WARREN COUNTY SCHOOL DISTRICT

PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Geometry
Course Number: 00212
Course Prerequisites: Recommended grade average of 60% in both Algebra IA and Algebra IB OR completion of either Algebra I CP or Algebra II CP with an average between 60% and 70%.

Course Description: The Geometry course starts with basic concepts related to geometry including but not limited to points, lines, and planes. The course builds on those basic concepts to include parallel and perpendicular lines, polygons, various triangles, transformations, and the study of spheres and solids. Algebraic skills are incorporated with practical applications to concrete problems. District marking period assessments and final exam are required

Suggested Grade Level: Grades 11-12
Length of Course: Two Semesters
Units of Credit: 1
PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certifications:
CSPG #50 Mathematics (7-12)
To find the CSPG information, go to CSPG
Certification verified by the WCSD Human Resources Department: ☒Yes ☐No

WCSD STUDENT DATA SYSTEM INFORMATION

Course Level: Academic
Mark Types: Check all that apply.
☒F – Final Average ☒MP – Marking Period ☒EXM – Final Exam

GPA Type: ☐ GPAEL-GPA Elementary ☐ GPAML-GPA for Middle Level ☒ NHS-National Honor Society
☒ UGPA-Non-Weighted Grade Point Average ☒ GPA-Weighted Grade Point Average

State Course Code: 02071
To find the State Course Code, go to State Course Code, download the Excel file for *SCED*, click on SCED 6.0 tab, and choose the correct code that corresponds with the course.

TEXTBOOKS AND SUPPLEMENTAL MATERIALS

Board Approved Textbooks, Software, and Materials:

Title:	*enVision Geometry*
Publisher:	SAVVAS Learning Company LLC.
ISBN #:	978-0-328-93155-2
Copyright Date:	2018
WCSD Board Approval Date:	6/29/2020

Supplemental Materials: Kuta Software, Get More Math, pdesas.org

Curriculum Document

WCSD Board Approval:

Date Finalized:	5/23/2022
Date Approved:	6/13/2022
Implementation Year:	2022-2023

SPECIAL EDUCATION, 504, and GIFTED REQUIREMENTS

The teacher shall make appropriate modifications to instruction and assessment based on a student's Individual Education Plan (IEP), Chapter 15 Section 504 Plan (504), and/or Gifted Individual Education Plan (GIEP).

SCOPE AND SEQUENCE OF CONTENT, AND CONCEPTS

Marking Period 1: Perimeter, Circumference, and Area, Geometric Probability, Foundations of Geometry and Coordinate Geometry, and Parallel and Perpendicular Lines

- Review: Perimeter, Circumference, and Area of Geometric Figures
- Probability of Non-Mutually Exclusive Events
- Identification, Names, and Measurements of Segments and Angles
- Midpoint and Distance
- Polygons in the Coordinate Plane
- Vertical Angles, Congruent Supplements, Congruent Complements
- Properties of Parallel Lines
- Proofs of Parallel Lines
- Parallel Lines and Triangles
- Slopes of Parallel and Perpendicular Lines
- Marking Period 1 Review and Assessment

Marking Period 2: Transformations, Triangle Congruence, and Relationships in Triangles

- Reflections
- Translations
- Rotations
- Classification of Rigid Motion
- Symmetry
- Triangle Congruence
- Isosceles and Equilateral Triangles
- Proofs and Application of SAS, SSS, ASA, and AAS Congruence
- Perpendicular and Angle Bisectors
- Bisectors in Triangles (Vocabulary only)
- Medians and Altitudes
- Inequalities in One Triangle and Two Triangles
- Mid-Term Review and Assessment

Marking Period 3: Quadrilaterals and Other Polygons, Similarity, and Right Triangles

- Polygon Angle-Sum Theorems
- Properties of Kites and Trapezoids
- Properties of Parallelograms
- Justification: Quadrilaterals are Parallelograms
- Properties and Conditions of Special Parallelograms
- Dilations
- Similarity Transformations
- Proportions in Triangles
- Right Triangles and the Pythagorean Theorem
- Marking Period 3 Review and Assessment

