**COURSE DESCRIPTION**

**Course Title:** Geometry College Preparatory

**Course Number:** 00250

**Course Prerequisites:** Recommended grade of 75% of higher in Algebra II CP or Honors Algebra II OR teacher recommendation from Algebra II or Algebra 1B.

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| **Course Description:** | Geometry College Preparatory is an academic course designed to provide an opportunity for students to reason mathematically. Throughout this class, students will learn about geometric shapes and structures and how to analyze their characteristics and relationships in order to solve problems. Study of two- and three-dimensional objects and their properties and measurements is the foundation of this course. Students will use these skills in representing and solving problems in other areas of mathematics and real-world situations. |

**Suggested Grade Level**: Grades 10-12

**Length of Course:** Two Semesters

**Units of Credit:** 1

**PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certifications:**

CSPG #50 Mathematics

To find the CSPG information, go to [CSPG](https://www.education.pa.gov/Educators/Certification/Staffing%20Guidelines/Pages/default.aspx)

**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**: 02072

To find the State Course Code, go to [State Course Code](https://nces.ed.gov/forum/sced.asp), download the Excel file for *SCED*, click on SCED 6.0 tab, and chose the correct code that corresponds with the course.

**TEXTBOOKS AND SUPPLEMENTAL MATERIALS**

**Board Approved Textbooks, Software, and Materials:**

**Title:**  envision Geometry

**Publisher:** Pearson

**ISBN #:**  978-0-328-93155-2

**Copyright Date:** 2018

**WCSD Board Approval Date:** 6/29/2020

**Supplemental Materials:** KutaSoftware.com

**Curriculum Document**

**WCSD Board Approval:**

**Date Finalized:** 6/5/2020

**Date Approved:**  6/29/2020

**Implementation Year:** 2020-2021

**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, CONCEPTS, AND SKILLS**

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| --- | --- | --- |
| **Performance Indicator** | **PA Core Standard and/or Eligible Content** | **Month Taught and Assessed for Mastery** |
| Name and describe undefined and defined terms. (Perpendicular & angle bisector) | G-CO.1, A-CED.1, G-CO.12 | August  September |
| Find segment lengths. | G-CO.1, A-CED.1 | August  September |
| Use the Segment Addition Postulate. | G-CO.1, A-CED.1 | August  September |
| Use the Protractor Postulate to measure an angle. | G-CO.1, A-CED.1 | August  September |
| Use the Angle Addition Postulate to solve problems. | G-CO.1, A-CED.1 | August  September |
| Identity and use congruent angles and congruent segments. | G-CO.1, A-CED.1 | August  September |
| Measure segments and angles. | G-CO.1, A-CED.1 | August  September |
| Define and identify perpendicular bisectors. | G-CO.1, A-CED.1 | August  September |
| Define and identify angle bisectors. | G-CO.1, A-CED.1 | August  September |
| Solve real-world problems measuring segments and angles | G-CO.1, A-CED.1 | August  September |
| Use the Midpoint Formula. | G-GPE.6 | August  September |
| Find the midpoint. | G-GPE.6 | August  September |
| Partition a segment. | G-GPE.6 | August  September |
| Derive the Distance Formula. | G-GPE.6 | August  September |
| Find the distance. | G-GPE.6 | August  September |
| Use and apply the vertical angles, congruent supplements, congruent complements, right angles, and linear pairs theorems. | G-CO.9, A-REI.1 | August  September |
| Identify pairs of angles formed by parallel lines and transversals. | G-CO.9, A-REI.1 | September  October |
| Find angle measures created by parallel lines and transversals. | G-CO.9, A-REI.1 | September  October |
| Justify lines are parallel. | G-CO.9, G-CO.10, G-MG.3 | September  October |
| Find angle measures. | G-CO.1, G-CO.9 | September  October |
| Apply the transitive property of parallel lines. | G-CO.9, G-CO.10, G-MG.3 | September  October |
| Solve problems with parallel lines. | G-CO.9, G-CO.10, G-MG.3 | September  October |
| Apply the Triangle Angle-Sum and Triangle Exterior Angle Theorems. | HSG-CO.9, G-CO.10 | September  October |
| Use slope to solve problems about parallel and perpendicular lines. | G-GPE.5 | September  October |

