Integrated Math II 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.

Algebra and geometry are everywhere, not just in pyramids. Engineers use them to build highways and bridges. Artists use them to create perspective in their paintings, and mapmakers help travelers find things using the points located on grids. 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:

Segment I

Module One: Review of Algebra

- 01.00 Introduction and Pretest
- 01.01 Alegebra 1 Review
- 01.02 Introduction to Functions
- 01.03 Module One Quiz
- 01.04 Graphing Linear Equations and Inequalities
- 01.05 Writing the Equation of a Line
- 01.06 Comparing Functions
- 01.07 Module One Review and Practice Test
- 01.08 Discussion-Based Assessment
- 01.09 Module One Test

Module Two: Rational, Complex, and Polynomials

- 02.00 Mddule Two Pretest
- 02.01 Rational Exponents
- 02.02 Properties of Rational Exponents
- 02.03 Solving Radical Equations
- 02.04 Module Two Quiz

- 02.05 Complex Numbers
- 02.06 Operations of Complex Numbers
- 02.07 Review of Polynomials
- 02.08 Polynomial Operations
- 02.09 Module Two Review and Practice Test
- 02.10 Discussion-Based Assessment
- 02.11 Module Two Test

Module Three: Factoring and Quadratics

- 03.00 Module Three Pretest
- 03.01 Greatest Common Factors and Special Products
- 03.02 Factoring by Grouping
- 03.03 Sum and Difference of Cubes
- 03.04 Graphing Quadratics
- 03.05 Module Three Quiz
- 03.06 Completing the Square
- 03.07 Solving Quadratic Equations
- 03.08 Solving Quadratic Equations with Complex Solutions
- 03.09 Investigating Quadratics
- 03.10 Module Three Review and Practice Test
- 03.11 Discussion-Based Assessment
- 03.12 Module Three Test

Module Four: Systems of Equations and Inequalities

- 04.00 Module Four Pretest
- 04.01 Solving Systems of Equations Algebraically
- 04.02 Solving Systems of Nonlinear Equations
- 04.03 Graphing Systems of Linear Equations
- 04.04 Module Four Quiz
- 04.05 Graphing Systems of Non-linear Equations
- 04.06 Module Four Review and Practice Test
- 04.07 Discussion-Based Assessment
- 04.07B Exponential Functions
- 04.07C Logarithmic Functions
- 04.08 Module Four Test

Module Five: Statistics

- 05.00 Module Five Pretest
- 05.01 Events and Outcomes in a Sample Space
- 05.02 Independent Probability
- 05.03 Conditional Probability
- 05.04 Module Five Quiz
- 05.05 Pythagoras, Trigonometry, and Quadrants
- 05.06 Segment One Honors Project
- 05.07 Module Five Review and Practice Test
- 05.08 Discussion-Based Assessment
- 05.09 Module Five Test
- 05.10 Segment One Practice Exam
- 05.11 Segment One Exam
- 05.12 Segment One Honors Exam Extension
- 05.13 Segment One Collaboration Component

Segment II

Module Six: Proofs of Theorems

- 06.00 Module Six Pretest
- 06.01 Line and Angle Proofs
- 06.02 Triangle Proofs
- 06.03 Module Six Quiz
- 06.04 Parallelogram Proofs
- 06.05 Reflection Checkpoint
- 06.06 Module Six Activity
- 06.07 Module Six Review and Practice Test
- 06.08 Discussion-Based Assessment
- 06.09 Module Six Test

Module Seven: Dilations and Similarity

- 07.00 Module Seven Pretest
- 07.01 Dilations
- 07.02 Similar Polygons
- 07.03 Module Seven Quiz
- 07.04 Similar Triangles
- 07.05 Module Seven Activity
- 07.06 Module Seven Review and Practice Test
- 07.07 Discussion-Based Assessment
- 07.08 Module Seven Test

Module Eight: Triangle Similarity Proofs

- 08.00 Module Eight Pretest
- 08.01 Triangle Congruence and Similarity
- 08.02 Module Eight Quiz
- 08.03 Using the Coordinates
- 08.04 Coordinate Applications
- 08.05 Formulas
- 08.06 Applications of Volume
- 08.07 Module Eight Review and Practice Test
- 08.08 Discussion-Based Assessment
- 08.09 Module Eight Test

Module Nine: Right Triangles and Trigonometry

- 09.00 Module Nine Pretest
- 09.01 Solving Right Triangles
- 09.02 Trigonometric Ratios
- 09.03 Module Nine Quiz
- 09.04 Applying Trigonometric Ratios
- 09.05 Module Nine Activity
- 09.06 Module Nine Review and Practice Test
- 09.07 Discussion-Based Assessment
- 09.08 Module Nine Test

Module Ten: Circles

- 10.00 Module Ten Pretest
- 10.01 Properties of a Circle
- 10.02 Inscribed and Circumscribed Circles
- 10.03 Module Ten Quiz
- 10.04 Applications of Circles
- 10.05 Segment Two Honors Project
- 10.06 Module Ten Review and Practice Test
- 10.07 Discussion-Based Assessment
- 10.08 Module Ten Test
- 10.09 Segment Two Collaboration Component
- 10.10 End of Course Information
- 10.11 Segment Two Practice Exam
- 10.12 Segment Two Exam
- 10.13 Segment Two Honors Extension

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.