A Simulation in Computer Forensics

TOPIC: BASIC KNOWLEDGE OF COMPUTING SYSTEMS, FOUNDATIONAL PRINCIPLES OF CYBERSECURITY

GRADES: 9-12

LESSON DURATION: TEACHER DISCRETION (MULTIPLE DAYS)

SOFT SKILLS: COLLABORATION, PROBLEM SOLVING, CRITICAL THINKING, COMMUNICATION

Introduction:

- This lesson is designed to give students a basic overview of digital forensics. Students should have some pre-existing knowledge of hardware and software prior to beginning the simulation.

Learning Outcomes:

- Students will work collaboratively to complete a simulation in digital forensics through an unplugged activity.

Materials:

- Video to be used at teacher discretion
- Digital Detectives (2011) - Documentary on Computer Forensics in the DoD
- Presentation for Introduction of Forensics and the activity
- Materials for the Crime Scene (teacher discretion)
- Student Worksheet

Activities:

1. This activity is designed to be completed in any course that promotes problem solving and collaboration. There is no technical experience required to complete the lesson. Instead, students will learn parts of a computer and the basics of how a digital forensics expert works without ever needing a computer.
2. The teacher may choose to use the DoD video above for introductory purposes. The video could also be used after the simulation to summarize the activity.
3. The teacher should begin by reviewing the information in the Digital Forensics presentation.
4. Once students have the basic background information, explain that they will be working as a small team to investigate a crime scene. Students must complete the tasks on this sheet.
5. Some things to note: if possible, this activity works best by splitting into small groups. That requires multiple crime scenes in areas of low traffic. Some suggested locations include a corner of the library with a computer, an old classroom that is not used, a portion of an office not used). If this is not possible, there could be one crime scene and the activity could be modified so that students work in teams to complete one task.
6. The teacher must take the time to prep the crime scene. Some items that should be created and/or left include: a desktop, an old phone, pictures, portions of receipts and handwritten

notes, a flash drive, a list of phone numbers and/or emails, fake money, etc. The teacher can be creative and make each crime scene different. Some ideas for crime scenes include: money laundering, hacktivism, an online "murder for hire" website, drug trafficking, weapon trafficking, etc. The items left at the crime scene should give a hint into the crime being committed. The teacher should use discretion and be sure to gain approval for the lesson, if needed.

7. After all students are done and have completed the tasks, review the process of digital forensics. What tasks would require more time and skills? What information would each group need in order to pursue criminal charges? Did the group make any mistakes? The teacher may choose to do an informal discussion on these questions or require students to individually respond for an assessment grade.
8. The teacher may also choose to have students read and respond/discuss this article from The Atlantic regarding digital forensic labs.

Enrichment/Follow-up:

1. If resources allow, a field trip to a forensics lab or the opportunity to interact with a specialist in the field would be a great way for this activity to become even more real for students. Many times, local prosecutor's offices, campuses, or local law enforcement agencies would be able to help the teacher find guest speakers or labs to tour.