Marking Period 4: Trigonometry, Circles, and Two- and Three-Dimensional Models

- Trigonometric Ratios
- Problem Solving with Trigonometry
- Arcs and Sectors
- Tangent Lines to a Circle
- Chords
- Inscribed Angles
- Secant Lines and Segments
- Surface Area: Prisms, Cylinders, Cones, Pyramids, Spheres
- Volume: Prisms, Cylinders, Cones, Pyramids, Spheres
- Final Exam Review and Assessment

Standards/Eligible Content and Skills

Performance Indicator	PA Core Standard and/or Eligible Content	Marking Period Taught
Review: Perimeter, Circumference, Area of Geometric Figures	CC.2.3.HS.A.3	MP1
Estimate perimeter, circumference, or area of an irregular geometric figure	G.2.2.2.1	MP1
Find the measurement of a missing length, given the perimeter circumference, or area of a geometric figure	G.2.2.2.2	MP1
Develop and/or use strategies to estimate the area of a compound/composite figure	G.2.2.2.4	MP1
Find the side lengths of a polygon with a given perimeter to maximize the area of the polygon	G.2.2.2.3	MP1
Describe how a change in the linear dimension of a geometric figure affects its perimeter, circumference, and area	G.2.2.3.1	MP1
Review: Simple Probability	G.2.2.4	MP1
Use area models to find probabilities of non-mutually exclusive events (Geometric Probability)	G.2.2.4.1	MP1
Find segment lengths	CC.2.3.HS.A.3	MP1
Find the length of a segment	CC.2.3.HS.A.3	MP1
Use the Segment Addition Postulate	CC.2.3.HS.A.3	MP1
Use the Protractor Postulate to measure an angle	CC.2.3.HS.A.3	MP1
Apply the Angle Addition Postulate to model and solve real-world and mathematical problems	CC.2.3.HS.A.3 CC.2.3.HS.A.14	MP1
Use congruent angles and congruent segments	CC.2.3.HS.A.3	MP1
Define vocabulary related to basic constructions	CC.2.3.HS.A.3	MP1
Find a midpoint	G.2.1.2.1	MP1
Find the distance	G.2.1.2.1	MP1
Connect algebra and geometry through coordinates by calculating the distance and midpoint between two points on a coordinate plane	G.2.1.2.3	MP1
Classify a triangle on the coordinate plane	G.2.1.2.3	MP1
Classify a parallelogram on the coordinate plane	G.2.1.2.3	MP1
Classify quadrilaterals as trapezoids and kites on the coordinate plane	G.2.1.2.3	MP1
Apply the Vertical Angles Theorem to model and solve real-world and mathematical problems	G.2.2.1.1 CC.2.3.HS.A.3 CC.2.3.HS.A.14	MP1
Justify the Vertical Angles Theorem, the Congruent Supplements Theorem, and/or the Congruent Complements Theorem	G.1.3.2.1 G.2.2.1.1	MP1

Performance Indicator	**PA Core Standard and/or Eligible Content**	**Marking Period Taught**
Identify angle pairs when parallel lines are intersected by a transversal	G.2.2.1.2	MP1
Explore angle relationships and find angle measures when parallel lines are intersected by a transversal	G.2.2.1.2	MP1
Justify angle relationships: Same-Side Interior Angles, Alternate Interior Angles, Corresponding Angles, Alternate Exterior Angles	G.1.3.2.1 G.2.2.1.2 CC.2.3.HS.A.3	MP1
Use parallel lines to show angle relationships	G.2.2.1.2	MP1
Apply angle relationships to model and solve real-world and mathematical problems	G.2.2.1.1 G.2.2.1.2 CC.2.3.HS.A.14	MP1
Understand angle relationships when lines are not parallel	G.2.2.1.1	MP1
Determine whether lines are parallel	G.2.2.1.2	MP1
Solve real-world and mathematical problems with parallel lines	G.2.2.1.2 CC.2.3.HS.A.14	MP1
Investigate the measures of triangle angles	G.1.2.1.1	MP1
Use the Triangle Angle-Sum Theorem	G.1.2.1.1 CC.2.3.HS.A.3	MP1
Apply the Triangle Exterior Angle Theorem	G.1.2.1.1 CC.2.3.HS.A.3	MP1
Apply the triangle theorems to model and solve real-world and mathematical problems	G.1.2.1.1 CC.2.3.HS.A.3 CC.2.3.HS.A.14	MP1
Find the slopes of parallel lines	G.2.1.2.2	MP1
Check parallelism and perpendicularity	G.2.1.2.2	MP1
Write equations of parallel and perpendicular lines	G.2.1.2.2	MP1
Marking Period 1 Review and Assessment		MP1
• Review and extend knowledge of Perimeter, Circumference, and Area		MP1
• Review and extend knowledge of Geometric Probability		MP1
• Review and extend knowledge of the Foundations of Geometry and Coordinate Geometry		MP1
• Review and extend knowledge of Parallel and Perpendicular Lines		MP1
Identify rigid motions	CC.2.3.HS.A.1 CC.2.3.HS.A.2	MP2
Reflect a figure across a line	CC.2.3.HS.A.1 CC.2.3.HS.A.2	MP2
Reflect a figure on a coordinate plane	CC.2.3.HS.A.1 CC.2.3.HS.A.2	MP2
Describe a reflection on the coordinate plane	CC.2.3.HS.A.1 CC.2.3.HS.A.2	MP2

