CYBERHAND UNPLUGGED

Lesson Description: This lesson focuses on introducing the cyberhand assuming no prior knowledge of cybersecurity principles. The six principles are introduced and participant skill and knowledge level is assessed informally.

Prerequisite Knowledge: These are statements of what students are expected to know or be able to do in order to start this lesson.

Length of Completion: 50 Minutes

Level of Instruction: High School (Potentially Middle School), Scaffolded for Beginner, Intermediate, or Advanced

Applicable First Principles &/or Concepts:

GenCyber Cybersecurity Concepts

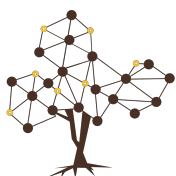|	
Defense in Depth	Availability
Confidentiality	Think Like an Adversary
Integrity	Keep it Simple

Resources that are Needed: Sticky notes, pen/paper, notebook.

Accommodations Needed: Accommodations / modifications required for those with hearing/writing difficulties.

LESSON LEARNING OUTCOMES
- Students will be able to repeat the six components of the hand
- Students will be able to locate specific terms on specific portions of the hand
- Students will be able to sketch/describe the CyberHand

LESSON DETAILS

Interconnection:

- All

Assessment:

Students are asked to repeat the components of the hand, find the terms on a hand, and sketch their own version of the hand - written and informal assessments are used.

**Extension Activities:**

CIA-Intro
"Name Game" Lab
"Beacon" Lab
"Connecting the CyberHand to the 10 Principles"

Differentiated Learning Opportunities:

While the baseline version of this activity targets novices, advanced learners can be provided the card game (or a definition sheet for the "10 Cybersecurity Principles") and can be asked to develop 1) a mapping of the 10 principles "onto the hand" and 2) develop their own mnemonic device (visual, auditory, memory) for either the six (6) hand concepts or the 10 cybersecurity principles. (See the Extension Activity 'Connecting the CyberHand to the 10 Principles' for more).
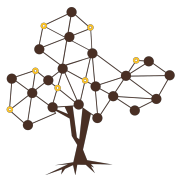
Warm Up: Before students walk into the room, have "ROYGBIV" on the board. Begin the lecture by requesting that students write one thing they know about cybersecurity on one sticky note (of a specific color), and one thing they want to learn more about on another (of a specific color). Tell them, when done, to place their sticky notes under their favorite colors.

Lesson: This lesson is expository and consists of an oral presentation and discussion with students. Ask the students how they knew that the letters represented a specific color. Build up to what mnemonics are, and why they are helpful. Ask students "What other mnemonics do you know?" and "Why are mnemonics powerful?" "Do you know any mnemonics devices that deal with security?"

Ask what items you always have with you. Ultimately motivate that your hands are in front of you. Have the students draw a hand on pp 1 of their notebook, label it "The CyberHand" Ask - If you have a pictorial representation of a hand, and you wanted to "store" 6 pieces of information "how would you do it?"

Begin and the end - "Defense in Depth" - we're going to see five core principles and when you use them together they're more powerful that the individual components (palm). Next we introduce the CIA-triad (draw it on pp 2) - and ask students to come up with common hand gestures for confidentiality and integrity. Generally confidentiality generally ends up with students getting to the "shh" action (index), integrity varies but can be guided with discussion of what it means for us to have integrity (ring). Next, for availability, discuss what symbol/icon is used to show things are working or ready to go (or the opposite when things don't work) (thumbs up/down). Next, "keep it simple" is generally just given (as a break from them having done a bit of work). Finally, we mention the last concept - Think Like an Adversary - and that our ultimate goal is to keep adversary's at bay by thinking and acting like them before they ever get to us or our systems (talk about known examples of this is history, sports, etc). After the hand is complete have the students write the 6 terms on pp. 3-8 with their own working definition of each concept (if this is an intro activity, this
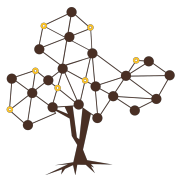
may suffice, then compare at the end of week, otherwise - after students have their own definitions provide a more formalized version).

The discussion above can be as in-depth/detailed as needed based on the skill level and engagement of the audience.