MAT0800_202338_Staging_EMBR_TEM

MAT-800

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

Course Description

This year-long course will prepare students for Algebra I. Pre-algebra will review basic math concepts regarding number sense, the rules regarding math operations, and the order of implementation. Students will practice concepts taught in previous math courses at higher levels and in ways that will broaden their skills. Students will also practice algebraic thinking in order to model and solve real-world problems. Geometric concepts and related formulas will be linked to algebraic thinking to prepare students for future courses. 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 be successful in Algebra 1, it is important that a student has a good background in basic math skills in order to move on to higher levels of mathematics. In Pre-Algebra, the student will be introduced to basic concepts of algebraic thinking in order to prepare the student to take Algebra 1.

Course Learning Outcomes

A. The student will be able to add/subtract integers, simplify exponents and perform the order of operations.

B. The student will add/subtract/multiply/divide fractions and decimals.

C. The student will simplify algebraic expressions, combine like terms and solve equations.

D. The student will solve and graph inequalities, write ratios and solve percent real world problems.

E. The student will understand and convert between units of measurement.

F. The student will graph linear equations and find the slope of a line.

G. The student will perform area calculations, find the perimeter, and use the Pythagorean Theorem to find sides of a triangle.

H. The student will perform volume and surface area calculations and put numbers in standard form in scientific notation.

I. The student will add/subtract polynomials and determine the probability of events.

J. The student will work real-world probability problems.

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: Principles of Algebra

- Week 1: Expressions and Properties of Numbers
- Week 2: Integers, Equations, and Inequalities & Module 1 Assessment

Module 2: Rational Numbers

- Week 3: Operations with Rational Numbers
- Week 4: Equations with Rational Numbers and Module 2 Assessment

Module 3 Introduction to Graphs, Functions, & Sequences

- Week 5: Tables and Graphs
- Week 6: Functions and Sequences and Module 3 Assessment

Module 4: Exponents & Roots

- Week 7: Properties of Exponents
- Week 8: Square Roots and the Pythagorean Theorem
- Week 9: Module 4 and Quarter 1 Assessments

Module 5: Proportionality & Measurement

- Week 10: Ratios, Rates, and Proportions
- Week 11: Similarity, Scale, and Measurement
- Week 12: Measurement and Module 5 Assessment

Module 6: Percents

- Week 13: Proportions and Percents
- Week 14: Applying Percents and Module 6 Assessment

Module 7: Foundations of Geometry

- Week 15: Points, Lines, Angles, and Polygons
- Week 16: More Polygons
- Week 17: Patterns in Geometry
- Week 18: Module 7 and Quarter 2 Assessments

Module 8: Perimeter, Area, & Volume

- Week 19: Perimeter and Area
- Week 20: Three-Dimensional Geometry
- Week 21: More Three-Dimensional Geometry and Module 8 Assessment

Module 9: Data and Statistics

- Week 22: Collecting and Describing Data
- Week 23: Data Displays
- Week 24: More Data Displays and Module 9 Assessment

Module 10: Probability

- Week 25: Experimental and Theoretical Probability

- Week 26: Probability and Counting
- Week 27: Module 10 and Quarter 3 Assessments

Module 11: Multi-Step Equations & Inequalities

- Week 28: Solving Equations
- Week 29: Solving Literal Equations and Inequalities
- Week 30: Solving Systems of Equations and Module 11 Assessment

Module 12: Graphing Lines

- Week 31: Linear Equations
- Week 32: More Linear Equations and Relationships
- Week 33: More Linear Relationships and Module 12 Assessment

Module 13: Polynomials

- Week 34: Introduction to Polynomials
- Week 35: Operations with Polynomials
- Week 36: Module 13 and Quarter 4 Assessments