

COURSE DESCRIPTION

Geometry is a one-year course and requires a grade of 'C' or better for admission to the University of California and to continue to Trigonometry. It reviews the geometric concepts of previous math courses, and in addition, it encourages and guides the student in the discovery of new geometric concepts. Geometry stresses the ability to reason logically and to think critically. A major part of the course will be devoted to teaching the student how to present a formal proof. Geometric properties of both two and three dimensions are emphasized as they apply to points, lines, planes, circles and polygons.

ESSENTIAL KNOWLEDGE

Upon successful completion of this class, students will be able to:

- Use and prove basic theorems involving congruence and similarity of figures
- Determine how changes in dimensions affect perimeter and area of common geometric figures
- Apply and use the properties of proportion
- Perform basic constructions with straight edge and compass
- Prove the Pythagorean theorem
- Use the Pythagorean theorem to determine distance and find missing dimensions of right triangles
- Know and use formulas for perimeter, circumference, area, volume, lateral and surface area of common figures
- Find and use measures of sides, interior and exterior angles of polygons to solve problems
- Use relationships between angles in polygons, complementary, supplementary, vertical and exterior angle properties
- Use special angle and side relationships in special right triangles
- Understand, apply, and solve problems using basic trigonometric functions
- Prove and use relationships in circles to solve problems
- Prove and use theorems involving properties of parallel lines cut by a transversal, quadrilaterals and circles
- Write geometric proofs, including indirect proofs
- Construct and judge validity of logical arguments
- Prove theorems using coordinate geometry including the midpoint of a segment and distance formula
- Understand transformations in the coordinate plane
- Construct logical verifications to test conjectures and counterexamples
- Write basic mathematical arguments in paragraph and statement-reason form

TEXT

California Geometry, Prentice Hall, Boston, Massachusetts

MATERIALS NEEDED DAILY

- Pencil and eraser
- Notebook (journal)
- Compass
- Protractor
- Metric/English ruler (minimum of 6 inches)
- Scientific calculator