



What is Cybersecurity

Air Force Association



Understanding the Risks and Preventing Harm

Using the Internet has become an integral part of life in the modern world. From communicating via email and instant message to reading the news and shopping, nearly every aspect of our life revolves around the cyber world. Because the Internet is so widely used, protecting vital information in the cyber world is not only our responsibility, but a necessity to ensure global security.

How am I at Risk?

Unauthorized users that invade a system are commonly known as hackers. Unfortunately, hackers have a wide variety of tools to harm a computer system. Hackers usually gain access to systems by planting a virus somewhere on the net and waiting for users to encounter or open the virus. Common ways a computer can become infected are:

- ▶ Opening an email attachment that contains a virus
- ▶ Visiting a malicious website
- ▶ Clicking on a dangerous link
- ▶ Inadvertently downloading a harmful program

What Kind of Damage Can a Hacker Do?

Infected computer systems may be affected and damaged in a variety of ways, sometimes without the user even noticing. Some hackers are merely playing a prank, while others are attempting to steal personal information such as credit card numbers, social security numbers, or other personal information. Even worse, hackers can take control of an infected computer and use it to launch an attack on a larger system. Even if your computer has no stored sensitive data, it can still be used to infect other computers without your knowledge. This practice is so prevalent that access to vulnerable or infected computers are bought and sold among hackers.

How Can I Protect Myself?

Most hackers use viruses to exploit vulnerabilities in software and gain unauthorized access to computer systems. For this reason, it is vitally important to install and update anti-virus and firewall software. Because new vulnerabilities in computer systems are found every day, computer companies "patch" these vulnerabilities by issuing a series of system updates. To ensure your computer is safe from known vulnerabilities, make sure to install all updates on a regular basis. Some other basic security measures include:

- ▶ Creating a strong password that has at least nine characters, contains a capital letter, uses a special character (such as #,!,%,*) and includes a number.
- ▶ Consistently track your credit information so that if your computer is infected, you can minimize damage.
- ▶ Back up important information on your computer.
- ▶ Only visit websites you trust and open emails from known contacts.

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CyberPatriot

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What is CyberPatriot?

CyberPatriot is the largest national high school cyber defense competition created to inspire high school students toward careers in cybersecurity or other science, technology, engineering, and mathematics (STEM) disciplines critical to our Nation's future. The competition was conceived by the Air Force Association with Northrop Grumman as the presenting sponsor.

CyberPatriot is open to all high schools or accredited home school programs around the country.

CyberPatriot Teams

- ▶ A CyberPatriot team consists of five students and up to five alternates.
- ▶ Each team must have a coach employed by the team's school.
- ▶ Competitors must be at least 13 years old and enrolled in grades 9-12.
- ▶ Teams may use mentors or technical advisors to help students prepare for the competition.

CyberPatriot Competition

- ▶ Students will compete in two parallel competitions:
 - Open Division
 - All Service JROTC/CAP Division
- ▶ Preliminary rounds are conducted online from the teams' home locations.
 - Open Division will compete:
 - November 5-6
 - December 17-18
 - January 28-29
 - All Service Division will compete:
 - October 29-30
 - December 3-4
 - January 14-15
- ▶ The final competition will take place at AFA's CyberFutures Conference in Washington, D.C. March 22-24, 2012.

Why Become a CyberPatriot?

- ▶ Creates a career path for today's students fostering continued education from high school through college and into the beginning of their careers.
- ▶ Answers one of the nation's critical needs by helping to create computer engineering talent to become the nation's cyber defenders and future leaders, securing our nation's networks from hostile and malicious intrusions.
- ▶ Ensures our country's next generation of cyber leaders have the best training and resources available.
- ▶ Enables students to use their online talents toward a career in this critical field.
- ▶ Increases awareness of protection of personal information while operating in our cyber-enabled world.

Join the Biggest Cyber Game of the Year!

Coaches can enroll their team now for CyberPatriot IV at www.uscyberpatriot.org.

- ▶ Registration is open through October 8, 2011
- ▶ There is a \$350 fee per team that covers:
 - Software and training materials for teams to prepare and compete
 - Participant kits
 - All travel costs for teams that make it to the final in-person competition
- ▶ More information is available at www.uscyberpatriot.org.

For questions or to request a mentor or technical advisor for your team, contact cyberpatriot@ngc.com.

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CyberPatriot Raises High Schools' Academic Excellence

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What is CyberPatriot?

CyberPatriot is the largest national high school cyber defense competition designed to excite, educate, and motivate the next generation of cyber defenders critical to our Nation's future security. The competition has a tournament-style tiered structure with a series of web-based competition rounds culminating in the national championship in Washington, D.C. in March 2012.

Participation in CyberPatriot Has Numerous Benefits to Students and Schools:

Benefits for Schools

- ▶ Engages students in an interactive, meaningful way by presenting cybersecurity in a competitive context.
- ▶ Helps improve academic stature and reputation of the school within the community.
- ▶ Provides students a means to excel in a field rarely presented to High School students.
- ▶ Raises awareness of an increasingly important global security concern in the school and in the community.
- ▶ Offers a unique extra-curricular activity that is both fun and educational.
- ▶ Prepares students for in-demand careers.
- ▶ Presents a powerful lesson to students about the potential vulnerability of information put onto networks-- from text messages and phone calls to Facebook and emails.

