



AIR FORCE ASSOCIATION'S

CYBERPATRIOT

NATIONAL YOUTH CYBER EDUCATION PROGRAM

UNIT ONE

Introduction to CyberPatriot and Cybersecurity



www.uscyberpatriot.org



Learning Objectives

- Participants will gain an understanding of the CyberPatriot competition
 - Overview
 - National Finals Competition
 - Team Structure
 - Scoring
 - Timeline
- Participants will gain a broad understanding of what cybersecurity is and why it is an important
 - Cybersecurity in Everyday Life
 - Cybersecurity in the World
 - Cybersecurity Careers



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SECTION ONE

CyberPatriot: National Youth Cyber Defense Competition



www.uscyberpatriot.org



What Is CyberPatriot?

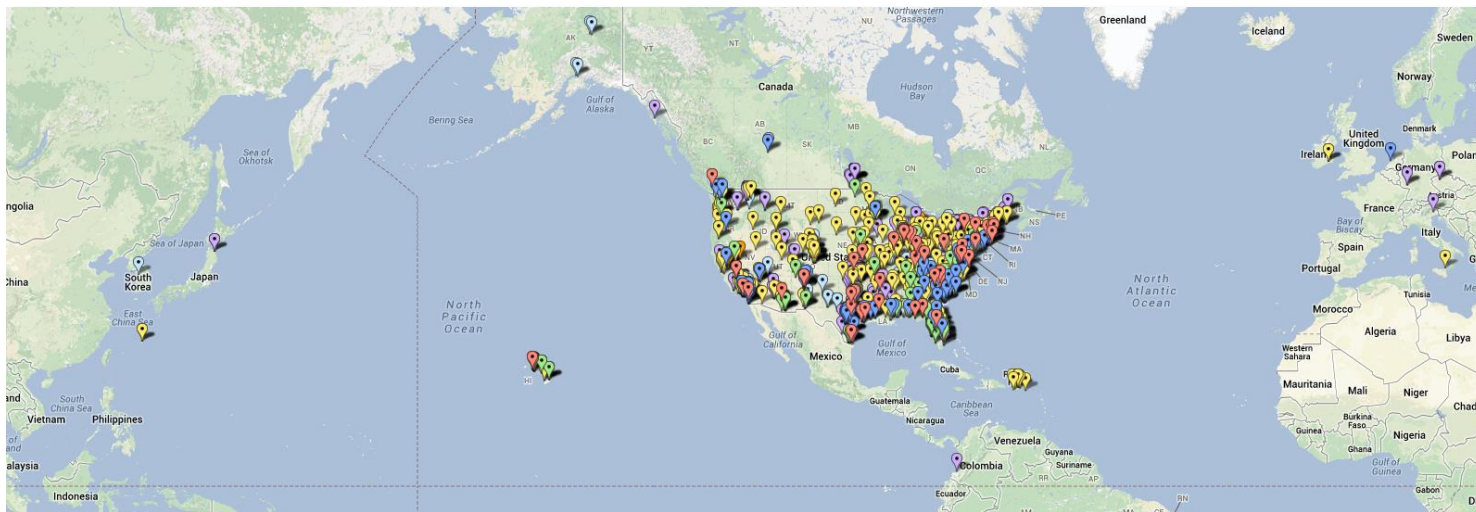
- The National Youth Cyber Education Program
 - AFA CyberCamps
 - Elementary School Initiative
 - National Youth Cyber Defense Competition
- **Not** hacker training
 - Offensive behavior is not allowed
- Fun way to learn skills that will be useful in the future
 - Technical skills
 - Teamwork
 - Critical thinking





The National Youth Cyber Defense Competition

- Teams consist of 2 to 6 Competitors, a Coach, an optional Technical Mentor, and an optional Team Assistant
- Teams compete in online qualifying rounds
- Points are earned by identifying and correcting weaknesses in a simulated computer system





The National Finals Competition

- Top teams earn all-expenses-paid trips to Washington D.C.
- More than just competing in front of a computer
 - Last season's National Finals also had a Digital Crime Scene Challenge, Cisco Networking Challenge, and other additional components
- Opportunity to win scholarships, network with industry leaders, and enjoy media recognition





What is CyberPatriot?



