

# *Course Syllabus*

**MAT0600**

**6th Grade Math**

## **I. Course Description**

The Liberty University Online Academy's 6th 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. These concepts are taught using engaging lessons, hands on activities, videos, and interactive games.

## **II. Rationale**

The 6th 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.

## **III. Prerequisites**

5th grade math or placement test

## **IV. Materials List**

Microsoft Office or compatible software, printer, scanner, camera,  
notebook

## **V. Measurable Learning Outcomes (Virginia state standards)**

### **Number and Number Sense**

Focus: Relationships among Fractions, Decimals, and percentages

6.1 The student will describe and compare data, using ratios, and will use appropriate notations

6.2 The student will

- a) investigate and describe fractions, decimals, and percentages as ratios;
- b) identify a given fraction, decimal, or percent from a representation;
- c) demonstrate equivalent relationships among fractions, decimals, and percentages; and
- d) compare and order fractions, decimals, and percents.

6.3 The student will

- a) identify and represent integers;
- b) order and compare integers; and
- c) identify and describe absolute value of integers.

6.4 The student will demonstrate multiple representations of multiplication and division of fractions.

6.5 The student will investigate and describe concepts of positive exponents and perfect squares

### **Computation and Estimation**

Focus: Applications of Operations with Rational Numbers

6.6 The student will

- a) multiply and divide fractions and mixed numbers; and

b) estimate solutions and then solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of fractions

6.7 The student will solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of decimals.

6.8 The student will evaluate whole number numerical expressions, using the order of operations.

### **Measurement**

Focus: Problem Solving with Area, Perimeter, Volume, and Surface Area

6.9 The student will make ballpark comparisons between measurements in the U.S. Customary

System of measurement and measurements in the metric system.

6.10 The student will

a) define  $\pi$  (pi) as the ratio of the circumference of a circle to its diameter;

b) solve practical problems involving circumference and area of a circle, given the diameter or radius;

c) solve practical problems involving area and perimeter; and

d) describe and determine the volume and surface area of a rectangular prism.

### **Geometry**

Focus: Properties and Relationships

6.11 The student will

a) identify the coordinates of a point in a coordinate plane; and

b) graph ordered pairs in a coordinate plane.

6.12 The student will determine congruence of segments, angles, and

polygons.

6.13 The student will describe and identify properties of quadrilaterals.

### **Probability and Statistics**

Focus: Practical Applications of Statistics

6.14 The student, given a problem situation, will

- a) construct circle graphs;
- b) draw conclusions and make predictions, using circle graphs; and
- c) compare and contrast graphs that present information from the same data set.

6.15 The student will

- a) describe mean as balance point; and
- b) decide which measure of center is appropriate for a given purpose.

6.16 The student will

- a) compare and contrast dependent and independent events; and
- b) determine probabilities for dependent and independent events.

### **Patterns, Functions, and Algebra**

Focus: Variable Equations and Properties

6.17 The student will identify and extend geometric and arithmetic sequences.

6.18 The student will solve one-step linear equations in one variable involving whole number coefficients and positive rational solutions.

6.19 The student will investigate and recognize

- a) the identity properties for addition and multiplication;
- b) the multiplicative property of zero; and
- c) the inverse property for multiplication

## **VI. Course Requirements and Assignments**

- A. Individual lesson assessments (1 per lesson)
- B. Quizzes – not a set number of quizzes per unit – never more than 3
- C. Education City interactive lessons
- D. 1 Test or final project per unit

## **VII. Course Grading and Policies**

### **A. Grading Weights**

|                                 |     |
|---------------------------------|-----|
| Lesson Assignments              | 25% |
| Quizzes and Written Assignments | 35% |
| Tests                           | 40% |

### **B. Scale**

|   |          |
|---|----------|
| A | 93 – 100 |
| B | 85 – 92  |
| C | 77 – 84  |
| D | 70 – 76  |
| F | Below 70 |

## **VIII. Other Policies**

### **A. Academic Misconduct**

See pages 27-30 of your Student Handbook

### **B. Repeating Assignments**

Students may have two attempts on lessons. Quizzes and tests

cannot be repeated to gain a higher grade. Quizzes and tests may be reset for technical issues, but a new set of questions will be generated.

## Scope and Sequence

- I. Number Sense and Operations
- II. Data Analysis
- III. Decimals
- IV. Fractions
- V. Algebra
- VI. Measurement
- VII. Probability, Ratios, Proportion, and Percent
- VIII. Geometry
- IX. Integers and Transformations
- X. Review