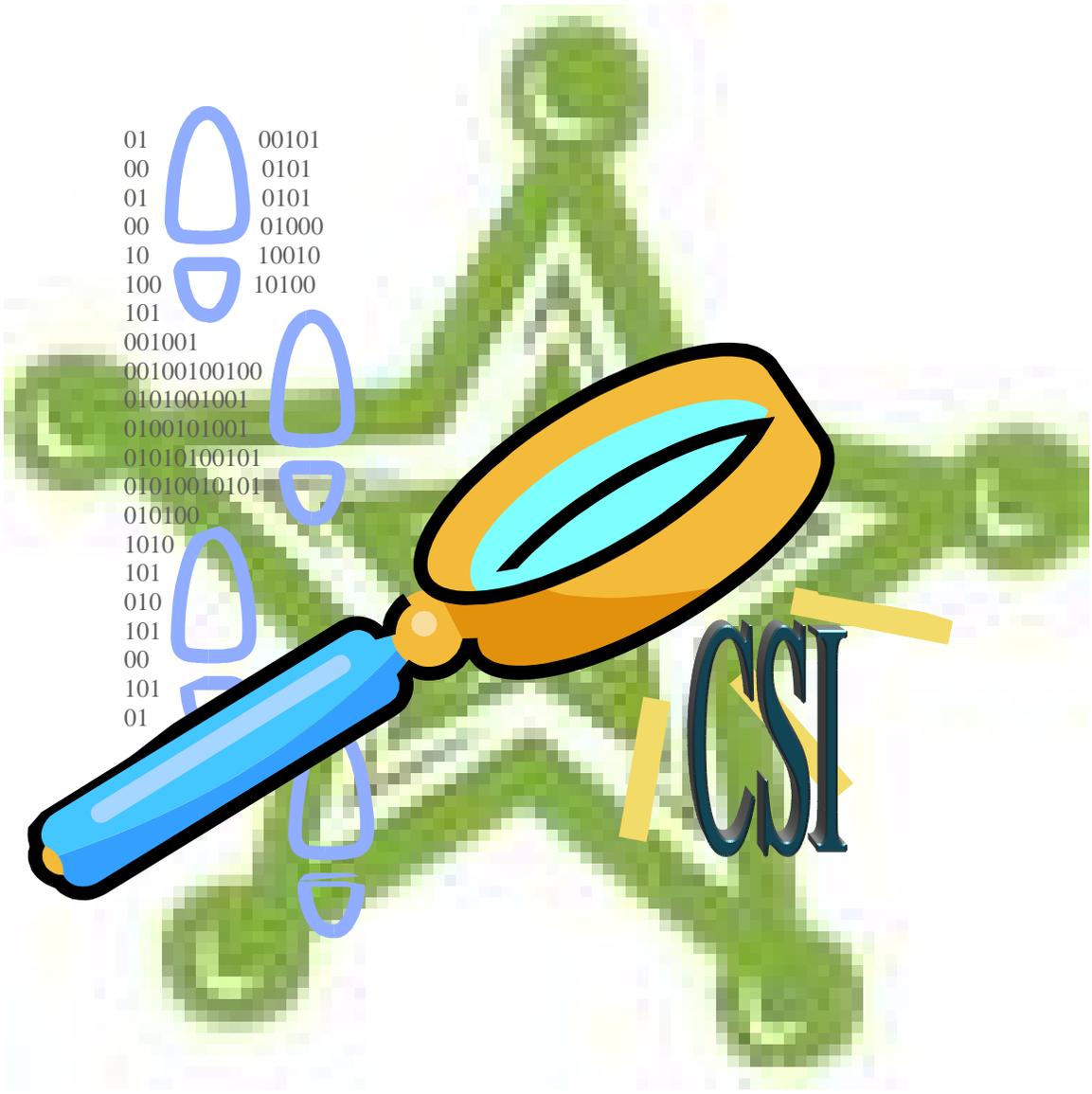


Cool Careers for Girls in Cybersecurity 2010





Middle school girls become Celebrity Stalker Investigators (CSI) for a day to solve a cyberstalking crime.

During this interactive crime solving event, girls learn from women in companies and agencies throughout the state what it takes to navigate the professional pipeline in the vast fields of Cybersecurity and Information Assurance, as well as other science, technology, engineering, and mathematics (STEM) fields.

