SECURING NETWORKS, SECURING FUTURES

CyberPatriot Program Update
May 2018
The Air Force Association is:

• 501(c)(3) non-profit organization focused on:
  • Educating the American public, advocating for strong national security, and supporting military members and their families
• Historical focus on advocating for strong national security policies
• We see STEM education today as a national security issue

When compared to other nations, the math and science achievement of U.S. pupils and the rate of STEM degree attainment appear inconsistent with a nation considered the world leader in scientific innovation. In a recent international assessment of 15-year-old students, the U.S. ranked 28th in math literacy and 24th in science literacy. Moreover, the U.S. ranks 20th among all nations in the proportion of 24-year-olds who earn degrees in natural science or engineering.

2008 Congressional Research Study
“Science, Technology, Engineering, and Mathematics (STEM) Education: Background, Federal Policy, and Legislative Action”
The national youth cyber education program.
The national youth cyber defense competition.
Carefully structured to excite, educate, and motivate participants.
Designed to instill in all participants the importance to our nation of cyber, cyber security, and good computer security practices.
Designed to motivate all participants to consider STEM academic disciplines to meet our nation’s needs.
Designed to motivate many participants to become the next generation of cyber defenders and our nation’s “digital workforce.”
CYBERPATRIOT IS NOT...

1. “Hacker training”
   • Cyber ethics discussions are an important (and early) component in our curriculum
   • We don’t teach “hacking” tools or techniques
   • “Hacking” in competition is strictly forbidden

2. A recruiting tool for the Air Force, the Department of Defense, or the Federal government. This is about building a strong national foundation for cyber skills throughout our high schools.
The National Youth Cyber Education Program

- National Youth Cyber Defense Competition
- Elementary School Cyber Education Initiative
- CyberGenerations
- Cyber Education Literature Series
- AFA CyberCamps
SKILLS WE TEACH

- Cyber ethics
- Leadership and teamwork
- Creative and analytical problem solving
- Non-technical cyber principles (e.g.—social engineering, phishing, vishing, etc.)
  - “Netiquette”
  - Cyber safety
  - Cyber hygiene
- Computing and networking principles
  - Operating systems
  - Network topologies & cabling
- Foundational cyber security principles
  - Cyber and system vulnerabilities
  - Network security
  - Vulnerability remediation
  - Technical threats
HOW THE COMPETITION WORKS

Registration
- Coach registers team
- 2-6 students per team

Training & Competition
- 10 online training modules
- 3+ online rounds

Scoring & Advancement
- Scored on remediation of cyber vulnerabilities
- Top teams advance to Semifinals and National Finals
CP-XI TIMELINE

CYBERPATRIOT XII SCHEDULE
(2019-2020 competition season)

National Finals
Mar. 19-23
(Bethesda, MD)

Semifinals
Jan. 24-25

State Round
Dec. 6-8

Round 2
Nov. 15-17

Payment Due
Nov. 15

Roster Finalization
Nov. 1

Round 1
Oct. 25-27

Important Deadline
Unscored Round
Scored Round

Registration Opens
April 1, 2019

Exhibition Round 1
May 15 – June 14

Exhibition Round 2
July 17 – August 16

Training Round
Sept. 5 - Oct. 1

Sneak Preview
TBD

Practice Round
Oct. 3-15

Registration Deadline
Oct. 2
• Approximately 5 students per team
• Registration closed October 3, 2018
COMPETITION DIVISIONS

Open Division
Open to high school age groups:
• Public schools
• Private schools
• Parochial schools
• Magnet or charter schools
• Home school groups
• 4H clubs
• Boys and Girls clubs
• Scouting units
• Other youth programs

All Service Division
Open to:
• Air Force JROTC units
• Army JROTC units
• Marine Corps JROTC units
• Navy JROTC units
• Civil Air Patrol squadrons
• U.S. Naval Sea Cadet Corps units

Middle School Division
Open to middle school age groups:
• Public schools
• Private schools
• Parochial schools
• Magnet or charter schools
• Home school groups
• 4H clubs
• Boys and Girls clubs
• Scouting units
• Other youth programs
REGISTRATION BREAKDOWN

- Open Division: 53%
- All Service Division: 28%
- Middle School Division: 19%
International Locations:
Australia, Bermuda, Canada, Estonia, Germany, Hungary, Japan, Nigeria, South Korea
A COMPETITION “IMAGE”

CyberPatriot User Accounts
- No Password
- Unauthorized User

Control Panel Scenario
- User Accounts
- Windows Defender

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FEMALE OUTREACH

Initiatives:

• Full fee waivers for all-girls teams
  – 309 all-girl teams in CP-XI
    • One all-girl team at CP-XI National Finals
  – 244 all-girl team in CP-X
    • Two all-girl teams in CP-X National Finals
• Female only sessions at AFA CyberCamps
• Female highlights in monthly CyberSentinel and promotional materials
MINORITY OUTREACH

• Continued strong recruitment in urban areas
• Engagement with Boys and Girls Clubs of America, “CODE2040,” National Society of Black Engineers, Society of Hispanic Professional Engineers

