

CyberWatch CyberSTEM:

Engaging Students with CyberSecurity Resources and Activities- to Promote Cybersecurity Awareness and Career Development

Example of workshops
done at state and
National Conferences

Lead Presenter

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Davina Pruitt-Mentle, Executive Director and Senior Researcher at Educational Technology Policy, Research and Outreach (ETPRO) has worked in the field of STEM education & educational and cyberawareness research since 1990. She has spent the past 11 years conducting research on student and educator cyberawareness and K-16 cyberethics, safety and security awareness programs, and developing programs to help increase the IS/IA workforce pipeline.

Research and development interests have focused on the Cyberethics, Cybersafety and Cybersecurity (C3) framework. Some of her recent published work has focused on the state of C3 awareness knowledge and programs, cyberawareness strategies, and SECURE IT, a holistic approach program to promote C3 and connect to careers in IA/IS/Cybersecurity and Digital Forensics. She acts as a CO- PI on the NSF funded CyberWatch Regional Center, PI for the CyberWatch/UMD Digital Forensics Lab, PI of the MD BRAC (Base Realignment and Closure) –EIS-C MD (Expanding IS Capacity in MD), and serves on numerous national, state and local Task Forces and Advisory Boards.

Co-Presenter

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Portia Pusey is Assistant Director at Educational Technology Policy, Research and Outreach and Program Coordinator for the CW SECURE IT (Strategies to Encourage Careers in Cybersecurity and Information Technology) Program. She has worked in education and instructional technology since 1998 with expertise in teacher training and pedagogical changes related to technology integration. She also has research in STEM and C3 program development and

evaluation expertise and manages several of CW/ETPRO's informal after school programs and special activities.

Workshop Information

CyberWatch CyberSTEM:

Engaging Students with CyberSecurity Resources and Activities

Description: CyberWatch K12 Division invites you to explore free, groundbreaking digital resources designed to deepen and extend student understanding of cybersecurity awareness and career development

Purpose & Objectives

The goal of this workshop is to provide participants with an introduction into the use of digital learning objects, hands-on activities, exercises and resources in support of the teaching of Cybersecurity and career opportunities in this area. Content currently includes five modules: Cryptography; Programming/Computational Logic; Digital Ethics, Safety and Security; System Vulnerabilities; and Digital Forensics. The five modules include activities that have been developed for grade bands 4-5 (Mindtools), 6-8 (Jr. Cyberwarrior) and 9-12 (Cyberwarrior). Whether for use in an after school or summer program or integration or support for core K-16 classroom teaching—resources provide an exciting way to promote critical thinking, collaboration and problem solving.

Outline

Introductions

CyberSecurity in Perspective: Break the Ice Activity

Overview of CyberWatch and SECURE IT
National Initiatives (NICE) and Cyber Defense Competitions

Topics: Each domain will include an overview, sample hands-on exercises and activities, and digital exercises for classroom teachers AND supplemental resources for careers counselors and parents

Topic 1

Computational Logic/Programming
Games and simulations and connection to programming and digital forensic

Topic 2

Cryptography
Computational Logic/Problem Solving

Topic 3 and 4

Digital Forensics
System Vulnerabilities

Topic 5

Folding in Digital Ethics, Safety and Security
Online Reputation Management
Security Clearances

Topic 6

Competitions- examples-Show and Share
US Cyber Challenge, Cyber Patriots, Digital Forensic Cup, eCyberMission, CyberSecurity Olympiad

Topic 7

Employment Outlook and Opportunities
Career Pathways and Certifications

Closure, Evaluation and Next Steps (15 min)

Scan of local, regional and national opportunities for students
Scan of local, regional and national opportunities for teachers
Opportunities to get involved in CyberWatch, SECURE IT and/or National Cybersecurity Awareness Month

Selected activities from each module will be demonstrated, and then participants will be led through supervised exercises to get a hands-on feel for the resources utility. Follow-up exercises and resources for career counselors and parents will also be shared. This workshop presents a snap shot of hand-on activities with CyberWatch materials and a means to explore first- hand how to implement your own after school program or fold in lessons to the regular content area classroom. Additional resources will be shared so participants can expand their experience beyond the 2011 MSET workshop.

CyberWatch is a National Science Foundation funded Advanced Technology Education Center whose mission is to increase the quality and quantity of the Information Assurance/Cybersecurity workforce. The CyberWatch K12 Division supports the center's mission through formal and informal programs, content and outreach activities for students, educators, and parents.