

MAT0500_202338_Staging_EMBR_TEM

MAT-500

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

Course Description

This math course emphasizes number sense with whole numbers, fractions, and decimals. The focus includes concepts of prime and composite numbers and solving problems using order of operations for positive whole numbers. Students will develop proficiency in using fractions and decimals to solve practical problems. Students explore probability using a sample space, a tree diagram, or the Fundamental Counting Principle. Students will solve problems involving volume, area, and perimeter. Students will be introduced to expressions with a variable. They will develop skills to assist in the understanding of the algebraic concepts needed for success in the middle grades.

Rationale

This course promotes problem-solving skills by teaching students how to make real-world connections with mathematics through the teaching of number theory, data and graphing, estimation, and solving real-world problems. Students are also taught the mathematical concepts of place value, double-digit multiplication and division, fractions, measurement, geometry, and beginning algebra. These concepts are taught using engaging lessons, hands-on activities, videos, and interactive games.

Course Learning Outcomes

- A. The student, given a decimal through thousandths, will round to the nearest whole number, tenth, or hundredth.
- B. The student will represent and identify equivalencies among fractions and decimals, with and without models; and compare and order fractions, mixed numbers, and/or decimals in a given set, from least to greatest and greatest to least.
- C. The student will identify and describe the characteristics of prime and composite numbers; and identify and describe the characteristics of even and odd numbers.
- D. The student will create and solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of whole numbers.
- E. The student will estimate and determine the product and quotient of two numbers involving decimals; and create and solve single-step and multistep practical problems involving addition, subtraction, and multiplication of decimals, and create and solve single-step practical problems involving division of decimals.
- F. The student will solve single-step and multistep practical problems involving addition and subtraction with fractions and mixed numbers; and solve single-step practical problems involving multiplication of a whole number, limited to 12 or less, and a proper fraction, with models.
- G. The student will simplify whole number numerical expressions using the order of operations.
- H. The student will solve practical problems that involve perimeter, area, and volume in standard units of measure; and differentiate among perimeter, area, and volume and identify whether the application of the concept of perimeter, area, or volume is appropriate for a given situation.
- I. The student, given the equivalent measure of one unit, will identify equivalent measurements within the metric system; the student will solve practical problems involving length, mass, and liquid volume using metric units.

- J. The student will identify and describe the diameter, radius, chord, and circumference of a circle.
- K. The student will solve practical problems related to elapsed time in hours and minutes within a 24-hour period.
- L. The student will classify and measure right, acute, obtuse, and straight angles.
- M. The student will classify triangles as right, acute, or obtuse and equilateral, scalene, or isosceles; and investigate the sum of the interior angles in a triangle and determine an unknown angle measure.
- N. The student will recognize and apply transformations, such as translation, reflection, and rotation; and investigate and describe the results of combining and subdividing polygons.
- O. The student will determine the probability of an outcome by constructing a sample space or using the Fundamental (Basic) Counting Principle.
- P. The student, given a practical problem, will represent data in line plots and stem-and-leaf plots; interpret data represented in line plots and stem-and-leaf plots; and compare data represented in a line plot with the same data represented in a stem-and-leaf plot.
- Q. The student, given a practical context, will describe mean, median, and mode as measures of center; describe mean as fair share; describe the range of a set of data as a measure of spread; determine the mean, median, mode, and range of a set of data.
- R. The student will identify, describe, create, express, and extend number patterns found in objects, pictures, numbers and tables.
- S. The student will investigate and describe the concept of variable; write an equation to represent a given mathematical relationship, using a variable; use an expression with a variable to represent a given verbal expression involving one operation; and create a problem situation based on a given equation, using a single variable and one operation.

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: Whole Numbers & Decimals

- Week 1: Place Value
- Week 2: Comparing and Ordering
- Week 3: Adding and Subtracting Decimals
- Week 4: Rounding and Estimation

Module 2: Data & Graphing

- Week 5: Mean, Median, Mode, and Range
- Week 6: Data and Graphing
- Week 7: Probability
- Week 8: Patterns

- Week 9: Quarter One Review Week

Module 3: Multiplying Whole Numbers & Decimals

- Week 10: Multiplying Whole Numbers
- Week 11: Multiplying Decimals
- Week 12: Solving Decimal Word Problems

Module 4: Dividing and Word Problems with Decimals

- Week 13: Dividing Whole Numbers and Decimals
- Week 14: Solving Division Word Problems with Decimals

Module 5: Number Theory

- Week 15: Compatible Numbers and Squaring Numbers
- Week 16: Odd and Even Numbers
- Week 17: Operations
- Week 18: Quarter Two Review

Module 6: Fractions

- Week 19: Fractions
- Week 20: Equivalent Fractions and Simplifying Fractions
- Week 21: Mixed Numbers, Improper Fractions, and Adding Fractions
- Week 22: Comparing Fractions

Module 7: Operations with Fractions

- Week 23: Multiplying Fractions and Product Estimation
- Week 24: Dividing Fractions and Fractions as Percentages
- Week 25: Fractions as Decimals
- Week 26: Probability
- Week 27: Quarter Three Review

Module 8: Geometry

- Week 28: Polygons and Three-Dimensional Figures
- Week 29: Circles and Transformations
- Week 30: Angles
- Week 31: Triangles

Module 9: Measurement & Algebraic Thinking

- Week 32: Elapsed Time and Metric System
- Week 33: Perimeter and Area of Polygons
- Week 34: Patterns and Functions
- Week 35: Creating and Solving Equations
- Week 36: Quarter Four Review