

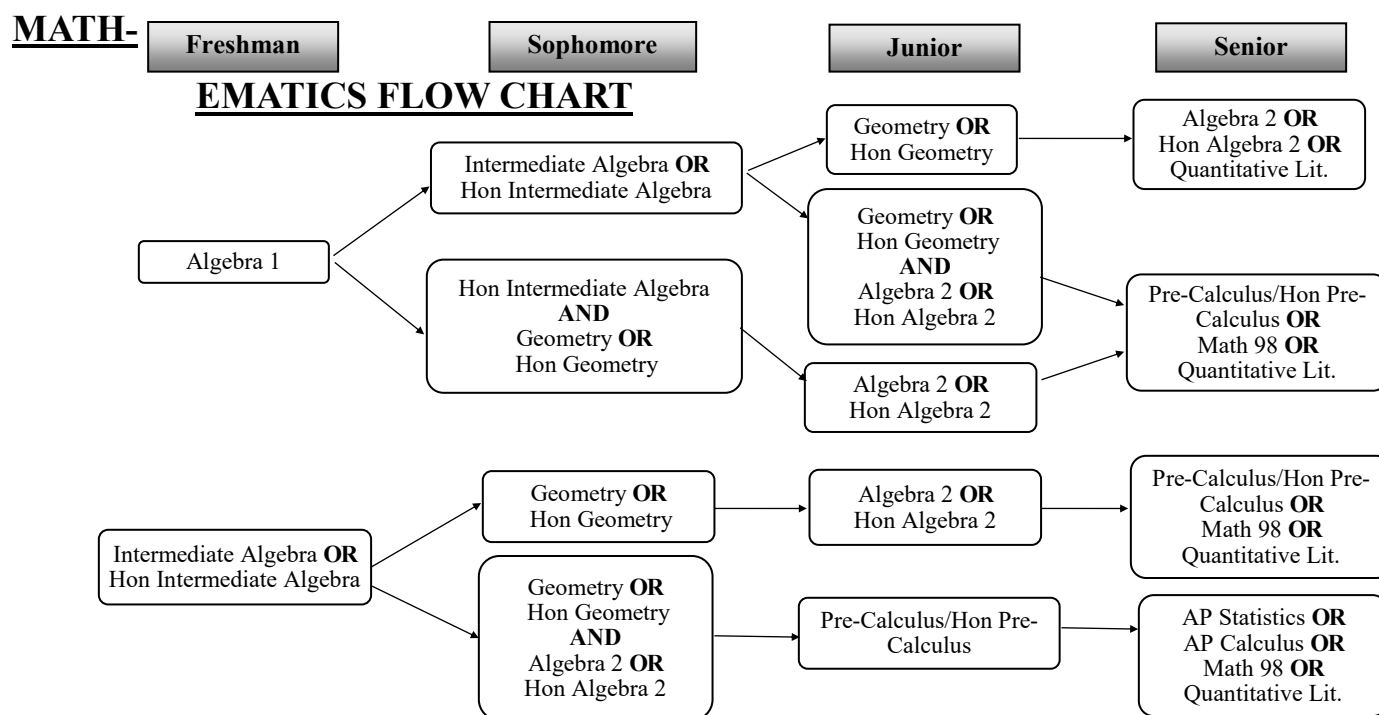
MATHEMATICS

RTHS requires a minimum 3 earned credits in Math (including Algebra 1 & Geometry content).

The mathematics department strongly recommends 4 years of math for any student planning to attend college. It is suggested to take Algebra 2 by Junior year to help prepare for the SAT. Because mathematics can be very vigorous and demanding, we offer math support during study hall for any student who needs extra help.

***Grade level designations apply except when a student needs to make up previously failed required classes.**

<u>AVAILABLE 2021-2022 COURSES</u>		
⚙️Registration fee for AP Exams approximately \$93.00		
*\$10.00 calculator rental		
Each course is worth 1 unit of credit (2 semesters)		
<u>COURSE</u>	<u>PREREQUISITE</u>	<u>GRADE LEVELS</u>
Algebra 1	No	*9
Intermediate Algebra	Yes	*9, 10
Honors Intermediate Algebra	Yes	9, 10
Geometry	Yes	*10, 11
Honors Geometry	Yes	10, 11
Algebra 2	Yes	10, 11, 12
Honors Algebra 2	Yes	10, 11, 12
⚙️AP Statistics	Yes	11, 12
Pre-Calculus/Honors Pre-Calculus	Yes	11, 12
⚙️AP Calculus	Yes	11, 12
Quantitative Literacy	Yes	12
Math 98	Yes	12



MATHEMATICS

ALGEBRA 1

Prerequisite: None

Grade Levels: *9

Credit: 1 unit - two semesters

**Open to 10, 11, 12 grade levels when needing to make up previously failed Algebra 1 class*

Purpose Statement: In Algebra 1, students will be investigating relationships between values. These relationships can be described by using functions, equations, graphs and tables. They will learn the role of the variable as they begin to learn a more abstract and logical way of thinking. Students will...

