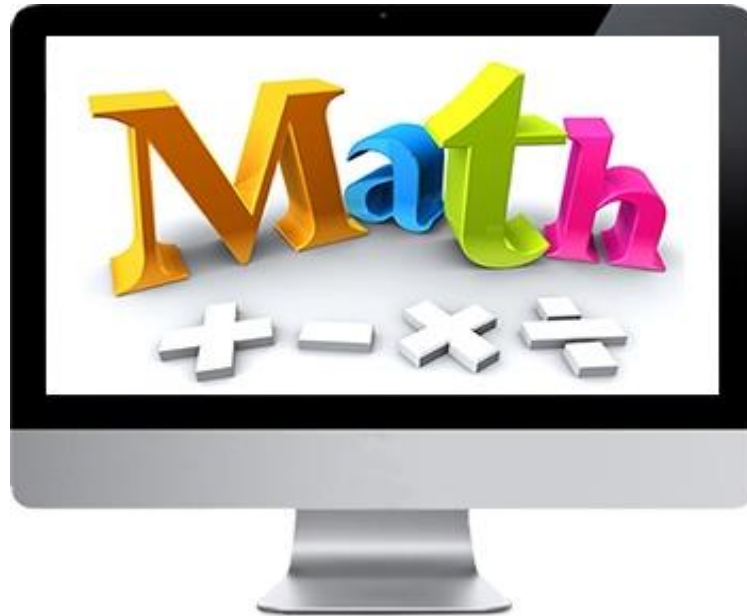


NFC ACADEMY



MATH 600 COURSE OVERVIEW

Math 600 is a full-year elementary math course focusing on number skills and numerical literacy, with an introduction to rational numbers and the skills needed for algebra. In it, students will gain solid experience with number theory and operations, including decimals and fractions. This course also integrates ratio relationships and proportional reasoning throughout the units, as well as introduces students to geometric and statistical concepts.

OBJECTIVES

- **UNIT 1:** Identify, compare, and calculate problems with decimal numbers
- **UNIT 2:** Identify, reduce, compare, and represent fractions
- **UNIT 3:** Use division to solve problems involving fractions
- **UNIT 4:** Use ratios to solve problems, interpret data, and make comparisons

- **UNIT 5:** Use rates and percentages to solve problems
- **UNIT 6:** Calculate the measurements of geometric shapes
- **UNIT 7:** Identify and use rational numbers and their opposites
- **UNIT 8:** Identify, use, and compare expressions
- **UNIT 9:** Translate, write, and solve equations involving addition, subtraction, multiplication, and division
- **UNIT 10:** Interpret and describe data presented in various graphs
- **UNIT 11:** Review skills and concepts from throughout the course

CURRICULUM CONTENT AND SKILLS FOCUS

UNIT 1: DECIMALS

- Identify and round place value for decimal numbers
- Read and write decimal numbers and represent decimal numbers on the number line
- Estimate with decimal numbers using different types of estimation
- Add, multiply, and subtract decimal numbers
- Use the distributive property or an algorithm to multiply decimals by whole numbers
- Divide whole numbers using long division and represent a quotient using a remainder or a fraction
- Multiply and divide decimal numbers by powers of ten
- Divide whole numbers by decimals (and vice versa) and decimals by other decimals
- Review metric units

UNIT 2: FRACTIONS

- Determine whether a number is prime or composite
- Use divisibility rules to find the prime factorization of a number
- Express a number as a product of prime numbers
- Find the GCF of two numbers and use the distributive property and the GCF of two numbers to rewrite their sum

- Use a fraction to show part of a whole and reduce fractions to lowest terms
- Represent a fraction on the number line and identify and find equivalent fractions
- Find the least common multiple of two numbers and use the LCM to solve problems
- Find the least common denominator of two or more fractions
- Compare and order fractions and convert between improper fractions and mixed numbers
- Locate mixed numbers on the number line
- Convert decimals to fractions and fractions and mixed numbers to decimal numbers
- Identify terminating and repeating decimal numbers
- Estimate with fractions using the four operations and round fractions to the nearest whole or half
- Multiply a fraction and a whole number

UNIT 3: DIVIDING FRACTIONS

- Divide unit fractions and whole numbers using fraction models
- Divide whole numbers by fractions using fraction models
- Divide fractions by fractions using fraction models
- Find the reciprocal of a fraction and of a mixed number
- Divide proper fractions and whole numbers using an equation
- Evaluate fraction expressions
- Divide with mixed numbers
- Use division to solve real-world problems

UNIT 4: RATIOS

- Use a ratio to compare two quantities
- Express a ratio in lowest terms
- Use a ratio table to solve a problem and to find equivalent ratios
- Write a multiplication statement using the ratio value
- Use the value of a ratio to compare ratios

- Represent a ratio problem with a double number line
- Represent a ratio problem with an equation
- Use an equation to solve a problem

