MSC

MATH/SCIENCE/COMPUTER PROGRAM

An Alternative Program
Founded in 1984

Churchill High School
8900 Newburgh Road
Livonia, MI 48150
734-744-2650 Ext. 46967
www.livoniapublicschools.org/churchill

Fall 2026

Livonia Public Schools provides a magnet program which offers the opportunity for students to experience an accelerated, integrated curriculum in mathematics, science, and computer science courses. The curriculum of the Math/Science/Computer Program (MSC) is specifically designed for the academically talented student interested in math, science, and computer science. MSC students attend Churchill High School and participate in non-MSC classes with the Churchill High School student body.

APPLICATION & SELECTION

All eighth grade algebra and geometry students are eligible to apply for an MSC invitation. Students begin the process by nominating themselves through an application and letter of interest.

Additional testing is required as part of the MSC application process. A selection committee screens each student using the letter of interest, test results, as well as science and math teacher recommendations.

Thirty students are selected for the fall 9th grade class.

GOALS FOR MSC

The program will provide an opportunity for students to experience an appropriately accelerated, integrated program in math, science, and computer science while continuously building on a sound educational foundation.

The program will emphasize and encourage students to think critically and respond comprehensively. Independence, originality of thought, and decision-making opportunities will be provided through open-ended, exploratory investigations.

The program will provide both group and individual activities that allow interaction with other students who share similar interests and abilities. The program will provide opportunities designed to help students develop a positive view of themselves and their academic abilities.

MSC CURRICULUM

The curriculum of MSC is specifically designed for the academically talented student who has an intense interest in math, science, and computer science. In MSC courses, the content is taught at a faster pace and in greater depth. The Advanced Placement (AP) Program gives students the opportunity to pursue college-level studies while in high school and to receive advanced placement and/or course credit upon entering college.

NINTH GRADE COURSES

MSC Accelerated Algebra 2 is a full-year course which studies the properties of relations and functions, including those that are polynomial, rational, exponential, logarithmic, and conic sections. Additional topics include complex numbers, sequences, series, systems of equations, matrices, and probability. Emphasis is placed on innovative solution processes and problem solving techniques.

MSC AP Computer Science Principles is a full-year course which introduces students to the foundations of computer science. Along with the fundamentals of computing, students will gain a broader understanding of how computer science impacts people and society. The course is organized around five big ideas: creativity development, data, algorithms and programming, the internet, and the impact of computing. Students will be introduced to the Python programming language within the PLTW (Project Lead the Way) curriculum. Often, concepts will be taught using the Python Turtle module which allows students to practice programming concepts using graphics.

MSC Chemistry is a full-year course studying chemical formulas and equations, stoichiometric calculations, physical and chemical properties of various elements and compounds, electronic structure and chemical bonding, organic chemistry, rates of reaction, equilibrium, quantitative and qualitative analysis, and oxidation – reduction.

TENTH GRADE COURSES

MSC Accelerated Analysis is a full-year course covering topics in Trigonometry, Pre-Calculus, and beginning topics in Calculus. Topics include: trigonometric functions, their graphs and roots; trigonometric equations; trigonometric identities; solutions to both right and oblique triangles; polar functions; probability; combinatorics; sequences and series; a study of the theory of limits and its development into the definition of a derivative; development of differentiation skills.

MSC AP Computer Science A is a full-year course covering topics normally comprising an introductory college-level Computer Science course. Students will use the Java programming language. Students will learn and practice object-oriented concepts (including inheritance and polymorphism), learn to code well-known algorithms (including searches and sorts), and design and implement projects involving multiple classes. After completion of the AP curriculum, students will also have the opportunity to code using graphics.

MSC Biology is a one-semester (second semester) course and begins a three-semester sequence of high level introductory college biology. During this semester, students employ their prior experience in chemistry to learn the molecular nature of biology. Life is examined from the simplest organic compounds through the complex series of reactions that transform light energy into organic molecules. Cell organization, metabolism, cell division, and life's origins are all examined from a common molecular prospective.

MSC Accelerated Geometry is a one-semester (first semester) course which studies the topics covered in Geometry at a faster pace. Students who have already had geometry **do not** take this course and will instead choose a one-semester course outside the MSC curriculum.

