

5th Grade Math

MAT0500

Course Description

The fifth-grade standards place emphasis on number sense with whole numbers, fractions, and decimals. This focus includes concepts of prime and composite numbers, identifying even and odd numbers, and solving problems using order of operations for positive whole numbers. Students will develop proficiency in the use of fractions and decimals to solve practical problems. Students will collect, display, and analyze data in a variety of ways and solve probability problems, using a sample space, a tree diagram, or the Fundamental Counting Principle. Students will also solve problems involving volume, area, and perimeter. Students will be introduced to expressions with a variable. Students will solve problems using strategies including place value and the properties of addition and multiplication. All of these skills assist in the development of the algebraic concepts needed for success in the middle grades. Problem solving is integrated throughout the content strands. The development of problem-solving skills is a major goal of the mathematics program at every grade level. The development of skills and problem-solving strategies must be integrated early and continuously into each student's mathematics education.

Rationale

The Liberty University Online Academy's 5th grade math 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.

Prerequisite

4th Grade Math

Measurable 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 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. These resources have been curated by LUOA staff and faculty and can be safely accessed by students to complete coursework. Please ensure that internet browser settings, pop-up blockers, and other filtering tools allow for these resources to be accessed.

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

Education City

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 education institution, LUOA is able to use YouTube video content under the YouTube Terms of Service and the provisions of the TEACH Act of 2001. For additional information on copyright, please contact the [Jerry Falwell Library](#).

Course Grading Policies

The students' 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%		

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, “1.2.3 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 to 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 their 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. The student may freely resubmit for their first two attempts without the need for teacher approval.
- **Assignment:** Students are intended to 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 computer malfunctioning, 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 offences, are outlined below:

- **Warning:** This ONLY applies to high school Lessons and elementary/middle school Assignments and Lessons. These will be taken as a teaching moment for the student.
 - **Lessons:** A zero will be assigned for the question only.
 - **Elementary/Middle School Assignment:** The student must redo their work. However, they may retain their original grade.
- **1st Offense:**
 - **Lesson, Quiz, or Test:** The student will receive a zero 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 max grade of 80%
- **2nd Offense:** The student will receive a zero and be placed on Academic Probation.
- **3rd Offense:** The student will receive a zero 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

5th Grade Math

Module 1: Whole Numbers & Decimals

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

Module 2: Data & Graphing

Week 5: Collect and Organize Data
Week 6: Range, Median, & Mode
Week 7: Choosing & Analyzing Graphs
Week 8: Review and Test

Module 3: Multiply Whole Numbers & Decimals

Week 9: Multiply Whole Numbers
Week 10: Common Multiples
Week 11: Multiplying Decimals
Week 12: Review and Test

Module 4: Divide Whole Numbers & Decimals

Week 13: Division Review
Week 14: Remainders and Dividing Decimals
Week 15: Review and Test

Module 5: Number Theory & Estimation

Week 16: Estimation: Multiplication & Division
Week 17: Squaring 2 digit numbers & Even & Odd
Week 18: Operations

Module 6: Fractions

Week 19: Fractions: How They Work
Week 20: Adding Fractions
Week 21: Equivalent Fractions
Week 22: Review & Test

Module 7: Fractions

Week 23: Multiplying Fractions
Week 24: Fractions & Percentages
Week 25: Problem Solving with Fractions
Week 26: Review & Test

Module 8: Geometry

Week 27: Solid Shapes & Symmetry
Week 28: Identifying Angles
Week 29: Polygons
Week 30: Angles
Week 31: Review & Test

Module 9: Measurement

Week 32: Elapsed Time & Metric System
Week 33: Area & Perimeter & Distributive Property
Week 34: Solving Real World Problems

Module 10: Algebra

Week 35: One & Two Step Equations
Week 36: Review & Final Test