The 2010 event will be held October 29, 2010 at the National Electronics Museum from 10 a.m. until 1:30 p.m.





Agenda

Arrival - 9:30 a.m.

Explore National Electronics Museum and
Meet Cyber Career speakers

9:30--10:00:

Welcome and setting the stage for scenario and activities
Break into groups of 10 and complete 4 activities

10:00-10:30: Activity 1

10:30-11:00: Activity 2

11:00-11:30: Activity 3

11:30-12:00: Activity 4

12:00-12:30: Lunch & booth exploration

12:30-bus pickup:

Solve the crime together with the lunch speaker: Careers in
Cybersecurity.

Tour of Museum





Activity Summary

Girls break into forensic teams of 10 and will complete 4 of the following activities.

Cell Phone Forensics:

Students will use a SIM card reader to retrieve deleted files from a cell phone. This can lead to a discussion about secure communications or the permanence of digital information.

Cryptography:

Students will decrypt a message using a frequency chart and cryptography wheel. Students will learn the importance of encryption in every day life: UPC, credit card transactions, and texting.

Wireless:

Students will access a wireless data stream and investigate the data. The vulnerability of wireless technologies will be connected to instruction on how to identify safe wireless hotspots.

Robotics:

Students will program a "human robot" to retrieve a package. This activity links to a conversation about the many disciplines required for a successful robotics program including: electrical, and mechanical engineers and mathematicians and computer scientist.

Malware:

Students will perform diagnostics on a machine and find a key logger. Risky behaviors that put student data, information and identities in jeopardy will be explained.

Steganography:

Students will use diagnostic tools and skills to determine if photographs have been altered. Connections to digital forensic investigations will be explored.

Computer Hardware

Students will assemble a computer. Students will name the part and function of each computer part.

Logic

Students will solve logic puzzles use Venn diagrams and make logical arguments. The principals of logic and solving puzzles will be connected to careers that use these skills.

Systems Engineer

Students will review the list of evidence with an system's perspective to analyze what other evidence would be needed to identify the criminal. This connects with the analysis role of the systems engineer.





Scenario

NEWS FLASH!!!! Teen Idol and star of the successful movie series *MiFi Musical*, Crisp Rollins has entered hiding as a result of several disturbing pictures that have surfaced on the Internet. These pictures were taken from behind the walls of his personal compound on his the remote island just off the coast of Washington State. Evidence found on Mr. Rollin’s island indicated that the person who took these pictures may have intended foul play. Mr. Rollins’ representative has released the following statement,

“Crisp’s physical welfare is of utmost concern to the studios and his personal team. While he remains safe, this obvious invasion of privacy has left us shaken. Crisp thanks all his fans for their support and he remains in touch with them on his twitter account to reassure them he is doing great. He will see them all soon when this is resolved. We trust that the all female elite team of the Cyber Stalker Investigators (CSI) will have this resolved very soon because Crisp fully intends to attend the premier of his latest film *MiFi Musical V*.“

The all female elite team of Celebrity Stalker Investigators (CSI) is Hollywood’s answer to the increasing number of Cyberstalking incidents plaguing entertainers. Celebrity representatives have been educating the stars to use complex passphrases, firewalls, malware scanning programs and frequent updates to their software and operating systems. But this effort has been met by stronger social engineering efforts on behalf of the cyberstalkers. It appears that celebrities are easily tricked into clicking on links in their emails and opening attachments. A new education campaign has begun to help eradicate the effectiveness of these social engineering methods.

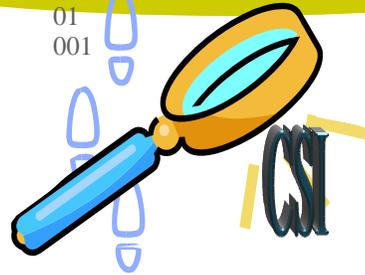
The all female elite CSI team investigating the Crisp Rollins Cyberstalking incident has reported that they are using a variety of digital forensics tools and techniques to find the perpetrator of this heinous crime. They have recovered deleted files from a discarded cell phone, monitored the suspect’s wireless communications and are decrypting some notes found at the scene of the crime. It is also rumored that sophisticated robotics have been used to collect evidence. A keystroke logger has been discovered on Crisp’s laptop so biometrics interventions are being implemented to secure Crisp’s technology. The CSI team has also said that the hard drive from a machine recovered from the boat used to access the island is currently missing. “This hard drive has crucial evidence that will reveal the identity of our cybercriminal; finding it is our top priority.”