ELEVENTH GRADE COURSES

MSC AP Biology is a full-year course and is a continuation of the Biology sequence started in 10th grade. Students are introduced to molecular genetics and some of the techniques of genetic engineering. The three domains of living things are compared on a molecular, anatomical, and physiological basis, with human reproduction, chemical and neurological regulation, and immunity receiving particular attention. Evidence for organic evolution as a unifying concept of biology is considered.

MSC AP Calculus BC is a full-year course in the calculus of functions of a single variable. Topics covered include: a thorough study of derivatives, integrals, and their applications; a study of convergent and divergent series; elementary differential equations; parametric functions; the calculus of polar curves.

MSC AP Physics C: Mechanics is a full-year course designed to be the equivalent of the first semester of a college introductory physics course. Students will apply geometric, algebraic, and trigonometric skills to solve classic physics problems. Some simple calculus will also be used. Topics covered include: kinematics; force; momentum; energy; rotation; torque; simple harmonic motion; universal gravitation.

TWELFTH GRADE COURSES

MSC AP Physics C: Electricity and Magnetism is a full-year course designed to be the equivalent of the second semester of a college introductory physics course. Although algebraic and trigonometric solutions will be used to solve classic physics problems, a greater emphasis will be placed on calculus-based solutions. Topics covered include: electrostatics; Gaussian surface; capacitance; Simple circuits; direct and alternating current; magnostatics; Maxwell's Equations; waves; optics.

MSC AP Chemistry is a full-year course designed to be the equivalent of the general chemistry course usually taken during the first year of college. Emphasis will be placed on laboratory activities and inquiry investigations. Topics such as the structure of matter, kinetic theory of gases, chemical equilibria, chemical kinetics, and the basic concepts of thermodynamics will be presented in considerable depth.

MSC Advanced Topics in Mathematics is a full-year course primarily consisting of statistics and topics in discrete mathematics. Discrete topics include logic, algorithms, and number theory. The Statistics part of the course will follow the Advanced Placement guidelines to prepare students to take the AP Statistics exam.

ADVANCED PLACEMENT (AP) EXAMINATIONS

The results of the Advanced Placement exams for students enrolled in the MSC program during 2024-2025 show that MSC students are continuing to perform well on these national exams. The MSC program prepares students to take exams in Biology, Calculus BC, Computer Science Principles, Computer Science A, Chemistry, Physics: Mechanics, Physics: Electricity and Magnetism, and Statistics. In addition, many MSC students take Advanced Placement courses in English, Government, Economics, and American History which are offered as a part of the Churchill High School curriculum. Many MSC students will take more than 10 AP exams during high school.

Of the 362 Advanced Placement Examinations taken by 122 MSC students during 2024-2025, 44% of the scores were grade five, 39% were grade four, and 12% were grade three.

STUDENT ACHIEVEMENT

National Presidential Scholars
Presidential Scholar Finalists and Semi-Finalists
National Congressional Scholar
First Place Michigan Math Prize Competition Award and numerous Gold, Silver and Bronze Medals
MSU Medical Scholars
U.S. Junior Mathematical Olympiad Qualifier
U of M Inteflex
NIH Oxford-Cambridge MD-PhD Program
Robert C. Byrd Honors, Michigan State Board of Ed.
National Merit Scholarship Winners
National Merit Scholarship Finalists
National Merit Semi-Finalists and Commended Students
Presidential Academic Awards
Finalist in Top Coder High School Tournament
Top 20 Scorer in US National Chemistry Olympiad
Gold Medal Top 20 International Chemistry Olympiad
Advanced Placement Scholars with Distinction
MHSAA Scholar Athletes
Rensselaer Medalists
Detroit Free Press Top High School Scholar
High School All-American Award Scholar
Channel 7 Best & Brightest Awards
Society of Women Engineers Madame Curie Awards
Numerous research grants, internships, and assistantships

STUDENT TO STUDENT: THE MSC EXPERIENCE

We went straight to the experts - our students - when we wanted to get the story on the Math/Science/Computer Program. We found their comments interesting and thought they might help you make your decision about whether or not MSC is for you.

