AIR FORCE ASSOCIATION’S
CYBERPATRIOT
NATIONAL YOUTH CYBER EDUCATION PROGRAM

IMPACT REPORT
JUNE 2019

www.uscyberpatriot.org
BACKGROUND

CyberPatriot was introduced in 2009 by the non-profit 501(c)(3) Air Force Association (AFA) to address a critical national need: Drawing more young women and young men to education and careers in cybersecurity and other science, technology, engineering and mathematics (STEM) fields to meet the needs of an increasingly technical workforce.

Created originally as a year-to-year program in which teams of high school students compete to see who can best harden a computer network against cyber-attack, the competition component of the program was expanded in 2013 to include middle school students. Additionally, the overall program has incorporated four additional major elements beyond the competition.

In 2014, the AFA CyberCamp program was initiated, offering structured cybersecurity-focused summer activities for students through a five-day 20-hour program in which middle- and high-school students learn cyber safety and cyber defense. From three deployed camps in 2014, the program quickly grew to 26 camps in its sophomore year, and in the summer of 2019 will reach nearly 300 camps from coast-to-coast. An estimated 30,000 students have participated in AFA CyberCamps since their inception in 2014.

In the summer of 2015, CyberPatriot fielded a major nationwide cyber education program targeted specifically at elementary-school students in grades K-6. CyberPatriot’s Elementary School Cyber Education Initiative (ESCEI—“Ess-Key”) employs colorful and entertaining game-like modules to teach even the youngest students the basics of cyber safety and cyber hygiene. Version 2.0 of ESCEI was published in July 2016, providing increased functionality and MacOS compatibility. Over 7,800 ESCEI packages have been deployed in the U.S. and abroad, reaching an estimated 50,110 students. The program is made available to any school at no charge.

In keeping with reaching a younger audience, CyberPatriot developed a literature series in 2018, publishing a cybersecurity-themed children’s book titled Sarah the Cyber Hero. The story is supplemented with an activity booklet that goes beyond the story in introducing topics of cyber safety and cybersecurity to the youngest users of technology.

On the opposite end of the spectrum, CyberPatriot most recently developed CyberGenerations, a free program that covers basic topics of cybersecurity and provides additional resources which can help senior citizens identify and prevent potential cyberattacks directed at them or their loved ones. The program can be presented as a workshop or done as an individual, self-paced initiative.
GROWTH – THE NATIONAL YOUTH CYBER DEFENSE COMPETITION

Through the generous support of program sponsors, CyberPatriot’s growth has been strong, allowing the program to reach each year an increasing number of students in every aspect of the program.

The competition growth has been astounding since its initial launch in 2009, growing from eight teams to nearly 6,400 teams. Geographically, the competition has grown from a single state (Florida) to all 50 U.S. states, Canada, and beyond.

[Approx. 5 students per team]
GROWTH – THE NATIONAL YOUTH CYBER DEFENSE COMPETITION

The competition includes a diverse mix of public and private schools in all socioeconomic strata and in urban and rural areas.
GROWTH – AFA CYBERCAMPS

AFA CyberCamps have grown from an initial deployment of three camps in the summer of 2014 to nearly 300 camps in 2019. Advanced camps are becoming increasingly popular, comprising close to one-third of the total camp count offered this summer.
GROWTH – ELEMENTARY SCHOOL CYBER EDUCATION INITIATIVE

CyberPatriot’s Elementary School Cyber Education Initiative has also expanded rapidly, reaching an estimated 75,000 students through 7,800 kits shipped.

The newest version, ESCEI 2.0, includes the following modules:

Security Showdown 2
- Strangers are asking about you, but is it safe to share with them? Learn the basics of sharing personal information with family, friends, and strangers in this simple point-and-click game. Will you share your information correctly and win the security showdown certificate? Featuring charming voxel graphics, simple game mechanics, and voice-overs in both English and Spanish, this game is highly accessible and great for young players.

JeffOS
- Join Jeff, your helpful sidekick, as he guides you through his operating system and covers everything from basic computer skills to dealing with complex issues like phishing and malware. JeffOS delivers actionable advice for safer computing in the real world and breaks down advanced topics into digestible pieces, all while providing players with fun, interesting interaction. Players will walk away from JeffOS with a more developed set of computer skills and a grasp on the importance of cybersecurity in their everyday lives.

