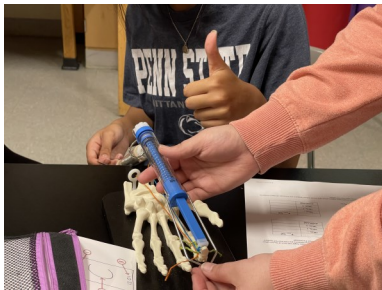


Partnerships

Aberdeen Proving Ground (APG), one of the premier research facilities in the Department of Defense, is located two miles from the SMA. Personnel from APG have been part of the planning and design of the SMA since its inception. We continue to utilize the expertise of the local professional community. From providing technical expertise in curriculum planning to mentoring seniors on their research capstone projects and joining us as guest speakers, STEM professionals in the surrounding community continually support the mission of the SMA and our students in meaningful ways.



The Harford County Public School System does not discriminate on the basis of race, color, sex, age, national origin, religion, sexual orientation, marital status, genetic identification, political affiliation, or disability in matters affecting employment or in providing access to programs to employees. Inquiries related to the policies of the Board of Education of Harford County should be directed to the Manager of Communications, 410-588-5203.

Testimonials

Students:

“To be part of the SMA is a huge honor. The students here inspire me to try to be better. Being part of the SMA means taking on problems that do not always have solutions, pushing yourself harder than you have ever pushed yourself before, and being part of a family that is united not only by a drive to be better, but also by an openness to be different.” M.W., Class of 2013

“Everyone wants to be my lab partner because I am the only one who actually knows what they are doing. Everything is so easy for me. I’m really glad that I went to the SMA and that the teachers were as tough on us as they were, because that has made the college transition very easy.” R.H., Class of 2014

“I’d like to start off by saying thank you! It’s mind blowing how well I’m doing in college, mostly because of the studying skills I’ve learned and challenging material I’ve faced in the SMA. I still find myself taking notes just as I did in APES, and I’m currently working on a robotics project to create a coil gun, and I’m documenting my progress just as I did in SRT.” D.C., Class of 2020

“The SMA’s emphasis on problem solving and inventive solutions has done me wonders thus far.” J.R. Class of 2011

“I just finished up the first half of my junior year, currently on track to graduate with a degree in Computer Science in June of 2019. I took some really cool classes this semester like Introduction to Artificial Intelligence and Foundations of Software Construction. I’m definitely really glad I had the SMA backing (especially SRT) when going into MIT.” K.B. Class of 2015


Mentor:

“After teaching at West Point for a number of years I realized the impact that mentorship has on students. Mentorship allows scientists and engineers to teach students real science. We all have a stake in ensuring that we have a strong bench of scientists to work at Aberdeen Proving Ground.” Dr. Fountain, Mentor

Parent:

“[A capstone project] is really like an independent research project, almost like at a college level that [students] are doing their senior year of high school. Not many senior high school graduates can say that they’ve done something like that.”

A.S., Parent of students in Class of 2008 and 2011

 @aberdeen_sma



The Science and Mathematics Academy
at Aberdeen High School
2025-26 School Profile

The Science and Mathematics Academy at Aberdeen High School is a school-within-a-school magnet program that provides academically talented students with educational experiences that integrate science, technology, engineering, and mathematics beyond the traditional advanced program. Admission to this rigorous four-year program is by competitive application based on prior academic success, interest and motivation in science and mathematics, teacher recommendations and written communication skills. Each year hundreds of students apply for the seats in the freshman class. Entering students must be ready for Algebra II as an entry level mathematics class, having completed courses in Algebra I and geometry prior to high school.



The Science and Mathematics Academy (SMA) is a member of the National Consortium of Secondary STEM Schools (NCSSS). The NCSSS is comprised of over 100 specialized schools across 32 states whose vision is to serve as a primary catalyst for the transformation of science, technology, engineering, and mathematics teaching and learning to enable students to meet the challenges of the future. Our students and faculty receive the benefits of NCSSS professional development opportunities.

The Instructional Program

The SMA offers a college preparatory program in which students engage in challenging coursework that prepares them for Science, Technology, Engineering and Mathematics (STEM) opportunities in higher education. All courses emphasize problem solving and creative thinking through inquiry-based learning. Advanced placement courses in science and mathematics are offered to students, as well as a large selection of science and mathematics semester electives based on students’ interest and faculty experience:

Exclusive to the SMA is a four-year sequenced series of courses called Science, Research, and Technology (SRT I-IV) in which students integrate STEM curriculum in relevant and authentic research. Regular contact with practicing scientists, engineers, and mathematicians occurs throughout the program. Beginning in the junior year of the SRT course sequence, each student completes projects in the following fields:

- Biotechnology & medical sciences
- Engineering & physical sciences
- Computational sciences & robotics
- Biomechanics & research

In the senior year, each student conducts a capstone research project under the mentorship of a professional scientist, mathematician, or engineer. The year-long capstone project concludes with a detailed, scientific poster and a presentation to peers, faculty, parents, and mentors.