Click here to play the CyberPatriot recruitment video:
<https://www.youtube.com/watch?v=XpqWFPnKdSs>



How CyberPatriot Works: Team Structure

- **Coaches** are the administrative lead of the team
 - Supervise students
 - Are the main point of contact for CyberPatriot Program Office
 - Ensure integrity of the competition
 - Train teams for competition (if technically savvy)
- **Technical Mentors** volunteer to help Coaches train teams
 - Use industry expertise to teach students about cybersecurity
 - Guest lecture or work with team(s) on a regular basis
- **Team Assistants** volunteer to provide non-technical support and encouragement to the team
- **Competitors** work together to find and fix vulnerabilities in a simulated computer system

Click here for more information: <http://www.uscyberpatriot.org/competition/how-it-works/team-organization>



How CyberPatriot Works: Scoring

- **Earn points** by fixing vulnerabilities in a virtual machine (VM)*
 - Virtual machines (aka “images”) are software programs that simulate computer systems
- **Lose points** for making the system less secure
- Harden your system and defend against outside attacks by starting with hints and the scenario in the **ReadMe** file on the desktop
- Not all vulnerabilities are scored or hinted at in the **ReadMe**
 - The goal of the competition is to harden the system as completely as possible in the provided time
 - You might do something that improves the system, but does not earn your team points

*More information on VMs is available in Unit Five of these training materials



How CyberPatriot Works: CCS

- The CyberPatriot Competition System (CCS) automatically transmits your team's progress in the competition image (VM) to the CyberPatriot scoring server
- Use the [CyberPatriot Scoring Report](#) to check your score and your connection status and score
- A chime will play when you gain points and a buzzer will sound when you lose points
- Do not open, modify, or delete anything in the "CyberPatriot" folder of any image
 - Doing so could cause you to lose your progress in the image


CyberPatriot Round 0 Image
Report Generated At: 2013-Sep-09 18:32:31 UTC
Approximate Running Time: 00:33:26
Current Team ID: 046A926BB3
20 out of 60 points received

Connection Status: No Errors Detected
Internet Connectivity Check: OK
CyberPatriot Connection Status: OK
CyberPatriot Score Upload Status: OK

0 penalties assessed, for a loss of 0 points:
2 out of 6 scored security issues fixed, for a gain of 20 points:



How CyberPatriot Works: Competition Deployment

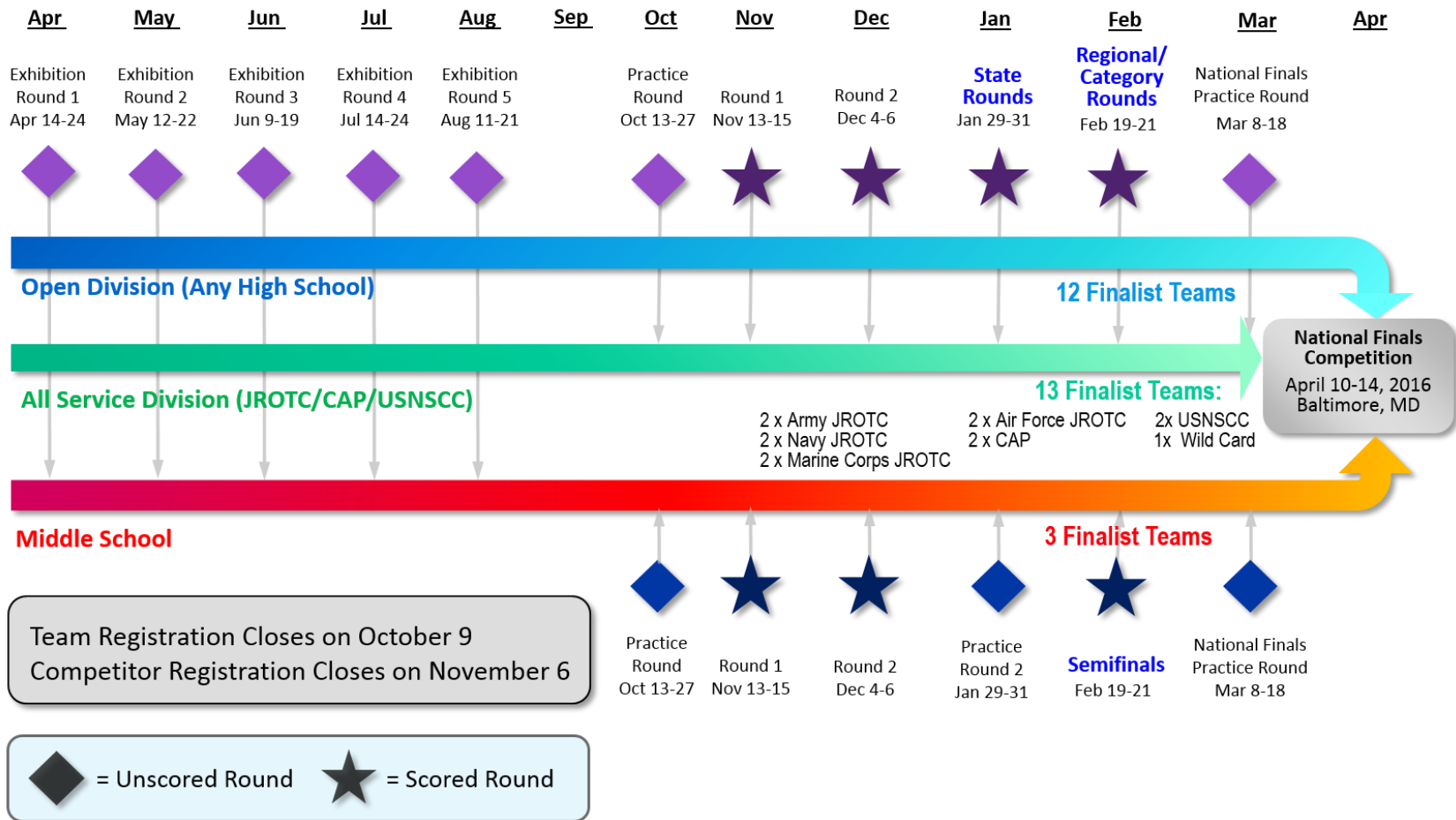
SAMPLE SCHEDULE:

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
					StartEx Email sent	
13	14	15	16	17	18	19
	Image Download and Instructions Email sent				COMPETITION	
20	21	22	23	24	25	26
ROUND					Round Results Email sent	
27	28	29	30	1	2	3

- Competition emails are only sent to registered Coaches
- Image Download and Instructions email includes download links and thorough instructions for the round.
- StartEx contains password to unzip images and log into user account.
- Teams choose a six-consecutive-hour window during the competition weekend to compete. Six-hours must fall between support times posted by CPOC.
- Later rounds have a Preliminary Results email sent to Coaches for review prior to general score release



CyberPatriot VIII Timeline



Click here for more information:

<http://www.uscyberpatriot.org/competition/competition-timeline>



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SECTION TWO

Introduction to Cybersecurity



www.uscyberpatriot.org



What is Cybersecurity?

All the tools we use and actions we take to keep computers, networks, and information safe and available for those who need it, and **unavailable for those who should not have it.**



That means protecting hardware and data from everything from hackers to earthquakes.

Source: www.UMUC.edu



Why is Cybersecurity Important?

Things that rely on computers:

- Banks
- Social Media
- Schools
- Airlines and Railroads
- Stores
- Police and fire departments
- Military and government systems
- Doctors' offices



Source: US Department of Homeland Security

⇒7,200+ critical American industrial control systems are linked to the Internet, and therefore vulnerable to attack

Answer: Cybersecurity isn't just about protecting computers.
Almost everything relies on or could be affected by a computer.



Why is Cybersecurity Important?

- **2006:** 26.5 million veterans' personal information is compromised after the theft of a Veteran Affairs employee's laptop. The employee thought it was safe to bring home VA records on an unsecure drive.
- **2009:** Coca-Cola executive clicks link in spoof email allowing attackers to steal confidential files on \$2.4 billion business deal with Chinese juice company.
- **2011:** DHS plants USB drives and CDs outside of government and government contractor buildings. The majority are picked up by employees and inserted directly into their organization's computers.

Answer: People make mistakes.

Cybersecurity is often about protecting organizations and individuals from themselves.

Sources: CSO magazine, www.csoonline.com, Bloomberg News, www.bloomberg.com, GCN Magazine, www.gcn.com



Why is Cybersecurity Important?

Case: Backoff Malware Attacks (2013-present)

- Targeted cash registers and payment systems sold by seven different companies
- Impacted major retail companies like Target, Dairy Queen, and UPS



Answer: We're all connected

A weakness in one system can be exploited by attackers to target another system.

Source: New York Times, <http://bits.blogs.nytimes.com/2014/08/22/secret-service-warns-1000-businesses-on-hack-that-affected-target/>



Who's Hiring?



- Nearly every organization needs cybersecurity professionals
- 300,000+ new information technology jobs were created in 2013
- Average salary for computer jobs in 2013 was ~\$89,000, while cybersecurity-specific jobs brought an average salary of \$100,000+

Source: Computer World, http://www.computerworld.com/s/article/9237394/Demand_for_IT_security_experts_outstrips_supply?pageNumber=2



Cyber Career Opportunities

- **Cyber workers**
 - Employees that maintain day-to-day security and strengthen their organization's protection
- **Cyber defenders**
 - Government or contractor employees that protect American networks and information from attacks
- **Cyber sleuths**
 - Professionals that watch for espionage and insider threats and perform digital forensics for law enforcement
- **Cyber leaders**
 - Industry veterans that decide company security policies, train new employees, and conduct R&D





Important Resources

These training materials are only intended to provide basic training for the competition. Coaches and Mentors can be great resources, but the below links may help as well:

- The CyberPatriot Rules Book (CP-VIII version coming soon)
 - Click here: <http://www.uscyberpatriot.org/competition/rules-book>
- Additional Windows resources
 - Click here: <http://www.uscyberpatriot.org/competition/training-materials/windows>
- Additional Linux resources
 - Click here: <http://www.uscyberpatriot.org/competition/training-materials/linux>
- Ubuntu practice images and Windows scoring engine provided by Texas A&M Corpus Christi
 - Click here: <http://www.uscyberpatriot.org/competition/training-materials/practice-images>