

**Advancing Education ·
Enhancing Futures**

Mrs. Sarah Ashley, SMA Program Specialist

Our Goal

To prepare students to succeed in any STEM major in college:

- Engineering (all branches)
- Mathematics
- Science (Biology, Chemistry, Physics)
- Computer Science



SMA Student Body

- Around 200 students currently enrolled
- Representation from all HCPS middle schools as well as several private schools
- SMA students are INVOLVED!
 - Student athletes (representation on every team at AHS)
 - Members of the band, chorus, and orchestra
 - Participate in clubs
 - Members of Honor Societies
 - Drama Production Cast/Crew

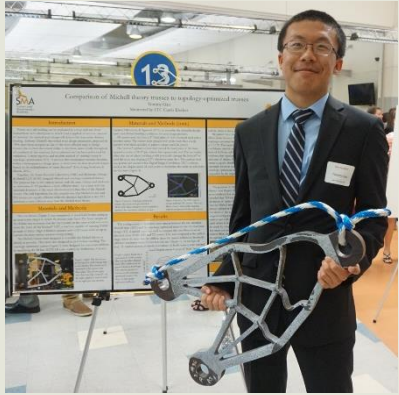


What makes the SMA unique?

- Small learning community (students and staff)
- Semester electives
- Science, Research, and Technology (SRT) 4-year sequence of courses (real-world hands-on research)
- Additional topics covered in AP and honors classes



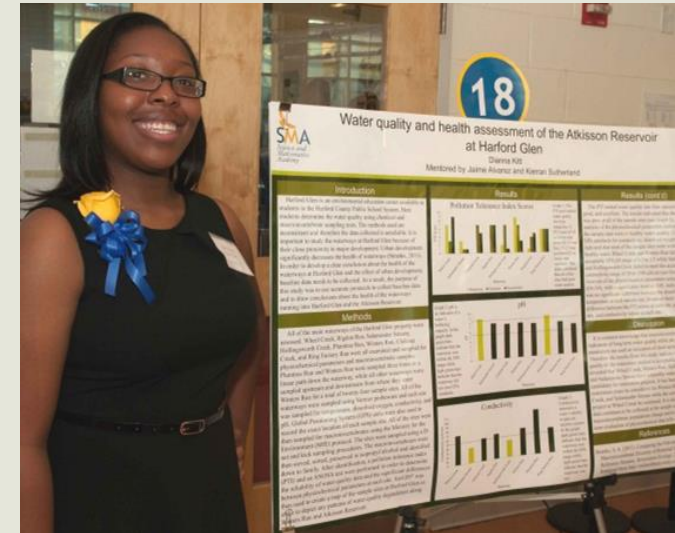
Special Classes (11th and 12th grade semester electives)



- Astrophysics
- Biochemistry
- Biotechnology
- Computer Aided Design
- Cryptology
- Design Engineering
- Ecology
- Kinesiology
- Linear Algebra
- Materials Science
- Microcontrollers
- Organic Chemistry
- Principles of Engineering
- Algorithm Development
- Robotics
- Research Design in STEM

Science, Research, and Technology (SRT)

- 4-year sequenced series of courses
 - 9th grade: semester (1/2 credit)
 - 10th grade: full year (1 credit)
 - 11th grade: full year (1 credit)
 - 12th grade: double block (2 credits)
- STEM curriculum
- Project-based
- Design experiments and analyze data