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The Instructional Program (continued)

Organizations providing mentors to SMA seniors include:

- Attune Neurosciences
- Authority Brands
- Becton Dickinson
- Booz Allen Hamilton
- Cellares, Inc.
- Chesapeake Systems Engineering
- Energetics Technology Center
- FEMA
- Johns Hopkins University APL
- Kinzinger Farm
- ManTech International
- Maryland School for the Blind
- Pall Corporation
- Raytheon
- The Hydrofarm Inc.
- U.S. Army CECOM SEC
- U.S. Army DEVCOM Analysis Center
- U.S. Army DEVCOM CBC
- U.S. Army MRICD
- U.S. Army PEO IEW&S
- U.S. Army Public Health Center
- U.S. Army Research Laboratory

SMA Advanced Placement (AP) Courses

Calculus AB/BC	World History
Statistics	US Government
Computer Science	Language & Composition
Biology	Literature & Composition
Physics C	Foreign Languages
Chemistry	
Environmental Science	

SMA Electives

Algorithm Development	Mathematical Logic
Bacteriology	Microcontrollers
Biochemistry	Organic Chemistry
Biotechnology	Pre-engineering
Cryptology	Research Methods in STEM
Design	Robotics
Engineering	Statistics using R
Kinesiology	Zoology
Linear Algebra	



Embedded Technology

Technology is an integral part of the SMA program. SMA students have the ability and confidence to learn new technologies that they may encounter in postsecondary education and their chosen professions.

- Laptops are available for all students.
- Students use software such as Autodesk Fusion 360, Visual C#, RStudio, Minitab, Wolfram Mathematica, MPLAB, Arduino IDE, GIMP, Inkscape, Kinovea, Vernier Logger Pro and Graphical Analysis
- Calculators are used by students to develop an understanding of fundamental and complex mathematical functions.
- Students use state-of-the-art laboratory equipment including 3D printers, Laser cutters, Printed Circuit Board Plotter, Digital Multimeters, Vernier LabQuest and sensors, Gel electrophoresis apparatus, thermocyclers, Arduinos, Boe Bots, oscilloscopes, autoclave, a fume hood, function generators, an IR camera, an Instron, and Microcontrollers.
- In addition, as part of their senior capstone project experience, students conduct field research with their professional mentors and utilize the technologies available at mentor organizations' laboratories.

Student Profile

The SMA graduated its first class in the spring of 2008. Over 95 percent of the graduating classes have selected STEM majors in college and 98 percent are attending four-year institutions. Many of these students were accepted into their college's honors or scholars programs. The SMA is proud of its National Merit Scholars and AP course offerings.

The rigor of the SMA is recognized within the local scientific community and has allowed students opportunities to achieve beyond the classroom.

SMA students:

- Speak on a regular basis at meetings with the local professional scientific community.
- Co-author scientific papers with professional researchers.
- Work as summer interns at STEM organizations including Johns Hopkins Hospital and Aberdeen Proving Ground.

Students attending the SMA are multi-talented, active leaders within the high school and community. SMA students are student government officers, athletes, musicians, thespians, and artists.



Grade Point Average and Grading System

Cumulative GPA is a weighted calculation which includes all courses the student has taken.

Class of 2025 Grade Frequency Distribution	
Weighted GPA Range	
5.00 – 4.50	71%
4.49 – 4.00	18%
3.99 – 3.50	8%
3.49 – 3.00	3%

AP Scores 2024-25 Average Score	
Calculus AB/BC	4.38
Computer Science A	4.58
Statistics	3.80
Biology	4.07
Chemistry	4.00
Environmental Science	4.28
Physics C: Mechanics	2.86
Physics C: E&M	3.59



College and University Admissions

The 38 members of the Class of 2025 had scholarship offerings of over \$9.1 million.

The following are the outstanding institutions to which members of the SMA Class of 2025 were accepted:

- Boston University
- Bucknell University
- Carnegie Mellon University
- Case Western Reserve University
- Clemson University
- Dartmouth College
- Drexel University
- Duke University
- Embry Riddle Aeronautical University
- Florida State University
- Georgia Institute of Technology
- Illinois Institute of Technology
- James Madison University
- Johns Hopkins University
- Lehigh University
- Loyola University Maryland
- New Jersey Institute of Technology
- Northeastern University
- Ohio State University
- Penn State
- Purdue University
- Rensselaer Polytechnic Institute
- Rochester Institute of Technology
- Syracuse University
- Temple University
- Texas A&M university
- The George Washington University
- Towson University
- University of California, Los Angeles
- University of Connecticut
- University of Delaware
- University of Maryland Baltimore County
- University of Maryland College Park
- University of Michigan
- University of North Carolina at Chapel Hill
- University of Pennsylvania
- University of Pittsburg
- University of South Florida
- University of Texas at Austin
- University of Virginia
- University of Washington
- Vanderbilt University
- Villanova University
- West Virginia University
- Widener University
- Worcester Polytechnic Institute
- York College of Pennsylvania



When reviewing the records of SMA students, please consider the accelerated nature of this program and the rigor it demands of the young scholars who willingly accepted the challenge to leave the traditional high school setting. My colleagues and I believe you will be pleased with the results of our students' efforts and impressed by their ability to think independently, solve problems, and work through difficult tasks.

Mrs. Sarah Ashley,
Program Specialist

