

Why does Cybersecurity matter to you ...



“draw a cartoon of an interested student learning about how cybersecurity can be a profession, is used in other professions, or is used in life”
Developed by AI tool Dall: E 2 (<https://openai.com/dall-e-2/>)

... as a profession?

Protecting critical resources such as information from unauthorized access and modifications, and defending modern critical infrastructure such as the power grid, pipelines, and transportation from manipulation and destruction. Check out career interviews at the National Institute of Standards and Technology (NIST) <https://www.nist.gov/itl/applied-cybersecurity/nice/nice-framework-work-role-videos>

... indirectly in other professions?

All professional careers use cyber in such aspects as analyzing business operational data, tracking profits, protecting trade secrets and internal discussions, and using daily tools such as laptops, cell phones, medical devices, and cars (planes, trains, cranes, buildings - anything with a circuit board). circuit board = cyber

Something to consider, an adversary encrypts your critical data and all online backups of it. You do have a process to keep the offline backup *up to date*, so it is several months old. The attacker is demanding \$250,000 as a payment to regain access. You have a choice, pay the ransom and get the data back OR not have the data and not be able to perform your work. *What do you do? Do you tell your customers?* Pro-active security measures such as diligently following the 3-2-1-1 principle can help with this, but you may not do it unless you know why.

Another example, you use simple passwords for online social media accounts. Your account is compromised and fake, but embarrassing information is posted on your account. Using two-factor authentication complicates the attacker's effort thereby decreasing the possibility of a successful attack.

... as a person in modern society?

It is important to recognize why security matters for us all to maintain a safe, modern society that continues to at least provide the same level of automation that it does today. Every piece of technology was programmed to operate in the way that it does, it can also be programmed to operate differently and in a way that reveals secrets and/or misoperates. It is also important to recognize data permanence and privacy, what you may do today may be revealed in the future. Maybe in the future, you would not want to make that information public. There is no true Internet deletion function. Furthermore, most apps you are using on your phone are making money somehow even if you are not paying for it - typically by using your information today and possibly in a new way in the future. It is very important to manage whom and what you trust today, and to continue to verify that trust. Check out the concept of deep fakes and how Tom Cruise, Presidents Obama and Zelenskyy were impersonated. <https://www.cbsnews.com/news/creating-a-lie-detector-for-deepfakes-artificial-intelligence/>

Keywords and acronyms to think about.

Scratch / Blockly	SnapCircuits	Raspberry PI	3D Printing	Arduino	Instructables
National Institute of Standards and Technology	ChatGPT	Grey Hat	Engineering Design Process for Kids	Artificial Intelligence	Machine Learning
Dall:E 2				Python	Micro:Bit

ChatGPT as a TA or CoBot request: Provide helpful guidance for an interested student learning about how cybersecurity can be a profession, is used in other professions, or is used in life.

ChatGPT response:

1. Research various cybersecurity roles: Look into different job titles such as ethical hacker, security analyst, and penetration tester. Read up on the job responsibilities, required skills, and salary expectations.
 - a. **ITI provided:** <https://www.bls.gov/ooh/>
2. Learn about the fundamentals of cybersecurity: Start by understanding basic concepts like cryptography, network security, and data privacy. Familiarize yourself with the most common cyber threats like malware and phishing.
 - a. **ITI provided: "So you want to be a Hacker"** <https://youtu.be/wgOQYwWMhgl>
3. Gain practical experience: Participate in online hacking challenges, cyber security competitions, or try to set up your own home lab to practice ethical hacking.
 - a. **ITI provided:** <https://tryhackme.com/>
4. Stay up-to-date: Cybersecurity is a constantly evolving field, so stay informed of new technologies and trends by reading industry news and attending relevant events.
 - a. **ITI provided:** <https://www.cisa.gov/>
5. Consider certifications: Obtaining certifications such as CompTIA Security+ or Certified Ethical Hacker can demonstrate your expertise and boost your resume.
 - a. **ITI provided:** <https://www.udemy.com/course/security-601-exams/>



Learn more about the Engineering Open House Artificial Intelligence Image Micro:Bit SnapCircuit system

- Micro:Bit - The Micro:Bit is available from Amazon at <https://www.amazon.com/micro-bit/s?k=micro+bit>; you can find group discounts that will lower the cost quite a bit.
- SnapCircuits - several snap circuits kits exist, and they are easy to connect to the Micro:Bit
- Programming - The Micro:Bit is easy to get started with, lots of code is available at <https://makecode.microbit.org>
- Teachable Machines by Google - you can use teachable machines with a laptop and camera. Chromebook is great. It is not necessary to connect the website tools to the Micro:Bit like we designed at the Engineering Open House. <https://teachablemachine.withgoogle.com/>