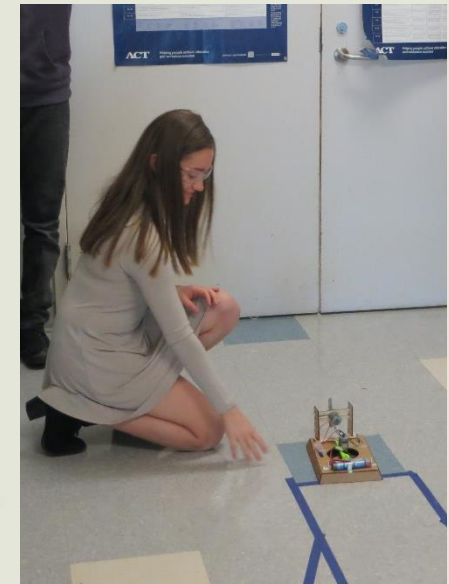
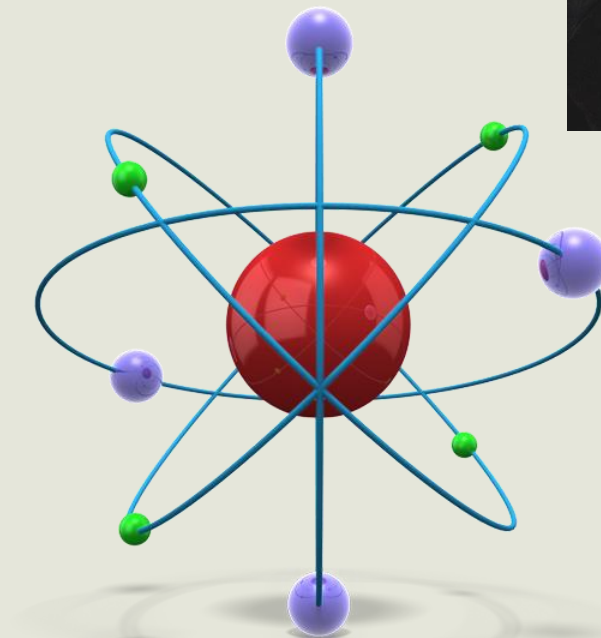
Senior Year Capstone Project

Each SMA senior completes a 2-credit independent research project senior year. The field-based research project is completed alongside a STEM mentor from industry.

- Becton, Dickinson and Company
- Booz Allen Hamilton
- Epic Scientific LLC
- Harford Glen Environmental Educational Center
- Johns Hopkins University
- Johns Hopkins University Applied Physics Lab
- Mercy Medical Center
- Michael Baker Jr, Inc
- MITRE Corporation
- NASA Goddard Space Flight Center
- National Institute of Health
- OMNI Technologies LLC
- Pendant Automation, Inc.
- Remote Sensing Lab
- Towson University
- U.S. Army Center for Health Promotion and Preventive Medicine
- U.S. Army CERDEC
- U.S. Army Edgewood Chemical and Biological Center
- U.S. Army Materiel Systems Analysis Activity
- U.S. Army Medical Research Institute of Chemical Defense
- U.S. Army Research Laboratory
- University of Delaware

AP Science and Math Courses

- Biology
- Chemistry
- Environmental Science (9th grade)
- Physics: Mechanics (11th grade)
- Physics: Electricity and Magnetism
- Statistics (10th grade)
- Calculus AB
- Calculus BC
- Computer Science A
- Computer Science Principles



9th	10 th
Honors Algebra 2 AP Environmental Science Honors Biology SRT 1/Health Honors English 9 Honors Government Band/Chorus/Orchestra/Art Foreign Language	Trigonometry AP Statistics Honors Chemistry SRT 2 Honors English 10 World History (AP or standard) Band/Chorus/Orchestra/Art/Elec. Foreign Language
11th	12th
AP Calculus AB AP Physics: Mechanics SRT 3 SMA Semester Electives English 11 (AP or standard) US History (AP or standard) Band/Chorus/Orchestra/Art/Elec. Foreign Language/Elec.	AP Mathematics AP Science SRT 4 (2 credits) SMA Semester Electives English 12 (AP or standard) Band/Chorus/Orchestra/Art/Elec. Foreign Language/Elec.

All **SMA classes (bold)** are taught by one of the 8 SMA dedicated faculty members and are in the SMA (3rd floor of AHS).

Weighted grading for ALL SMA classes.

Learn more about the SMA on our website!
www.scienceandmathacademy.com





Our Goal



To provide students with essential knowledge, experiences, and opportunities for pursuing academic, vocational, and recreational futures in the management of natural resources and agricultural sciences.

To develop future leaders, business owners, and advocates to support the growth of Maryland industries related to Natural Resources and Agricultural Sciences.