Emphasis on STEM Education

- ▶ Addresses the issues raised by studies indicating that the number of American students receiving degrees in science, technology, engineering, and math (STEM) disciplines is steadily declining.
- ▶ Presents cybersecurity within a videogame-like architecture which excites students while exposing them to real world challenges.
- ▶ Introduces students to a career track they can follow through college by studying STEM disciplines which can eventually lead to an exciting, in-demand career essential to global security.
- ▶ Increases opportunities with academic institutions and employers in the community as a result of the school's STEM commitment.

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Role of a CyberPatriot Coach

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Definition of the CyberPatriot Coach:

The CyberPatriot Coach must be a responsible adult, located within a school district, and must either be a teacher or staff member employed by the school or a home school teacher. Either position must be verified by a school official or a legally recognized agency designated to assist home schooling.

Coach Requirements:

- ▶ Prepare the team for competition by offering suggestions and advice.
- ▶ Ensure the team abides by the rules and receives no outside advice during the competition.
- ▶ Serve as an interface between the students on the team and CyberPatriot officials to communicate current information involving competition logistics, such as collecting paperwork from students on the team and coordinating possible travel arrangements for competitions.
- ▶ Provide access to minor students in a way that protects them, respects parental prerogatives, and ensures the integrity of the competition during the online competition periods.
- ▶ The coach is not required to have in-depth knowledge of cybersecurity. They may request a technical advisor's support to assist their CyberPatriot team in technical issues.

Join the Biggest Game of the Year

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- ▶ Competitors must be at least 13 years old and enrolled in grades 9-12.
- ▶ Registration for both divisions is now open through October 8, 2011.
- ▶ There is a \$350 fee per team that covers:
 - Software and training materials for teams to prepare and compete.
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Do you have a CyberPatriot?

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What is CyberPatriot?

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Fun!

- ▶ Gaming skills are put to the test by presenting students with practical cybersecurity scenarios within a videogame-like architecture.
- ▶ Students learn to protect their networks against malicious intrusion perpetrated by the "red team," made up of real life cyber experts.
- ▶ Students collaborate with team members, fostering the exchange of shared knowledge about network and data protection.

Encourages Cyber and STEM Education:

- ▶ Studies show that the number of American students receiving degrees in STEM disciplines is steadily declining.
- ▶ Presents cybersecurity within a videogame-like architecture which excites students while exposing them to real world career opportunities.
- ▶ Introduces students to a career path they can follow through college by studying STEM disciplines which will eventually lead to an exciting, in-demand career essential to national security.

Answering the Nation's Critical Need:

- ▶ As our lives continue to revolve around the Internet, protecting sensitive information becomes increasingly vital to our global security.
- ▶ Personal information can be accessed or stolen by unauthorized hackers including credit card numbers, social security numbers and other personal identifying information.
- ▶ Protecting information in the cyber world is not only our responsibility today, but a necessity to ensure future national security by developing tomorrow's cyber experts.
- ▶ Cyber experts secure our Nation's networks, systems and infrastructure from hostile and malicious intrusions.

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Beginning your Career Path

Education Level	Notional Career Path
High School Diploma	Configuration Controller 1 Provides a variety of basic clerical support to configuration management operations.
	Database Assistant 1 Inputs, reviews and analyzes data within the database.
	Data Entry Operator 1 Operates numerical and/or alphabetical key station to transcribe or validate data from various source documents to another electronic format.
2 Year Degree	Computer Support 1 Performs a variety of duties in support of a computer, network (LAN/WAN), and/or client server unit.
	Database Administration Tech 1 Performs data entry and/or database management operations in support of programs or products.
	Network Monitoring Tech 1 Monitors, controls, and isolates problems in a data communications network.
	Telecommunication Tech 1 Performs a variety of electronic and technical assignments on data communications equipment and systems under general supervision.
4 Year Degree	Computer Systems Analyst 1 Develops computer system specifications that address business requirements and that fit with the company's system architecture standards.
	Cyber Forensic Analyst 1 Identifies and resolves highly complex malware and intrusion issues using computer host analysis, forensics, and reverse engineering.
	Cyber Incident Analyst 1 Uses data collected from a variety of Computer Network Defense (CND) tools, including intrusion detection system alerts, firewall and network traffic logs, and host system logs to analyze events that occur within their environment.
	Cyber Incident Responder 1 Investigates and analyzes all response activities related to cyber incidents within the network environment or enclave.
	Cyber Intelligence Analyst 1 Conducts research and evaluates technical and all-source intelligence with specific emphasis on network operations and cyber warfare tactics, techniques, and procedures focused on the threat to networked weapons platforms and US and DoD information networks.
	Cyber Software Engineer 1 Designs, develops, documents, tests and debugs application software and systems that contain logical and mathematical solutions.
	Cyber Systems Engineer 1 Designs, develops, documents, tests and debugs application software and systems that contain logical and mathematical solutions.
	Programmer 2 Generates, revises, updates, compiles, debugs and writes simple to moderately complex business, scientific, or software computer programs.