Stay tuned to CyberEntertainment TV for more information on this developing investigation.



Cool Careers for Girls in Cybersecurity

2010



Suspects



Irvin Marvin Innocent (Alias: I. M. Innocent)

Owens the boat used to access the island. Everyone on the mainland has said that I.M. always complains that Crisp talks too much and always wants to drive the boat when I.M. takes Crisp to his private island.

I.M. claims he was at the dentist the day of the pictures were posted

Crisp “The Man” Rollins (Celebrity Impersonator)

This aging actor has made a living performing songs dressed as what Crisp Rollins would look like at 80

He claims he does not need to stalk Crisp... He IS Crisp.

Claims he was napping before heading out to the early bird special at the Hollywood Diner <http://www.flickr.com/photos/crschmidt/3039527699/>



Crystal Light (Ultimate Fan-Girl)

This crazed teen has made no secret of her Crisp Rollins obsession. She has been kicked out of the Crisp Rollins fan club for posting Crisp Rollins’s hotel room number on the fan website. She has started her own fan site and the pictures appeared here first.

Claims she was grounded and her laptop was taken away the day the pictures were posted. <http://www.flickr.com/photos/vithassan/3505239856>



Cool Careers for Girls in Cybersecurity 2010



Systems Engineering

Duration: Each student session last for 30 minutes. Students will have ten minutes to travel to their next session.

Session Overview:

Students will connect the analysis required for systems engineering to evidence collection for crime investigation.

Objectives:

Review evidence list

Use systems engineering analysis skills to determine what further evidence/ investigation would be needed to solve the crime.

Materials/Supplies (include AV needs):

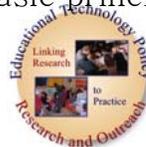
Evidence List

Systems Engineering Handouts

Introduction:

Ask the students to think about their latest “crush.” Ask if they observe this person. Do they know his homeroom or where he sits during lunch? Do they know who he hangs out with? Or which after school events they attend? Do they know which subjects he likes? Which type of music he likes? Do they notice the type of clothes he wears? Do they notice the way he treats other people?

Explain that observing and paying attention to behaviors (gathering data) is nothing more than analysis. A systems engineering professional watches the behavior of the network or of certain viruses in cyber. Same basic principle.



Cool Careers for Girls in Cybersecurity 2010



Systems Engineering

Lesson:

Students will review the list of evidence with an system's perspective to analyze what other evidence would be needed to identify the criminal. This connects with the analysis role of the systems engineer.

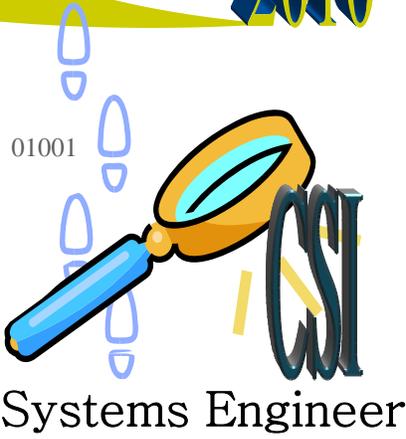
Final Thoughts:

Part of the job of a systems engineers (SE) involves developing requirements. A SE must understand purpose/intention for the system. So, they collect information from multiple sources and then take action based upon the analysis. This is just like the real life example of the “crush” example — If you want this person to notice you, you need to be where they are in order to strike up a conversation. If you want to avoid being noticed, you would have to ensure they don't know you are there.

In the cyber world, the requirement is to come up with ways that defeat viruses and intrusions; but, you have to understand the virus behaviors in order to block them. You may also want to put the virus in a place where it can't do harm but allows you to study it at a deeper level. The only difference is the scale. While the example of the crush involves a few connections, the crime with the three suspects involves many more a network has millions and millions of connections. This is why we need lots of people to protect and defend them.



Cool Careers for Girls in Cybersecurity 2010



Clues
needed: _____

CyberCareer: _____

What is cool about this job?



