

\* **Subject Area:** Mathematics

\* **Category:**

\* **Grade Level  
for which this  
course has been  
designed:**

9  10  11  12

\* **Unit Value:** 1.0 (one year, 2 semesters, or 3 trimesters equiv.)

\* **Is this course classified as a Career Technical Education:** No

#### \* **Brief Course Description**

Geometry is the study of points, lines and areas in a single plane with extensions into three-dimensional space. Students in this course will study two and three dimensional geometric figures and their properties, geometric constructions, deduction and induction, making conjectures, drawing conclusions, and development of formal, logical proofs. Students need to have a strong foundation in algebraic concepts.

#### **Pre-Requisites**

A grade of "C" or better in Algebra 1 - Required

#### **Co-Requisites**

#### **Context for Course (optional)**

#### **History of Course Development (optional)**

**Textbooks****TEXTBOOK 1**

\* **Title:** Geometry

\* **Edition:** CA

\*  
**Publication Date:** 2010

\*  
**Publisher:** Glencoe

\*  
**Author(s):** Barker et al.

**URL Resource:**

\* **Usage:** Primary Text

Read in entirety or near entirety

**TEXTBOOK 2**

\* **Title:** Geometry

\* **Edition:** CA-3rd

\*  
**Publication Date:** 2008

**TEXTBOOK 2**

**\* Publisher:** Prentice Hall

**\* Author(s):** Bass et al.

**URL  
Resource:**

**\* Usage:** Primary Text

Read in entirety or near entirety

**TEXTBOOK 3**

**\* Title:** Geometry

**\* Edition:** CA

**\*  
Publication  
Date:** 2007

**\*  
Publisher:** McDougal-Littell

**\*  
Author(s):** Larson et al.

**URL  
Resource:**

**\* Usage:** Primary Text

**TEXTBOOK 3**

Read in entirety or near entirety

**Supplemental Instructional Materials**

1. Solutions Manual - A complete solution for each problem in the Student Edition lessons.
2. ALEKS is a Web-based (alex.com), artificially intelligent assessment and learning system which is aligned to the text.

**\* Course Purpose**

Students will establish a foundation in the tools of geometry – methods of reasoning, construction, the coordinate plane, and types of measurement. Students will also expand their understanding of the properties and applications of lines, triangles, quadrilaterals, similarity, right triangle trigonometry, circles, and transformations. Students will be able to develop and present formal and informal logical proofs.

**\* Course Outline**

By the end of this course in Geometry students will:

Analyze characteristics and properties of two- and three- dimensional geometric shapes and develop mathematical arguments about geometric relationships.

Specify locations and describe spatial relationships using coordinate geometry and other representational systems.

Apply transformations and use symmetry to analyze mathematical situations.

Use visualization, spatial reasoning, and geometric modeling to solve problems.

Analyze properties of plane and space figures. Solve problems involving them,

and real-world applications in general.

Explore congruence and similarity.

Use deductive reasoning to establish the validity of conjectures, to prove theorems, and to critique arguments.

Use coordinates to analyze shapes, solve problems, and prove relationships.

Understand and represent transformations in the plane using sketches, coordinates, vectors, functions and matrices.

Visualize, draw, and construct plane and space figures, from different perspectives.

Use geometric models to solve problems in other areas of mathematics.

Chapter 1 Tools of Geometry

Chapter 2 Reasoning and Proof

Chapter 3 Parallel and Perpendicular Lines

Unit 2 Congruence

Chapter 4 Congruent Triangles

Chapter 5 Relationships with Triangles

Chapter 6 Quadrilaterals

Unit 3 Similarity

Chapter 7 Proportions and Similarity

Chapter 8 Right Triangles and Trigonometry

Chapter 9 Right Transformations

Unit 4 Two- and Three-Dimensional Measurements

Chapter 10 Circles

Chapter 11 Areas of Polygons and Circles

Chapter 12 Extending Surface Area

Chapter 13 Extending Volume

### \* Key Assignments

Unit by unit problem sets and unit tests.

Written exams: Chapter quizzes, comprehensive midterm/final.

Student will apply concepts to projects as determined by teacher.

### \* Instructional Methods and/or Strategies

College Model of Education: Personalized Learning Model emphasizes independent study while attending Resource Center classes 2-3 times a week. Students may choose

to meet weekly with their Personalized Learning Teacher and/or Highly Qualified Teacher instead. The same instructional methods are used in either case.

\*Direct Instruction

\*Project/Group Work

\*On-line/interactive instruction

- Presentation: Concepts are introduced, explained, and demonstrated during weekly class/teacher (Personalized Learning and Highly Qualified) meetings. Following the information, corresponding questions, writing assignments, and activities are given to evaluate comprehension.
- Discussion: Students analyze, discuss, and respond to issues and ideas stimulated by presentations and readings. Students work in small groups or one-on-one whenever possible to increase participation.
- Oral Presentation: Students present information during weekly class meetings both formally and informally. Presentations include Power Point, debate, and discussion, and always include an outline or handout and audio-visual aides.
- Library/Internet Research: Students research topics that are relevant to the reading assignments and give written and oral reports of their findings.

### \* Assessment Methods and/or Tools

- Attendance at Resource Center Class 2-3 times a week OR weekly review of work by Personalized Learning Teacher/Highly Qualified Teacher
- Oral presentations
- Discussions: classroom participation and small group work. If not enrolled in Resource Center class then weekly discussions with Personalized Learning Teacher/Highly Qualified Teacher.
- Weekly homework assignments
- Chapter/Unit tests
- Comprehensive midterm/final

Assessment tools may also include the following:

- Participation in weekly lab activity with graded lab manual (science courses)

- Student demonstrations
- Student work samples
- Research Projects
- Projects: Power Point Presentation, brochures, community service, etc.

Exams, homework assignments, discussions, oral presentations, and writing assignments are used to assess student progress. All work is corrected by the course instructor and/or Personalized Learning Teacher/Highly Qualified Teacher.

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