NRAS Student Body

- 300 Students
- Representation from all HCPS Middle School, Harford County private schools, and Home-Schooled Students
- NRAS Students DO IT ALL!
 - Participate in BAND, CHORUS and ORCHESTRA
 - Are Student Athletes representing all NHHS teams, GO HAWKS!
 - Participate and LEAD many NHHS Clubs
 - Receive LOCAL, STATE and NATIONAL Award Recognition
 - Participate in the Performing and Fine Arts



A photograph of three people smiling. On the left is a young woman with long blonde hair wearing a dark blue uniform with a badge. In the center is a man in a light blue shirt and dark tie. On the right is another young woman in a dark blue uniform with a badge. The background is a colorful abstract wall with yellow, red, and blue sections. The text 'We Are Unique' is overlaid in white on the right side of the image.

We Are Unique

- **Campus Features:** Wetland, Pond, Stream, Pastures, Barns, Forest, Waste Water Treatment Plant, Apiary, American Chestnut Grove, and Arboretum (Over 40 Native Species Featured)
- **Unique Curriculum:** CAERT (Center for Agricultural and Environmental Research and Training) has created a unique learning library to be utilized by our program. STARS GIS and AGIS– provided a unique chance to earn Geographical Information System Certification from Digital Quest and the US Dept. of Labor
- **Field Experiences:** Eden Mill, Falling Branch, Vulcan Materials, Indian Steps Museum and Rocks State Park provide the opportunity for research, and exploration during a class period.

NEW- GREENHOUSE (Fall 2018)

NEW-AQUACULTURE LAB (Fall 2018)

4 Dynamic Strands of Learning

Large Animal Science

- Animal Management
- Comparative Anatomy & Physiology of Farm Animals



Small Animal Science/ Vet Tech

- Animal Management and Vet Tech
- Comparative Anatomy & Physiology Companion Animals



Plant Sciences

- Plant Propagation and Production
- Edible, Environmental, and Ornamental Plants



Natural Resources Science

- Wildlife Management
- Wetlands and Aquatics





- **AP Biology, AP Chemistry, AP Environmental Science, AP Physics**
- **AP Calculus, AP Calculus 2, AP Statistics**
- **Botany, Zoology, Marine Science, Chesapeake Bay Studies**
- **Equine Science/EAGALA, Small Animal Science**
- **Geographic Information Systems (GIS), Floral Design**





Student Research





What is the IB Program?

**For Prospective Ninth Grade
Students**

IB Mission Statement



“The International Baccalaureate aims to develop *inquiring, knowledgeable* and *caring* young people who help to create a better and more peaceful world through *intercultural understanding* and *respect*..

To this end the organization works with schools, governments and international organizations to develop *challenging programmes of international education* and *rigorous assessment*.

Our programmes encourage students across the world to become *active, compassionate* and *lifelong learners* who understand that other people, with their differences can also be right”

The IB Learner Profile...



...is the IB mission statement translated into a set of learning outcomes for the 21st century.

As IB learners, we strive to be:

- Inquirers
- Principled
- Knowledgeable
- Caring
- Thinkers
- Open-minded
- Communicators
- Balanced
- Risk-Takers(Courageous)
- Reflective



Who should enroll in Global Studies Honor courses and IB DP courses ?

G.S. = 9th and 10th Grade IB PREP

11th and 12th Grade Diploma Program



Students who...

- Are intentional with their work.
- Are organized in their study habits.
- Are self-aware and self-sufficient.
- Bring reading and writing skills to the courses.
- Are reflective about their learning.
- Are willing to negotiate with more challenging and sophisticated work

What are the advantages of enrolling in IB courses?



- It is the richest, most challenging program of study available to high school students.
- It provides a curriculum that connects the disciplines; learning is integrated, and critical thinking skills are developed.
- Students frequently earn college credit and advanced placement status. Up to and sometimes over 30 college credits starting college with Sophomore Standing!
- Students are extremely well prepared for college work, both the rigorous demands of the subjects and the time management required.
- Students participate in creative and service-oriented activities.
- Students reflect on growth academically and personally.
- Students become more globally minded.