Performance Indicator	**PA Core Standard and/or Eligible Content**	**Marking Period Taught**
Find the image of a translation	CC.2.3.HS.A.1 CC.2.3.HS.A.2	MP2
Write a translation rule	CC.2.3.HS.A.1 CC.2.3.HS.A.2	MP2
Compose translations	CC.2.3.HS.A.1 CC.2.3.HS.A.2	MP2
Relate translations and reflections	CC.2.3.HS.A.1 CC.2.3.HS.A.2	MP2
Draw rotations in the coordinate plane about the origin	CC.2.3.HS.A.1 CC.2.3.HS.A.2 CC.2.3.HS.A.4	MP2
Investigate reflections and rotations	CC.2.3.HS.A.1 CC.2.3.HS.A.2	MP2
Draw the image of a glide reflection/composition of transformation	CC.2.3.HS.A.1 CC.2.3.HS.A.2 CC.2.3.HS.A.4	MP2
Identify transformations for symmetry	CC.2.3.HS.A.1 CC.2.3.HS.A.2	MP2
Identify lines of symmetry	CC.2.3.HS.A.1 CC.2.3.HS.A.2	MP2
Identify rotational symmetry	CC.2.3.HS.A.1 CC.2.3.HS.A.2	MP2
Determine symmetries	CC.2.3.HS.A.1 CC.2.3.HS.A.2	MP2
Understand and determine congruence	G.1.3.1.1	MP2
Identify congruent figures	G.1.3.1.1	MP2
Apply congruence to model and solve real-world and mathematical problems	G.1.3.1.1 CC.2.3.HS.A.3 CC.2.3.HS.A.14	MP2
Understand angles of isosceles triangles	G.1.2.1.3	MP2
Solve real-world and mathematical problems using the Isosceles Triangle Theorem and the Converse of the Isosceles Triangle Theorem	G.1.2.1.3 CC.2.3.HS.A.3 CC.2.3.HS.A.14	MP2
Find angle measures in isosceles and equilateral triangles	G.1.2.1.3	MP2
Complete a two-column proof applying Side-Angle-Side (SAS) and Side-Side-Side (SSS) congruence	G.1.3.1.1 G.1.3.2.1 CC.2.3.HS.A.3	MP2
Determine congruent triangles: SAS, SSS	G.1.3.1.1 CC.2.3.HS.A.3	MP2
Complete a two-column proof applying Angle-Side-Angle (ASA) and Angle-Angle-Side (AAS) congruence	G.1.3.1.1 G.1.3.2.1 CC.2.3.HS.A.3	MP2
Determine congruent triangles: SAS, SSS, ASA, AAS	G.1.3.1.1 CC.2.3.HS.A.3	MP2

