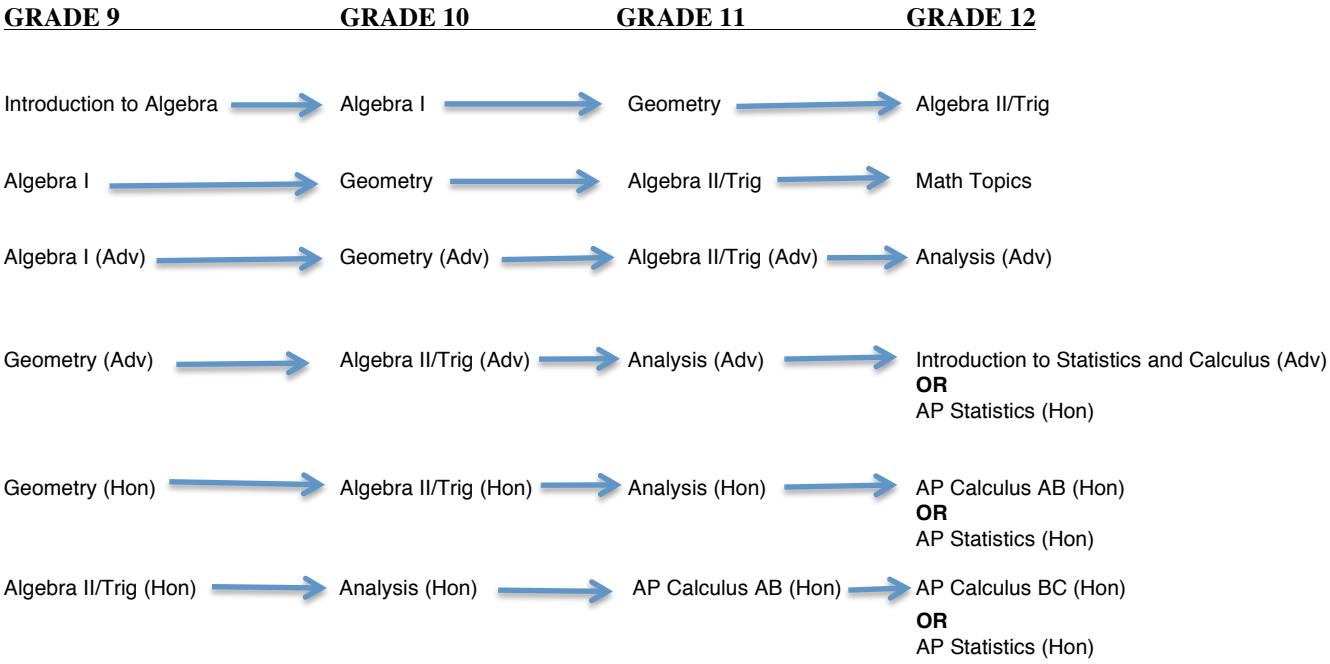
Knowledge and appreciation of mathematics is essential to students' intellectual development. Its beauty, its applications and its central place in many other disciplines commend it as a subject that can be understood and enjoyed by all learners. Its study helps students to develop thinking skills, organize their thoughts, understand and create logical arguments, and make valid inferences. Through cooperative learning with students and teachers, students experience the importance of working together and the rewards that come from building community.

The Math Department of Cretin-Derham Hall provides math offerings for students of all ability levels. There is a three-year graduation requirement. This requirement may be met by a variety of combinations that fit individual students' abilities and needs. There is no specific course sequence required in the Math Department. All math courses are year long.

A teacher recommendation is necessary for placement in an honors course.

Possible Math Sequences:



INTRODUCTION TO ALGEBRA **Year long**

This is a course designed to prepare students who need extra time to ready themselves for the algebra sequence. Review of basic skills is stressed throughout the year. Major topics include fractions, decimals, integers, percents, exponents, polynomials, equations, and graphing. Students completing this course will move on to Algebra I.

Grade 9

ALGEBRA I **Year long**

This course covers basic algebraic skills and concepts. Topics include linear and quadratic equations, graphing, factoring, polynomials, radicals, and operations with rational expressions. Recognition of proper problem-solving techniques is stressed, along with thorough solution techniques.

Grades 9, 10

ALGEBRA I – Advanced **Year long**

This course covers algebraic topics in greater depth than the Algebra I course. Topics include linear and quadratic equations, graphing, factoring, polynomials, radicals, and operations with rational expressions. While these topics are similar to those offered in the Algebra I course, more emphasis is placed on theory and application in this advanced version.

Grade 9

GEOMETRY **Year long**

This course considers the central topics in Euclidean geometry. Emphasis is given to geometric properties and informal proof. Topics include congruence, parallel and perpendicular lines, similarity, areas and volumes, circles, and coordinate geometry.

