



Cybersecurity

Scouts BSA · STEM

Name

Started

Completed

Cybersecurity is about protecting your devices, accounts, and information from people who want to misuse them. This badge teaches you how threats work and how to defend against them. These skills help you stay safe online and could lead to an exciting career.

Requirements

Every official requirement, in plain language. Check the official wording when you sign off (scouting.org/merit-badges/cybersecurity/). Tips and examples are ideas, not extra requirements.

1 Safety

Tips for this section: Watch the video with a parent and talk about what your digital footprint says about you. Check your screen and seating setup too.

- ☐ **1a** With a parent's or guardian's permission, watch the Personal Safety Awareness "Digital Safety" video

- ☐ **1b** Explain to your counselor how to guard your digital footprint on social media, phone apps, and online games, and show how to set privacy settings that protect your personal details, including photos of you and where you are

- ☐ **1c** Discuss preventing and giving first aid for problems from heavy device use, like eye strain, repetitive-motion injuries, and handling electronics, and how to stay physically safe while using a phone, such as when walking or biking

2 Ethics

Tips for this section: Pick a few points of the Scout Law and think about what they look like when you're online.

Example for this section: Connect the Scout Law to real choices: trustworthy means not using someone else's password even if you know it; kind means not piling on in a group chat; obedient means following your family's and school's device rules.

- ☐ **2a** Connect three points of the Scout Law to what people do online or with computers, phones, and other connected devices

- ☐ **2b** Discuss with your counselor examples of right and wrong behavior online, including what to do if you find a computer or phone left unlocked or unattended, see someone typing their password or find it written down, or discover a website that isn't secured; explain why these call for good judgment and how your values and the Scout Law should guide you

3 Cybersecurity fundamentals

Tips for this section: List the devices and accounts in your home that need protecting. Explain the CIA triad with real examples.

Example for this section: Explain the CIA triad with your family's photos: confidentiality (only your family can see them), integrity (nobody secretly changes them), availability (they're there when you need them, thanks to a backup).

- ☐ **3a** Describe three kinds of computer systems that need protecting and why, and discuss them with your counselor

- ☐ **3b** Explain the C.I.A. Triad (confidentiality, integrity, availability) and why these three ideas are the foundation of cybersecurity, and discuss it with your counselor

4 Threats, vulnerabilities, and attacks

Tips for this section: Look at examples of phishing emails and practice spotting the warning signs. Be careful on public Wi-Fi.

Example for this section: Show a phishing example and circle the clues: a sender address that's slightly off, a scary deadline, a link that doesn't match the company, and a request to "verify your password."

- ☐ **4a** Define vulnerability, threat, and exploit, give an example of each that could affect a website or app you use, and discuss them with your counselor

- ☐ **4b** Choose one kind of malware, such as a virus, worm, Trojan, backdoor, spyware, or ransomware; learn how it works and explain to your counselor what it does and what damage it can cause

- ☐ **4c** Name two dangers of using public Wi-Fi and how to lower or avoid them, and discuss them with your counselor

- ☐ **4d** Describe spoofing and phishing and how to spot a message or site that may be trying to fool you; explain to your counselor what to do to protect yourself and others when you run into one

4e Current events: Choose 1 of 2

- ☐ **4e1** Read a news story or article about a recent cybersecurity incident, like a data breach or malware infection; explain to your counselor how it happened, as best you can tell, and what the effects are or could be for the victim

- ☐ **4e2** With a parent's or guardian's permission, read a book or see a movie where cybersecurity plays a big part; discuss with your counselor how it was portrayed and how realistic it seemed

- ☐ **4f** List everything in your cyber attack surface, meaning all the ways someone might try to reach your devices or personal data, like apps, online accounts, or your home network, and discuss it with your counselor

5 Cyber defenses

Tips for this section: With a parent, check for updates on a device and turn on security settings.

Example for this section: With a parent, secure a device: install updates, turn on automatic updates, set a strong passcode or passphrase, and turn on two-step verification for one account. Explain what each step defends against.