Performance Indicator	**PA Core Standard and/or Eligible Content**	**Marking Period Taught**
Identify corresponding parts in separate triangles	G.1.3.1 G.1.3.1.2	MP2
Use common parts of triangles	G.1.3.1.2	MP2
Find equidistant points	CC.2.3.HS.A.3	MP2
Apply the Perpendicular Bisector Theorem and its converse to model and solve real-world and mathematical problems	CC.2.3.HS.A.3 CC.2.3.HS.A.14	MP2
Find equidistant points from the sides of an angle	CC.2.3.HS.A.3	MP2
Apply the Angle Bisector Theorem and its converse to model and solve real-world and mathematical problems	CC.2.3.HS.A.3 CC.2.3.HS.A.14	MP2
Define and identify in triangles: Perpendicular Bisector, Circumcenter, Angle Bisector, Incenter	G.1.2.1.1	MP2
Identify the altitude and median in triangles	G.1.2.1.1	MP2
Find the length of the median	G.1.2.1.1	MP2
Investigate side and angle relationships in a triangle	G.1.2.1.1	MP2
Compare angles in a triangle using the Triangle Longer Side Theorem	G.1.3.1.1 CC.2.3.HS.A.3	MP2
Compare sides in a triangle using the Triangle Larger Angle Theorem	G.1.3.1.1 CC.2.3.HS.A.3	MP2
Apply the Triangle Inequality Theorem for one triangle to model and solve real-world and mathematical problems	G.1.2.1.1 CC.2.3.HS.A.3 CC.2.3.HS.A.14	MP2
Investigate side lengths in triangles	G.1.2.1.1	MP2
Apply the Hinge Theorem and its converse to model and solve real-world and mathematical problems	G.1.2.1.1 CC.2.3.HS.A.3 CC.2.3.HS.A.14	MP2
Mid-Term Review and Assessment		MP2
Review and extend knowledge of Perimeter, Circumference, and Area		MP2
Review and extend knowledge of Geometric Probability		MP2
Review and extend knowledge of the Foundations of Geometry and Coordinate Geometry		MP2
Review and extend knowledge of Parallel and Perpendicular Lines		MP2
Review and extend knowledge of Transformations		MP2
Review and extend knowledge of Triangle Congruence		MP2
Review and extend knowledge of Relationships in Triangles		MP2
Find the measure of the interior angle(s) of a polygon	G.1.2.1 CC.2.3.HS.A.3	MP3
Find the exterior angle measure(s) of a polygon	G.1.2.1 CC.2.3.HS.A.3	MP3

Performance Indicator	**PA Core Standard and/or Eligible Content**	**Marking Period Taught**
Apply the Polygon Interior Angle-Sum and Polygon Exterior Angle-Sum Theorems to model and solve real-world and mathematical problems	G.1.2.1.4 CC.2.3.HS.A.3 CC.2.3.HS.A.14	MP3
Investigate and use the diagonals of a kite	G.1.2.1.2	MP3
Explore parts of an isosceles trapezoid	G.1.2.1.2	MP3
Model and solve real-world and mathematical problems involving isosceles trapezoids	G.1.2.1.2 CC.2.3.HS.A.14	MP3
Apply the Triangle Midsegment Theorem to model and solve real-world and mathematical problems	G.1.2.1.2 CC.2.3.HS.A.3 CC.2.3.HS.A.14	MP3
Explore opposite sides and angle measures of a parallelogram	G.1.2.1.2	MP3
Use opposite sides and angle measures of a parallelogram to model and solve real-world and mathematical problems	G.1.2.1.2 CC.2.3.HS.A.14	MP3
Explore the diagonals of a parallelogram	G.1.2.1.2	MP3
Find unknown lengths in a parallelogram	G.1.2.1.2	MP3
Investigate sides to confirm a parallelogram	G.1.2.1.2	MP3
Explore angle measures to confirm a parallelogram	G.1.2.1.2	MP3
Find values to make parallelograms	G.1.2.1.2	MP3
Investigate diagonals to confirm a parallelogram	G.1.2.1.2	MP3
Identify a parallelogram	G.1.2.1.2	MP3
Find the diagonals of a rhombus	G.1.2.1.2	MP3
Find lengths and angle measures in a rhombus	G.1.2.1.2	MP3
Find diagonal lengths of a rectangle	G.1.2.1.2	MP3
Find diagonal and angle measures of a square	G.1.2.1.2	MP3
Use properties of rhombuses, rectangles, and squares to model and solve real-world and mathematical problems	G.1.2.1.2 CC.2.3.HS.A.14	MP3
Use diagonals to identify rhombuses	G.1.2.1.2	MP3
Use diagonals to identify rectangles	G.1.2.1.2	MP3
Identify special parallelograms	G.1.2.1.2	MP3
Use conditions of special parallelograms to model and solve real-world and mathematical problems	G.1.2.1.2 CC.2.3.HS.A.14	MP3
Determine if the dilation of a figure exists	G.1.3.1.2 CC.2.3.HS.A.1	MP3
Find a scale factor	G.1.3.1.2 CC.2.3.HS.A.1	MP3
Draw a dilation of a figure	G.1.3.1.2 CC.2.3.HS.A.1	MP3
Graph a composition of a rigid motion and a dilation	G.1.3.1.2 CC.2.3.HS.A.1 CC.2.3.HS.A.2 CC.2.3.HS.A.4	MP3

