Geometry (9200) Course Overview Curriculum Document

Course Description

This course is the exploration and investigation of various geometric shapes and their properties based on the use of transformations. Students will use geometric models to solve problems by making claims, providing evidence, and justifying their reasoning. An emphasis is placed on presenting convincing arguments using a variety of practical techniques.

Credits	Prerequisites
1	Algebra 1 or Algebra 1A & 1B

Board Approved	Revised
April 1998	June 2007, April 2016, June 2022, June 2023

Required Assessments

Semester 1	Semester 2
• Geometry Summative 1.1: Rigid Transformations: Standard 1 • Geometry Summative 1.2: Coordinate Geometry: Standard 2 • Geometry Summative 2.1: Circles: Standard 4 • Geometry Summative 2.2: Similarity and Right Triangles: Standard 3 • Geometry Summative 2.3: Coordinate Geometry: Standard 2	• Geometry Summative 3.1: Coordinate Geometry: Standard 2 • Geometry Summative 3.2: Similarity and Right Triangles: Standard 3 • Geometry Summative 3.3: Similarity and Right Triangles: Standard 3 • Geometry Summative 3.3: Similarity and Right Triangles: Standard 3 • Geometry Summative 4.1: Spatial Reasoning: Standard 5 • Geometry Summative 4.2: Spatial Reasoning: Standard 5

Textbooks/Resources

Kennedy, D., Milou, E., Thomas, C. D., Zbiek, R. M., & Cuoco, A. (2024). *enVision Geometry*. Paramus, NJ: Savvas Learning Company.

Course Essential Understandings	Course Relevance Question(s)
As a result of successfully completing this course, students will understand • Geometric properties are used to justify claims with evidence and reasoning. • Formulas, precise measurements, and choosing the correct tools are essential for real life situations and careers. • Create effective solutions to problems and persevere through the process.	• How can we use evidence to determine the best model to represent geometric properties in everyday critical thinking situations?

Unit Overviews

Unit Name	Unit Description	Unit Relevance Question	Instructional Standards	Assessed Standards
Unit #1 - Building Blocks of Geometry	Students will build foundational knowledge and vocabulary for the rest of the course where they will learn to logically draw conclusions that are based on claims, evidence, and reasoning. They will develop an understanding that all figures evolve from points, lines, and planes, and relate prior algebraic concepts to geometry.	• How do points, lines, and planes work together to create other geometric objects? • How can you use evidence and reasoning to justify your claims? • How do objects preserve congruence as they move in the coordinate plane? • What information can we gather about lines and shapes using slope?	**Standard 1: Rigid Transformations** M.G.CO.A.4 M.G.CO.C.9 M.G.CO.D.12 **Embedded:** M.G.GMD.C.4	**Standard 1: Rigid Transformations** M.G.CO.A.1 M.G.CO.A.2 M.G.CO.A.3 M.G.CO.A.5 **Standard 2: Coordinate Geometry** M.G.GPE.B.5
Unit #2- Geometric Relationships of 2D Figures	Students will explore angle, line, and line segment relationships of different two-dimensional shapes.	• How do radii, diameters, chords, and tangent lines connect to arc and angle measures? • How can we use side lengths and angle measures to determine types of triangles? • What properties differentiate between the types of special quadrilaterals? • How can you use independence and conditional probability to interpret data?	**Standard 1: Rigid Transformations** M.G.CO.C.9 M.G.CO.C.10 M.G.CO.C.11 M.G.CO.D.12 M.G.CO.D.13 **Standard 2: Coordinate Geometry** M.G.GPE.A.1 **Standard 5: Spatial Reasoning** M.SP.CP.A.1 M.SP.CP.A.2 M.SP.CP.A.3 M.SP.CP.A.4 M.SP.CP.A.5 Embedded: M.G.GMD.C.4	**Standard 2: Coordinate Geometry** M.G.GPE.B.4 **Standard 3: Similarity and Right Triangles** M.G.SRT.C.8 **Standard 4: Circles** M.G.C.A.1
Unit #3 - Similarity	Students will connect the concept of dilation and scale factor to prove objects similar. Students will see that congruence is a special case of similarity where the scale factor is 1. Students will explore the trigonometric ratios as it relates to similar triangles. Students will use claims, evidence, and reasoning to determine if two triangles satisfy triangle congruence and similarity theorems. Students will use scale factor to solve problems involving proportionality.	• What determines similarity? • How do you solve a triangle? • What determines congruence?	**Standard 1: Rigid Transformations** M.G.CO.B.8 **Standard 2: Coordinate Geometry** M.G.GPE.B.6	**Standard 1: Rigid Transformations** M.G.CO.A.2 M.G.CO.B.6 M.G.CO.B.7

			Standard 3: Similarity and Right Triangles M.G.SRT.A.1 M.G.SRT.A.3 M.G.SRT.B.4 M.G.SRT.C.6 Embedded: M.G.GMD.C.4	Standard 3: Similarity and Right Triangles M.G.SRT.A.2 M.G.SRT.B.5 M.G.SRT.C.7 M.G.SRT.C.8
Unit #4 - Spatial Measurement	Students will explore perimeter, area, and volume of complex figures by developing these concepts from simple shapes rather than memorizing formulas. For example, areas of polygons will be developed through the use of triangulation, surface area through nets, and volume developed from base area.	• How can you tell when to use perimeter, area, surface area, or volume when solving a problem? • How can you use the rules of probability to compute probabilities of compound events in a uniform probability model?	Standard 2: Coordinate Geometry M.G.GPE.B.7 Standard 5: Spatial Reasoning M.G.CO.A.1 M.G.GMD.A.1 M.G.GMD.B.3 M.SP.CP.B.6 M.SP.CP.B.7 Embedded: M.G.GMD.C.4 M.G.GMD.C.5 M.G.GMD.C.6	Standard 5: Spatial Reasoning M.G.C.B.2 M.G.SRT.C.8 M.G.GMD.A.2