

8th Grade Advanced Math Curriculum

The Eighth Grade Math Program (Algebra I) is an accelerated course designed to help students master the traditional algebraic properties and concepts necessary to achieve success in future mathematics courses. Students will develop the skills necessary to solve multi-variable equations, functions and work with expressions. This course also covers algebraic concepts related to graphs and geometric principles. These skills are taught through lessons, practice problems, cooperative learning exercises and problem solving activities. Upon completion of this course, students will be prepared to enter high school geometry or Algebra II.

Algebra

Students will:

- *Apply the properties of real numbers.*
- *Apply the properties of signed numbers.*
- *Apply the algebraic order of operations correctly.*
- *Graph inequalities on the number line.*
- *Define absolute value and graph representations on the number line.*
- *Perform calculations using scientific notation.*
- *Simplify rational expressions.*
- *Simplify radicals.*
- *Solve single variable multi-step equations.*
- *Solve one variable equations involving whole numbers, fractions, decimals, and percents.*
- *Solve literal equations.*
- *Evaluate formulae.*
- *Solve inequalities.*
- *Find slope .*
- *Graph linear equations using slope intercept method and double intercept method.*
- *Solve and graph absolute value equations .*
- *Solve systems of equations using substitution, elimination, combination, And graphing.*
- *Apply all properties of exponents.*

- *Perform all properties of exponents - addition, subtraction , multiplication, division.*
- *Factor polynomials completely.*
- *Solve quadratic equations by factoring and quadratic formula.*
- *Divide polynomials using synthetic division*
- *Compare graphs of linear, quadratic, and exponential functions*
- *Calculate factorials**
*Find permutations and combinations**
- *Use a graphing calculator **

****These topics are optional***

Materials

- *graph paper*
- *graphing calculator*
Calculator lab materials
- *math manipulatives*
- *overhead projector*
- *Addison Wesley: Foerster student and teacher books and materials*
TI 84+ graphing calculator
Excell/Open Office spreadsheet

Instruction

- *hands on activities*
- *lecture*
- *practice problems*
- *cooperative group projects and activities*
- *problem solving*