QUESTION: **What do you like about attending classes in MSC?**

"You really get to know your teachers and classmates – it's kind of like a big school family."

"I like having the feeling of solving a difficult problem in MSC."

"Learn to understand concepts over facts and practice material using higher levels of thinking. Learn to manipulate what you are learning for many purposes."

"I like the friendliness of the class, how everyone knows everyone… the fun we have in learning and the way we help one another to understand."

QUESTION: What advice would you give to someone thinking about enrolling in MSC?

"If you are trying to gain as much knowledge as you can in math, computer and science, join it. It is a great experience and if you try hard, you can succeed in it."

"Do it, but you'll have to give up a lot so do it only if you are certain that you want to. It's worth it."

"If you are serious about working, it's worth it-because you're learning the most you possibly can in the system. Also, it is not true that your social life will be shot, because you can still have enough time for friends if you budget your time. Busiest people are the happiest."

QUESTION: How do you manage your studies with other extra-curricular activities you are involved in?

"Actually, I've learned to prioritize my time better during the sports season. I have less time, but I use what time I have better."

"You have to decide what is important to you and then allow time for each activity. I've been able to juggle athletics, being an officer in a major school organization, and teaching private music lessons while I've carried an extensive academic load."

ALUMNI IN COLLEGE

QUESTION: Do you feel prepared for college as a result of your experience in the MSC Program?

"After MSC, my first semester at Duke was a walk in the park...making my first semester very easy. I miss the closeness that results from having MSC classes together and have never regretted for one moment being in MSC."

"The program was truly worthwhile. There was more work than other students had in general, but it really paid off. I actually have less work now because of all the work I did in MSC…and at MSC I could get help from my teachers - not so easy at the university."

"So many times I have been in class, and they will be talking about something I learned in AP Chem or Stats or Physics - a good foundation will make your first year so much easier."

"There is no doubt in my mind that MSC prepared me for a better college experience. MSC as a program highly encourages group and collaborative work, which has given me a huge advantage in my first-year engineering courses. In addition, all of the credit I have already earned has allowed me to take a slightly lighter course load this semester, giving me time to acclimate to college life and put time into non-academic pursuits such as marching band."

COLLEGES & UNIVERSITIES ATTENDED BY MSC ALUMNI

Albion College
Alma College
Arizona State University
Boston University
Bowling Green State University
Bradley University
Brigham Young University
Brown University
California Institute of Technology
Calvin College
Carnegie Mellon University
Case Western Reserve University
Central Michigan University
Columbia University
Cornell University
Dartmouth College
Duke University
Eastern Michigan University
Eastman School of Music
Embry-Riddle Aeronautical University
Ferris State University
Gannon University
Georgetown University
Grand Valley State University
Harvard University
Harvey Mudd College
Hope College
Illinois Institute of Technology
Indiana Univ-Purdue Univ-Indianapolis
Johns Hopkins University
Kalamazoo College
Kettering University
Lawrence Technological University
Liberty University
Loyola University Chicago
Maranatha College
Massachusetts Institute of Technology
Michigan State University
Michigan Technological University
Mount Holyoke College
New Jersey Institute of Technology
New York University
Northern Michigan University
Northwestern University
Oakland University
Oberlin College
Ohio State University
Oklahoma Christian University
Olin College of Engineering
Penn State University
Purdue University
Radcliffe College
Rensellaer Polytechnic Institute
Rose-Hulman Institute of Technology
Siena Heights University
Stanford University
Texas A&M University
University of Alabama
University of California
University of Chicago
University of Colorado
University of Detroit Mercy
University of Illinois
University of Miami
University of Michigan
University of Minnesota
University of Missouri-Kansas City
University of Notre Dame
University of Pennsylvania
University of Pittsburgh
University of Rochester
University of Southern California
University of Virginia
University of Wisconsin
Valparaiso University
Wayne State University
Western Michigan University
Wright State University
Xavier University of Louisiana
Yale University

Appointments to:

U.S. Military Academy at West Point
U.S. Air Force Academy, Colorado Springs
U.S. Coast Guard Academy, New London
U.S. Naval Academy, Annapolis
U.S. Merchant Marine Academy, Kings Point

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