

Honors Geometry Syllabus

Course Description/Goals:

The Honors Geometry course includes the same course of study designed for Geometry. Geometry Honors students will develop advanced problem solving and symbol manipulation skills. Honors students will be expected to take course concepts to advanced levels of development, understanding, and justification. Honors assignments and assessments will be designed to model Advanced Placement (AP) and Dual Credit exam formatting. In Geometry, students will build on the knowledge and skills for mathematics in Kindergarten Grade 8 and Algebra I to strengthen their mathematical reasoning skills in geometric contexts. Within the course, students will begin to focus on more precise terminology, symbolic representations, and the development of proofs; explore concepts covering coordinate and transformational geometry; logical argument and constructions; proof and congruence; similarity, proof, and trigonometry; two- and three-dimensional figures; circles; and probability; connect previous knowledge from Algebra I to Geometry through the coordinate and transformational geometry strand. In the logical arguments and constructions strand, students are expected to create formal constructions using a straight edge and compass. In proof and congruence, students will use deductive reasoning to justify, prove and apply theorems about geometric figures. The term "prove" means a formal proof to be shown in a paragraph, a flow chart, or two column formats. Proportionality is the unifying component of the similarity, proof, and trigonometry strand. Students will use their proportional reasoning skills to prove and apply theorems and solve problems in this strand. The two- and three-dimensional figure strand focuses on the application of formulas in multi-step situations since students have developed background knowledge in two- and three-dimensional figures. Using patterns to identify geometric properties, students will apply theorems about circles to determine relationships between special segments and angles in circles.

Course TEKS/Objectives:

The Geometry TEKS (Texas Essential Knowledge and Skills) are organized into reporting categories, each focusing on a specific area of algebra. These categories include: Coordinate and Transformational Geometry, Logical Argument and Constructions, Triangles and Trigonometry, Measurement of 2D and 3D Figures, and Probability. Each category contains specific standards (TEKS) that students are expected to master.

<https://tea.texas.gov/sites/default/files/ch111c.pdf>

Course Outline:

Semester 1	Semester 2
<ul style="list-style-type: none">-Geometric Figures and Basic Reasoning-Distance, Midpoint, and Angle Measurements-Angles, Parallel and Perpendicular Lines-Transformations-Triangle Congruence-Properties of Triangles-Similar Triangles	<ul style="list-style-type: none">-Special Right Triangles-Trigonometry-Quadrilaterals-Interior and Exterior Angles of Polygons, Area of Polygons-Surface Area and Volume-Circles - Equations and Segments-Circles - Angles and Arcs, Area of Sector-Probability