UNIT 4: COMPUTER SYSTEMS SECURITY

Estimated Time in Hours: 7

Big Idea(s)	Enduring Understandings	Projects & Major Assignments
2 Establishing Trust 4 Data Security 5 System Security	2.1, 2.4, 4.1, 4.2, 4.3, 5.1	- Malware Poster - Hands-on Lab: Hardening a Windows Image

Guiding Questions:

- What policies and procedures are in place to keep data safe?

Learning Objectives & Respective Essential Knowledge Statements	Materials	Instructional Activities and Classroom Assessments
2.1.1 LO: Students will evaluate methods of keeping information secret from those whom the information should be kept secret EK:2.1.1a,b 2.1.2 LO: Students will demonstrate that integrity involves trust and credibility. EK:2.1.2a,c 2.1.3 LO: Students will evaluate methods of protecting information and information systems from disruption and destruction EK:2.1.3a,b	• Notebook • Cornell Notes (for an explanation of the Cornell note-taking system, visit http://lsc.cornell.edu/study-skills/cornell-note-taking-system/) • CyberPatriot Training Materials | Unit 4: Principles of Cybersecurity. *USCyberPatriot.org* (must register as a Coach, Mentor, or Team Assistant to see the most recent training materials) • CyberPatriot Training Materials | Unit 5:	**Principles of Cybersecurity and Virtual Machines: (2-day lesson)** Students review the principles of the CIA Triad, learn about malware and about the use of a checksum - a hash function used to check if a file is corrupt. • This lesson begins with a lecture on the Principles of Cybersecurity and Virtual Machines. During the lecture, students complete Cornell Notes and update their notebooks with key vocabulary from the lecture. Students then create a poster about Malware in groups of 3-4 and present the posters to the class.

4.3.1 LO: Students will define cryptography and explain how it is used in data security. EK: 4.3.1j 5.1.1 LO: Students will identify how hardware and software work together in complex ways to achieve an overall objective. EK:5.1.1d	Computer Basics and Virtualization. *USCyberPatriot.org* (use Unit 5 Section 2 only) • CyberPatriot Training Materials | Unit 7: Microsoft Windows Security Tools. *USCyberPatriot.org* • CyberPatriot Training Materials | Unit 8: Microsoft Windows Security Configurations. *USCyberPatriot.org* • Poster Paper • Markers	
2.4.1 LO: Given a scenario, students will identify the assumptions made in the design of the system and evaluate the trade-offs involved in defending a system while determining whether these assumptions hold in its execution. EK: 2.4.1a,b,c,d,e 4.2.3 LO: Students will evaluate and recommend technical controls that can be used to secure data.	• Windows Image with vulnerabilities / issues • Checksum • VMWare	**Assessment: (5-day lesson)** *Students begin by running a checksum on the Windows Image you provide them to verify the integrity of the file. Students then load the Windows image in the VMWare and use the knowledge that they have gained over the last two days to harden the image by removing vulnerabilities and securing file permissions and access to the proper users.*

EK: 4.2.3f,g,h,i		