

Semester One Plan

1. What do you want students to learn during the semester? What standards, content and concepts will you address during the semester?

Students will review middle school Geometry, especially area and volume. Students will learn the concept of inductive reasoning. Students will extend their understanding of inductive reasoning by exploring discrete geometry (angle measurement, interior, exterior, vertical, supplementary, complementary angles). Next, students will explore axiomatic geometry and proof, including undefined terms, definitions, axioms and theorems. Students will use this to begin to explore simple theorems and proof.

2. What do you want students to be able to do this semester? What skills will you work on developing with your students?

Students will be able to apply inductive reasoning to problem solving. Students will be able to use the various angle theorems to solve angle problems. Students will be versed in the vocabulary of a geometry course. Students will be able to develop mathematical arguments.

3. What is the topic of each unit? What major concepts will be the focus of each unit? What specific skills will you focus on in each unit? Compile a timeline for each unit (How many days? Include dates of school events that will impact instruction.)

Unit	Title	Key Concepts	Standards	Weeks
1	Inductive Reasoning & 2D/3D Measurement	Inductive Reasoning, Area, Volume, Measurement	1.0, 2.0, 3.0, 8.0, 9.0, 10.0, 11.0	4 weeks
2	Discrete Geometry	Angle Measure, Angle Sum Theorem, Perpendicular, Parallel, Vertical Angles, Interior/Exterior Angles, Supplementary, Complementary, Coordinate Geometry, Transformation	7.0, 12.0, 13.0, 17.0, 22.0	5 weeks
3	Axiomatic Geometry	Undefined Terms, Axioms, Definitions, Elements, Parallel, Angle, Polygon	1.0, 2.0, 3.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 16.0	4 weeks
4	Proof	Congruence, Isosceles Triangles, Proof, Mathematical Rigor	1.0, 2.0, 3.0, 4.0, 5.0, 7.0, 16.0	4 weeks
5	Circles	Circle, Chord, Secant, Tangent, Inscribed Angles, Inscribed and Circumscribed Polygons	21.0	2 weeks

Semester Two Plan

1. What do you want students to learn during the semester? What standards, content and concepts will you address during the semester?

Students will extend their geometric thinking to more complex proofs involving the properties of triangles. Students will extend their knowledge of proofs into the area of similarity. Students will relearn the Pythagorean Theorem, then combine their knowledge of this theorem with their knowledge of similarity to begin to work with Trigonometric ratios.

2. What do you want students to be able to do this semester? What skills will you work on developing with your students?

Students will understand more complex geometric proofs - either visually or logically. Students will be able to work with ratios to find the missing sides of similar triangles. Students will be able to use the Pythagorean Theorem and the Trigonometric ratios to find the missing sides of a right triangle.

3. What is the topic of each unit? What major concepts will be the focus of each unit? What specific skills will you focus on in each unit? Compile a timeline for each unit (How many days? Include dates of school events that will impact instruction.)

Unit	Title	Key Concepts	Standards	Weeks
6	Triangles	Scalene, Isosceles, Equilateral, Acute, Obtuse, Right, Sum Theorem, Triangle Inequality Theorem, Slant and Perpendicular, Right Triangles, Special Right Triangles	4.0, 5.0, 6.0, 20.0	3 weeks
7	Similarity	Similarity, Ratio	5.0	2 weeks
8	Pythagorean Theorem	the Pythagorean Theorem, Special Right Triangles, Proof of the Pythagorean Theorem	14.0, 15.0, 20.0	3 weeks
9	Trigonometry	Trigonometric Ratios, Basic Trigonometric Identities	18.0, 19.0	2 weeks
10	Review	All, particularly, Trigonometry, Pythagorean Theorem, Area, Volume and Surface Area		2 weeks
11	Trigonometric Proofs	Intermediate Trigonometric Identities, Graphs of Trig Ratios		3 weeks