

Mason Middle School Math 8 Syllabus

Grading

In Math 8 you will learn about four key areas of math that include number and operations, algebra, geometry and data and probability. There will be an added emphasis on algebra. The Mason Middle School grading scale will be used for this class. Percentages will be rounded to the nearest whole number. Your grade will be based on the following categories: 10% Assignments, 10% Notebook Checks and 80% Quizzes/Tests.

Curriculum Overview

- I. Expressions, Equations and Functions
 - A. Evaluate and write expressions, equations and inequalities
 - B. Order of operations
 - C. Precision and management
 - D. Rules, tables and graphs

- II. Solving Linear Equations
 - A. Square roots and real numbers
 - B. Solving one-step, two-step and multi-step equations
 - C. Solve equations with variables on both sides
 - D. Write ratios and proportions
 - E. Rewrite equations and formulas

- III. Graphing Linear Equations and Functions
 - A. Plot points in a coordinate plane
 - B. Graph linear equations using a table, intercepts and slope-intercept form
 - C. Find slope and rate of change
 - D. Direct variation

- IV. Writing Linear Equations
 - A. Slope-intercept form
 - B. Point-slope form
 - C. Standard form
 - D. Equations of parallel and perpendicular lines

- V. Solving and Graphing Linear Inequalities
 - A. Solving one-step inequalities
 - B. Solving multi-step inequalities
 - C. Solving compound inequalities
 - D. Graph linear inequalities in two variables

- VI. Systems of Equations and Inequalities
 - A. Graphing, substitution and elimination methods

- B. Special types
 - C. Systems of linear inequalities
- VII. Exponents and Exponential Functions
- A. Exponent properties involving products
 - B. Exponent properties involving quotients
 - C. Zero and negative exponents
 - D. Exponential growth and decay functions
- VIII. Polynomials and Factoring
- A. Add, subtract and multiply polynomials
 - B. Special products of polynomials
 - C. Solve polynomials in factored form
 - D. Factor $x^2 + bx + c$ and $ax^2 + bx + c$
 - E. Factor special products
 - E. Factor polynomials completely
- IX. Quadratic Equations and Functions
- A. Graph $y = ax^2 + c$
 - B. Graph $y = ax^2 + bx + c$
 - C. Solve quadratic equations by graphing
 - D. Use square roots to solve quadratic equations
- X. Geometry
- A. The Pythagorean theorem and the distance formula
 - B. Area and circumference of a circle
 - C. Area and perimeter of quadrilaterals, triangles, circles and complex figures.
 - D. Volume of cylinders, cones, pyramids and spheres.
 - E. Surface area
 - F. Transformations (translations, reflections, rotations and dilations)
- XI. Data and Probability
- A. Mean, median and mode
 - B. Computing relative frequencies
 - C. Basic counting principle
 - D. Independent vs. dependent events