

High School Math

There are two decisions to make as you begin your high school math program. First, you should consider which pathway. There is the ability to move between pathways at certain points in the curriculum. You then need to select between the honor or college preparation options. When making this decision, select a course that will be both challenging and manageable for you in your first year of high school. It is important that you consider your 8th grade math teacher's recommendation.

General Information:

Common Core Standards and Massachusetts Frameworks

<http://www.doe.mass.edu/frameworks/current.html>

Two Pathways: Below are the choices for most entering 8th grade students. Students need to meet the prerequisite of a C- to advance unless otherwise indicated.

Interactive Mathematics Program (IMP)	Traditional
<p>Math 8 students choices:</p> <p>a. Pre-Algebra Courses (Transformational Geometry, Parameter Graphing, Number Patterns A)</p> <p>b. IMP Year I College Prep or Honors</p> <p>Algebra I Honors students choose:</p> <p>a. IMP Year 2 Honors(earned a C or better in Alg1)</p> <p>b. IMP Year 1 College Prep. or Honors (C- or below in Alg. 1)</p> <p>Geometry Honors students choose:</p> <p>a. IMP Year 3 Honors (earned a C or better in Alg. I and Geometry)</p> <p>b. IMP Year 2 College Prep. or Honors (earned a C- or below in Geometry)</p>	<p>Math 8 students choices:</p> <p>a. Pre-Algebra Courses (Transformational Geometry, Parameter Graphing, Number Patterns A)</p> <p>b. Algebra I College Prep or Honors</p> <p>Algebra I Honors students choose:</p> <p>a. Geometry Honors (earned a C or better in Alg.1)</p> <p>b. Algebra 1 College Prep. or Honors (C- or below in Alg. 1)</p> <p>Geometry Honors students choose:</p> <p>a. Algebra II Real and Complex (earned a C or better in Alg. I)</p> <p>b. Algebra II Functions (earned a C- in Alg. I Honors)</p> <p>c. Geometry College Prep. or Honors earned below a C- in Geometry)</p>

Both pathways lead to calculus. Students in the traditional pathway would be prepared to take calculus after pre-calculus and students in the IMP pathway would be prepared take calculus after Year 4.

College Prep. Vs. Honors:

Students that opt for honors level work are distinguished for their energy, persistence, and interest in mathematics. The work will not just include more difficult problems; you will be expected to work at a high level of abstraction.

How many honors courses do you plan to take?

It is important to balance your interests, academic load, and extra-curricular activities as not to over-extend yourself.

Do you have a strong interest in mathematics?

Students will need to decide between the traditional pathway (Algebra, Geometry) or the integrated pathway (IMP Year 1, IMP Year 2). Both pathways will prepare you to take Calculus either in high school or college. Below you will find some of the similarities and differences in the pathways to help guide your decision.

Similarities:

In both pathways:

- The curriculum is challenging.
- Students are expected to work in groups.
- Students are expected to put a lot of effort into their class work and homework.
- Students will do some writing to explain their thinking.
- Students will do some open-ended problems in the traditional pathway. In IMP, 'Problems of the Week' are an integral part of the curriculum.
- Students may opt for college prep. or honors credit.

Differences:

- In the traditional pathway, students will learn the skills and concepts first and then apply these to different situations.
- In the traditional pathway, the students will be expected to explain their thinking in writing. The extent varies depending on the course.
- In the traditional pathway, probability and statistics is not integrated into the curriculum. Students may opt to take one or two trimesters of probability and statistics. In IMP, probability and statistics is integrated into all four years.
- In the traditional pathway, there are opportunities over the four years for students to do inquiry based learning, long term projects, and use the Software Geometer's Sketchpad to investigate and deepen their understanding.
- In the IMP pathway, students will work like scientists and mathematicians do. You will look at physical situations, figure out how to represent them mathematically, and study the math that arises from the situation.
- IMP is an integrated curriculum that was designed to allow students to develop understanding over time. In IMP, writing and revising explanations is a fundamental element of the curriculum by which students deepen their understanding of how math makes sense and how different mathematical ideas and real situations are connected.
- The IMP curriculum was designed to exploit the advantages of group work. In IMP, group work is an instructional mode used to support and stretch all students, promote mathematical discourse, and exploit diversity of student's ideas and strengths.
- In IMP, students work 8-10 'Problems of the Week' per year. These are designed to develop their ability to attack, solve and justify open-ended, non-routine problems. These problems are usually unrelated to the unit of study and require students to find their own mode of solution. This element of the IMP curriculum specifically addresses the Common Core Practice Standards in a sustainable, systematic way.
- The traditional pathway has honors classes and college prep. classes. The IMP curriculum is honors curriculum designed to support students with varied mathematical backgrounds. The IMP classes are heterogeneously grouped. Students may opt for college prep. or honors.

