



Online Courses for High School Students
1-888-972-6237

Geometry

COURSE DESCRIPTION:

The Geometry course is a comprehensive look at the study of geometric concepts including the basic elements of geometry, proofs, parallel and perpendicular lines, the coordinate plane, triangles, quadrilaterals, polygons, circles, trigonometry, congruence and similarity, surface area, volume and transformations.

COURSE OBJECTIVES:

After completing the course, students will be able to:

- Identify and apply the properties of rays and angles
- Identify and apply the properties of parallel and perpendicular lines
- Write conditional statements
- Write proofs
- Write and graph linear functions
- Identify and apply the properties of triangles
- Identify and apply the properties of quadrilaterals
- Identify and apply the properties of polygons
- Identify and apply the properties of circles
- Prove figures are congruent
- Prove figures are similar
- Apply transformations to various figures

PREREQUISITES: Algebra I

COURSE LENGTH: Two semesters

REQUIRED TEXT: None

COURSE OUTLINE:

UNIT I: Introduction to Geometry

Section 1 - Basic Elements of Geometry

Section 2 - Measuring Segments

Section 3 - Rays and Angles

Section 4 - Parallel and Perpendicular Lines

UNIT II: Introduction to Proof

Section 1 - Inductive and Deductive Reasoning

Section 2 - Conditional Statements and Truth Tables

Section 3 - Informal and Two-Column Proofs

UNIT III: Parallel Lines and the Coordinate Plane

Section 1 - Parallel Lines and Transversals

Section 2 - The Coordinate Plane

Section 3 - Graphing the Equation of a Line

UNIT IV: Triangles

Section 1 - Introduction to Triangles

Section 2 - Congruent Triangles

Section 3 - Isosceles and Equilateral Triangles

Section 4 - Right Triangles and the Pythagorean Theorem

Section 5 - Triangle Inequalities

Section 6 - Perimeter and Area of Triangles

UNIT V: Quadrilaterals and Polygons

Section 1 - Squares and Rectangles

Section 2 - Rhombi and Trapezoids

Section 3 - Parallelograms

Section 4 - Polygons

UNIT VI: Similarity

Section 1 - Ratios and Proportions

Section 2 - Similar Triangles

Section 3 - Similar Polygons

UNIT VII: Circles

Section 1 - Arcs and Special Segments

Section 2 - Special Angles in Circles

Section 3 - Equation of a Circle

Section 4 - Circumference and Area of a Circle

UNIT VIII: Right Triangles and Trigonometry

Section 1 - Review of Pythagorean Theorem

Section 2 - Ratios of Right Triangles

Section 3 - Graphing Trigonometric Functions

Section 4 - Law of Sines and Law of Cosines

UNIT IX: Surface Area and Volume

Section 1 - Surface Area and Volume of Prisms and Cylinders

Section 2 - Surface Area and Volume of Pyramids and Cones

Section 3 - Surface Area and Volume of Spheres

UNIT X: Transformations

Section 1 - Translations and Reflections

Section 2 - Rotations and Dilations