Performance Indicator	**PA Core Standard and/or Eligible Content**	**Marking Period Taught**
Determine similarity	G.1.3.1.1 G.1.3.1.2 CC.2.3.HS.A.6	MP3
Establish the Angle-Angle (AA), Side-Side-Side (SSS) and Side-Angle-Side (SAS)Similarity Theorems	G.1.3.1.1 G.1.3.1.2 CC.2.3.HS.A.6	MP3
Determine if triangles are similar	G.1.3.1.1 G.1.3.1.2 CC.2.3.HS.A.6	MP3
Find lengths in similar triangles	G.1.3.1.1 G.1.3.1.2	MP3
Explore proportions from parallel lines in triangles	G.1.2.1.1 G.1.3.1.2	MP3
Find lengths in triangles using the Side-Splitter and Triangle Midsegment Theorems	G.1.2.1.1 G.1.3.1.2 CC.2.3.HS.A.3	MP3
Find a length in a diagram with three parallel lines using the Corollary to the Side-Splitter Theorem	CC.2.3.HS.A.3	MP3
Use the Triangle Angle Bisector Theorem	G.1.2.1.1 CC.2.3.HS.A.3	MP3
Use the Pythagorean Theorem and its converse to model and solve real-world and mathematical problems involving right triangles	G.2.1.1.1	MP3
Find the side lengths of 45-45-90 and 30-60-90 triangles	G.2.1.1.1	MP3
Apply special right triangle relationships to model and solve real-world and mathematical problems	G.2.1.1 G.2.1.1.1	MP3
Marking Period 3 Review and Assessment		MP3
• Review and extend knowledge of Quadrilaterals and Other Polygons		MP3
• Review and extend knowledge of Similarity		MP3
• Review and extend knowledge of Right Triangles and the Pythagorean Theorem		MP3
Identify trigonometric ratios: Sine (Sin), Cosine (Cos), Tangent (Tan)	G.2.1.1.2	MP4
Write trigonometric ratios: Sin, Cos, Tan	G.2.1.1.2	MP4
Find trigonometric ratios of special angles: 30, 45, 60	G.2.1.1.2	MP4
Express cosine and sine in terms of congruent complements	G.2.1.1.2	MP4
Use trigonometric ratios to model and solve real-world and mathematical problems to find distances	G.2.1.1.2	MP4
Use trigonometric inverses to model and solve real-world and mathematical problems to find angle measures	G.2.1.1.2	MP4
Identify angles of elevation and angles of depression	G.2.1.1.2	MP4

