

# Geometry Course Syllabus

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## 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 Basics of Geometry

- 01.00 Module One Checklist and Pretest
- 01.01 Basics of Geometry
- 01.02 Basic Constructions
- 01.03 Constructing with Parallel and Perpendicular Lines
- 01.04 Module One Quiz
- 01.05 Constructions with Technology
- 01.06 Introduction to Proofs
- 01.07 Module One Activity
- 01.08 Module One Review and Practice Exam
- 01.09 Module One Discussion-Based Assessment
- 01.10 Module One Exam

## **Module 02 Transformations and Congruence**

- 02.00 Module Two Checklist and Pretest
- 02.01 Translations
- 02.02 Reflections
- 02.03 Rotations
- 02.04 Module Two Quiz
- 02.05 Rigid Motion and Congruence
- 02.06 Module Two Activity
- 02.07 Module Two Review and Practice Exam
- 02.08 Module Two Discussion-Based Assessment
- 02.09 Module Two Exam

## **Module 03 Proofs of Theorems**

- 03.00 Module Three Checklist and Pretest
- 03.01 Line and Angle Proofs
- 03.02 Triangle Proofs
- 03.03 Module Three Quiz
- 03.04 Parallelogram Proofs
- 03.05 Reflection Checkpoint
- 03.06 Module Three Activity
- 03.07 Module Three Review and Practice Exam.
- 03.08 Module Three Discussion-Based Assessment
- 03.09 Module Three Exam

## **Module 04 Dilations and Similarity**

- 04.00 Module Four Checklist and Pretest
- 04.01 Dilations
- 04.02 Similar Polygons
- 04.03 Module Four Quiz
- 04.04 Similar Triangles
- 04.05 Module Four Activity
- 04.06 Module Four Review and Practice Exam
- 04.07 Module Four Discussion-Based Assessment
- 04.08 Module Four Exam

## **Module 05 Triangle Similarity Proofs**

- 05.00 Module Five Checklist and Pretest
- 05.01 Triangle Congruence and Similarity
- 05.02 Module Five Quiz
- 05.03 Applications of Congruence and Similarity
- 05.04 Honors Extension Activity
- 05.05 Module Five Review and Practice Exam

- 05.06 Module Five Discussion-Based Assessment
- 05.07 Module Five Exam
- 05.08 Segment One Collaboration Component
- 05.09 Segment One Practice Exam
- 05.10 Segment One Exam

## **Segment II**

### **Module 06 Coordinate Geometry**

- 06.00 Module Six Checklist and Pretest
- 06.01 Using the Coordinates
- 06.02 Slope
- 06.03 Module Six Quiz
- 06.04 Coordinate Applications
- 06.05 Module Six Activity
- 06.06 Module Six Review and Practice Exam
- 06.07 Module Six Discussion-Based Assessment
- 06.08 Module Six Exam

### **Module 07 Right Triangles and Trigonometry**

- 07.00 Module Seven Checklist and Pretest
- 07.01 Solving Right Triangles
- 07.02 Trigonometric Ratios
- 07.03 Module Seven Quiz
- 07.04 Applying Trigonometric Ratios
- 07.05 Module Seven Activity
- 07.06 Module Seven Review and Practice Exam
- 07.07 Module Seven Discussion-Based Assessment
- 07.08 Module Seven Exam

### **Module 08 Volume and Figures**

- 08.00 Module Eight Checklist and Pretest
- 08.01 Formulas
- 08.02 Applications of Volume
- 08.03 Module Eight Quiz
- 08.04 Density
- 08.05 3-D Figures
- 08.06 Module Eight Activity
- 08.07 Module Eight Review and Practice Exam
- 08.08 Module Eight Discussion-Based Assessment
- 08.09 Module Eight Exam

### **Module 09 Circles**

- 09.00 Module Nine Checklist and Pretest
- 09.01 Properties of a Circle
- 09.02 Inscribed and Circumscribed Circles
- 09.03 Module Nine Quiz
- 09.04 Applications of Circles
- 09.05 Honors Extension Activity
- 09.06 Module Nine Review and Practice Exam
- 09.07 Module Nine Discussion-Based Assessment
- 09.08 Module Nine Exam
- 09.10 End of Course Information
- 09.11 Segment Two Practice Exam
- 09.12 Segment Two Exam

### **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.

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