoning <p>Application</p> <ul style="list-style-type: none"> • Write inverse, converse, and contrapositive of a conditional statement. • Apply bi-conditional statements in the context of logical reasoning. <p>Analysis</p> <ul style="list-style-type: none"> • Utilize inductive reasoning to determine patterns. • Use inductive reasoning to make a conjecture. • Determine counterexamples to disprove conjectures. • Determine truth values of conditional statements, converses and contrapositives • Utilize properties of equality and congruence within a deductive argument. <p>Synthesis</p> <ul style="list-style-type: none"> • Hypothesize using inductive reasoning.

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	endorsement of materials or validation of alignment.		<ul style="list-style-type: none"> • Create two column proofs. • Prove and apply theorems about angles. <p>Evaluation</p> <ul style="list-style-type: none"> • Connect reasoning in algebra and geometry. • Determine truth values of converse, inverse, and contrapositives.
<p>Parallel and Perpendicular <i>X</i> (Week 7, 3 Weeks)</p>	<p>CCSS: Mathematics CCSS: HS: Geometry</p> <p>Congruence HSG-CO.A. Experiment with transformations in the plane</p> <p>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.</p> <p>Expressing Geometric Properties with Equations HSG-GPE.B. Use coordinates to prove simple geometric theorems algebraically</p> <p>HSG-GPE.B.5. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).</p> <p>© Copyright 2010. National Governors Association</p>	<p>Transversals</p> <ul style="list-style-type: none"> • Corresponding • Alternate Interior/Exterior • Same-Side Interior/Exterior <p>Converse of Transversals Perpendicular Transversals Interior and Exterior Angles of a Triangle Application in Coordinate Geometry</p>	<p>The students will be able to:</p> <p>Knowledge</p> <ul style="list-style-type: none"> • Identify characteristics of parallel, perpendicular, and skew lines. • Identify pairs of angles formed by intersecting lines. • Identify angles formed by parallel lines and a transversal. • Identify relationships between figures in space. <p>Comprehension</p> <ul style="list-style-type: none"> • Determine slopes of parallel and perpendicular lines • Use properties of parallel lines to find angle measure <p>Application</p> <ul style="list-style-type: none"> • Apply theorems about angles formed by parallel lines, transversals and perpendicular lines • Prove theorems about parallel lines. <p>Analysis</p>

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	<p>Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>		<ul style="list-style-type: none"> • Determine angle measures given parallel lines and transversals • Determine if two lines are parallel. <p>Synthesis</p> <ul style="list-style-type: none"> • Generate new equations of lines given a point, parallel and/or perpendicular lines • Generate new equations of lines using point-slope, slope-intercept, and standard forms of equations
<p>Congruent Triangles</p>	<p>CCSS: Mathematics CCSS: HS: Geometry</p> <p>Congruence HSG-CO.B. Understand congruence in terms of rigid motions</p> <p>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.</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>	<ul style="list-style-type: none"> • Acute, right, equiangular, obtuse triangles • Scalene, isosceles, and equilateral triangles • Congruent • SSS, SAS, ASA • AAS, HL • CPCTC (corresponding parts of congruent triangles) • Isosceles Triangle Theorems • Overlapping Parts 	<p>The students will be able to:</p> <p>Knowledge</p> <ul style="list-style-type: none"> • Define congruent • Recognize figures and their corresponding parts. <p>Comprehension</p> <ul style="list-style-type: none"> • Justify triangle congruence based upon sides lengths and angle measure • Prove that triangles are congruent by SSS,SAS, ASA, AAS, HL. <p>Application</p> <ul style="list-style-type: none"> • Classify triangles by side length and angle measure • Use CPCTC

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			<ul style="list-style-type: none"> Use and apply properties of isosceles and equilateral triangles. <p>Analysis</p> <ul style="list-style-type: none"> Infer congruency of triangles with overlapping parts <p>Evaluation</p> <ul style="list-style-type: none"> Compare and contrast properties about isosceles and equilateral triangles
<p>Relationships in Triangles</p>	<p>CCSS: Mathematics CCSS: HS: Geometry</p> <p>Congruence HSG-CO.D. Make geometric constructions</p> <p>HSG-CO.D.12. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State</p>	<ul style="list-style-type: none"> Median and Altitude Perpendicular Bisector and Angle Bisector Triangle Inequalities ($a+b>c$) Pythagorean Theorem Converse of the Pythagorean Theorem 	<p>The students will be able to:</p> <p>Knowledge</p> <ul style="list-style-type: none"> Define median, altitude, perpendicular bisector, and angle bisector <p>Comprehension</p> <ul style="list-style-type: none"> Explain the triangle inequality theorem <p>Application</p> <ul style="list-style-type: none"> Apply theorems about perpendicular bisectors Apply properties of medians and altitudes in triangle. Apply properties of triangle mid-segments. Solve triangle inequalities using compound inequalities. Use properties of midsegments of triangles to solve problems. <p>Synthesis</p> <ul style="list-style-type: none"> Construct median, altitude, perpendicular

