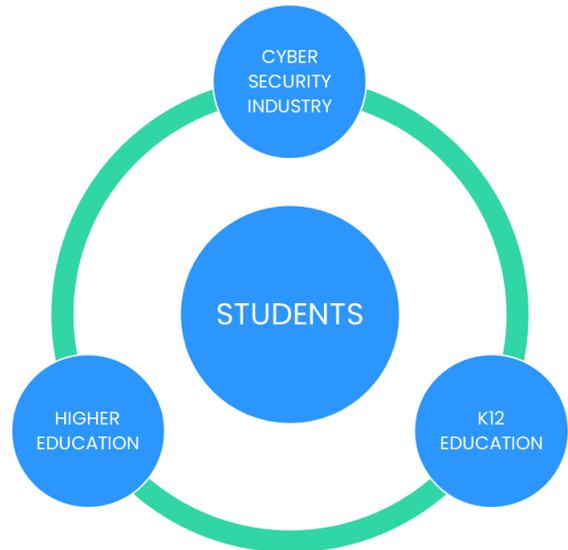


Cyber 4+

PROGRAM SUMMARY

Overview

In June of 2021, Stafford County Public Schools received funding from the Virginia Department of Education through the CTE High School Innovation grant to launch our Cyber 4+ program. Cyber 4+ is a Dual Enrollment, Career and Technical Education program allowing highschool students to receive 4 Cyber Security certifications (CompTIA) and an Associate's degree upon graduation, at no cost to the students or their families. Cyber 4+ is designed to meet a critical talent shortage in the cybersecurity field while providing meaningful learning opportunities leading to gainful employment for SCPS students.



The Innovation Founding Partners

Stafford County Public School's Cyber 4+ pathway was created in partnership with Germanna Community College, GCubed Inc. , and Stafford County Office of Economic Development and Tourism.

Cyber 4+ Funding

The Cyber 4+ grant covers the creation and launch of the program but not the costs incurred as students progress through the pathway. A barrier to scaling the program is the financial burden assumed by parents in the absence of funding to support the opportunity.

The Cyber 4+ pathway involves costs unique to the program, specifically industry certifications and dual enrollment courses. In effect, the complete 5 year pathway cost a minimum of \$166,000 per Cohort of 20 students to cover course tuition, exams and certifications. SCPS will secure funding to sustain Cyber 4+ through state and federal grants, foundations, fundraising and sponsorships.

Cyber 4+ In Depth

SCPS begins recruiting potential Cyber 4+ students in the 8th grade. Students submit an application to the program and are selected by a committee. Once selected, students are

notified of their acceptance into the program. Students who are not accepted are still encouraged to access the courses in the pathway. Once accepted into the program, students participate in a summer orientation where they learn about the program and begin preparing for their success. From that point students will follow the following course progression.

CYBERSECURITY DUAL ENROLLMENT PROGRAM (A VIRGINIA CTE INNOVATION GRANT PROJECT)

As a result of a state grant, Stafford County Schools has developed a Cybersecurity Dual Enrollment Program in partnership with Germanna Community College (GCC) and local businesses. Through this program, students will complete four industry certifications in cybersecurity, with the option to complete their associate's in one year after graduation through Germanna Community College. The progression and specific courses offered for this program could continue to evolve as the program matures; the sample progression highlighted below will be phased in over a five year period in partnership with Germanna, as indicated in the year indicated.