Issues to Consider Regarding the Diploma:



- Completion of Algebra 1 is required and ideally Geometry prior to coming into the program. If you have not, we recommend Geometry over the summer between grades 8 and 9, and then continue in the math sequence.
- The ideal situation is that students get as many years of language as they can, and become as fluent as they can. That could mean 4 or 5 years of a language.

Application Process



- Algebra I successfully completion and ideally Geometry
- Grades from 8th grade year
- Standardized Test Scores
- Teacher Endorsement, Science, Math, English, Social Studies
- Activity List
- Essay
- Round 2: Exam, Writing Sample (Jan)

Grades 9 and 10: How are Global Studies Honors classes different from standard classes?



GS Honors classes:

- Assume skills and intellectual curiosity
- Are faster paced
- Include more sophisticated content and skills
- Include more long-term as opposed to nightly homework
- Incorporate an increased focus on abstract thinking
- Include practice assessments that are vertically aligned to their DP counter-part courses

DP IB Courses Offered . . .



- English Literature HL
- French SL
- Spanish SL
- History of the Americas HL
- Geography SL/HL
- Biology HL
- Chemistry HL
- Math Applications SL
- Math Analysis SL
- Visual Arts HL/ SL
- Music HL/ SL
- Film SL
- Theatre SL
- Psychology SL
- Sports, Exercise and Health SL
- Physics SL
- Theory of Knowledge



A respectful community with a
passion for Authentic Learning

**MRS. JEANNE DONLICK
PROGRAM SPECIALIST**

OUR GOAL

To engage our diverse school community in preparing students for college and career readiness by cultivating a mindset of growth, resiliency and responsible interactions.

HTHS STUDENT BODY

- ~1000 students currently enrolled; 250 per class
- Representation from all HCPS middle schools as well as several private schools
- Students Involvement
 - 16+ sport teams
 - 26+ clubs and organizations



WHAT MAKES HTHS UNIQUE?

- Learning community with 16 technical areas
- Industry certifications received in most programs
- Articulated agreements and dual enrollment options with college/universities



TECHNICAL PROGRAMS

- Automotive Diagnostics and Repair
- Automotive Collision and Refinishing
- Carpentry and Construction Technologies
- Computer Aided Drafting
- Computer Aided Machining
- Certified Welding
- Cyber Security
- Electricity
- Food Preparation and Management
- Health Occupations Nursing
- Health Occupations Exercise Science
- Heating Ventilation & Air Conditioning
- Horticulture
- Licensed Cosmetology
- Printing and Graphics Communication
- Teacher Academy of Maryland*

*be sure to check the HTHS website for the most update information about this, and other, programs

ACADEMICS: ADVANCE PLACEMENT COURSES

- Biology
- Chemistry
- Physics
- Environmental
- Calculus
- Statistics
- Government
- US History
- World
- Psychology
- Computer Science Principles
- Language
- Literature

WEBSITE FOR INFORMATION

<https://www.harfordtechnicalhs.com/>



General Website:

<https://hths.ss18.sharpschool.com/>

HAVRE DE GRACE HS INFORMATION TECHNOLOGY ORACLE ACADEMY (ITOA)

Program Specialist
Mr. Robert Scott



What is Oracle Academy?

