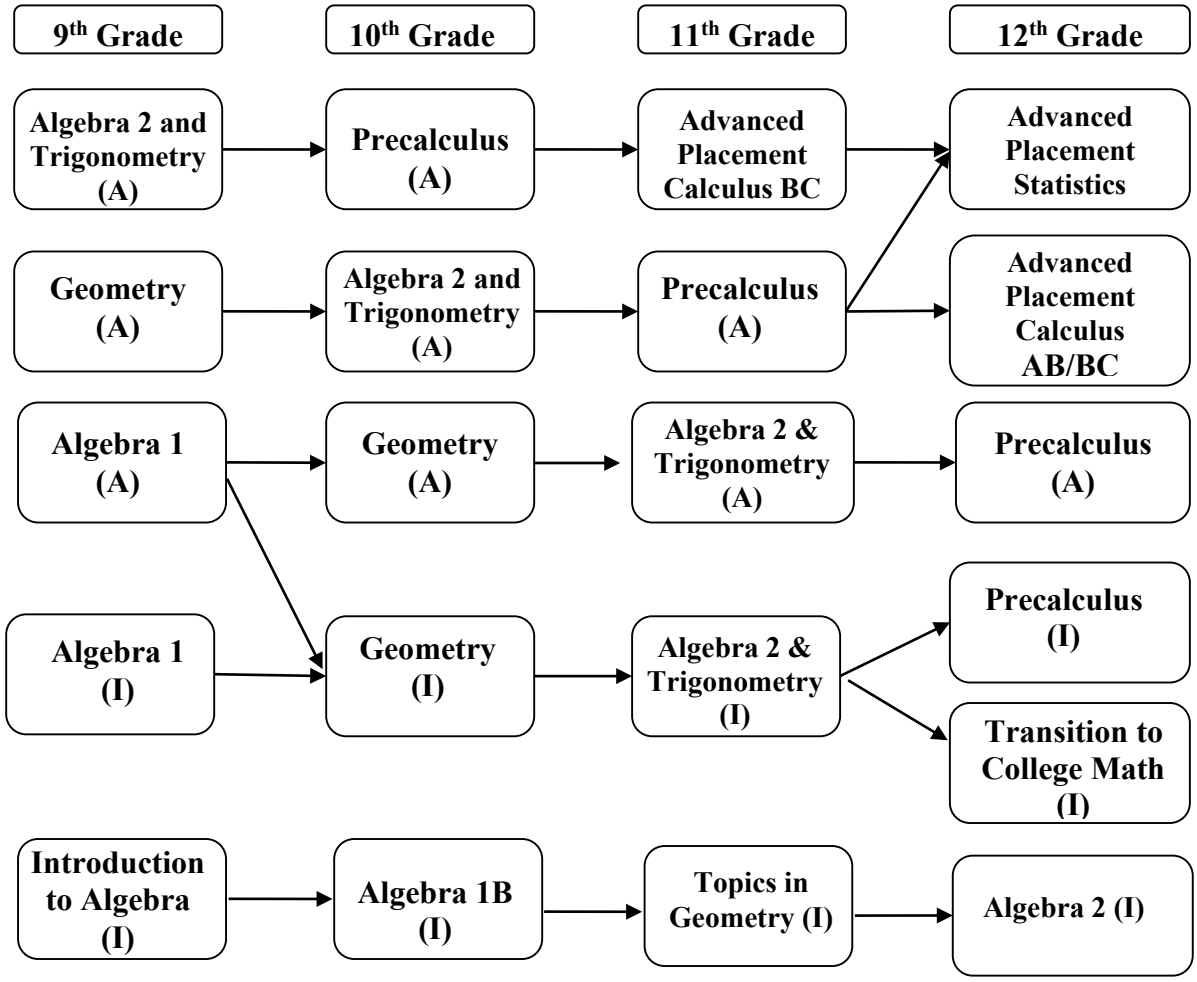
MATHEMATICS PROGRAM

Our goal is to provide students experiences in mathematics that will empower them to successfully problem solve both inside and outside of the classroom. We are committed to providing students with a strong Algebra foundation, a well-designed curriculum, and a supportive learning environment.



*Special situations exist where a student will be enrolled in a course and not be of the grade listed above.

ADVANCED PLACEMENT CALCULUS AB (A)
Length: *Two Semesters*
Grades: *11, 12*
Prerequisite: *Precalculus*
Qualifies for: *Applied Technology Credit*
Advanced Placement Calculus AB is a college-level calculus course designed for the student with a high ability in mathematics. The course follows the syllabus of the Advanced Placement Calculus AB and enables a student to test out of one semester of college calculus. The topics in this course include functions, graphs, and limits; derivatives and their applications; and the integral and its applications, and transcendental functions. An approved graphing calculator will be required for this course.

ADVANCED PLACEMENT CALCULUS BC (A)
Length: *Two Semesters*
Grades: *11, 12*
Prerequisite: *Precalculus (A) or teacher recommendation*
Qualifies for: *Applied Technology Credit*

Advanced Placement Calculus BC is a college-level calculus course designed for the student with high mathematical ability. The course follows the syllabus of the Advanced Placement Calculus BC. The topics in this course include the rate of change of a function, limits, derivatives of algebraic functions, applications of the derivative, integration, applications of the definite integral, transcendental functions, infinite series, and differential equations. An approved graphing calculator will be required for this course. Advanced Placement Calculus BC enables a student the opportunity to test out of two semesters of college calculus.