9th Grade (SY 2022-23)	10th Grade (SY 2023-24)	11th Grade (SY 2024-25)	12th Grade (SY 2025-26)	5th Year at GCC (2026-27)
English 9 1130 OR Honors English 9 1130H	English 10 1140 OR Honors English 10 1140H	DE English 111-112* 1177D (6 Credits) (SOL)	DE English 243-244* (6 Credits) (Humanities)	ITN 107/121-PC Hardware and Troubleshooting (GCC 3 credits)
World History and Geography I 2215 OR Honors World History and Geography I 2215H	World History and Geography II 2216 OR Honors World History and Geography I 2216H	DE United States History 121-122* 2360D (6 Credits)	Virginia and United States Government 2440	ITN 170 Or 171 Linux System Admin or UNIX (GCC 3 credits)
Math: Algebra I 3130 OR Honors Algebra 3130H OR Algebra I, Part I 3131 & Algebra I, Part II 3132 OR Geometry 3143 OR Honors Geometry 3143H OR Geometry, Part I 3144 & Geometry, Part II 3145 OR Algebra II 3135 OR Honors Algebra II 3135H	Geometry 3143 OR Honors Geometry 3143H OR Geometry, Part I 3144 & Geometry, Part II 3145 OR Algebra II 3135 OR Honors Algebra II 3135H OR Pre-Calculus: Math Analysis w/Trigonometry 3162	Algebra II 3135 OR Pre-Calculus: Math Analysis w/Trigonometry 3162 OR DE Quantitative and Statistical Reasoning 154-155* 3192D (6 Credits)	DE Quantitative and Statistical Reasoning 154-155* 3192D (6 Credits) OR AP Statistics 3192 OR Calculus 3199 OR AP Calculus AB 3177 OR AP Calculus BC 3178	ITN 200 Administration of Network Resources (GCC 3 credits)
Earth Science 4210 OR Honors Biology 4310H (SOL)	Honors Biology 4310H OR Other Science course	DE Biology* 101-102 4320D (6 Credits)	DE Physics* (Algebra Based) (6 credits) (May count as a math credit for GCC)	ITN 261 Network Attacks, Computer Crime, and Hacking (GCC 3 credits)
Health and Physical Education 9 7300	Health and Physical Education 10 7400	<u>Cybersecurity Operations (6304)</u> [<u>Earn CompTIA Network+ Certification</u>] (GCC=CSA 201 4 credits)****	<u>Cybersecurity Operation Advanced (6306)</u> Earn CompTIA Security +Certification [GCC CISSP ITN260-Network Security Basics 3]****	ITN 262 Network Communication, Security, and Authentication (GCC 3 credits)
<u>IT Fundamentals (6670)</u> [<u>Earn CompTIA IT Fundamental Certification</u>] (GCC=ITN101 Introduction to Network Concepts 3 Credits)****	Economics & Personal Finance 6120 (could be completed in the summer) OR Elective NOTE: Students are encouraged to take Programming as an elective.	AP Computer Science* Principles (3186) (GCC=ITP 120 3 credits)	Internship (GCC= ITN 290 3 credits)	ITN 263 Internet/Intranet Firewalls and E-Commerce (GCC 3 credits)
Economics & Personal Finance (could be completed in the summer) OR Elective	<u>Cybersecurity Fundamentals (6302)</u> [<u>Earn CompTIA A+ Operating Systems</u>](GCC=ITN106- Microcomputer Operating System 3 credits)****	IB 6135 Business Management SL*** (GCC=Business Communications 236 = 3 credits)	Internship (GCC= ITN 290 3 credits)	ITN 276 Computer Forensics (GCC 3 credits)
Elective (World Language or Other)	Elective (World Language or Other)	Elective (World Language or Other)	Elective	

*Students will complete STDV 100 (Student Development) through GCC in either their sophomore or junior years. The exact placement of ITP 100 (Programming Course) is still being determined in conjunction with GCC.

In addition to these courses, students will also experience mentoring and tutoring from cybersecurity professionals as well as externships, bootcamps, internships, and other critical development opportunities. To ensure their continued success, each cohort will function as a community, participating in regular connections and annual events.

Highlights

- CompTIA IT Fundamentals Certification
- CompTIA A+ Operating Systems
- CompTIA Network+ Certification
- CompTIA Security+ Certification
- Externships with CyberSecurity Firms
- Internship with CyberSecurity Firm
- Associate's Degree from Germanna Community College

Keys to Success

The success of Cyber 4+ is dependent upon the following key elements:

- **Students' desire to engage the opportunity.** SCPS must ensure students have the exposure to Cybersecurity in primary grades as well as access to opportunities to explore the field. SCPS must also ensure that communication regarding the Cyber 4+ program successfully reaches middle school students and their parents.
- **SCPS infrastructure for the program.** SCPS and its partners must develop an infrastructure to support this opportunity to include teaching faculty, program staff and an advisory committee.
- **Cross Sector Partner Engagement.** SCPS must engage partners across multiple sectors to sustain and scale the opportunity.
- **Continuous Improvement.** SCPS must commit to a Continuous Improvement cycle that includes feedback loops with students, parents, practitioners, faculty, partners and funders.
- **Evolution.** The Cyber Security Field is ever evolving. SCPS must be able to adapt at the speed of business and innovation to ensure the investment matches the opportunity at the end of the 5 year pathway.