Performance Indicator	**PA Core Standard and/or Eligible Content**	**Marking Period Taught**
Use angles of elevation and angles of depressions to model and solve real-world and mathematical problems	G.2.1.1.2	MP4
Use properties to relate central angles and arc measures	G.1.1.1.2	MP4
Use properties to relate arc length and circumference	CC.2.3.HS.A.8	MP4
Apply arc length of circles to model and solve real-world and mathematical problems	G.1.1.1.2 CC.2.3.HS.A.8 CC.2.3.HS.A.14	MP4
Relate the area of a circle to the area of a sector	G.2.2.2.5	MP4
Find the area of a segment of a circle	G.2.2.2.5	MP4
Model and solve real-world and mathematical problems involving circles	G.1.1.1.2 G.2.2.2.5 CC.2.3.HS.A.8 CC.2.3.HS.A.14	MP4
Understand the properties of a tangent to a circle	G.1.1.1.1 CC.2.3.HS.A.3	MP4
Use tangents to model and solve real-world and mathematical problems	G.1.1.1.1 G.1.1.1.3	MP4
Find lengths of segments tangent to a circle	G.1.1.1.1	MP4
Find measures involving tangent lines	G.1.1.1.3	MP4
Use properties of central angles and chords	G.1.1.1.3	MP4
Use properties of arcs and chords	G.1.1.1.1 G.1.1.1.3	MP4
Use properties of chords equidistant from the center	G.1.1.1.1	MP4
Model and solve real-world and mathematical problems involving chords of circles	G.1.1.1.1 G.1.1.1.3 CC.2.3.HS.A.14	MP4
Use properties to relate inscribed angles to intercepted arcs	G.1.1.1.2	MP4
Use the Inscribed Angles Theorem and its corollaries	G.1.1.1.2 CC.2.3.HS.A.3	MP4
Explore angles formed by a tangent and a chord	G.1.1.1.3	MP4
Use arc measures to model and solve real-world and mathematical problems involving circles	G.1.1.1.2 G.1.1.1.3 CC.2.3.HS.A.14	MP4
Use properties of secants and angle measures	G.1.1.1.3	MP4
Use secants and tangents to model and solve real-world and mathematical problems	G.1.1.1.3 CC.2.3.HS.A.14	MP4
Use chord length relationships	G.1.1.1.3	MP4
Use segment relationships of circles to model and solve real-world and mathematical problems to find lengths	G.1.1.1.1 G.1.1.1.2 G.1.1.1.3 CC.2.3.HS.A.14	MP4

Performance Indicator	**PA Core Standard and/or Eligible Content**	**Marking Period Taught**
Apply Euler's Formula to a polyhedron	G.2.3.2.1 CC.2.3.HS.A.3 CC.2.3.HS.A.13	MP4
Apply Cavalieri's Principle	G.2.3.1 CC.2.3.HS.A.3 CC.2.3.HS.A.13	MP4
Calculate the surface area of prisms, cylinders, cones, pyramids, and spheres.	G.2.3.1 G.2.3.1.1 CC.2.3.HS.A.13	MP4
Calculate the volume of prisms, cylinders, cones, pyramids, and spheres	G.2.3.1 G.2.3.1.2 CC.2.3.HS.A.13	MP4
Find the measurement of a missing length given the surface area or volume	G.2.3.1.3	MP4
Apply the concepts of surface area and volume of prisms, cylinders, cones, pyramids, and spheres to model and solve real-world and mathematical problems	G.2.3.1 CC.2.3.HS.A.3 CC.2.3.HS.A.13 CC.2.3.HS.A.14	MP4
Final Exam Review and Assessment		MP4
• Review and extend knowledge of Quadrilaterals and Other Polygons		MP4
• Review and extend knowledge of Similarity		MP4
• Review and extend knowledge of Right Triangles and the Pythagorean Theorem		MP4
• Review and extend knowledge of Trigonometry		MP4
• Review and extend knowledge of Circles		MP4
• Review and extend knowledge of Two- and Three-Dimensional Models		MP4

ASSESSMENTS

PDE Academic Standards, Assessment Anchors, and Eligible Content: The teacher must be knowledgeable of the PDE Academic Standards, Assessment Anchors, and Eligible Content and incorporate them regularly into planned instruction.

Formative Assessments: The teacher will utilize a variety of assessment methods to conduct in-process evaluations of student learning.

Effective formative assessments for this course include:
Suggested but not limited to:

- Pre-assessments of prior knowledge (e.g., Entrance cards or KWL chart)
- Bellringers/Problems of the Day (PODs)
- Discussions
- Exit ticket
- Teacher observations/Questioning
- Graphic organizers (e.g., Venn Diagrams, word mapping, webbing, KWL chart, etc.)
- Outlining
- Cooperative learning
- Written work
- Quizzes
- Oral response
- Self-evaluation
- Homework
- Summarizing
- Note-taking

Summative Assessments: The teacher will utilize a variety of assessment methods to evaluate student learning at the end of an instructional task, lesson, and/or unit.

Effective summative assessments for this course include:
Suggested but not limited to:

- Performance assessment
- Chapter/unit tests
- Quizzes
- Marking period assessments
- Mid-Term exam
- Final exam
- Projects
- Student presentations