

MAT0900_202338_Staging_EMBR_TEM

MAT-900

2023 05/01/2023 to 04/30/2024 Modified 03/22/2023

Course Description

This year-long course introduces the students to topics that explore higher mathematic principles and skills. The student will investigate and solve problems that use both real numbers and variables. The skills learned will be used to solve real-life problems to help students function better in the world around them. An emphasis will be placed on solving equations, including linear, quadratic, inequalities, multistep, and variations. Factoring and graphing will be used to solve a variety of equations and systems of equations. Also, skills related to exponents, statistics, and probability will be explored and related to practical application. Students will have access to engaging multimedia video lectures, notes pages for each lesson summarizing the video content, practice problems, and assessments. All video lessons include a transcript and closed captioning in English and Spanish.

Rationale

In order to function in the real world, a basic knowledge of mathematics is essential for being successful in a variety of fields and occupations. Every day we use mathematics to solve everything from balancing a checkbook to determining the number of shingles needed for a roof to the angle of elevation when surveying property for road improvements. Algebra I offers applicable math skills and practice to solve problems we encounter in the real world, both at the personal and global levels.

Course Learning Outcomes

- A. The student will identify real numbers, perform order of operations, and simplify expressions.
- B. The student will solve equations, work percent problems, and solve and graph inequalities.
- C. The student will graph linear functions, identify arithmetic sequences, and calculate rate of change.
- D. The student will write equations in slope-intercept form, point-slope form, and solve systems of equations by substitution and elimination.
- E. The student will solve and graph linear inequalities.
- F. The student will use the properties of exponents and add/subtract/multiply/divide polynomials.
- G. The student will identify and be able to factor using the various factoring methods and solve and graph quadratic functions and equations.
- H. The student will solve quadratic equations using the quadratic formula, calculate theoretical and experimental probability, and graph data.
- I. The student will write exponential functions, simplify radical expressions, and rational functions.

Course Resources

See Ember's [Systems Requirements](#) for computer specifications necessary to operate this curriculum.

- Note: Embedded YouTube videos may be utilized to supplement Ember's YouTube videos are the property of the respective

content creator, licensed to YouTube for distribution and user access. As a non-profit educational institution, Ember is able to use YouTube video content under the YouTube Terms of Service. For additional information on copyright, please contact the [Jerry Falwell Library](#)

* Course Policies

Types of Assessments

To simplify and clearly identify which policies apply to which assessment, each assessment has been categorized into one of four categories: Lesson, Assignment, Quiz, or Test. Each applicable item on the course Modules page has been designated with an identifier chosen from among these categories. Thus, a Quiz on the American Revolution may be designated by the title, "1.2.W Quiz: The American Revolution."

- **Lesson:** *Any item on the Modules page designated as a "Lesson"*

These include instructional content and sometimes an assessment of that content. Typically, a Lesson will be the day-to-day work that a student completes.

- **Assignment:** *Any item on the Modules page designated as an "Assignment"*

Typical examples of Assignments include, but are not limited to, papers, book reports, projects, labs, and speeches. Assignments are usually something that the student should do his or her best work on the first time.

- **Quiz:** *Any item on the Modules page designated as a "Quiz"*

This usually takes the form of a traditional assessment where the student will answer questions to demonstrate knowledge of the subject. Quizzes cover a smaller amount of material than Tests.

- **Test:** *Any item on the Modules page designated as a "Test"*

This usually takes the form of a traditional assessment where the student will answer questions to demonstrate knowledge of the subject. Tests cover a larger amount of material than Quizzes.

Materials Selection Policy

Ember curates educational materials that are consistent with the school's philosophy; however, the fallen human condition depicted in literature (as in Scripture itself) is not always pleasant. Valuable works sometimes have objectionable or profane elements. Good books provide four (4) recognized values.

- They build godly attitudes and character traits.
- They deepen our social and cultural awareness.
- They strengthen our use of written language.
- They provide a lifelong source of enjoyment and relaxation.

In order to instill these values in students and fulfill the stated objectives of the school, all Ember students are expected to read and study good books on a regular basis. Recognizing that materials designed for one level may not be appropriate for another, three (3) levels of criteria are applied:

- Elementary materials must contain no objectionable material,
- Objectionable elements in sixth through eighth-grade materials must be limited and must serve a specific educational purpose, and
- Objectionable content may be included in high school materials but must be outweighed by positive literary, curricular, and/or Christian values.

The curriculum department has approved required educational materials for students.

Resubmission Policy

Students are expected to submit their best work on the first submission for every Lesson, Assignment, Quiz, and Test. However, resubmissions may be permitted in the following circumstances:

- **Lesson:** Students are automatically permitted two attempts on a lesson. Students may freely resubmit for their first two attempts without the need for teacher approval.

If a student feels that he or she deserves a resubmission on a Lesson, Assignment, Quiz, or Test due to a technical issue such as a computer malfunction, the student should message his or her teacher to make the request. With Ember, the teacher may be a physical school teacher or the student's parent/guardian. The teacher can give another attempt from his or her Canvas account. For more information on how to do this, please review the Ember orientation course.

Schedule

Module 1: Foundations of Algebra

- Week 1: The Language of Algebra
- Week 2: Tools & Algebra
- Week 3: More Tools of Algebra & Module 1 Assessment

Module 2: Equations, Proportions, & Percent

- Week 4: Solving Equations
- Week 5: More Solving Equations & Proportion
- & Percent
- Week 6: More Proportion & Percent & Module 2 Assessment

Module 3: Inequalities

- Week 7: Introduction to Inequalities
- Week 8: Multi-Step & Compound Inequalities
- Week 9: Module 3 & Quarter 1 Assessments

Module 4: Functions

- Week 10: Introduction to Functions
- Week 11: Applying Functions

Module 5: Linear Functions

- Week 12: Characteristics of Linear Functions
- Week 13: Using Linear Functions
- Week 14: More Using Linear Functions & Module 5 Assessment

Module 6: Systems of Equations & Inequalities

- Week 15: Systems of Linear Equations
- Week 16: More Systems of Linear Equations
- Week 17: Linear Inequalities
- Week 18: Module 6 & Quarter 2 Assessments

Module 7: Exponents & Polynomials

- Week 19: Exponents
- Week 20: More Exponents & Polynomials
- Week 21: More Polynomials

Module 8: Factoring Polynomials

- Week 22: Factoring Methods
- Week 23: Applying Factoring Methods & Module 8 Assessment

Module 9: Quadratic Functions & Equations

- Week 24: Quadratic Functions
- Week 25: Solving Quadratic Equations
- Week 26: More Solving Quadratic Equations
- Week 27: Module 9 & Quarter 3 Assessments

Module 10: Data Analysis & Probability

- Week 28: Probability
- Week 29: Data Analysis
- Week 30: More Data Analysis & Module 10 Assessment

Module 11: Exponential & Radical Functions

- Week 31: Exponential Functions
- Week 32: Radical Functions and Expressions
- Week 33: Radical Equations & Module 11 Assessment

Module 12 Rational Functions & Equations

- Week 34: Rational Functions & Expressions
- Week 35: Operations with Rational Expressions
- Week 36: Module 12 & Quarter 4 Assessments