MATHEMATICS
(four credits required)
The mathematics curriculum is a structured sequence beginning with Algebra I and proceeding through Geometry and Algebra II. To complete a minimum of 4 credits, courses may be taken in Trigonometry, Calculus, Topics in Math, or Probability and Statistics.

Algebra I
This course will develop the ability to translate verbal expressions into mathematical symbols. Order of operations, solving equations and inequalities, and factoring will be applied to these mathematical symbols. Linear equations will also be studied through graphing, writing equations, and real life applications.

Geometry
This course contains the traditional topics of plane and solid geometry with an emphasis on inductive/deductive thinking, proof, and problem solving. Prerequisite: Successful completion of our Algebra I class or meeting a minimum benchmark score on our Algebra I Bypass Exam

Honors Geometry
This course contains the traditional topics of plane and solid geometry and investigates areas of non-Euclidian geometry. Emphasis is placed on inductive/deductive thinking, reasoning, and proof. Connections are made with other areas of mathematics through problem solving. Research projects are required. Prerequisite: Successful completion of a Geometry course and teacher recommendation or meeting a minimum benchmark score on the LCHS Algebra I Bypass Exam and recommendation based on Placement Exam scores

Algebra II
The operations of Algebra I are reviewed and strengthened. Additional content includes the solution of equations and inequalities in one, two, and three variables, the graphs of relations, complex numbers, quadratics, and higher degree polynomial functions, logarithms, and exponential functions. Prerequisite: Successful completion of a Geometry course or successful completion of a Geometry course and meeting a minimum benchmark score on the LCHS Algebra I Bypass Exam and recommendation based on Placement Exam scores

Honors Algebra II
The operations of Algebra I are reviewed and strengthened. Additional content includes the solution of equations and inequalities in one, two, and three variables, the graphs of functions and relations, complex numbers, the properties of quadratics, and higher degree polynomials, logarithms, and exponential functions. Comparing and contrasting multiple strategies are stressed. Problem solving and practical applications are emphasized. Projects are required. Prerequisite: Successful completion of a Geometry course and teacher recommendation or successful completion of a Geometry course and meeting a minimum benchmark score on the LCHS Algebra I Bypass Exam and recommendation based on Placement Exam scores

Updated: Feb-14
**Topics in Math**
This course will include the properties of functions and their graphs, an introduction to trig functions, and an introduction to real world applications of applied mathematics. *Prerequisite: Successful completion of an Algebra II class and department recommendation*

**Trigonometry and Precalculus**
This course will study the six trigonometric functions and their inverses, vectors, parametric equations, and polar equations from an algebraic, geometric, and graphical standpoint. Also included will be a study of the characteristics and graphs of polynomial and rational functions and conic sections. *Prerequisite: Successful completion of an Algebra II class and teacher recommendation*

**Honors Trigonometry and Precalculus**
This course will cover all the topics of Trigonometry and Precalculus plus additional trig identities and graphing techniques. Real life applications will be stressed. *Prerequisite: Successful completion of an Algebra II class and teacher recommendation*

**Calculus**
This course is an introduction to Calculus, covering topics in differentiation and integration while reviewing necessary algebra and trigonometry skills. Content concentrates on real world applications rather than proof of the above topics. *Prerequisite: Successful completion of a Trigonometry/Precalculus class and teacher recommendation*

**Honors Calculus**
This course is a study in elementary functions and the calculus of a single variable including limits, differentiation, and integration. *Prerequisite: Successful completion of a Trigonometry/Precalculus class and teacher recommendation*

**Calculus II**
This class is a continuation of the Calculus topics learned in Calculus/Honors Calculus. Such topics include applications of integrals; i.e. Area between curves, Volume of solids of revolution, Arc Length, and Average Value. Differential and Integral calculus of exponential and logarithmic functions will also be taught. *Prerequisite: Successful completion of Calculus or Honors Calculus*

**Advanced Placement Calculus AB**
This course is an intense study in the calculus of functions of a single variable. Theory and applications of limits, differentiation, and integration are discussed. In May, the students will take the College Board's Advanced Placement Calculus AB exam. *Prerequisite: Successful completion of a Trigonometry/Precalculus class and teacher recommendation*
**Advanced Placement Calculus BC**
This course is a continuation of the calculus learned in AP Calculus AB. Content includes integration methods and applications, the calculus of parametric, polar, and vector functions, infinite series, Euler's method, and L'hopital's Rule. In May the students will take the College Board's Advanced Placement Calculus BC exam.

*Prerequisite: Successful completion of AP Calculus AB and teacher recommendation*

**Probability and Statistics**
This course is a one year course on the study of elementary statistics and probability. One and two variable statistics will be analyzed using data collected by the students. Principals of counting and calculations of probability will also be applied. *Prerequisite: Successful completion of an Algebra II class*

**Advanced Placement Statistics**
This class introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Four broad themes are covered: Exploring data (describing patterns and departures from patterns); Sampling and Experimentation (planning and conducting a study); Anticipating Patterns (exploring random phenomena using probability and simulation); and Statistical Inference (estimating population parameters and testing hypotheses). *Prerequisite: Successful completion of an Algebra II class and teacher recommendation*