Packet Protector
- Build a computer network to mine for cryptocurrency and use this money to expand and secure your network! Watch how your decisions affect the security and effectiveness of a network in this educational simulation. Along the way, you will learn about some basic networking components, malware, and security software, and discover some of the ways you can protect your network from cyber threats.
GROWTH – CYBER EDUCATION LITERATURE SERIES

In the fall of 2017, CyberPatriot launched its Cyber Education Literatures Series to excite the youngest of computer users about cybersecurity.

*Sarah the Cyber Hero* is the first story in what will soon be a series of children’s books dedicated to teaching the youngest of computer users the dangers of cyber threats and the importance of cyber safety. The story follows the story of a young girl, Sarah, who uses her cyber knowledge (that she learned in schools through ESCEI) to save her family – and the rest of her town – from a malicious cyber attack.

To date, nearly 300 copies have been distributed. Plans for a second book are underway.

GROWTH – CYBERGENERATIONS

In 2018, the program saw the need for equipping senior citizens with cybersecurity knowledge, as they are often targets of cyberattacks and scams.

CyberGenerations is designed to not only cover a variety of basic cybersecurity topics important for senior citizens, but to also provide self-help resources in the event that an individual has been a victim of a cyber attack.

CyberGenerations is available as a self-paced guide at no charge. It can also be packaged as a workshop and presented by an instructor to a larger group in a classroom setting.

Approximately 100 guides have been distributed since being officially launched December 2018, and CyberPatriot hopes to grow that number by encouraging high school participants to work with their local senior citizen communities to present the program.
IMPACT

CyberPatriot’s impact has been significant. Measurements taken each year have confirmed that:

1. CyberPatriot participants are far more likely to pursue 4-year higher education than are their peers.

CURRENT HIGH SCHOOL STUDENTS: POST-HIGH SCHOOL PLANS

3,396 of the 4,618 respondents were still enrolled in high school or an equivalent program at the time of the survey. 95.6% of those currently enrolled respondents indicated their intention to pursue a 4-year higher education program (87.3%) or a 2-year higher education program (8.3%) after receiving their high school diploma. By comparison, according to the Bureau of Labor Statistics¹, only 66.7% of American students who graduated high school in 2017 entered college. Additionally, of the 2017 high school graduates who entered college the following fall, only 44.4% enrolled in 4-year institutions.

POST-HIGH SCHOOL HIGHER EDUCATION ENROLLMENT RATES¹

<table>
<thead>
<tr>
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<th>CyberPatriot High School Respondents' Post-Graduation Plans</th>
<th>National Class of 2017 Average Post-Graduation Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-YEAR DEGREE PROGRAM</td>
<td>8.3%</td>
<td>22.2%</td>
</tr>
<tr>
<td>4-YEAR DEGREE PROGRAM</td>
<td>87.3%</td>
<td>44.4%</td>
</tr>
<tr>
<td>WORKFORCE</td>
<td>4.4%</td>
<td>33.3%</td>
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IMPACT

2. CyberPatriot alumni are far more likely to pursue STEM education after high school.

CURRENT HIGH SCHOOL STUDENTS: HIGHER EDUCATION ACADEMIC PLANS

2,457 of the 3,252 high school students who indicated they will pursue a 2-year or 4-year education program plan to study cybersecurity (20.6%), computer science (24.6%), or another STEM field (30.3%).

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IMPACT

3. Past CyberPatriot students are highly likely to feed the technical workforce.

HIGH SCHOOL GRADUATES: HIGHER EDUCATION ENROLLMENT

Of the survey’s 4,618 respondents, 772 have already obtained their high school diploma, GED, or equivalent home school education. Of those graduates, 75.7% are currently pursuing a higher education degree and 5.6% have already obtained a higher education degree. A full 85.6% of the alumni respondents currently pursuing higher education degrees are doing so in a cybersecurity (28.2%), computer science (35%) or other STEM field (25.4%).

4. CyberPatriot alumni overwhelmingly attribute their pursuit of STEM education and careers to their participation in the CyberPatriot program.

DEGREE TO WHICH PARTICIPATION IN CYBERPATRIOT IMPACTED RESPONDENTS’ EDUCATION AND CAREER GOALS

- Somewhat: 53%
- Significantly: 38%
- Not at all: 9%
**DIVERSITY**

While most STEM programs report a participation rate of about 14%, CyberPatriot participants are favorably female (27%). This is driven by strong presence of female role-models in the program, emphasis in monthly publications and social media on female participation, and full fee waivers for all-female teams.