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<p>Polygons and Quadrilaterals</p>	<p>NCTM: Mathematics NCTM: Grades 6 - 8</p> <p>Geometry Specify locations and describe spatial relationships using coordinate geometry and other representational systems</p> <p>use coordinate geometry to examine special geometric shapes, such as regular polygons or those with pairs of parallel or perpendicular sides.</p> <p>NCTM: Grades 9 - 12</p> <p>Geometry Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships</p> <p>analyze properties and determine attributes of two- and three-dimensional objects;</p> <p>explore relationships (including congruence and similarity) among classes of two- and three-dimensional geometric objects, make and test conjectures about them, and solve problems involving them;</p> <p>Used with permission of the National Council of Teachers of Mathematics. This use does not imply endorsement of materials or validation of alignment.</p>	<ul style="list-style-type: none"> • Polygon Angle Summation Theorems • Properties of Parallelograms • Prove Quadrilaterals to be Parallelograms • Diagonals of Rhombus, Rectangle, or a Square • Prove that a Shape is a Rhombus, Rectangle, or a Square • Trapezoids and Kites • Polygons in Coordinate Geometry 	<p>The students will be able to:</p> <p>Knowledge</p> <ul style="list-style-type: none"> • Define types of polygons • Determine whether a quadrilateral is a parallelogram, rectangle, square, rhombus, kite, or trapezoid. <p>Comprehension</p> <ul style="list-style-type: none"> • Classify types of polygons <p>Application</p> <ul style="list-style-type: none"> • Solve for polygon angle measurements • Apply properties of special quadrilaterals to solve for angles • Calculate the sum of the measures of interior and exterior angles of regular polygons. <p>Analysis</p> <ul style="list-style-type: none"> • Determine if a quadrilateral is special given properties

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<p>Similarity</p>	<p>CCSS: Mathematics CCSS: HS: Geometry</p> <hr/> <p>Similarity, Right Triangles, & Trigonometry HSG-SRT.A. Understand similarity in terms of similarity transformations</p> <p>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 pairs of angles and the proportionality of all pairs of sides.</p> <p>HSG-SRT.B. Prove theorems involving similarity</p> <p>HSG-SRT.B.4. Prove theorems about triangles using similarity transformations.</p> <p>HSG-SRT.B.5. Use triangle congruence and similarity criteria to solve problems and to prove relationships in geometric figures.</p> <p>HSG-SRT.C. Define trigonometric ratios and solve problems involving right triangles</p> <p>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.</p> <p>NCTM: Mathematics NCTM: Grades 9 - 12</p> <hr/>	<ul style="list-style-type: none"> • Ratios and Proportions • Similar Polygons • AA, SSS, SAS • Triangle Proportionality Theorem • Triangle Angle-Bisector Theorem • Geometric Mean • Right Triangles 	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Knowledge <ul style="list-style-type: none"> ○ Define properties of similar polygons ○ Define ratios and proportions Comprehension <ul style="list-style-type: none"> ○ Explain similarity ○ Explain AA, SSS, and SAS ○ Explain the triangle proportionality and angle-bisector theorem Application <ul style="list-style-type: none"> ○ Apply proportionality and triangle angle bisector theorems to find missing triangle parts ○ Apply similarity properties Analysis <ul style="list-style-type: none"> ○ Manipulate scale drawings to solve problems Synthesis <ul style="list-style-type: none"> ○ Deduce similar triangles utilizing the triangles similarity theorems (AA, SAS, SSS) Evaluation <ul style="list-style-type: none"> ○ Justify similar figures

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	<p>Geometry Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships</p> <p>explore relationships (including congruence and similarity) among classes of two- and three-dimensional geometric objects, make and test conjectures about them, and solve problems involving them;</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>		
<p>Right Triangles and Trigonometry</p>	<p>NCTM: Mathematics NCTM: Grades 9 - 12</p> <p>Geometry Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships</p> <p>use trigonometric relationships to determine lengths and angle measures.</p> <p>Used with permission of the National Council of Teachers of Mathematics. This use does not imply endorsement of materials or validation of alignment.</p>	<ul style="list-style-type: none"> • Pythagorean Theorem • Converse of the Pythagorean Theorem • Special Right Triangles • Sine, Cosine, and Tangent • Angles of Elevation and Depression 	<p>The students will be able to:</p> <p>Knowledge</p> <ul style="list-style-type: none"> • Memorize SOH CAH TOA <p>Comprehension</p> <ul style="list-style-type: none"> • Demonstrate knowledge of geometric means to determine segment lengths • Explain the sine, cosine, and tangent ratios <p>Application</p> <ul style="list-style-type: none"> • Solve similarity relationships for right triangles • Apply trigonometric ratios to find side lengths and angles of right triangles • Apply Pythagorean Theorem to determine triangle classification

