Course Syllabus

Description:
One day in 2580 B.C.E., a very serious architect stood in a dusty desert with a set of plans. His plans called for creating a structure 480 feet tall, with a square base and triangular sides, using stone blocks weighing two tons each. The Pharaoh wanted the job done right. The better this architect understood geometry, the better his chances were for staying alive.

Geometry is everywhere, not just in pyramids. Engineers use geometry to build highways and bridges. Artists use geometry to create perspective in their paintings, and mapmakers help travelers find things using the points located on a geometric grid. Throughout this course, students travel a mathematical highway illuminated by spatial relationships, reasoning, connections, and problem solving.

Estimated Completion Time: 2 segments / 32-36 weeks
Major Topics and Concepts:

Module 00 Getting Started

- 00.01 Things to Know
- 00.02 Navigation
- 00.03 Lessons & Assessments
- 00.04 Course Specifics
- 00.05 Online Learning 101
- 00.06 Pace
- 00.07 Academic Integrity

Segment I

Module 01 Geometry Foundations

- 01.00 Introduction to Geometry Foundations
- 01.01 Basics of Geometry
- 01.02 Basic Constructions
- 01.03 Advanced Constructions
- 01.04 Geometry Foundations Discussion-Based Assessment
- 01.05 Geometry Foundations Activity
- 01.06 Introduction to Proofs
- 01.07 Line and Angle Proofs
- 01.08 Honors Segment One Activity Part A
- 01.09 Geometry Foundations Review and Practice Test
- 01.10 Geometry Foundations Test Part One and Part Two

Module 02 Transformations and Congruence

- 02.00 Introduction to Transformations and Congruence
- 02.01 Translations and Reflections
- 02.02 Rotations

- 02.03 Rigid Motion and Congruence
- 02.04 Triangle Proofs
- 02.05 Transformations and Congruence Activity
- 02.06 Quadrilateral Proofs
- 02.07 Honors Segment One Activity Part B
- 02.08 Transformations and Congruence Review and Practice Test
- 02.09 Transformations and Congruence Discussion-Based Assessment
- 02.10 Transformations and Congruence Test Part One and Part Two

Module 03 Dilations and Similarity

- 03.00 Introduction to Dilations and Similarity
- 03.01 Dilations
- 03.02 Similarity
- 03.03 Triangles and Similarity
- 03.04 Honors Segment One Activity Part C
- 03.05 Triangle Congruence and Similarity
- 03.06 Applications of Congruence and Similarity
- 03.07 Dilations and Similarity Discussion-Based Assessment
- 03.08 Dilations and Similarity Quiz
- 03.09 Honors Segment One Activity Part D
- 03.10 Segment One Practice Exam
- 03.11 Segment One Exam Part One and Part Two
- 03.11 Honors Segment One Exam Part One and Part Two

Segment II

Module 04 Coordinate Geometry

- 04.00 Introduction to Coordinate Geometry
- 04.01 Using the Coordinates
- 04.02 Slope
- 04.03 Coordinate Applications
- 04.04 Honors Segment Two Activity Part A
- 04.05 Coordinate Geometry Review and Practice Test
- 04.06 Coordinate Geometry Discussion-Based Assessment
- 04.07 Coordinate Geometry Test Part One and Part Two

Module 05 Right Triangles and Trigonometry

- 05.00 Introduction to Right Triangles and Trigonometry
- 05.01 Solving Right Triangles
- 05.02 Trigonometric Ratios
- 05.03 Applying Trigonometric Ratios
- 05.04 Honors Segment Two Activity Part B
- 05.05 Right Triangles and Trigonometry Review and Practice Test
- 05.06 Right Triangles and Trigonometry Discussion-Based Assessment
- 05.07 Right Triangles and Trigonometry Test Part One and Part Two

Module 06 Volume and Figures

- 06.00 Introduction to Volumes and Figures
- 06.01 Formulas
- 06.02 Applications of Volume
- 06.03 Density
- 06.04 Three-Dimensional Figures
- 06.05 Volumes and Figures Activity
- 06.06 Honors Segment Two Activity Part C
- 06.07 Volumes and Figures Review and Practice Test
- 06.08 Volumes and Figures Test Part One and Part Two

Module 07 Circles

- 07.00 Introduction to Circles
- 07.01 Properties of a Circle
- 07.02 Inscribed and Circumscribed Circles
- 07.03 Applications of Circles
- 07.04 Segment Two Honors Activity Part D
- 07.05 Circles Discussion-Based Assessment
- 07.06 Circles Quiz
- 07.07 Segment Two Practice Exam
- 07.08 Segment Two Exam Part One and Part Two
- 07.08 Honors Segment Two Exam Part One and Part Two
- 07.09 Exam Prep

Course Assessment and Participation Requirements: To achieve success, students are expected to submit work in each course weekly. Students can learn at their own pace; however, “any pace” still means that students must make progress in the course every week. To measure learning, students complete self-checks, practice lessons, multiple choice questions, projects, discussion-based assessments, and discussions. Students are expected to maintain regular contact with teachers; the minimum requirement is monthly. When teachers, students, and parents work together, students are successful.