**RESPONDENTS' GENDER**

- Female: 27%
- Male: 71%
- Prefer not to answer: 2%

Minorities comprise approximately 42% of the student participation. This is owed to an emphasis on urban school presence in CyberPatriot through its robust “Centers of Excellence” program.

For economically disadvantaged schools and youth organizations, the program applies a substantial portion of its grant and sponsorship resources to Title I schools, waiving the customary $205 high school team fee and $165 fee for middle school teams on demonstration of school or team hardship.

**CyberPatriot Centers of Excellence**

14 Centers of Excellence. Most notable:

- City of San Antonio
- Los Angeles Unified School District
VISIBILITY

CyberPatriot is drawing strong national recognition. The annual springtime National Finals Competition attracts the “best of the best” for a three-day-long series of events, attracting Congressional principals, other government officials, and industry dignitaries who are present to recognize the top 28 teams who have earned their way to the nationally recognized event.

Media coverage of the program has been strong. Many teams garner local and regional media coverage of their participation, and those advancing to the National Finals Competition have attracted high-profile print and national broadcast coverage. CyberPatriot teams have even been featured on CBS Sunday Morning and NBC’s TODAY show.

JUNE 29, 2018 | NBC Today Show | The new head of U.S. Cyber Command at the National Security Agency says he is prioritizing recruiting cyber security professionals, a profession experts say the world could soon see a shortage of. Now, a group of high school and middle school students are being taught the cutting edge techniques of how to defend America from cyber attacks in a competition called CyberPatriot. NBC’s senior investigative correspondent Cynthia McFadden reports for TODAY.

https://www.youtube.com/watch?time_continue=3&v=nGX1ju2JlaM

APRIL 26, 2015, 2:13 AM | The first line of defense in the “terrifyingly normal” business of hacker attacks may come from Alabama high school students trained in the increasingly vital field of cybersecurity. David Pogue of Yahoo Tech reports on how the nation is dealing with the dangers from cyber threats.

http://www.cbsnews.com/videos/training-future-cybersecurity-warriors/
WHY YOUR SUPPORT MATTERS

CyberPatriot is operated as a program of the non-profit 501(c)(3) Air Force Association. Funds received for CyberPatriot are restricted exclusively to the program to reach even more schools, more youth organizations, and more students.

CyberPatriot sponsors are visibly recognized in program collateral materials, on its website, and at the in-person National Finals Competition in the spring of each year in Bethesda, Maryland. Sponsors are invited to National Finals Competition where they may personally present to the very best of the best 28 teams of self-identified students why their enterprise presents good STEM opportunities.

Probably most significantly, sponsoring CyberPatriot sponsorship communicates unmistakably that your company or organization is supporting a program having demonstrable impact on attracting students to STEM education and careers and on giving strong career opportunities to students who might otherwise not receive them.

Additionally, several of the challenges at the in-person CyberPatriot National Finals Competition are hosted by sponsors. These challenges replicate real world incidents, similar to the ones faced in industry every day. The hands-on experience and high-stakes environment helps these students prepare for life after high school and develop into young professionals.
2019 CYBERPATRIOT IMPACT REPORT

CYBER DEFENSE COMPETITION

- **2015:** 3379 teams registered
- **2016:** 4404 teams registered
- **2017:** 5564 teams registered
- **2018:** 6387 teams registered

Another competition season, another record number of teams registered.

AFA CYBERCAMPS

- **204 STANDARD CAMPS**
- **91 ADVANCED CAMPS**

Thousands of students across the country continued their cybersecurity learning through the summer with AFA’s CyberCamp program.

ELEMENTARY SCHOOL INITIATIVE

- **1,450 DOWNLOADS IN 2018**
- **7,800 TOTAL DOWNLOADS SINCE 2015**

CYBERGENERATIONS

Through a self-paced guide or instructor-led workshop, the Senior Citizens’ Cyber Safety Initiative allows older generations to learn the principles of cybersecurity and how to protect their information online. CyberGenerations kits are available free of charge at www.uscyberpatriot.org.
Thank you to our generous sponsors: