



Course Name: Geometry
School Year: 2020 - 2021

Course Purpose and Relevance:

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. Students will 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. Students will 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. Though this course is primarily Euclidean geometry, students should complete the course with an understanding that non-Euclidean geometries exist. In proof and congruence, students will use deductive reasoning to justify, prove and apply theorems about geometric figures. Throughout the standards, 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. Due to the emphasis of probability and statistics in the college and career readiness standards, standards dealing with probability have been added to the geometry curriculum to ensure students have proper exposure to these topics before pursuing their post-secondary education.

The **process standards** weave the other knowledge and skills together so that students may be successful problem solvers and use mathematics efficiently and effectively in daily life. When possible, students will apply mathematics to problems arising in everyday life, society, and the workplace. Students will use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Students will select appropriate tools such as real objects, manipulatives, algorithms, paper and pencil, and technology and techniques such as mental math, estimation, number sense, and generalization and abstraction to solve problems. Students will effectively communicate mathematical ideas, reasoning, and their implications using multiple representations such as symbols, diagrams, graphs, computer programs, and language. Students will use mathematical relationships to generate solutions and make connections and predictions. Students will analyze mathematical relationships to connect and communicate mathematical ideas. Students will display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

Available Support for Student Learning:

Refer to the teacher's Course Syllabus for resources and course specific opportunities. The adopted textbook for Geometry is McGraw Hill Texas Geometry. Student textbook and/or digital version are available through the CCISD Student Portal.

Links to Course TEKS and RESOURCES FOR PARENTS on TEA website:

[Texas Knowledge and Skills for Geometry](#)
[Resources for Parents](#)



Overview of Student Outcomes:

- The student understands the connections between algebra and geometry and uses the one- and two-dimensional coordinate systems to verify geometric conjectures.
- The student generates and describes rigid transformations (translation, reflection, and rotation) and non-rigid transformations (dilations that preserve similarity and reductions and enlargements that do not preserve similarity).
- The student uses deductive reasoning to understand geometric relationships.
- The student uses constructions to validate conjectures about geometric figures.
- The student uses deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart.
- The student applies similarity to solve problems.
- The student uses deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart.
- The student understands and applies relationships in right triangles.
- The student recognizes characteristics and dimensional changes of two- and three-dimensional figures.
- The student applies formulas to determine measures of two- and three-dimensional figures.
- The student understands geometric relationships and apply theorems and equations about circles.
- The student understands probability in real-world situations and how to apply independence and dependence of events.

First Grading Period

- Unit 1: Introduction to Geometry
- Unit 2: Lines
- Unit 3: Angles

Second Grading Period

- Unit 4: Triangles
- Unit 5: Relationship in Triangles
- Unit 6: Right Triangles

Semester Review and District Exam

Third Grading Period

- Unit 7: Quadrilaterals
- Unit 8: Transformations
- Unit 9: Similarity

Fourth Grading Period

- Unit 10: Area of Polygons
- Unit 11: Surface Area and Volume
- Unit 12: Circles
- Unit 13: Probability