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| Write equations of parallel and perpendicular lines. | G-GPE.5 | September  October |
| Application of parallel and perpendicular lines. | G-GPE.5 | September  October |
| Identify rigid motion. | G-CO.4, G-CO.5, G-CO.2 | October  November |
| Perform, describe, and use reflections. | G-CO.4, G-CO.5, G-CO.2 | October  November |
| Perform, describe, and use translations. | G-CO.4, G-CO.5, G-CO.2 | October  November |
| Perform, describe, and use rotations. | G-CO.4, G-CO.5, G-CO.2 | October  November |
| Classify and perform rigid motions. | G-CO.4, G-CO.5, G-CO.2 | October  November |
| Identify and perform symmetries. | G-CO.4, G-CO.5, G-CO.2 | October  November |
| Apply transformations. | G-CO.4, G-CO.5, G-CO.2, G-CO.6 | October  November |
| Understand, verify, and identify congruence in figures. | G-CO.4, G-CO.5, G-CO.2 | October  November |
| Describe congruence as a composition of rigid motion. | G-CO.4, G-CO.5, G-CO.2 | October  November |
| Apply theorems about isosceles and equilateral triangles to solve problems. | G-CO.10, G-SRT.5 | October  November |
| Use SAS, SSS, ASA and AAS to determine whether triangles are congruent. | G-CO.8, G-SRT.5 | November  December |
| Use HL to determine whether triangles are congruent. | G-CO.8, G-SRT.5 | November  December |
| Use CPCTC. | G-CO.8, G-SRT.5 | November  December |
| Use triangle congruence to solve problems with overlapping triangles. | G-CO.8, G-SRT.5 | November  December |
| Apply theorems of triangles congruence to solve problems. | G-CO.8, G-SRT.5 | November  December |
| Find equidistant points. | G-CO.9  A-REI.3 | November  December |
| Use perpendicular and angle bisectors to solve problems. | G-CO.10  A-REI.3 | December  January |
| Use triangle bisectors to solve problems. | G-CO.10  A-REI.3 | December  January |
| Identify and investigate circumscribed circles and inscribed circles. | G-CO.10  A-REI.3 | December  January |
| Find the points of concurrency for the medians of a triangle and the altitudes of a triangle. | G-SRT.5, G-C0.10, G-GPE.5, A-REI.6, A-REI.10 | December  January |
| Apply theorems to compare the sides and angles in one triangle. | G-CO.10  A-REI.3 | December  January |
| Use the Triangle Inequality Theorem. | G-CO.10  A-REI.3 | December  January |
| Investigate side lengths in two triangles. | G-SRT.5, G-C0.10, G-GPE.5, A-REI.6, A-REI.10 | December  January |
| Apply the Hinge Theorem and Converse of the Hinge Theorem. | G-CO.10  A-REI.3 | December  January |
| Apply relationship theorems of triangles to solve problems. | G-CO.10  A-REI.3 | December  January |
| Find the sums of the measures of the exterior angles and interior angles of polygons. | G-CO.10  A-REI.3 | December  January |
| Find an exterior angle and interior angle measure. | G-CO.10  A-REI.3 | December  January |
| Apply triangle congruence to understand kites and trapezoids. | B.3, B.7, B.8 | January  February |
| Use properties of kites. | B.3, B.7, B.8 | January  February |
| Use properties of trapezoids and isosceles trapezoids. | B.3, B.7, B.8 | January  February |
| Apply the Trapezoid Midsegment Theorem. | B.3, B.7, B.8 | January  February |
| Use properties of parallel lines, diagonals, and triangles to investigate parallelograms and find side lengths and angle measures. | C.11 , B.5 | January  February |
| Use properties of sides, angles, and diagonals to identify and verify a parallelogram. | C.11 , B.5 | January  February |
| Identify and use properties of rhombuses, rectangles, and squares to solve problems. | C.11 , B.5 | January  February |
| Find segment lengths and angle measures of rhombuses, rectangles, and squares. | C.11, B.5, B.3 | January  February |
| Identify rhombuses, rectangles, and squares by the characteristics of their diagonals. | C.11, B.5, B.3 | January  February |
| Solve real-life problems with quadrilaterals, parallelograms, rhombuses, rectangles, and squares. | C.11, B.5, B.3 | January  February |
| Dilate figures and identify characteristics of dilations. | A.1, A.2, A.5 | February  March |
| Find a scale factor. | A.1, A.2, A.5 | February  March |
| Determine whether figures are similar. | A.1, A.2, A.5, B.5 | February  March |
| Prove triangles similar with AA~, SSS~, and SAS~ Theorems. | A.3, B.5 | February  March |
| Verify Triangle Similarity. | A.3, B.5 | February  March |
| Find lengths in similar triangles. | A.3, B.5 | February  March |
| Solve problems involving similar triangles. | A.3, B.5 | February  March |
| Use similarity and geometric mean to solve problems | A.3, B.5 | February  March |
| Explore proportions from parallel lines in triangles. | G-CO.10  G-SRT.4 | February  March |
