Cyber Security Initiative for Nevada Teachers: Curriculum Integration Plan for Coronado High

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General Cyber Security Module

Learning Objectives

- Describe the task completion process of a computer
- Recognize binary, Hex and ASCII representation
- Evaluate and interpret privacy and security policies
- Explain global and cyberspace privacy & security issues
- Summarize the myriad ways personal, private data is created
- Recognize viruses & malware and use protective programs
- Understand the need for better system identification
- Describe attacks to networks & personal computers
- Summarize the process and benefit of encryption
- Describe the four levels of security in cyberspace
- Develop strategies to better secure cyber systems
- Practice and instruct others on safe computing

Day1

Demonstrates how computers process information and how we REPRESENT information in computers. The goal is to become familiar with how data moves around in a system. Transfer our knowledge to storage

Binary System

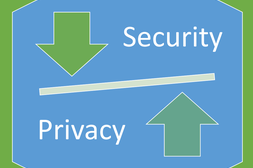
16	8	4	2	1
0	0	0	0	1
0	0	0	1	0
0	0	0	1	1
0	0	1	0	0
0	0	1	0	1
0	0	1	1	0
0	0	1	1	1
0	1	0	0	0
0	1	0	0	1

Compare and contrast three number systems. Hexadecimal, Decimal & Binary. When the students are familiar with the mechanics of number systems, they will understand binary

Understanding the basics of computers we now need to make sure the students stay safe. Time to talk about privacy and security

The Big Debate

Do we give up privacy for security? What about homeland security compared to cyber security? Students will explore this issue now. Debates and papers



Privacy

What do we need to stay private? Data is created all the time and many people want to possess it. Who should you have control? What is in the privacy policies you never read? Take control of your privacy immediately!

Security

We must secure our private information! We know what it is but where is it located? We find out in this lesson. A deep look into the four levels of security. Concentrate your precious resources where they are needed most!

With four lessons and five days finished, next we model safe computing practices. Model good behavior early and students will strive to be safe!

Day 10

For 5 days we use privacy and security products. Practical use is by far the best teacher, and with this simple practical advice students can help out at home.

Students use

Firewalls, encryption, virus & malware programs, metadata viewers, back-up systems and biometrics systems. They observe password crackers in action and they will recognize the importance of pass phrases!

Computer Literacy
9th Grade

Computer Science Advanced Studies
11th & 12th Grade

Knowledge Attained
From the
RET Site: Cyber Security Initiative for Nevada Teachers (CSINT)

Robotics
9th – 12th Grade

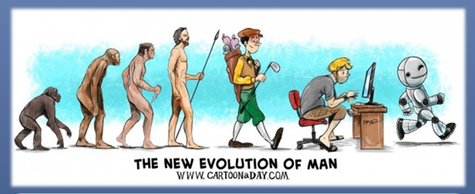
Computer Science 2
11th & 12th Grade

Computer Science 1
9th and 10th Grade

Security is not a product, but a process"
-- Bruce Schneier

Assessments

I will use a formative diagnostics assessment design for all lessons or modules that include cyber security information from this program. It is my intent to administer identical assessments at both a pre and post module/lesson timeframe to ascertain information on both the students growth and the instructions appropriateness.

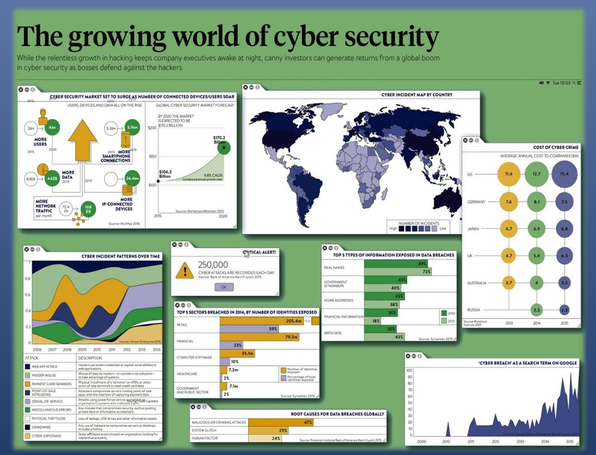


Materials Available

All materials will be made available for anyone who would like them. The General Cybersecurity Module is available now. All other modules will be available when they are finished. Contact me at sunderwood1@interact.ccsd.net

Computer Science is Imperative for the Advancement of Society

The technological advancement in the last 50 years has been astounding. We no longer need huge budgets nor great infrastructures to create new technologies, we can do it in a garage or a small lab using minimal resources. It is imperative that human beings come to understand technology as well as they understand technologies use. It is programs like the Cyber Security Initiative sponsored by NSF and the University of Nevada Reno that are making it possible to bring technology education to all levels of education.



Biometrics & Hardware Integration

Information learned in this area will be integrated in multiple ways. The subject fundamentals will be included in introductory computer classes with plans on integrating information into code.org's Exploring Computer Science and Computer Science Principles curriculum. Including plans to write a full years curriculum or project guidance for the advanced studies in Computer Science.

Robotics & Unmanned Autonomous Systems

Information learned in this area will be integrated in a robotics class. The subject will be included in a robotics class with plans on integrating information into code.org's Exploring Computer Science curriculum. Including plans to write a full years curriculum or project guidance for all levels of a robotics class.

Wireless Communications

Information learned in this area will be integrated in multiple ways. The subject fundamentals will be included in introductory computer classes with plans on integrating information into code.org's Computer Science Principles curriculum. Including plans to write a full years curriculum or project guidance for the advanced studies in Computer Science.

Digital Forensics

Information learned in this area will be integrated in multiple ways. The subject fundamentals will be included in introductory computer classes with plans on integrating information into code.org's Computer Science Principles curriculum. Including plans to write a full years curriculum or project guidance for the advanced studies in Computer Science.

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