WARREN COUNTY SCHOOL DISTRICT
PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Geometry
Course Number: 00212

Course Prerequisites: Recommended grade average of 60% in both Algebra 1A and Algebra 1B or completion of both Algebra I - CP and Algebra II – CP with an average in each between 60% and 70%.

Course Description: Geometry is a course designed for students to connect their algebra skills to another perspective. Through the study of geometry, students will learn about geometric shapes and structures and how to analyze their characteristics and relationships. Spatial visualization—building and manipulating mental representations of two-and three-dimensional objects and perceiving an object from different perspectives—is an important aspect of geometric thinking. Geometric ideas are useful in representing and solving problems in other areas of mathematics and in real-world situations. Algebraic skills are incorporated with practical applications to concrete problems.

Suggested Grade Level: 11-12
Length of Course: One Semester X Two Semesters Other

Units of Credit: 1 (Insert NONE if appropriate.)

PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certification(s)
(CSPG # 50 Mathematics)

Certification verified by WCSD Human Resources Department:
X Yes No

Board Approved Textbooks, Software, Materials:
Title: 
Publisher: ISBN #: 0-13-165714-3
Copyright Date: Date of WCSD Board Approval:

**BOARD APPROVAL:**

Date Written: ________ July 2014 _________
Date Approved: ________ September 8, 2014 ________
Implementation Year: ________ 2014-2015 ________

Suggested Supplemental Materials: (List or insert None)
Kutasoftware
SAS Portal
Informal Geometry Prentice Hall
Geometry Prentice Hall

Course Standards

**PA Common Core Standards:**
2.2 Algebraic Concepts
2.3 Geometry
2.4 Measurement, Data, and Probability

**National Common Core Standards:**
G-CO Congruence
G-SRT Similarity, Right Triangles, and Trigonometry
G-Circles
G-GPE Expressing Geometric Properties with Equations
G-GMD Geometric Measure and Dimension
G-MG Modeling with Geometry
G-MD Using Probability to Make Decision

**WCSD Academic Standards:** (List or None)
None

**Industry or Other Standards:** State Common Core Standards (List, Identify Source or None)
None

**SPECIAL EDUCATION AND GIFTED REQUIREMENTS**

The teacher shall make appropriate modifications to instruction and assessment based on a student’s Individual Education Plan (IEP) or Gifted Individual Education Plan (GIEP).
### SPECIFIC EDUCATIONAL OBJECTIVES/CORRESPONDING STANDARDS AND ELIGIBLE CONTENT WHERE APPLICABLE

(List Objectives, PA Standards #'s, Other Standards (see samples at end))

#### PA Core Standard: 2.2 Algebraic Concepts

<table>
<thead>
<tr>
<th>Performance Indicators</th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>G.1.3.2.1</strong> Write, analyze, complete, or identify formal proofs.</td>
<td>(e.g., direct and/or indirect proofs/proofs by contradiction)</td>
</tr>
<tr>
<td><strong>G.2.1.1.1</strong> Use the Pythagorean theorem to write and/or solve problems involving right triangles.</td>
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<tr>
<td><strong>G.2.1.1.2</strong> Use trigonometric ratios to write and/or solve problems involving right triangles.</td>
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<tr>
<td><strong>G.2.2.2.1</strong> Estimate area, perimeter, or circumference of an irregular figure.</td>
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<tr>
<td><strong>G.2.2.2.2</strong> Find the measurement of a missing length, given the perimeter, circumference, or area.</td>
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<tr>
<td><strong>G.2.2.2.3</strong> Find the side lengths of a polygon with a given perimeter to maximize the area of a polygon.</td>
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<tr>
<td><strong>G.2.2.2.4</strong> Develop and/or use strategies to estimate the area of a compound/composite figure.</td>
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<tr>
<td><strong>G.2.2.2.5</strong> Find the area of a sector of a circle.</td>
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</tbody>
</table>

#### PA Core Standard: 2.3 Geometry

<table>
<thead>
<tr>
<th>Performance Indicators</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>G.1.1.1.1</strong> Identify, determine, and/or use the radius, diameter, segment, and/or tangent of a circle.</td>
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<tr>
<td><strong>G.1.1.1.2</strong> Identify, determine, and/or use the arcs, semicircles, sectors, and/or angles of a circle.</td>
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<tr>
<td><strong>G.1.1.1.3</strong> Use chords, tangents, and secants to find missing arc measures or missing segment measures.</td>
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<tr>
<td><strong>G.1.1.1.4</strong> Identify and/or use the properties of a sphere or cylinder.</td>
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<tr>
<td><strong>G.1.2.1.1</strong> Identify and/or use the properties of triangles.</td>
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<td><strong>G.1.2.1.2</strong> Identify and/or use the properties of quadrilaterals.</td>
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<tr>
<td><strong>G.1.2.1.3</strong> Identify and/or use the properties of isosceles and equilateral triangles.</td>
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<tr>
<td><strong>G.1.2.1.4</strong> Identify and/or use the properties of regular polygons.</td>
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<td><strong>G.1.2.1.5</strong> Identify and/or use the properties of pyramids and prisms.</td>
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<tr>
<td><strong>G.1.3.1.1</strong> Identify and/or use the properties of congruent and similar polygons or solids.</td>
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<tr>
<td><strong>G.1.3.1.2</strong> Identify and/or use the proportional relationships in similar figures.</td>
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<tr>
<td><strong>G.1.3.2.1</strong> Write, analyze, complete, or identify formal proofs. (e.g., direct and/or indirect proofs/proofs by contradiction)</td>
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</tr>
<tr>
<td><strong>G.2.1.1.1</strong> Use the Pythagorean theorem to write and/or solve problems involving right triangles.</td>
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<td><strong>G.2.1.1.2</strong> Use trigonometric ratios to write and/or solve problems involving right triangles.</td>
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<tr>
<td><strong>G.2.1.2.1</strong> Calculate the distance and/or midpoint between two points on a number line or on a coordinate plane.</td>
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<tr>
<td><strong>G.2.1.2.2</strong> Relate slope to perpendicularity and/or parallelism</td>
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</tbody>
</table>
### G.2.1.2.3
Use slope, distance, and/or midpoint between two points on a coordinate plane to establish properties of a two-dimensional shape.

