**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 either Algebra 1CP or Algebra II CP with an average between 60% and 70%.

|  |  |
| --- | --- |
| **Course Description:** | This 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. |

**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:**

Mathematics (7 – 12) Mathematics CSPG #50

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**: 02071

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 #:**  9780328937639

**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**

|  |  |  |
| --- | --- | --- |
| **Performance Indicator** | **PA Core Standard and/or Eligible Content** | **Month Taught and Assessed for Mastery** |
| Find Segment Lengths | G-CO.1, A-CED.1 | August  September |
| Find the Length of a Segment | 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 |
| Use Congruent Angles and Congruent Segments | G-CO.1, A-CED.1 | August  September |
| Define Vocabulary Related to Basic Constructions | G-CO.12 | August  September |
| Find a Midpoint | G-GPE.6 | August  September |
| Derive the Distance Formula | G-GPE.6 | August  September |
| Find the Distance | G-GPE.6 | August  September |
| Apply Vertical Angles Theorem | G-CO.9, A-REI.1 | September  October |
| Identify Angle Pairs | G-CO.1, G-CO.9 | September  October |
| Explore Angle Relationships | G-CO.1, G-CO.9 | September  October |
| Find Angle Measures | G-CO.1, G-CO.9 | September  October |
| Understand Angle Relationships | G-CO.9, G-CO.10, G-MG.3 | September  October |
| Determine Whether Lines are Parallel | G-CO.9, G-CO.10, G-MG.3 | September  October |
| Solve a Problem With Parallel Lines | G-CO.9, G-CO.10, G-MG.3 | September  October |
| Investigate the Measures of Triangle Angles | HSG-CO.9, G-CO.10 | September  October |
| Use the Triangle Angle Sum Theorem | HSG-CO.9, G-CO.10 | September  October |
| Apply the Triangle Exterior angle Theorem | HSG-CO.9, G-CO.10 | September  October |
| Apply the Triangle Theorems | HSG-CO.9, G-CO.10 | September  October |
| Find Slopes of Parallel Lines | G-GPE.5 | September  October |
| Check Parallelism | G-GPE.5 | September  October |
| Check Perpendicularity | G-GPE.5 | September  October |
| Write Equations of Parallel and Perpendicular Lines | G-GPE.5 | September  October |
| Identify Rigid Motions | G-CO.4, G-CO.5, G-CO.2 | October  November |
| Reflect a Figure Across a Line | G-CO.4, G-CO.5, G-CO.2 | October  November |
| Reflect a Figure on a Coordinate Plane | G-CO.4, G-CO.5, G-CO.2 | October  November |
| Describe a Reflection on the Coordinate Plane | G-CO.4, G-CO.5, G-CO.2 | October  November |
| Use Reflections | G-CO.4, G-CO.5, G-CO.2 | October  November |
| Find the Image of a Translation | G-CO.4, G-CO.5, G.CO.2 | October  November |
| Write a Translation Rule | G-CO.4, G-CO.5, G.CO.2 | October  November |
| Compose Translations | G-CO.4, G-CO.5, G.CO.2 | October  November |
| Relate Translations and Reflections | G-CO.4, G-CO.5, G.CO.2 | October  November |
| Draw Rotations in the Coordinate Plane | G-CO.4, G-CO.5 | October  November |
| Use Rotations | G-CO.4, G-CO.5 | October  November |
| Investigate Reflections and Rotations | G-CO.4, G-CO.5 | October  November |
| Explore Glide Reflections | G-CO.4, G-CO.5, G-CO.2 | October  November |
| Find the Image of a Glide Reflection | G-CO.5, G-CO.6 | October  November |
| Determine a Glide Reflection | G-CO.5, G-CO.6 | October  November |
| Identify Transformations for Symmetry | G-CO.3, G-CO.6 | October  November |
| Identify Lines of Symmetry | G-CO.3, G-CO.6 | October  November |
| Identify Rotational Symmetry | G-CO.3, G-CO.6 | October  November |
| Determine Symmetries | G-CO.3, G-CO.6 | October  November |
| Use Symmetry | G-CO.3, G-CO.6 | October  November |