• Objectives:
  • Improved minority student recruitment
  • Mentoring

• CP-IX Presence: ~43%
• CP-X Presence: ~44%
• CP-XI Presence: ~45.5%
STANDARD CYBERCAMPS

- Cybersecurity camp for 6th-12th grade students with little or no experience with CyberPatriot
- Hosted by schools and organizations
- Delivered over five 4-hour days

Standard Camp Curriculum includes:

- MODULE 1: Introduction to the CyberPatriot, cyber ethics, online safety, how computers work, and cyber threats.
- MODULE 2: Cybersecurity principles, virtual machines, basic Windows security policies, tools, and account management.
- MODULE 3: Windows file protections, auditing and monitoring, and introduction to Linux.
- MODULE 4: Ubuntu terminology and concepts, basic GUI security, basic command line security, and intermediate Ubuntu security.
- MODULE 5: Mini-CyberPatriot Competition.
ADVANCED CYBERCamps

• Created for students who have previously attended an AFA CyberCamp or who have competed in AFA’s National Youth Cyber Defense Competition
• Hosted by schools and organizations
• Delivered over five 4-hour days
• Advanced Camp Curriculum includes:
  – Cyber Ethics Module
  – Cisco NetAcad Networking Modules 1-3
  – CyberPatriot Competition and Packet Tracer
2019: Fifth full season of AFA CyberCamps

- 7 standard camp sessions (June-August)
- 6 advanced camp sessions (June – August)
- 260 camp locations in 2018
• Three interactive learning modules
  – Security Showdown 2, Grade Levels K-2
  – JeffOS, Grade Levels 3-6
  – Packet Protector, Grade Levels 3-6
• Over 7,800 kits have been delivered
• 10+ countries
• All 50 states

ESCEI: AFA’s Elementary School Cyber Education Initiative
Available now on Amazon

- Pre-k Reader for younger children
- Available to the public
- Pioneers the topic of cybersecurity for early elementary youth

One fateful day a computer virus is downloaded on a computer and it infects the whole town!

Luckily, a school cyber education program has been teaching Sarah all about cyber safety and how to protect a computer from intruders.

Can Sarah use her new cyber skills to shut down the dreaded virus?

Sarah the Cyber Hero

Story by Emily Rauer
Illustrated by Michael Rau
“Senior Citizen’s Guide to Cyber Safety”

- **Password Hygiene**
  - Password management
  - Unique creation

- **Malware/Ransomware**
  - Proactive and active defense

- **Marketing & Fraud Scams**
  - False customer service calls
  - Scam emails and calls

- **Social Media Awareness**
  - Personally Identifiable Information (PII) and privacy

- **Self-help Resources for victim assistance**
  - Direct contact information for government and local resources
ALUMNI SURVEY RESULTS
July 2018
AGE – THE SWEET SPOT

RESPONDENTS’ AGE

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www.uscyberpatriot.org
GENDER

- Male: 71%
- Female: 27%
- Prefer not to answer: 2%
POST-HIGH SCHOOL PLANS

POST-HIGH SCHOOL HIGHER EDUCATION ENROLLMENT RATES¹

<table>
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<th>2-YEAR DEGREE PROGRAM</th>
<th>4-YEAR DEGREE PROGRAM</th>
<th>WORKFORCE</th>
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<tr>
<td>CyberPatriot High School Respondents' Post-Graduation Plans</td>
<td>8.3%</td>
<td>87.3%</td>
<td>4.4%</td>
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<td>National Class of 2017 Average Post-Graduation Activities</td>
<td>22.2%</td>
<td>44.4%</td>
<td>33.3%</td>
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**RESPONDENTS’ PROSPECTIVE FIELD OF HIGHER EDUCATION STUDY**

- A non-STEM field: 6%
- Undecided: 19%
- A Computer Science Field: 25%
- A Cybersecurity Field: 20%
- Another STEM Field: 30%

**BACHELOR’S & ASSOCIATE’S DEGREE FIELDS OF STUDY**

- **STEM FIELDS**
  - CyberPatriot Respondents: 75.6%
  - National Average 2016: 14.9%

- **NON-STEM FIELDS**
  - CyberPatriot Respondents: 5.6%
  - National Average 2016: 85.1%

- **UNDECIDED**
  - CyberPatriot Respondents: 18.9%
  - National Average 2016: 0%
HIGHER EDUCATION ENROLLMENT

CURRENTLY ENROLLED STUDENT’S HIGHER EDUCATION FIELD OF STUDY

- A Cybersecurity Field: 28%
- Another STEM Field: 26%
- A Computer Science Field: 35%
- A non-STEM field: 9%
- Undecided: 2%

BACHELOR’S AND ASSOCIATE’S DEGREE AVERAGE FIELDS OF STUDY

- STEM FIELDS: 88.7%
  - CyberPatriot Respondents: 14.9%
  - National Average 2017: 8.9%
- NON-STEM FIELDS: 85.1%
- UNDECIDED: 2.4%
  - CyberPatriot Respondents: 0.0%
  - National Average 2017: 8.9%
DEGREE TO WHICH PARTICIPATION IN CYBERPATRIOT IMPACTED RESPONDENTS’ EDUCATION AND CAREER GOALS

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