

Unit 1 - What is Cybersecurity?

Content Area: **Computer Science**
Course(s):
Time Period: **Marking Period 1**
Length: **3 Weeks**
Status: **Published**

Brief Summary of Unit

Students will be exposed to a general overview of the field of cybersecurity and its multi-faceted nature. The relevance of the field will be discussed, as well as current threats to cybersecurity, and different career opportunities.

Revised November 2023

Standards

- TECH.8.1.12.B.CS1
- TECH.8.1.12.B.CS2
- TECH.8.1.12.D.2
- TECH.8.1.12.D.4
- TECH.8.1.12.D.CS3
- TECH.8.1.12.E.CS2
- TECH.8.1.12.E.CS4
- TECH.8.2.12.B.CS1
- TECH.8.2.12.B.CS3
- TECH.8.2.12.E.4

MA.9-12.1.2.12prof.Cr

Creating

MA.9-12.1.2.12prof.Cr3

Refining and completing products.

LA.K-12.NJSLSA.L4

Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.

LA.K-12.NJSLSA.L5

Demonstrate understanding of word relationships and nuances in word meanings.

TECH.8.1.12.B.CS2

Create original works as a means of personal or group expression.

TECH.8.1.12.C.CS1

Interact, collaborate, and publish with peers, experts, or others by employing a variety of digital environments and media.

TECH.8.1.12.C.CS2

Communicate information and ideas to multiple audiences using a variety of media and formats.

TECH.8.1.12.C.CS4

Contribute to project teams to produce original works or solve problems.

TECH.8.1.12.D.2

Evaluate consequences of unauthorized electronic access (e.g., hacking) and disclosure, and on dissemination of personal information.

TECH.8.1.12.D.4	Research and understand the positive and negative impact of one’s digital footprint.
TECH.8.1.12.D.CS3	Exhibit leadership for digital citizenship.
TECH.8.2.12.B.CS3	The role of society in the development and use of technology.
TECH.8.2.12.E.4	Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements).

Transfer

- Students will be aware of various cybersecurity threats, and will have the skills needed to practice safe Internet browsing practices outside of class. Additionally, students may choose to continue studying cybersecurity at the post-secondary level, with the knowledge about career opportunities guiding future career decisions.

Essential Questions

- What are some possible career choices in the cybersecurity field?
- What are some recent threats to cybersecurity?
- What branches of computer science does cybersecurity affect?
- What is meant by the term cybersecurity?

Essential Understandings

- Cybersecurity is a multi-faceted field.
- Cybersecurity necessarily overlaps with other branches of computer science.
- There are many possible career paths and agencies that require an employee skilled in cybersecurity. The number of unfilled jobs in cybersecurity is large, and growing larger.
- Threats to cybersecurity are constantly evolving, but there are ways to improve your own cybersecurity.

Students Will Know

- Career choices in cybersecurity
- Current threats to cybersecurity and a general knowledge of how they work
- General descriptions of different computer science sub-fields
- The sub-fields of computer science that cybersecurity affects
- The term “CIA” as it relates to a secure network (Confidentiality, Integrity, Availability)

Students Will Be Skilled At

- Communicating an overview of computer science and its subdomains in written and verbal form
- Communicating the relationship between cybersecurity and some of the subdomains of computer

science

- Communicating the various job responsibilities that someone with a cybersecurity background may need to carry out
- Identifying if a given network adheres to the CIA triad
- Identifying manifestations of current cybersecurity threats in the news

Evidence/Performance Tasks

Assessments

- **Formative:** Daily assessments using examples from class notes and CodeHS.com, AP Classroom/Albert Checks for Understanding
 - **Summative:** Teacher-created assessments/projects and CodeHS Computer Science Projects, AP Classroom/Albert Unit Assessments
 - **Benchmark:** Check for understanding benchmark assessments on CodeHS, AP Classroom/Albert/Khan Academy Diagnostics
 - **Alternative Assessments:** Student-centered activities such as a doorbell coding project, game design projects, and other activities involving real world applications
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- Answer essential questions
 - Class discussion of daily topic
 - Classwork and homework that assess the essential questions
 - Current event report on cybersecurity issues, and their relationship to cybersecurity threats learned in class.
 - Provide alternative means of assessments for certain students
 - Teacher Observation
 - Tests and quizzes that assess the essential questions
 - Written assignments that assess the essential questions that involves providing explanations

Learning Plan

- “Internet of Things” and relation to cybersecurity
- Discuss cybersecurity and the rationale for studying it
- Discuss the FBI and its role in fighting cyber crime
- Discuss the idea of the CIA triad
- Examine real-time threat map
- Examine WannaCry Ransomware attack
- Examine Yahoo! Attack
- How to fight cyber crime

- Introduce the term “cybersecurity”
- Possible guest speakers to discuss their jobs in the field of cybersecurity

Materials

- Core instructional materials: [Core Book List](#)

Supplemental materials: CodeHS

- Computers
- Teacher created activities
- Teacher created notes
- Website such as codehs.com for content
- Websites to research current events

Suggested Strategies for Modifications

[Possible accommodations/modification for Introduction to Cybersecurity](#)