| Understand Congruence | G-CO.4, G-CO.5, G-CO.2 | November  December |
| Verify Congruence | G-CO.5, G-CO.6 | November  December |
| Identify Congruent Figures | G-CO.5, G-CO.6 | November  December |
| Determine Congruence | G-CO.5, G-CO.6 | November  December |
| Apply Congruence | G-CO.5, G-CO.6 | November  December |
| Understand Angles of Isosceles Triangles | G-CO.10, G-SRT.5 | November  December |
| Use the Isosceles Triangle Theorem | G-CO.10, G-SRT.5 | November  December |
| Use the Converse of the Isosceles Triangle Theorem | G-CO.10, G-SRT.5 | December  November |
| Use Perpendicular Bisectors to Solve Problems | G-CO.10, G-SRT.5 | November  December |
| Show That Equilateral Triangles are Equiangular | G-CO.10, G-SRT.5 | November  December |
| Find Angle Measures in Isosceles and Equilateral Triangles | G-CO.10, G-SRT.5 | November  December |
| Explore the Side-Angle-Side Congruence Criterion | G-CO.8 | November  December |
| Apply the SAS Congruence Criterion | G-CO.8 | November  December |
| Explore the Side-Side-Side Congruence Criterion | G-CO.8 | November  December |
| Determine Congruent Triangles | G-CO.8 | November  December |
| Explore the ASA Congruence Criterion | G-CO.8, G-SRT.5 | November  December |
| Apply the ASA Congruence Criterion | G-CO.8, G-SRT.5 | November  December |
| Investigate the AAS Congruence Criterion | G-CO.8, G-SRT.5 | November  December |
| Use Triangle Congruence Criteria | G-CO.8, G-SRT.5 | November  December |
| Determine Congruent Polygons | G-CO.8, G-SRT.5 | November  December |
| Investigate Right Triangle Congruence | G-CO.10, G-SRT.5 | November  December |
| Use the Hypotenuse-Leg Theorem | G-CO.10, G-SRT.5 | November  December |
| Identify Corresponding Parts in Triangles | G-CO.10, G-SRT.5 | November  December |
| Use Common Parts of Triangles | G-CO.10, G-SRT.5 | November  December |
| Find equidistant points | G-CO.9  A-REI.3 | December  January |
| Use perpendicular bisector | G-CO.9  A-REI.3 | December  January |
| Apply the Perpendicular Bisector Theorem | G-CO.9  A-REI.3 | December  January |
| Find equidistant points from the sides of a angle | G-CO.9  A-REI.3 | December  January |
| Apply the Angle Bisector Theorem | G-CO.9  A-REI.3 | December  January |
| Identify special segments in triangles | G-SRT.5, G-C0.10, G-GPE.5, A-REI.6, A-REI.10 | December  January |
| Find length of a median | G-SRT.5, G-C0.10, G-GPE.5, A-REI.6, A-REI.10 | December  January |
| Investigate side and angle relationships | G-CO.10  A-REI.3 | December  January |
| Use the Triangle Longer Side Theorem | G-CO.10  A-REI.3 | December  January |
| Use the Triangle Larger Angle Theorem | 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 triangles | G-CO.10  A-REI.3 | December  January |
| Apply the Hinge Theorem | G-CO.10  A-REI.3 | December  January |
| Apply the Converse of the Hinge Theorem | G-CO.10  A-REI.3 | December  January |
| Explore polygon interior angle sums | G-SRT.5 | January  February |
| Apply the Polygon Interior Angle-Sum Theorem | G-SRT.5 | January  February |
| Understand exterior angle measures of a polygon | G-SRT.5 | January  February |
| Find an exterior angle measure | G-SRT.5 | January  February |
| Find the measures of interior angles | B.5, B.3 | January  February |
| Investigate the diagonals of a kite | B.3, B.7, B.8 | January  February |
| Use the diagonals of a kite | B.3, B.7, B.8 | January  February |
| Explore parts of an isosceles trapezoid | B.3, B.7, B.8 | January  February |
| Solve problems involving isosceles trapezoid | B.3, B.7, B.8 | January  February |
| Apply the Trapezoid Midsegment Theorem | B.3, B.7, B.8 | January  February |
| Explore opposite sides of parallelograms | C.11 , B.5 | January  February |
| Use opposite sides of parallelograms | C.11 , B.5 | January  February |