- Create equations and inequalities in one variable and use them to solve problems and justify steps.
- Solve and interpret linear equations.
- Understand bivariate data.
- Construct and interpret scatter plots. Fit a line of best fit and use it to estimate values.
- Construct linear functions from different representations (i.e. rule of four).
- Move between different representations of two functions (i.e. rule of four) and estimate rate of change from a graph (inc. "average rate of change") from a table of values in both linear and nonlinear situations.
- Understand key features of a piecewise, absolute value, and step graph and evaluate them.
- Create and apply equations and inequalities (in one variable). Justify the process.
- Understand, explain, and apply that systems of two linear equations can have no solutions, one solution, or infinite solutions.
- Use graphing technology to identify and interpret linear simultaneous equations (e.g. TI-83 or geogebra).
- Use algebraic techniques to identify and interpret linear simultaneous equations.

INTERMEDIATE ALGEBRA

Prerequisite: Placement

Grade Levels: *9, 10

Credit: 1 unit - two semesters

**Open to 11, 12 grade levels when needing to make up previously failed Intermediate Algebra class*

This course is the second part in a multi-part sequence of Algebra 1. It covers topics including the study of properties of the real number system and operations, evaluating rational algebraic expressions, solving and graphing equations and inequalities, translating word problems into equations, operations with and factoring of polynomials, and solving and graphing quadratics.

HONORS INTERMEDIATE ALGEBRA

Prerequisite: Placement

Grade Levels: 9, 10

Credit: 1 unit - two semesters

GEOMETRY

Prerequisite: Credit in Intermediate Algebra (or Honors Intermediate Algebra)

Grade Levels: *10, 11

Credit: 1 unit - two semesters

**Open to 12 grade level when needing to make up previously failed Geometry class*

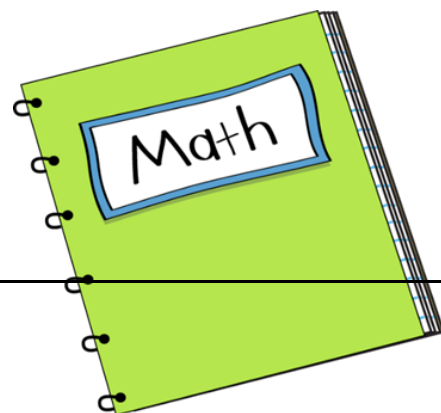
Purpose Statement: In Geometry students will develop their ability to think logically. They will learn the commonly used terminology of geometry as they develop a sense of the basic geometric properties. The main concepts taught in the course include: Transformations, Triangles and Angles, Congruence, Similarity, Trigonometry, Coordinate Area and Proof, and Volume.

HONORS GEOMETRY

Prerequisite: "C" or better in Honors Intermediate Algebra or recommendation from previous math teacher

Grade Levels: 10, 11

Credit: 1 unit - two semesters



ALGEBRA 2

Prerequisite: Credit in both Algebra 1 or Honors Algebra 1 and Geometry or Honors Geometry

Grade Levels: 10, 11, 12

Credit: 1 unit - two semesters

HONORS ALGEBRA 2

Prerequisite: C" or better in Honors Geometry or recommendation from previous math teacher

Grade Levels: 10, 11, 12

Credit: 1 unit - two semesters

Purpose Statement: In Algebra II, students will continue to investigate relationships between values. They will learn various techniques that allow them to work with more complicated expressions and equations. They will also develop their skills in graphing equations.

- Write a function to determine the geometric or arithmetic relationship between two quantities.
- Create and solve a system of equations and inequalities (linear/quadratic) including application problems.
- Analyze data sets and find linear or quadratic models discuss its relationship to the parent function via translations.
- Show the connection between zeros, factors, graphs, and division and apply this knowledge to modeled situations (quadratic, cubic, and quartic).
- Analyze a polynomial equations and inequalities from a graph.
- Identify general characteristics, transformations, and behaviors of rational functions.
- Solve rational equations from graphs, using the factorization, including real-world situations.