Prerequisite: Algebra I

Grades 10, 11

GEOMETRY - Advanced **Year long**

This is a course in plane and solid Euclidean geometry. Skills in deductive reasoning are developed. The concept of formal proof is introduced. Topics to be studied include congruence, parallel and perpendicular lines, similarity, areas and volumes, circles, and coordinate geometry.

Prerequisite: Algebra I -Adv. or instructor's permission or demonstration of Algebra competency

Grades 9, 10

GEOMETRY - Honors **Year long**

This is a course in plane and solid Euclidean geometry. Skills in deductive reasoning are developed. The concept of formal proof is stressed. Topics to be studied include congruence, parallel and perpendicular lines, similarity, areas and volumes, circles, and coordinate geometry. This course relies heavily on higher-order thinking skills.

Prerequisite: Demonstration of Algebra competency or instructor's permission

Grade 9

ALGEBRA II / TRIG. **Year long**

This course covers linear and quadratic equations, polynomials, rational expressions, rational exponents, complex numbers, conic sections, radicals, and trigonometry.

Prerequisite: Geometry

Grades 11, 12

ALGEBRA II / TRIG - Advanced **Year long**

Topics to be studied in this course include linear and quadratic equations, polynomials, rational expressions, rational exponents, complex numbers, conic sections, radicals, and trigonometry. While topics are similar to those in Algebra II, more emphasis is placed on theory and application in this course. A graphing calculator is required and is an integral part of this course.

Prerequisite: Geometry - Adv. or instructor's permission

Grades 10, 11, 12

ALGEBRA II / TRIG. – Honors **Year long**

Topics to be studied in this course include linear and quadratic equations, polynomials, rational expressions, rational exponents, complex numbers, conic sections, radicals, and trigonometry. While topics are similar to those in Algebra II, more emphasis is placed on depth of learning and application of concepts. A graphing calculator is required and is an integral part of this course.

Prerequisite: Geometry – Honors or demonstration of Geometry competency

Grades 9, 10

MATH TOPICS: A Survey of Applications **Year long**

This course is designed for students who wish to develop a math background suitable for a liberal arts education, with emphasis on applications of various topics. Course topics include probability, statistics, graphs, functions, matrices, sequences and series, discrete math and trigonometry.

Prerequisite: Algebra II / Trig

Grades 11, 12

ANALYSIS – Advanced **Year long**

This course consists of an in-depth study of functions: polynomial, exponential, logarithmic, and trigonometric. It also includes a study of complex numbers, analytical geometry, sequences, series, probability and statistics. A graphing calculator is required and is an integral part of the course. This course also acts as a preparatory class for students who wish to take Calculus the following year.

Prerequisite: Algebra II / Trig-Adv. or instructor's permission

Grades 11, 12

ANALYSIS – Honors **Year long**

This course consists of an in-depth study of functions: polynomial, exponential, logarithmic, and trigonometric. It also includes a study of complex numbers, analytical geometry, sequences, series, probability and statistics. A graphing calculator is required and is an integral part of the course. This course also acts as a preparatory class for students who wish to take Calculus the following year. Analysis - Honors is a rigorous math class and requires advanced thinking and study skills.

Prerequisite: Algebra II/Trig. - Honors

Grades 10, 11

INTRODUCTION TO STATISTICS and CALCULUS - Advanced **Year long**

Statistics will cover descriptive statistics, probability and combinatorics, normal distribution, confidence intervals and experimental design. Students will use current events and news items to build understanding of how statistics are reported (and misreported) in the world around us.

Calculus will expose students to some of the topics in a college level single variable calculus course. Topics to be covered include functions and their graph, limits and continuity, and an introduction to derivatives and integration. This course is not designed to replace a college level Calculus I course.

Prerequisite: Analysis – Advanced

Grade 12

ADVANCED PLACEMENT CALCULUS AB - Honors **Year long**

This is a broad, in-depth study of single-variable Calculus that is designed to prepare students for the Advanced Placement test. (AB) Topics covered include limits and continuity, differentiation and its applications, integration and its applications and graphing. The graphing calculator is an integral part of the course. Students who pass the Advanced Placement test receive credit and advanced standing at most colleges and universities.

Prerequisite: Analysis – Honors or Advanced and instructor's permission

Grades 11, 12

ADVANCED PLACEMENT CALCULUS BC - Honors **Year long**

This is the next course in the AP Calculus sequence. It will expand on student's knowledge from their first year of Calculus and continue with a study of parametric functions, polar coordinates, sequences and series, and differential equations. Students who take this course will be prepared to take the AP Calculus BC exam.

Prerequisite: AP Calculus AB

Grade 12

ADVANCED PLACEMENT STATISTICS – Honors Year long

This course introduces students to the major concepts and tools for collecting, analyzing and drawing conclusions from data. Students who pass the Advanced Placement test receive credit and advanced standing at most colleges and universities. Graphing calculators are required.

Prerequisite: Analysis – Honors or Advanced

Grades 11, 12