| Explore angle measures in parallelograms | C.11 , B.5 | January  February |
| Use angles of a parallelogram | C.11 , B.5 | January  February |
| Explore the diagonals of a parallelogram | C.11 , B.5 | January  February |
| Find unknown lengths in a parallelogram | C.11 , B.5 | January  February |
| Investigate sides to confirm a parallelogram | C.11, B.5 | January  February |
| Explore angle measures to confirm a parallelogram | C.11, B.5 | January  February |
| Find values to make parallelogram | C.11, B.5 | January  February |
| Investigate diagonals to confirm a parallelogram | C.11, B.5 | January  February |
| Identify a parallelogram | C.11, B.5 | January  February |
| Verify a parallelogram | C.11, B.5 | January  February |
| Find diagonals of a rhombus | C.11, B.5, B.3 | January  February |
| Find lengths and angle measures in a rhombus | C.11, B.5, B.3 | January  February |
| Find diagonal lengths of a rectangle | C.11, B.5, B.3 | January  February |
| Find diagonals and angles measures of a square | C.11, B.5, B.3 | January  February |
| Use diagonals to identify rhombuses | C.11, B.5 | January  February |
| Use diagonals to identify rectangles | C.11, B.5 | January  February |
| Identify special parallelograms | C.11, B.5 | January  February |
| Use properties of special parallelograms | C.11, B.5 | January  February |
| Apply properties of special parallelograms | C.11, B.5 | January  February |
| Dilate a figure | A.1, A.2, A.5 | February  March |
| Analyze dilations | A.1, A.2, A.5 | February  March |
| Find a scale factor | A.1, A.2, A.5 | February  March |
| Dilate a figure with the center at the origin | A.1, A.2, A.5 | February  March |
| Use scale factor to find length and area | A.1, A.2, A.5 | February  March |
| Graph a composition of a rigid motion and a dilation | A.1, A.2, A.5 | February  March |
| Describe a composition of a rigid motion and a dilation | A.1, A.2, A.5 | February  March |
| Find similarity transformations | A.1, A.2, A.5 | February  March |
| Define similarity | A.1, A.2, A.5 | February  March |
| Establish the AA Similarity Theorem | A.3, B.5 | February  March |
| Establish the SSS~ Similarity Theorem | 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 |
| Explore proportions from parallel lines | G-CO.10  G-SRT.4 | February  March |
| Use the Side-Splitter Theorem | G-CO.10  G-SRT.4 | February  March |
| Find a length using the Side-Splitter Theorem | G-CO.10  G-SRT.4 | February  March |
| Use Pythagorean Theorem and its converse | G-SRT.4  G-SRT.8, G-SRT.5 | March  April |
| Investigate side lengths in 45-45-90 triangles | G-SRT.4  G-SRT.8, G-SRT.5 | March  April |
| Explore side lengths in a 30-60-90 triangle | G-SRT.4  G-SRT.8, G-SRT.5 | March  April |
| Apply special right triangle relationships | G-SRT.4  G-SRT.8, G-SRT.5 | March  April |
| Understand trigonometric ratios using similarity | G-SRT.6  G-SRT.7, G-SRT.8 | March  April |
| Write trigonometric ratios | G-SRT.6  G-SRT.7, G-SRT.8 | March  April |
| Find trigonometric ratios of special angles (30, 45, 60) | G-SRT.6  G-SRT.7, G-SRT.8 | March  April |
| Use trigonometric ratios to find distances | G-SRT.6  G-SRT.7, G-SRT.8 | March  April |
| Use trigonometric ratios to find angle measures | G-SRT.6  G-SRT.7, G-SRT.8 | March  April |
| Identify angles of elevation and depression | G-SRT.7  G-SRT.8 | March  April |
| Use angles of elevation and depression | G-SRT.7  G-SRT.8 | March  April |
| Use trigonometry to solve problems | G-SRT.7  G-SRT.8 | 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, Exit Ticket, Cooperative Learning, Pre-assessments, Observations, Written Work, Quizzes, 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 Assessments, Chapter/Unit Tests, and Projects