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			<ul style="list-style-type: none"> • Determine unknown side lengths using Pythagorean Theorem • Deduce sine, cosine, and tangent functions of acute angles <p>Analysis</p> <ul style="list-style-type: none"> • Use special right triangle properties to solve for missing sides <p>Evaluation</p> <ul style="list-style-type: none"> • Use angles of elevation and depression to determine distance
<p>Probability X (Week 26, 3 Weeks)</p>	<p>CCSS: Mathematics CCSS: HS: Stats/Prob</p> <p>Conditional Probability & the Rules of Probability HSS-CP.A. Understand independence and conditional probability and use them to interpret data</p> <p>HSS-CP.A.1. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events (“or,” “and,” “not”).</p> <p>HSS-CP.A.2. Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.</p>	<ul style="list-style-type: none"> • Experimental and Theoretical Probabilities • Probability Distributions and Frequency Tables • Permutations and Combinations • Compound Probability Formulas • Modeling Randomness 	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Calculate experimental and theoretical probability. • Make and use frequency tables and probability distributions. • Use permutations and combinations to solve problems. • Identify independent and dependent vents and compound probabilities. • Construct probability models. • Understand and calculate conditional probabilities. • Understand random numbers and to use probabilities in decision making.

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	<p>HSS-CP.A.3. Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.</p> <p>HSS-CP.A.4. Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities.</p> <p>HSS-CP.A.5. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.</p> <p>HSS-CP.B. Use the rules of probability to compute probabilities of compound events in a uniform probability model</p> <p>HSS-CP.B.6. Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A and interpret the answer in terms of the model.</p> <p>HSS-CP.B.7. Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.</p>		

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	<p>HSS-CP.B.8. (+) Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B A) = P(B)P(A B)$, and interpret the answer in terms of the model.</p> <p>HSS-CP.B.9. (+) Use permutations and combinations to compute probabilities of compound events and solve problems.</p> <p>Using Probability to Make Decisions</p> <p>HSS-MD.A. Calculate expected values and use them to solve problems</p> <p>HSS-MD.A.1. (+) Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.</p> <p>HSS-MD.A.2. (+) Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.</p> <p>HSS-MD.A.3. (+) Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value.</p> <p>HSS-MD.A.4. (+) Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value.</p>		

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	<p>HSS-MD.B. Use probability to evaluate outcomes of decisions</p> <p>HSS-MD.B.5. (+)Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values.</p> <p>HSS-MD.B.5a. Find the expected payoff for a game of chance.</p> <p>HSS-MD.B.5b. Evaluate and compare strategies on the basis of expected values.</p> <p>HSS-MD.B.6. (+)Use probabilities to make fair decisions</p> <p>HSS-MD.B.7.(+) Analyze decisions and strategies using probability concepts</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>		
<p>Surface Area and Volume</p>	<p>CCSS: Mathematics CCSS: HS: Geometry</p> <hr/> <p>Circles HSG-C.B. Find arc lengths and areas of sectors of circles</p> <p>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</p>	<ul style="list-style-type: none"> • Parallelogram • Trapezoid • Rhombus • Triangles • Kites • Regular Polygons • Circles • Irregular Polygons • Geometric Probability • Prisms • Pyramids 	<p>The students will be able to:</p> <p>Knowledge</p> <ul style="list-style-type: none"> • Define volume and surface area • Comprehension <ul style="list-style-type: none"> ○ Understand surface area and volume ○ Distinguish and categorize polyhedra, their

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	<p>proportionality; derive the formula for the area of a sector.</p> <p>Expressing Geometric Properties with Equations</p> <p>HSG-GPE.B. Use coordinates to prove simple geometric theorems algebraically</p> <p>HSG-GPE.B.7. Use coordinates to compute perimeters of polygons and areas for triangles and rectangles, e.g. using the distance formula.</p> <p>NCTM: Mathematics NCTM: Grades 9 - 12</p> <hr/> <p>Geometry</p> <p>Use visualization, spatial reasoning, and geometric modeling to solve problems</p> <p>visualize three-dimensional objects and spaces from different perspectives and analyze their cross sections;</p> <p>use geometric models to gain insights into, and answer questions in, other areas of mathematics;</p> <p>use geometric ideas to solve problems in, and gain insights into, other disciplines and other areas of interest such as art and architecture</p> <p>Measurement</p> <p>Apply appropriate techniques, tools, and formulas to determine measurements</p> <p>understand and use formulas for the area, surface area, and volume of geometric figures, including cones, spheres, and cylinders</p>	<ul style="list-style-type: none"> • Spheres 	<p>parts and cross sections.</p> <p>Application</p> <ul style="list-style-type: none"> ○ Calculate areas of triangles, quadrilaterals and higher order polygons using trigonometry and auxiliary lines such as radius, apothem, sides, and diagonals. ○ Calculate area of sectors and lengths of arcs. ○ Calculate the area and perimeter of similar figures. ○ Calculate the area of composite shapes. ○ Calculate the surface area of prisms, pyramids, cones, spheres and cylinders. ○ Calculate the volume of prisms, pyramids, cones, spheres, and cylinders. <p>Analysis</p> <ul style="list-style-type: none"> ○ Extrapolate and calculate arc lengths from circumference of circles <p>Synthesis</p> <ul style="list-style-type: none"> ○ Create geometric probability problems ○ Manipulate 3-D figures to determine surface area and volume