AP STATISTICS (Honors Credit)

Fees: Registration cost for AP exam (approximately \$93) Fee waivers available for eligible students

Prerequisite: Must have completed Algebra 2. (If taken as a junior, must have completed Pre-Calculus & Trigonometry.)

Grade Levels: 11, 12

Credit: 1 unit - two semesters

Purpose Statement: This course is a non-calculus based college level course in statistics. Students are expected to take the Advanced Placement exam as part of this course.

PRE-CALCULUS/HONORS PRE-CALCULUS

Prerequisite: Credit in Algebra 2

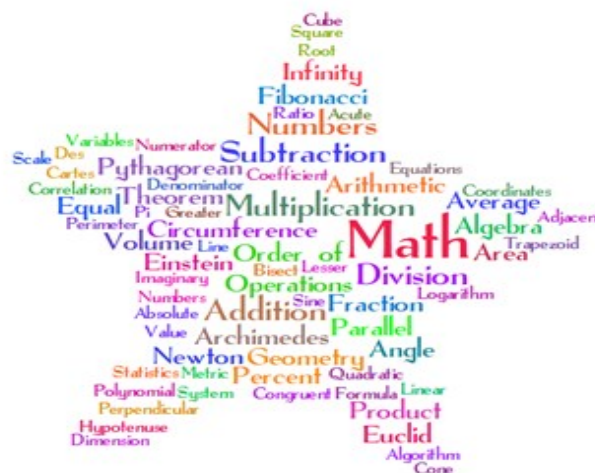
Grade Levels: 11, 12

Credit: 1 unit—two semesters

This class is not split into Honors and Regular. All students will be enrolled in the same Pre-Calc class. Students will still be able to earn an honors credit, but they will be asked to complete certain steps in order to get that honors distinction. Specifically, they will need to earn 4's on certain learning targets in order to get the honors distinction.

The students in this class will also be able to move at their own pace. Let's say that Student A can show understanding in all of the learning targets from unit 1, but Student B still need to work on 2 learning targets. Student A can move on to unit 2, while Student B can continue to work on those things they need to work on. The goal is to give every student the time they need to be successful.

This course will cover concepts involving Trigonometry, Analytical Trigonometry, Vectors, Systems of equations, Matrices, and Conic sections.



AP CALCULUS

Fees: Registration cost for AP exam (approximately \$93) Fee waivers available for eligible students

Prerequisite: Must have completed Pre-Calculus. (If taken as junior, must have completed Pre-Calculus & Trigonometry.) Calculus students will also be expected to complete a problem set over the summer due on the first day of class.

Grade Levels: 11, 12

Credit: 1 unit - two semesters.

Purpose Statement: In Calculus students will apply all of their algebraic skills. They will analyze the behavior of various functions and generalize the behavior of all functions from an early transcendental perspective. The unifying theme in the course is that the students will receive an authentic college experience of Calculus I.

1. Students will analyze the properties of limits. They will use these properties to find many limits and define the derivative.
2. Students will develop the ability to take derivatives of some functions. They will use their knowledge of algebra to begin building a new system of theorems and rules in which to do calculus.
3. Students will further develop their understanding of derivatives. They will begin to investigate some applications of the derivative.
4. Students will analyze functions using derivatives. They will investigate how to sketch functions without calculator assistance.
5. Students will develop their knowledge of integration. They will compare different integration techniques.
6. Students will investigate more integration techniques. They will broaden their knowledge of integration and will be able to handle most integrals.
7. Students will find volume of obscure objects by applying integration techniques learned previously.

QUANTITATIVE LITERACY

Prerequisite: Must have completed all math graduation requirements prior to enrollment.

Grade Levels: 12

Credit: 1 unit—two semesters

This course is a 4th year math option. It covers the math involved in personal finance, statistics, and predictions in everyday life, analyzing the world and making decisions and will involve starting a business. Earning a C or better will allow students to bypass college placement exams at certain colleges. This course will give students a great head start as they prepare for the transition to college mathematics.

MATH 98

Prerequisite: Must have passed both semesters Algebra 2 or Honors Algebra 2 and have 3 years of Math credit.

Grade Levels: 12

Credit: 1 unit—two semesters

This course is a 4th year math option perfect for a student who plans to go to college. It will cover a wide variety of topics in Algebra and will combine these skills to solve real-life application problems. Earning a C or better will allow students to bypass college placement exams at certain colleges. This course will give students a great head start as they prepare for the transition to college mathematics.