### G.2.2.1.1
Use properties of angles formed by intersecting lines to find the measures of missing angles.

### G.2.2.1.2
Use the properties of angles formed when two parallel lines are cut by a transversal to find the measures of missing angles.

### G.2.2.2.1
Estimate area, perimeter, or circumference of an irregular figure.

### G.2.2.2.2
Find the measurement of a missing length, given the perimeter, circumference, or area.

### G.2.2.2.3
Find the side lengths of a polygon with a given perimeter to maximize the area of a polygon.

### G.2.2.2.4
Develop and/or use strategies to estimate the area of a compound/composite figure.

### G.2.2.2.5
Find the area of a sector of a circle.

### G.2.2.3.1
Describe how a change in the linear dimension of a figure affects its perimeter, circumference, and area (e.g., How does changing the length of the radius of a circle affect the circumference of the circle?)

### G.2.3.1.1
Calculate the surface area of prisms, cylinders, cones, pyramids, and/or spheres. *Formulas are provided on a reference sheet.*

### G.2.3.1.2
Calculate the volume of prisms, cylinders, cones, pyramids, and/or spheres. *Formulas are provided on a reference sheet.*

### G.2.3.1.3
Find the measurement of a missing length given the surface area or volume.

### G.2.3.2.1
Describe how a change in the linear dimension of a figure affects its surface area or volume. (e.g., How does changing the length of the edge of a cube affect the volume of the cube?)

### PA Core Standard: 2.4 Measurement, Data, and Probability

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>G.2.2.4.1</td>
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<tr>
<td>Use area models to find probabilities.</td>
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</table>

### ASSESSMENTS

**PSSA Assessment Anchors Addressed:** The teacher must be knowledgeable of the PDE Assessment Anchors and/or Eligible Content and incorporate them into this planned instruction. Current assessment anchors can be found at [pde@state.pa.us](mailto:pde@state.pa.us).

**Formative Assessments:** The teacher will develop and use standards-based assessments throughout the course.
Portfolio Assessment: 

Yes  X  No

District-wide Final Examination Required:

X  Yes  No

Course Challenge Assessment:
Course challenge assessment will be based on activities and exams that measure student proficiency as the course standards at 84%.

REQUIRED COURSE SEQUENCE AND TIMELINE
(Content must be tied to objectives)

<table>
<thead>
<tr>
<th>Content Sequence</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Points, Lines, Planes &amp; Angles</td>
<td></td>
</tr>
<tr>
<td>Reasoning</td>
<td></td>
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<tr>
<td>Parallel &amp; Perpendicular Lines</td>
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<tr>
<td>Congruent Triangles</td>
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<tr>
<td>Polygons (Quadrilaterals)</td>
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<tr>
<td>Relationships in Triangles</td>
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<tr>
<td>Similarity</td>
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<tr>
<td>Circles</td>
<td></td>
</tr>
<tr>
<td>Trigonometry</td>
<td></td>
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<tr>
<td>Planar/Space Measurements</td>
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<tr>
<td>Transformations</td>
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<tr>
<td>Constructions (Optional)</td>
<td></td>
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</tbody>
</table>

- Refer to Course Map on Performance Plus for Additional Information

Objectives:

- Make sense of problems and persevere in solving them
- Reason abstractly and quantitatively
- Construct viable arguments and critique the reasoning of others
- Model with mathematics
- Use appropriate tools strategically
- Attend to precision
- Look for and make use of structure
- Look for and express regularity in repeating reasoning
WCSD STUDENT DATA SYSTEM INFORMATION

1. Is there a required final examination?  X Yes  No
2. Does this course issue a mark/grade for the report card?  X Yes  No
3. Does this course issue a Pass/Fail mark?  No Yes  X No
4. Is the course mark/grade part of the GPA calculation?  X Yes  No
5. Is the course eligible for Honor Roll calculation?  X Yes  No
6. What is the academic weight of the course?
   X No weight/Non credit  X Standard weight
   X Enhanced weight (Describe)