**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:** [x] Yes [ ] No

**WCSD STUDENT DATA SYSTEM INFORMATION**

**Course Level:** Academic

**Mark Types:** Check all that apply.

[x] F – Final Average [x] MP – Marking Period [x] EXM – Final Exam

**GPA Type**: [ ]  GPAEL-GPA Elementary [ ]  GPAML-GPA for Middle Level [x]  NHS-National Honor Society

[x]  UGPA-Non-Weighted Grade Point Average [x]  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 | AugustSeptember |
| Find segment lengths. | G-CO.1, A-CED.1 | AugustSeptember |
| Use the Segment Addition Postulate. | G-CO.1, A-CED.1 | AugustSeptember |
| Use the Protractor Postulate to measure an angle. | G-CO.1, A-CED.1 | AugustSeptember |
| Use the Angle Addition Postulate to solve problems. | G-CO.1, A-CED.1 | AugustSeptember |
| Identity and use congruent angles and congruent segments. | G-CO.1, A-CED.1 | AugustSeptember |
| Measure segments and angles. | G-CO.1, A-CED.1 | AugustSeptember |
| Define and identify perpendicular bisectors. | G-CO.1, A-CED.1 | AugustSeptember |
| Define and identify angle bisectors. | G-CO.1, A-CED.1 | AugustSeptember |
| Solve real-world problems measuring segments and angles | G-CO.1, A-CED.1 | AugustSeptember |
| Use the Midpoint Formula. | G-GPE.6 | AugustSeptember |
| Find the midpoint. | G-GPE.6 | AugustSeptember |
| Partition a segment. | G-GPE.6 | AugustSeptember |
| Derive the Distance Formula. | G-GPE.6 | AugustSeptember |
| Find the distance. | G-GPE.6 | AugustSeptember |
| Use and apply the vertical angles, congruent supplements, congruent complements, right angles, and linear pairs theorems. | G-CO.9, A-REI.1 | AugustSeptember |
| Identify pairs of angles formed by parallel lines and transversals. | G-CO.9, A-REI.1 | SeptemberOctober |
| Find angle measures created by parallel lines and transversals. | G-CO.9, A-REI.1 | SeptemberOctober |
| Justify lines are parallel. | G-CO.9, G-CO.10, G-MG.3 | SeptemberOctober |
| Find angle measures. | G-CO.1, G-CO.9 | SeptemberOctober |
| Apply the transitive property of parallel lines. | G-CO.9, G-CO.10, G-MG.3 | SeptemberOctober |
| Solve problems with parallel lines. | G-CO.9, G-CO.10, G-MG.3 | SeptemberOctober |
| Apply the Triangle Angle-Sum and Triangle Exterior Angle Theorems. | HSG-CO.9, G-CO.10 | SeptemberOctober |
| Use slope to solve problems about parallel and perpendicular lines. | G-GPE.5 | SeptemberOctober |

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

**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