LIBERTY UNIVERSITY | ONLINE ACADEMY

6th Grade Math
MAT0600

Course Description

The Liberty University Online Academy's sixth-grade math course promotes problem solving skills by teaching students how to make real-world connections with mathematics through the teaching of number theory, graphing and statistics, estimation, and solving real-world problems. Students are also taught the mathematical concepts of order of operations, integers, decimals, fractions, ratios and probability, measurement, geometry, and beginning algebra. Some additional features include: engaging multimedia video lectures by award-winning teacher, Edward Burger, who is funny and has a passion to teach math; helps pages for each lesson containing short videos, practice problems, and assessments; and closed captioning in English and Spanish for all video lessons.

Rationale

The sixth-grade math course is a transition from elementary where the emphasis is placed on whole number arithmetic to the foundations of algebra, ratios, fractions, multi-step problem solving, and a foundation in understanding integers. Students will understand that God created all things with order, and math is a way to help us to understand the order of things.

Prerequisite

5th Grade Math

Measurable Learning Outcomes

A. The student will compare and order whole numbers and rational numbers, and estimate whole numbers and write numbers as exponents.
B. The student will evaluate expressions using order of operations.
C. The student will solve one-step and two-step equations and inequalities.
D. The student will represent, compare, and order decimals and add, subtract, multiply and divide decimals.
E. The student will apply exponents by converting numbers to scientific notation and numbers in scientific form to standard form.
F. The student will compare and order fractions, and add, subtract, multiply, and divide fractions and mixed numbers.
G. The student will solve real-world problems with whole numbers, integers, fractions, and decimals.

H. The student will solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of decimals.
I. The student will solve measures of central tendency problems and interpret the solutions.
J. The student will make observations and inferences about data represented in histograms, stem-and-leaf plots, line plots, and circle graphs.
K. The student will write rates and ratios, and learn how to use them to solve proportions.
L. The student will learn how to solve percent problems in real-life situations.
M. The student will define basic geometric terms and classify angles, lines, and triangles.
N. The student will describe polygons, calculate angle measures, and transform them on the coordinate axis.
O. The student will make ballpark comparisons and convert between measurements in the U.S. Customary System of measurement and measurements in the metric system.
P. The student will define π (pi) as the ratio of the circumference of a circle to its diameter; solve practical problems involving circumference and area of a circle, given the diameter or radius; solve practical problems involving area and perimeter; and describe and determine the volume and surface area of rectangular prisms and cylinders.
Q. The student will identify the coordinates of a point in a coordinate plane, and graph ordered pairs in a coordinate plane.
R. The student will add, subtract, multiply, and divide integers.
S. The student will solve integer equations and two-step equations and inequalities.
T. The student will identify slope and graph equations.
U. The student will distinguish between experimental and theoretical probability, and calculate their probabilities as well as those of compound events.
V. The student will determine congruence of segments, angles, and polygons.

Course Materials

See LUOA's Systems Requirements for computer specifications necessary to operate LUOA curriculum. Also view Digital Literacy Requirements for LUOA's expectation of users' digital literacy.

This course makes use of third-party digital resources to enhance the learning experience. LUOA staff and faculty have curated these resources. Students can safely access them to complete coursework. Please ensure that internet browser settings, pop-up blockers, and other filtering tools allow for these resources to be accessed. See Technologies and Resources Used in this Course below for a specific list.

- Note: Embedded YouTube videos may be utilized to supplement LUOA curriculum. YouTube videos are the property of the respective content creator, licensed to YouTube for distribution and user access. As a non-profit educational institution, LUOA is able to use YouTube video content under the YouTube Terms of Service. For additional information on copyright, please contact the Jerry Falwell Library.

Technologies and Resources Used in this Course

The following resource(s) are used throughout this course:

- Thinkwell

Course Grading Policies

The student's grades will be determined according to the following grading scale and assignment weights. The final letter grade for the course is determined by a 10-point scale. Assignments are weighted according to a tier system, which can be referenced on the Grades Page in Canvas. Each tier is weighted according to the table below. Items that do not affect the student's grade are found in Tier 0.

Grading Scale		Assignment Weights	
A	90-100%	Tier 0	0%
B	80-89%	Tier 1	25%
C	70-79%	Tier 2	35%
D	60-69%	Tier 3	40%
F	0-59%		

In order for students to receive credit for a course, the following conditions have to be met:

1. All semester exams and module tests have to be completed,
2. All Tier 3 projects or papers have to be completed, and
3. Fewer than 10 zeros exist in the gradebook for blank submissions in a full credit course and 5 zeros for blank submissions in a semester course.