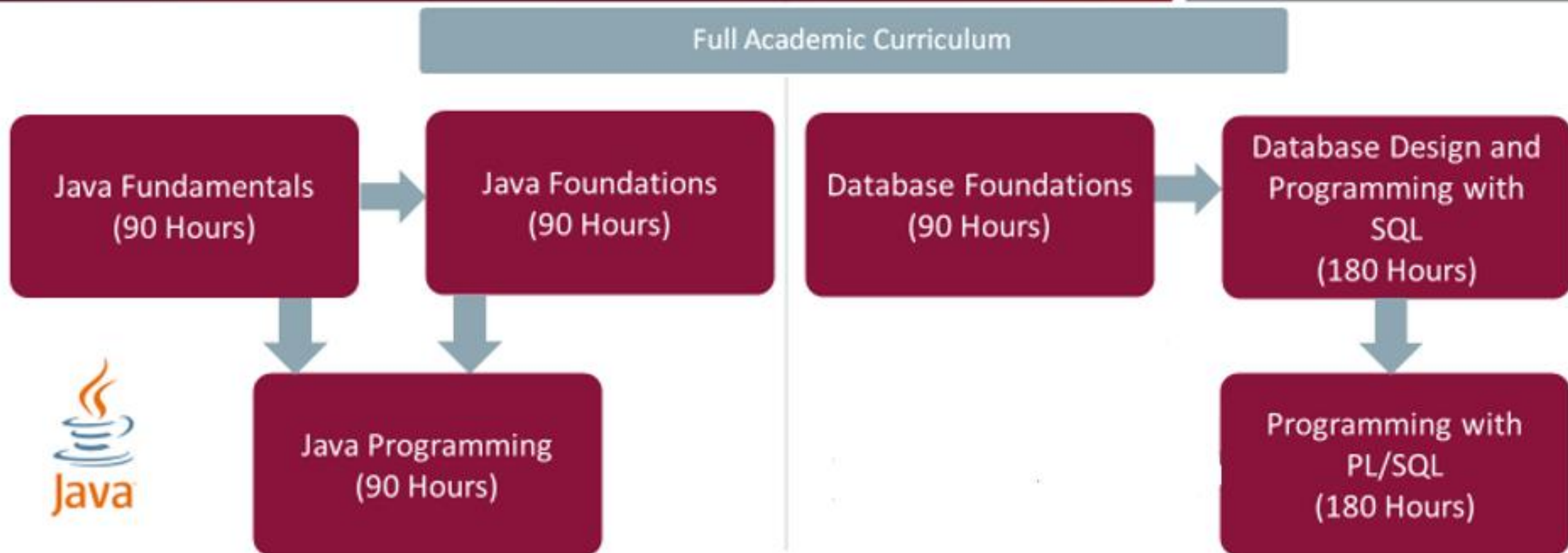


Oracle's **investment in computer science education** and the development of future technologists, innovators, and leaders



Comprehensive, **free, philanthropic program** supporting computer science and IT education pathways

Oracle Academy Curriculum Overview





COURSE & OPTIONS

AP Computer Science Principles

Java Fundamentals

Java Foundations

Java Programming

AP Computer Science A

Database Foundations

Database Programming with SQL

Programming with PL/SQL

Dual enrollment at HCC – 16 course options

Internships/IT Apprenticeship

9th

Java Fundamentals
Database Foundations
AP Comp Sci Principles
AP/Honors/Reg Biology

Math (Alg 2, Geo, Alg 1)
Honors/Reg English 9
AP/Honors/Reg Government
Elective (Band, Spanish, Phys Ed)

10th

Java Foundations
Database Design
AP/Honors/Reg Chemistry
Math

Honors/Reg English 10
AP/Honors/Reg World History
Elective
Elective

11th

AP Computer Science A
Science
Math
Elec./Col. Course/ Internship

AP/Reg English 11
AP/Honors/Reg US History
Elec./Col. Course/ Internship
Elec./Col. Course/ Internship

12th

Math
AP/Reg English 12
6 Elec./Col. Course/ Internship

Electives

Fine Art Prep
Drama
Beginning Piano
Spanish I
Men's or Women's Chorus
Band
Orchestra
Percussion Ensemble
Learning with Children
Principles of Business
Phys Ed/ Health

Upper Level (ITOA)

Database Design PL/SQL
Java Programming

OUR STUDENTS...

- come from about 115 applicants & 50 students are accepted
- come from every middle school in the county
- are prepared to enter a field in Computer Science
- have career connections when leaving high school



P-TECH – Pathways in Technology Early College High School

Shomari Zachary, P-TECH Coordinator
Harford County Public Schools

Three Paths



4year



5year



6year

One Goal

To prepare our young scholars with the academic, technical, and professional skills required for 21st Century jobs and ongoing education.