| Use and apply the Side-Splitter, Triangle Midsegment, and Triangle-Angle-Bisector Theorems. | G-CO.10  G-SRT.4 | February  March |
| Explore proportionality with angle bisectors. | G-CO.10  G-SRT.4 | February  March |
| Use the Pythagorean Theorem and its Converse. | G-SRT.4  G-SRT.8, G-SRT.5 | March  April |
| Explore side lengths in 45-45-90 and 30-60-90 triangles. | G-SRT.4  G-SRT.8, G-SRT.5 | March  April |
| Apply special right triangle relationships to solve problems. | G-SRT.4  G-SRT.8, G-SRT.5 | March  April |
| Identify the trigonometric ratios. | G-SRT.4  G-SRT.8, G-SRT.5 | March  April |
| Understand the trigonometric ratios using similarity. | G-SRT.4  G-SRT.8, G-SRT.5 | March  April |
| Write trigonometric ratios. | G-SRT.4  G-SRT.8, G-SRT.5 | March  April |
| Identify trigonometric ratios of special angles. | G-SRT.4  G-SRT.8, G-SRT.5 | March  April |
| Solve problems involving the trigonometric ratios. | G-SRT.4  G-SRT.8, G-SRT.5 | March  April |
| Use trigonometric inverses to find angle measures. | G-SRT.7  G-SRT.8 | March  April |
| Explore the sine ratios using and applying the Law of Sines. | G-SRT.8  G-SRT.10 | March  April |
| Explore the cosine ratios using and applying the Law of Cosines. | G-SRT.8  G-SRT.10 | March  April |
| Identify and use the angles of elevation and depression. | G-SRT.7  G-SRT.8 | March  April |
| Use trigonometry to find triangle area and problem solve. | G-SRT.9 | March  April |
| Relate central angles and arc measures in circles. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Relate arc length to circumference. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Apply arc length. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Relate the area of a circle to the area of a sector. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Find the area of a segment of a circle. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Solve problems involving circles. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Understand tangents to a circle. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Use tangents to solve problems. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Find lengths of segments tangent to a circle. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Find measures involving tangent lines. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Relate central angles and chords. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Relate arcs and chords. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Relate chords equidistant from the center. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Solve problems involving chords of a circles. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Relate inscribed angles to intercepted arcs. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Use the inscribed angles theorem and its corollaries. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Explore angles formed by a tangent and a chord. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Use arc measure to problem solve. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Relate secants and angle measures. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Use secants and tangents to solve problems. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Develop chord length relationships. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Use segment relationships to find lengths. | G-C.1, G-C.2, G-C.3, G-C.4, G-C.5, G-CO.1 | April  May |
| Develop and apply Euler’s Formula. | G-GMD.1, G-GMD.2, G-GMD.3, G-GMD.4, G-MG.1, G-MG.2 | May  June |
| Find the volumes of prisms and cylinders. | G-GMD.1, G-GMD.2, G-GMD.3, G-GMD.4, G-MG.1, G-MG.2 | May  June |
| Apply the volumes of prisms and cylinders to solve problems. | G-GMD.1, G-GMD.2, G-GMD.3, G-GMD.4, G-MG.1, G-MG.2 | May  June |
| Solve density problems. | G-GMD.1, G-GMD.2, G-GMD.3, G-GMD.4, G-MG.1, G-MG.2 | May  June |
| Find the volume of pyramids and cones. | G-GMD.1, G-GMD.2, G-GMD.3, G-GMD.4, G-MG.1, G-MG.2 | May  June |
| Apply the volume of pyramids and cones to solve problems. | G-GMD.1, G-GMD.2, G-GMD.3, G-GMD.4, G-MG.1, G-MG.2 | May  June |
| Find the measure of a composite figure. | G-GMD.1, G-GMD.2, G-GMD.3, G-GMD.4, G-MG.1, G-MG.2 | May  June |
| Find the volumes of spheres, hemispheres, and composite figures. | G-GMD.1, G-GMD.2, G-GMD.3, G-GMD.4, G-MG.1, G-MG.2 | May  June |
| Use the volumes of spheres, hemispheres, and composite figures to solve problems. | G-GMD.1, G-GMD.2, G-GMD.3, G-GMD.4, G-MG.1, G-MG.2 | May  June |

**ASSESSMENTS**

**PSSA 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: Bell-Ringers, Quizzes, Quizzlet, Exit Tickets, Pre-assessments, Observations, Cooperative Learning, Written Work, Oral Response, Self-Evaluation, and Homework

**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, and Projects