

Honors Geometry Overview

Course Description: Students in Honors Geometry study complex geometric situations that deepen their understanding of congruence, similarity, trigonometry, and application of geometric concepts.

Grade Level: 8-10th

Curricular Work Thus Far:

1. Responded to Strategic Plan Objective 1.1.4, which calls for us to engage 6th-10th grade math teachers and principals in the development of an inclusive, student-centered sequence of math coursework that ensures equitable access to key grade level standards and alignment across schools.
2. Solicited feedback from district and community stakeholders to guide course development.
3. Examined state standards ([Missouri Learning Standards](#)) and national standards ([Common Core State Standards](#)) to inform course development.
4. Drafted fourteen units within the yearlong course. The curriculum committee is still considering the best order for the units to occur.

Unit 1: Introduction to Geometry

Unit 2: Deductive Reasoning

Unit 3: Lines and Angles

Unit 4: Congruent Triangles

Unit 5: Triangle Inequality

Unit 6: Transformations

Unit 7: Circles

Unit 8: Trigonometry

Unit 9: Quadrilaterals

Unit 10: Similarity

Unit 11: Parallel Lines and Angle Pairs

Unit 12: Probability

Unit 13: Two-Dimensional Figures

Unit 14: Geometric Solids

5. Developed unit essential questions and student learning goals in alignment with state standards. Examples include, but are not limited to:

Essential Questions:

- How do I explain my reasoning in Geometry?

- What are the building blocks of geometry?
- How are properties of geometric figures related to their measurable attributes?
- How can I make a conjecture and prove that it is true?
- How do I use congruence to prove statements about triangles?
- How can I use inequalities to describe the relationships among side lengths and angle measures in a triangle?
- How can transformations be described mathematically?
- Why are circles special as a geometric shape?
- What is the relationship between cosine and sine in relation to complementary angles?
- How are the formulas for linear measure, area, and volume related to each other?
- How can I prove properties of similar triangles?
- How do I construct proofs?
- How can I use probability to help me make decisions?

Student Learning Goals:

- Students will write and compare direct and indirect proofs.
- Students will apply definitions, theorems, postulates, and properties to defend statements in proofs.
- Students will prove two triangles congruent.
- Students will demonstrate that a whole is greater than its parts.
- Students will translate, reflect, and rotate geometric figures.
- Students will find measures of segments that intersect in the interior or exterior of a circle.
- Students will use trigonometric ratios to find angle measures in right triangles.
- Students will find areas of trapezoids, rhombi, kites, regular polygons, and composite figures.
- Students will model and solve real-world problems using similar figures.
- Students will prove theorems about parallel lines.
- Students will use probability to justify decisions.