Ambassador Cybersecurity Basics

Pillar: STEAM
Outcomes: Positive Values, Community Problem Solving

Ambassadors will earn their badge by learning how hackers hide dangerous code and how countries engage in cyberwarfare. They will also understand ethical questions raised by hacking and the possible career paths in cybersecurity. Note: This is the first of three sequential Cybersecurity badges and this is all about learning some basics. The other badges help put these concepts into practice.

1. Learn about different kinds of hackers. Because computers play such a big role in our lives, they need to be protected from people who would use them to steal, manipulate, or cause trouble.
    a. Check out how a movie in 1983 inspired President Reagan to assess cybersecurity for the United States! This was the first time anyone considered the real threat of hackers to national security – in a movie! It led to the Computer Fraud and Abuse Act – still very necessary to our lives today.
    b. Cybersecurity professionals **hack** (or break into) computer systems to find weaknesses before others can. Some do it with the knowledge and permission of the company and do it to help the company keep information secure. They are **white hat hackers**. Others do it without the permission of the company to steal private information. They do it for themselves, to cause chaos, earn money, discredit competitors and more. And then there are others who hack systems without permission, but do not steal the information they find. Instead they tell the company what they found and ask for money for finding these weaknesses. Do you think they would be considered black hat, white hat, or gray hat hackers?
    c. Learn these important cybersecurity words here: black hat hacker, cybersecurity, gray hat hacker, phishing, social engineering, steganography, internet of things, white hat hacker

2. Hide a message in plain sight
    a. Changing messages into secret code (**encrypting** them) is a way to hide messages from people. You could also put a message right in plain sight, but in a way that people do not see it – this is called **steganography**. Here are some non-digital examples:
        i.   Invisible Ink
        ii.   Morse Code knitting project
        iii. Embedding a message into a letter
        iv.   Hidden messages using postage stamps
    b. Hackers can use steganography too, to hide malware in regular computer code!

3. Debate the ethics of hacking
    a. What does privacy mean? Do you have a right to keep all your information private? When should a company keep your information private and when should they reveal it with the government or other organizations? Should libraries have to share the records of all that you have checked out? Is it ever acceptable to hack into a computer system without permission? The ethics are complicated and even professionals in this field struggle to find answers. The more technology changes, the more questions arise. Share your thoughts with another Girl Scout, a trusted adult, or friend. You could even set up a mock debate with one team for sharing information and the other team against it and why. See who has the most valid points and who won the debate. Have fun learning from each other!

1. Learn cyberwarfare strategies
   a. The 21st century has so many spy strategies that go beyond just safe houses and secret meetings like in movies of the past. Today it can mean hacking into a computer system from thousands of miles away. **Cyberwarfare** means launching a cyberattack against another country to disrupt or spy on their computer systems. What are the risks and benefits of cyberwarfare?

2. Explore careers in cybersecurity
   a. Cybersecurity careers play an important role in creating secure computer systems. All of them require good problem solving and people skills.
   b. Learn more about these careers in cybersecurity and join the cybercrime fighting team: Chief Information Security Officer, Cryptographer, Digital Forensics Expert, Security Software Developer, Security Architect, Ethical Hacker. Which one would you like best?

Additional online resources:
- If this is a potential career interest, check out National Security Agency's high school and college internship opportunities

When you're finished: Congratulations, you have earned your badge! You can purchase by emailing shopdept@gsksmo.org or at https://www.girlscoutshop.com/ambassador-cybersecurity-basics-badge

No shipping charges apply at this time.