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<p>Transformation</p>	<p>NCTM: Mathematics NCTM: Grades 9 - 12</p> <p>Geometry Apply transformations and use symmetry to analyze mathematical situations</p> <p>understand and represent translations, reflections, rotations, and dilations of objects in the plane by using sketches, coordinates, vectors, function notation, and matrices;</p> <p>use various representations to help understand the effects of simple transformations and their compositions.</p> <p>Used with permission of the National Council of Teachers of Mathematics. This use does not imply endorsement of materials or validation of alignment.</p>	<ul style="list-style-type: none"> • Translation • Rotation • Reflection with Reflectional Symmetry • Dilation 	<p>The students will be able to:</p> <p>Knowledge Define translation, rotation, reflection, and dilation</p> <p>Comprehension</p> <ul style="list-style-type: none"> • Distinguish lines of symmetry within figures • Distinguish rotational symmetry of figures <p>Synthesis</p> <ul style="list-style-type: none"> • Formulate a reflected figure over any given line • Construct a rotational image about a given point • Create dilations of figures • Manipulate a figure using vectors
<p>Circles</p>	<p>CCSS: Mathematics CCSS: HS: Geometry</p> <p>Circles HSG-C.A. Understand and apply theorems about circles</p> <p>HSG-C.A.2. Identify and describe relationships among inscribed angles,</p>	<ul style="list-style-type: none"> • Chords • Arcs • Tangents • Inscribed Angles • Circumscribed Angles 	<p>The students will be able to:</p> <p>Knowledge</p> <ul style="list-style-type: none"> • Define Chord, arc, tangent line, inscribed angle, circumscribed angle. • Identify the properties of tangent lines to a circle.

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	<p>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.</p> <p>HSG-C.B. Find arc lengths and areas of sectors of circles</p> <p>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.</p> <p>NCTM: Mathematics NCTM: Grades 6 - 8</p> <p>Measurement Apply appropriate techniques, tools, and formulas to determine measurements</p> <p>develop and use formulas to determine the circumference of circles and the area of triangles, parallelograms, trapezoids, and circles and develop strategies to find the area of more-complex shapes;</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>	<ul style="list-style-type: none"> Angle Measures and Segment Lengths 	<ul style="list-style-type: none"> Identify parts of a circle. <p>Application</p> <ul style="list-style-type: none"> Extrapolate and calculate arc lengths from circumference of circles. Calculate angle measures of central, inscribed, and circumscribed angles. Formulate the equation of a circle with center (h,k) and radius r. Calculate the sector area and arc length of a circle. Calculate the measures of angles formed by chords, secants, and tangents. Calculate the lengths of segments associated with circles. <p>Analysis</p> <ul style="list-style-type: none"> Find missing parts of a diagram.
<p>Constructions</p>	<p>NCTM: Mathematics NCTM: Grades 9 - 12</p> <p>Geometry Use visualization, spatial reasoning, and</p>	<ul style="list-style-type: none"> Bisect a Segment Bisect an Angle Construct an Equilateral Triangle 	<p>The students will be able to:</p> <p>Synthesis</p>

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	<p>geometric modeling to solve problems</p> <p>visualize three-dimensional objects and spaces from different perspectives and analyze their cross sections;</p> <p>use vertex-edge graphs to model and solve problems;</p> <p>use geometric models to gain insights into, and answer questions in, other areas of mathematics;</p> <p>use geometric ideas to solve problems in, and gain insights into, other disciplines and other areas of interest such as art and architecture</p> <p>Used with permission of the National Council of Teachers of Mathematics. This use does not imply endorsement of materials or validation of alignment.</p>	<ul style="list-style-type: none"> Construct a Square 	<ul style="list-style-type: none"> Construct geometric objects using a compass and a straight edge Construct different shapes using a compass and a straight edge