Course Policies

Students are accountable for *all* information in the Student Handbook. Below are a few policies that have been highlighted from the Student Handbook.

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." These identifiers were placed on the Modules page to help students understand which Honor Code and Resubmission policies apply to that assessment (see the Honor Code and Resubmission policies on the pages that follow for further details).

- **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.

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.
- **Assignment:** Students should do their best work the first time on all Assignments. However, any resubmissions must be completed before the student moves more than one module ahead of that Assignment. For example, a student may resubmit an Assignment from Module 3 while in Module 4, but not an Assignment from Modules 1 or 2. High School students may not resubmit an Assignment without expressed written permission from the teacher in a comment.
- **Quiz:** Students may NOT resubmit for an increased grade.
- **Test:** Students may NOT resubmit for an increased grade.

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, and that request will need to be approved by a Department Chair.

Consequences for Violations to the Honor Code

Every time a student violates the Honor Code, the teacher will submit an Honor Code Incident Report. The Student Support Coordinator will review the incident and allocate the appropriate consequences. Consequences, which are determined by the number of student offenses, are outlined below:

- **Warning:** This ONLY applies to high school Lessons and elementary/middle school Assignments and Lessons. Students should view these actions as learning opportunities.
  - **Lessons:** A zero will be assigned for the question only.
  - **Elementary/Middle School Assignment:** The student must redo his or her work; however, the student may retain his or her original grade.
- **1st Offense:**
  - **Lesson, Quiz, or Test:** The student will receive a 0% on the entire assessment.
  - **Assignment:** The student will either:
    - Receive a 0% on the original assignment

- Complete the Plagiarism Workshop
- Retry the assignment for a maximum grade of 80%
- **2nd Offense:** The student will receive a 0% and be placed on academic probation.
- **3rd Offense:** The student will receive a 0% and the Faculty Chair will determine the consequences that should follow, possibly including withdrawal from the course or expulsion from the academy.

Scope and Sequence

Math 6 - MAT0600

Module 1: Number Sense and Operations

Week 1: Whole Numbers and Exponents
Week 2: Order of Operations, Patterns and Expressions
Week 3: Translating Math Expressions
Week 4: Solving One-Step Equations

Module 2: Decimals, Scientific Notation & Prime Factorization

Week 5: Introduction to Decimals
Week 6: Operations with Decimals and Scientific Notation
Week 7: Dividing with Decimals
Week 8: Divisibility and Prime Factorization

Module 3: Adding & Subtracting Fractions and Mixed Numbers

Week 9: Introduction to Fractions
Week 10: Fractions and Mixed Numbers
Week 11: Adding and Subtracting Fractions
Week 12: Adding and Subtracting Mixed Numbers

Module 4: Multiplying/Dividing Fractions, Measures of Central Tendency & Data Displays

Week 13: Multiplying Fractions
Week 14: Dividing Fractions and Measures of Central Tendency
Week 15: Creating Data Displays
Week 16: Reading Data Displays and Ratios

Module 5: Ratios and Proportions

Week 17: Proportions
Week 18: Semester Review and Exam

Module 6: Percents, Introduction to Geometry, & Geometric Patterns

Week 19: Introduction to Percents
Week 20: Percents and Introduction to Planes

Week 21 Classifying Angles, Lines, and Triangles
Week 22: Polygons and Geometric Patterns

Module 7: Units of Measure, Measuring Aspects of Polygons

Week 23: Describing Polygons
Week 24: Units of Measure
Week 25: Converting Units of Measure
Week 26: Measuring Aspects of Polygons

Module 8: Area & Volume

Week 27: Circles and Area of Triangles and Quadrilaterals
Week 28: Area of Composite Figures and Circles
Week 29: Volume, Surface Area, and Integers
Week 30: The Coordinate Plane

Module 9: Integer Operations, Functions, Slope, Two-Step Equations

Week 31: Operations with Integers
Week 32: Function and Slope
Week 33: Solving Two-Step Equations and Inequalities
Week 34: Introduction to Probability

Module 10: Probability & Prediction

Week 35: Probability and Predictions
Week 36: Semester Exam