- ☐ **5a** Describe three technologies that protect a computer or network, such as firewalls, antivirus software, access controls, intrusion detection or prevention systems, or a VPN

5b Installing updates

- ☐ **5b1** Explain to your counselor why it matters to install the newest updates on your computer, why updates are needed, and what problems they can head off

- ☐ **5b2** Show your counselor how to look for, download, and install the newest updates on your computer or phone, or another device you have permission to use (an online guide with screenshots is OK if you can't do it on a device), and how to confirm it's fully up to date

5c System security: Choose 3 of 9

- ☐ **5c1** With a parent's or guardian's permission, explain what makes a strong password and why, then make an account's password strong by setting or changing it, and discuss it with your counselor

- ☐ **5c2** With a parent's or guardian's permission, describe multi-factor authentication (MFA) and how it boosts security, show how to use an authenticator app or another MFA method, and discuss it with your counselor

- ☐ **5c3** With a parent's or guardian's permission, install and set up a password manager and show your counselor how it works

- ☐ **5c4** With a parent's or guardian's permission, run a virus scan and show your counselor the results

- ☐ **5c5** With a parent's or guardian's permission, use a command line or another built-in tool to see which processes or programs your computer is running, and discuss with your counselor what you found and what surprised you

- ☐ **5c6** With a parent's or guardian's permission, use a command-line interface to see your computer's open network connections and discuss the results with your counselor

- ☐ **5c7** With a parent's or guardian's permission, show how to back up a mobile device's data to a local computer or the cloud, and discuss it with your counselor

- ☐ **5c8** With a parent's or guardian's permission, research good practices for securing a home computer or network, make a checklist of five steps your family can take to stay secure, and discuss it with your counselor

- ☐ **5c9** With a parent's or guardian's permission, find at least one more vulnerability on your home network or computer (or another you have permission to use), discuss it with your counselor, and fix it with the system owner's permission

6 Cryptography

Tips for this section: Try a simple code like a shift cipher with a friend. Look for the lock icon in your browser on a secure website.

Example for this section: Encode a message with a shift cipher, like moving every letter three places (A becomes D), and have your buddy decode it. Then show the lock icon and https on a website and explain what that encryption protects.

- ☐ **6a** Research three situations where cybersecurity relies on encryption, and explain to your counselor what kind of encryption each uses and why it matters

- ☐ **6b** Show how you can tell whether your connection to a website is encrypted

6c Hands-on cryptography: Choose 1 of 4

- ☐ **6c1** Invent your own encryption code (a code book or substitution cipher, for example), use it to encrypt and decrypt a message, and describe its strengths and weaknesses

- ☐ **6c2** Download and set up an end-to-end encrypted app from an official app store, and explain to your counselor what end-to-end encryption means, how it works, and why it's safer than other messaging like SMS

- ☐ **6c3** Use a hashing tool (such as SHA or MD5) to make a checksum for a file, document, or text; have your counselor or another Scout change it, make a new checksum, and compare the two to show how file integrity checking works

- ☐ **6c4** Create a PGP (pretty good privacy) email key of your own, give your public key to others including your counselor, add their public keys to your computer's key ring, and send a digitally encrypted message

- ☐ **7** Describe to your counselor four devices around you that could connect to the internet, how being connected helps, what risks it brings, and how the devices could be protected

Tip: List the smart devices in your home and think about what could happen if someone got into them.

8 Cybersecurity activities: Choose 1 of 3

Tips for this section: Look for youth cyber competitions or camps, or give a presentation to your troop on staying safe online.

Example for this section: Teach your troop a 10-minute lesson: three signs of phishing, how to make a passphrase, and why to update devices. End with a quick quiz where they spot the fake email.

- ☐ **8a** Learn about a cybersecurity camp, competition, or similar activity you could join now or later, and tell your counselor what kind of activity it is, the time it takes, and the ages of those who take part

- ☐ **8b** Take part in a cybersecurity competition with people from your troop, school, or another group your counselor approves, either one you design or one on an existing platform

- ☐ **8c** Give a presentation on a cybersecurity topic you choose to your patrol, troop, or another group your counselor approves, including at least one demonstration or hands-on activity

9 Careers: Choose 1 of 2

Tips for this section: Look into jobs like security analyst or ethical hacker. Ask your counselor about local organizations to visit.

- ☐ **9a** Name three careers that use cybersecurity skills and knowledge; pick one and research its training, education, certification, experience, and costs to get started, plus job outlook, starting pay, and advancement; then tell your counselor what you learned and whether it interests you

- ☐ **9b** Visit a business or organization that works in cybersecurity; find out about its job roles, what each one does, and how people gained their knowledge through degrees or certifications, and share what you learned with your counselor