ADVANCED PLACEMENT COMPUTER SCIENCE A (A)
Length: *Two Semesters*
Grades: *11, 12*
Qualifies for: *Math or Applied Technology Credit*
Prerequisite: *Computer Programming*
Advanced Placement Computer Science A is a continuation of Computer Programming. It follows the syllabus of the Advanced Placement Computer Science A curriculum. The course is built around the development of computer programs or parts of programs that correctly solve a given problem. Additional lab time may be needed to complete the course requirements.

ADVANCED PLACEMENT STATISTICS (A)
Length: *Two Semesters*
Grades: *11, 12*
Prerequisite: *Precalculus or concurrent Precalculus and Teacher Recommendation*
Qualifies for: *Applied Technology Credit*
Advanced Placement Statistics is an introductory, non-calculus-based course in statistics. It will introduce students to the concepts and tools for collecting, analyzing, and drawing conclusions from data. Four broad conceptual themes will be covered: 1) exploratory analysis of data, 2) planning a study, 3) probability, and 4) statistical inference. The graphing calculator (use of a College Board Approved graphing calculator is an expectation for the Advanced Placement Test) will be used throughout the course. Students who complete this course will be prepared for and should take the Advanced Placement Statistics exam.

ALGEBRA 1 (I, A)
Length: *Two Semesters*
Grades: *9, 10*
Prerequisites: *Math 8 or a Pre-Algebra equivalent with teacher recommendation*
The topics covered in Algebra 1 include work with linear and quadratic functions and equations, systems of linear and nonlinear equations, statistics, radical and exponential expressions and rational expressions. Modeling will be emphasized throughout this course. Algebra 1 (A) is a rigorous course designed for students to learn independently and explore mathematical curiosities. Students must meet certain grade and assessment results to be placed in Algebra 1 (A). An approved graphing calculator will be required for this course.

ALGEBRA 1B (I)
Length: *2 semesters*
Grades: *10, 11*
Prerequisite: *Introduction to Algebra (I) or teacher recommendation*
Algebra 1B (I) is a continuation of Introduction to Algebra. It will continue to cover foundational mathematical concepts with a concentration on second semester Algebra 1 topics.

ALGEBRA 2 (I)
Length: *Two Semesters*
Grades: *11, 12*
Prerequisite: *Geometry or Equivalent*
Algebra 2 (I) reviews and extends the main concepts of elementary algebra by examining the structure of number systems: natural, integer, rational, and real. Powers, roots, radicals, functions, and equations are also studied. A scientific calculator is required.

MATHEMATICS PROGRAM

ALGEBRA 2 WITH TRIGONOMETRY (I, A)
Length: *Two Semesters*
Grades: *9, 10, 11, 12*
Prerequisite: *Algebra 1 or equivalent. Can be taken concurrently with Geometry with department approval*
The topics covered in Algebra 2 with Trigonometry will extend algebraic concepts and introduce more abstract concepts including: graphing quadratic functions, other polynomial functions, trigonometric functions, and exponential functions; working with polynomial, radical, rational, trigonometric, and imaginary expressions; solving polynomial, radical, exponential, and rational equations; sequences and series; statistics. An approved graphing calculator will be required for this course.

COMPUTER PROGRAMMING (I)
Length: *One Semester*
Grades: *9, 10, 11, 12*
Prerequisite: *Algebra 1*
Qualifies for: *Math or Applied Technology Credit*
Computer Programming consists of an introduction to computer programming in which students learn how to write computer programs in a specified language. The student will learn the fundamentals of computer programming, and the structured programming skills that can be used with any language. Additional lab time may be needed to complete the course requirements.

GEOMETRY (I, A)
Length: *Two Semesters*
Grades: *9, 10, 11, 12*
Prerequisite: *Algebra 1 or equivalent. Can be taken concurrently with Algebra 2 with Trigonometry with department approval*
The topics covered in Geometry will include transformations, parallel lines, congruence, similarity, proof, 3-dimensional perspective, circles, coordinate geometry, area, volume, and probability. Geometry (A) is a course designed primarily for freshmen who are independent learners with a high reasoning ability and a particular interest in mathematics.

INTRODUCTION TO ALGEBRA (I)
Length: *Two Semesters*
Grades: *9, 10*
Prerequisite: *Teacher Recommendation*
Introduction to Algebra covers foundational mathematical concepts concurrently with introductory Algebra topics.

PRECALCULUS (I, A)
Length: *Two Semesters*
Grades: *10, 11, 12*
Prerequisite: *Algebra 2 with Trigonometry*
The first semester of Precalculus covers advanced topics of Algebra with Trigonometry that will be needed for further math courses. Throughout the Precalculus course, students will extend concepts from Algebra 2 with Trigonometry, as well as prepare for a college level math course. An approved graphing calculator will be required for this course.

TOPICS IN GEOMETRY (I)
Length: *Two Semesters*
Grades: *10, 11, 12*
Prerequisite: *Algebra 1 or equivalent*
Topics in Geometry covers foundational elements of Geometry including: transformations, parallel lines, congruence, similarity, proof reasoning, circles, coordinate geometry, area, and volume.

TRANSITION TO COLLEGE MATH (I)
Length: *Two Semesters*
Grades: *12*
Prerequisite: *Algebra 2*
Transition to College Math is a 4th year math course developed for students to master the mathematics objectives provided by local community colleges. Upon successful completion of this course, students can be enrolled in a credit bearing course at an IL community college.