Unit #9: Cybersecurity and Global Impacts

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State Mandated Topics Addressed in this Unit

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N/A	N/A

Unit #9: Cybersecurity and Global Impacts

Learning Objectives

- Artists will explore how a digital world in which more and more important innovations seem to come at the cost of their personal privacy.
- Artists will gain a working knowledge of the different types of encryption, focusing specifically on symmetrical and asymmetrical encryption.
- Artists will learn about common security risks, how people are targeted, and how they can protect themselves.
- Artists will learn about multifactor authentication and virus scanning software.
- Artists will work on understanding the kinds of data that are collected by modern apps, websites, and computing innovations, and the ways that this may sometimes lead to sharing private information.

Essential Skills

- Assess a computing innovation to identify the specific privacy risks that could arise from the data it collects and stores.
- Confidently explain security risks and their impact on society
- Define Personally Identifiable Information as information about an individual that identifies, links, relates, or describes them.
- Describe the different types of data that are used and collected by modern computing innovations
- Describe the role human error played in the Equifax breach
- Discuss the benefits of computer virus scanning software and the need for regular updates
- Discuss the warning signals for these common security risks
- Evaluate the benefits and harms that could potentially be caused by a computing innovation
- Evaluate whether the benefits to society from a given computing innovation outweigh the privacy risks it poses.

- Explain how computing tools can be used for decryption
- Explain how disparate pieces of personal information can be combined to identify individuals or deduce other private information.
- Explain how the benefits and harms of a computing innovation may be different in the eyes of different people
- Explain how these common security risks target people
- Explain the benefits of multifactor authentication
- Explain the difference between asymmetrical and symmetrical encryption
- Explain the risks to privacy that arise from using modern computing technology
- Identify a computing innovation
- Identify benefits of a computing innovation
- Identify commons security risks: phishing, keylogging, rogue access points
- Identify why Caesar Cipher and Random Substitution Ciphers are not adequate for most encryption needs
- Research computing innovations through the lens of one beneficiary
- Understand how to conduct research on a computing innovation

Standards

CS.9-12.8.1.12.NI.2	Evaluate security measures to address various common security threats.
CS.9-12.8.1.12.NI.3	Explain how the needs of users and the sensitivity of data determine the level of security implemented.
CS.9-12.8.1.12.NI.4	Explain how decisions on methods to protect data are influenced by whether the data is at rest, in transit, or in use.
CS.9-12.8.2.12.EC.3	Synthesize data, analyze trends, and draw conclusions regarding the effect of a technology on the individual, culture, society, and environment and share this information with the appropriate audience.
CS.9-12.8.2.12.ITH.1	Analyze a product to determine the impact that economic, political, social, and/or cultural factors have had on its design, including its design constraints.
CS.9-12.8.2.12.ITH.2	Propose an innovation to meet future demands supported by an analysis of the potential costs, benefits, trade-offs, and risks related to the use of the innovation.
CS.9-12.8.2.12.ITH.3	Analyze the impact that globalization, social media, and access to open source technologies has had on innovation and on a society's economy, politics, and culture.

Instructional Tasks/Activities

- Classroom Discussions
- Debugging
- Exploration/Investigation/App Lab - Design Mode Activities
- Formative Assessments
- Journaling
- Pair Programming

- Peer Feedback
- Project Innovation Simulation
- Students will complete coding exercises on code.org that requires them to identify and solve cybersecurity issues in a provided scenario.
- Worksheets

Assessment Procedure

- Classroom Total Participation Technique
- Classwork
- DBQ
- electronic active responders
- Essay
- Exit Ticket/Entrance Ticket/Do Now
- identify the error problems
- Journal / Student Reflection
- Kahoot
- Other named in lesson
- Peer Review
- Performance
- Problem Correction
- Project
- Quiz
- response and analysis questions
- Rubric
- Teacher Collected Data
- Test
- Worksheet

Recommended Technology Activities

- Appropriate Content Specific Online Resource
- Encryption widgets
- Gimkit
- GoGuardian
- Google Classroom
- Google Docs
- Google Slides
- Google Slides

- Kahoot
- MagicSchool AI
- Other- Specified in Lesson
- Quiziz
- Screencastify

Accommodations & Modifications & Differentiation

Accommodations and Modifications should be used to meet individual needs. Their IEP and 504 plans should be used in addition to the following suggestions.

Gifted and Talented

- Compare & Contrast
- Conferencing
- Debates
- Jigsaw
- Peer Partner Learning
- Problem Solving
- Structured Controversy
- Think, Pair, Share
- Tutorial Groups

Instruction/Materials

- alter format of materials (type/highlight, etc.)
- color code materials
- eliminate answers
- extended time
- extended time
- large print
- modified quiz
- modified test
- Modify Assignments as Needed
- Modify/Repeat/Model directions
- necessary assignments only
- Other (specify in plans)
- other- named in lesson

- provide assistance and cues for transitions
- provide daily assignment list
- read class materials orally
- reduce work load
- shorten assignments
- study guide/outline
- utilize multi-sensory modes to reinforce instruction

Environment

- alter physical room environment
- assign peer tutors/work buddies/note takers
- assign preferential seating
- individualized instruction/small group
- modify student schedule (Describe)
- other- please specify in plans
- provide desktop list/formula

Honors Modifications

Resources

- code.org