Cybersecurity

Computer-Info Systems

Two Roads

P-TECH IS UNIQUE

- In a P-TECH school, students earn a high school diploma, an industry-recognized associate degree, and gain relevant work experience in a growing field.
- Pathways in Technology Early College High School – **Joppatowne HS**
- High school students graduate with a HS diploma and Associate's Degree from **Harford Community College (HCC)** in either four, five, or six years.
- Open source magnet program. Free cost of tuition, books, and materials
- **CECOM** partnership/mentorship, and six-week paid internships for students.
- Students gain hands-on experience, build valuable relationships, and are considered for job interviews upon college graduation.

Our P-TECH Students...

- 30 students from Magnolia Middle School and Edgewood Middle School
- 13 Male, 17 Female
- Several ethnical backgrounds of students including African American, Asian, Caucasian, American Indian/Alaskan Native, and Hispanic
- Excited and eager to start their P-TECH journey...



Our P-TECH Partners...

Harford Community College



CECOM



U.S. ARMY
COMMUNICATIONS-
ELECTRONICS
COMMAND



A screenshot of the Harford Community College website. The top navigation bar includes links for 'OWLMAIL', 'OWLNET', 'APPLY 443-412-2109', 'GIVE', 'LIBRARY', and a search box. Below the navigation is a 'MAIN MENU' with a plus sign, listing categories like 'PROGRAMS AND COURSES', 'Arts and Humanities', 'Behavioral and Social Sciences', 'Community Education, Business & Applied Technology', 'Youth Classes and Programs', and 'Nursing and Allied'. A large image shows students in a computer lab. Below the image is the text 'Community Education, Business & Applied Technology' and a list of programs: 'AH | BSS | CEBAT | NAHP | STEM'. At the bottom, there are links to 'Browse Classes', 'Academic Catalog', 'Summer 2020 Classes', and 'Fall 2020'.



The Student Journey in P-TECH at Joppatowne HS...



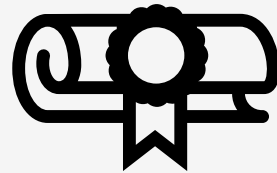
Acceptance

Students apply and are accepted into the program via random draw. No pre-requisites required for admission. 30 students per year and limited to rising 9th graders.



High School Coursework

Students acquire their high school diploma as usual completing all MSDE coursework for the diploma in four years. Freshmen will take P-TECH Seminar during year one for high school and college readiness.



College Coursework

Students acquire their college degree in either 4, 5, or 6 years from HCC in either CIS or IAC. Fees, tuition, supplies, and more are all paid for students. All classes will be at JOHS with college instructors.



Mentorship

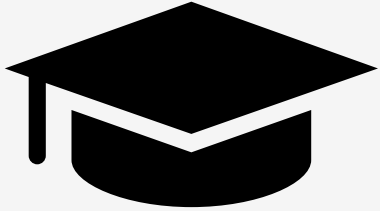
CECOM employees will work as mentors with students all P-TECH years. Immersion in work experiences, field trips, personalized mentoring, shadow days and more are included throughout the P-TECH journey.



Internship/Career

All P-TECH students are guaranteed a 6-week paid internship with CECOM on APG working in the field. Students are first in line for job interviews upon college graduation.

OUTCOMES....

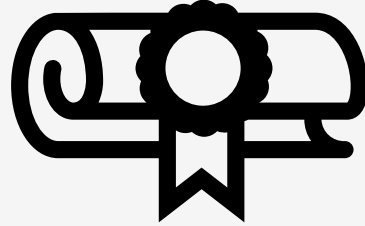


High School Coursework

Prepare students for college coursework load.

Expose students to academic and professional skills

Provide students with tools and resources to be successful in P-TECH program.



College Coursework

- Analyze commercial software applications, hardware, networks, programming, and other technologies.
- Use and modify existing information systems.
- Design and implement new information systems.
- Apply software patches to operating systems and applications.



Mentorship

Exposure to the IT/Cyber industry and the profession of an Army civilian

Exposure to IT/Cyber projects and challenges



Internship/Career

Exploring potential career paths and college/certification guidance

Experiences in IT project management