Cool Careers for Girls in Cybersecurity 2010



- Cell Phone Deleted Texts from Crystal Light
- Encrypted Message from I. M. Innocent
- Wireless Data Stream from Crisp “the Man” Rollins
- Mysterious Package Addressed to I. M. Innocent retrieved from the scene
- Key logger installed on Crisp’s laptop
- Pictures online
- Pieces of Computer Hardware found on I.M. Innocent’s boat

Have all the connections been explored? What else would you want to know before using your analysis skills to identify a criminal?



Cool Careers for Girls in Cybersecurity 2010



Master Clue Sheet

Cell Phone Forensics:

This cell phone will have some deleted texts about how the owner wanted to move to live on Chip Rollins' private island. ("today just wanna move 2 chipzI sland mom making me crazy!") And another text that said that the owner wants to marry Chip Rollins. (Gonna b mrs chip R 4-srue!!)

Cryptography:

The decrypted note says: The password to Chip Rollins boat dock is rockon

Wireless:

The suspect is using his/her computer and is using an unencrypted chat/instant message service. Part of the stream includes this quote: I am being watched by the police, I am not sure what they are looking for but I don't want them to know anything!!!

Robotics:

When the box is opened it just contained packing materials, from an order of fishing lures that were ordered by I.M. Innocent. The return address label confirms that the box was shipped to I.M.

Malware:

The keylogger was installed when Chip looked at pictures of cute cats in his email. It recorded everything he typed ever since it was installed. The information was sent to an IP address in China.

Steganography:

Students will use diagnostic tools and skills to determine if photographs have been altered. Connections to digital forensic investigations will be explored.

Computer Hardware

The pieces of the computer were found scattered around I.M. Innocent's boat. They had fingerprints from I.M., Chip, and several of the security personnel. I.M. has said that the pieces of hardware were gifts from Chip. I.M. said that chip gives him the parts when he upgrades his hardware, I.M. had not yet had the time to put the parts into his existing desktop computer.

Logic

Students will solve logic puzzles use Venn diagrams and make logical arguments. The principals of logic and solving puzzles will be connected to careers that use these skills.

Systems Engineer

These students should share the information they would need to make any conclusions about the suspects.



Cool Careers for Girls in Cybersecurity 2010



Crime Wrap-Up

1. Call the girls back together.
2. Explain to the girls that the forensic team's role is to report the facts gathered from the evidence it is not to make a conclusion from the fact of the case.
3. Review the clues from all of the speakers
4. Record the clues on chart paper, or type the clues into a computer connected to an overhead projector.
5. Discuss the clues from the perspective of an analyst.

While the evidence seems to point to I.M. Innocent, there is still not enough evidence. The crime is not solvable at this point but students should consider that it is possible that no one was on the island at all. The key logger points away from all the suspects and the pictures found on the internet appear to be photo shopped. The threatening messages that Chip received may just be one of the many he receives every week.

1. Students should be reminded that forensic investigators just report the facts of the evidence and do not make the conclusions and their reports will be turned over to the detectives.
2. Thank the forensic teams for their work.



Cool Careers for Girls in Cybersecurity 2010

**Middle School Girls!
Join the Celebrity Stalker
Investigations (CSI) team for a day
solving a Cyberstalking crime**

Date: 10/29/2010

Time: 10 a.m. to 1:30 p.m.

**Where: National Electronics
Museum**

**In order to solve a
Cyberstalking crime the
elite all girl CSI teams will**

- **assemble a computer and**
- **use digital forensics tools**
on
 - **cell phones**
 - **wireless data
streams**
 - **hard drives and**
 - **pictures**



SPONSORS

T-Shirts and lunch provided to all participants thanks to the generous sponsorship of the following organizations



Details

National Electronics Museum
1745 West Nursery Road
Linthicum Hts., MD 21090

Contact the coordinator at your school for more information or email dpruitt@edtechpolicy.org

During this interactive crime solving event, girls learn from women in companies and agencies throughout the state what it takes to navigate the professional pipeline in the vast fields of Cybersecurity and Information Assurance.

Name _____

School _____

T-shirt Size: S M L XL

Box Lunch Choice (circle one)

Turkey Roast Beef Vegetarian