UNIT 5: RATES AND PERCENT

- Use a rate to describe a ratio relationship
- Find equivalent ratios for a given rate
- Solve a rate problem using a table or double number line
- Solve a rate problem using the unit rate and an equation
- Use a conversion ratio to convert measurements
- Use rates to determine the best buy
- Use rates to solve speed and work problems
- Use a decimal, fraction, or percent to represent the same value and compare them
- Understand that the same model can be used to represent a decimal, percent, or fraction
- Find the percent of a number and use equivalent ratios to solve percent problems
- Compare the annual salaries of several occupations and calculate the effects of the different annual salaries on lifetime income

UNIT 6: GEOMETRY AND MEASUREMENT

- Classify triangles and quadrilaterals based on their attributes
- Find the area of a parallelogram
- Measure angles within a parallelogram using a protractor
- Understand the relationship between the area of parallelograms and triangles
- Find the area of a triangle
- Decompose polygons into rectangles and triangles
- Find the area of simple composite figures
- Find the volume or surface area of a right rectangular prism
- Find the surface area of a right triangular prism or pyramid

UNIT 7: RATIONAL NUMBERS

- Understand that the integers are made up of the whole numbers and their opposites and represent integers as points on the number line and in everyday life
- Identify the opposite of a number and opposite of a number's opposite
- Understand that opposite numbers have a sum of zero
- Identify the opposite of a rational number and represent rational numbers on the number line
- Use the number line to compare integers and rational numbers
- Write an inequality statement to relate two quantities
- Order integers and rational numbers in real life situations
- Compare and order absolute value numbers
- Use absolute value in real life situation
- Understand the relationship between order and absolute value
- Graph ordered pairs on the coordinate plane, in all four quadrants including those with opposite signs on the coordinate plane
- Reflect ordered pairs across one or both axes in the coordinate plane and find vertical and horizontal distance on the coordinate plane
- Graph polygons on the coordinate plane and find their area and perimeter

UNIT 8: NUMERICAL AND ALGEBRAIC EXPRESSIONS

- Use the commutative, associative, identity, and distributive properties to simplify problems
- Use exponents to show repeated multiplication
- Find the value of a power
- Identify perfect squares and perfect cubes and find the square root of a perfect square and cube root of a perfect cube
- Use the order of operations to solve problems
- Translate between written and numerical or algebraic expressions
- Represent a word problem using an algebraic expression and substitute numbers for variables in an expression
- Evaluate expressions for specific numbers
- Identify like terms and equivalent expressions

- Simplify expressions using addition, multiplication, the distributive property, and subtraction
- Determine the question that an equation asks and solve one-step equations using mental math

UNIT 9: EQUATIONS AND FUNCTIONS

- Determine if a given value is a solution of a one- or two-step equation
- Translate and write one- and two-step equations
- Solve one-step addition, subtraction, multiplication, and division equations using inverse operations
- Determine if a given value is a solution of a one- or two-step inequality
- Translate inequality statements
- Graph inequality statements
- Find an output of a function, given the function rule and an input value
- Use a function to solve a real-world problem
- Find an input of a function, given the function rule and an output value
- Determine a function rule and use a function to describe a real-world situation
- Graph functions on a coordinate plane
- Find the equation for a function that has been graphed on a coordinate plane
- Represent a proportional relationship with a function
- Distinguish between discrete and continuous data
- Graph proportional relationships on the coordinate plane

UNIT 10: DATA ANALYSIS

- Determine whether a sample is biased or random
- Determine whether a question is statistical
- Describe a set of data using the mean
- Find the median, mode, and range for a set of data
- Describe a set of data using the median, mode, and range of a set of numerical data

- Determine when each measure of central tendency provides a good representation of the data
- Determine how an outlier affects the measures of central tendency
- Find the mean absolute deviation of a set of data
- Interpret and analyze data displayed in a frequency table, histogram, dot plot, stem-and-leaf plot, or box plot
- Relate data represented in a graph to its measures of central tendency and variability
- Explain different methods for paying for college

UNIT 11: COURSE REVIEW AND EXAM

- Review decimal numbers and computing with decimal numbers
- Review fractions and computing with fractions
- Review ratios, rates, and percent
- Review the International System of Units and U.S. Customary System of Unit
- Review two-dimensional and three-dimensional geometry
- Review rational numbers and the coordinate plane
- Review numerical and algebraic expressions
- Review equations, inequalities, and functions
- Review data analysis

REQUIRED RESOURCES

In addition to the basic course content which includes daily assignments, periodic quizzes, and tests, some projects, if required, may require paper and pencil or drawing supplies to complete the assignment. You may also need to use a calculator in some lessons.

The following lessons require specific materials that are not included in this course and must be acquired separately:

Unit	Assignment Title	Supply List
6	Area of a Parallelogram	• a protractor

GRADING INFORMATION

GRADING COMPONENTS

Lessons	40%
Quizzes	30%
Tests	30%

GRADING SCALE

100-90	A
89-80	B
79-70	C
69-60	D
Below 60	F