**MESA MODEL OF INSTRUCTION**

**Cybersecurity Unit**

**Identify Problem/Needs:**

*Engage*

-Watch the following video with the students:

<https://www.nbcnews.com/tech/security/massive-equifax-data-breach-could-impact-half-u-s-population-n799686>

-After watching the video, have students do their own research online regarding

data breaches and identity theft. Have them answer the following questions:

*What is a data breach? Why do they happen?*

*Who is affected by these breaches? Are you (student) affected by them or not?*

*How can you prevent them?*

-Let students know that the goal of this unit is to learn about the basics of

cybersecurity and how to guard and protect themselves in the digital environment

most of them reside in. They will then be prepared to participate in an online

cybersecurity competition.

-Have students take “STOP.THINK.CONNECT ONLINE SAFETY QUIZ” to see

what they know so far

**Research/Explore:**

*Explore*

**The Internet**

-Learn about the internet, its history and its relevance. Use

”the-internet-code.org” curriculum, Chapter 2, *Week 3, Lesson 8* found in the curriculum folder. (The link to the “What is the Internet?” video:

<https://youtu.be/Dxcc6ycZ73M>. The Activity Guide for this lesson is also

provided)

-Watch the video “The Internet: IP Addresses & DNS” through the link below

<https://youtu.be/5o8CwafCxnU>

-Do the activity “how the internet works-interactive game” to visually show how

the internet works

**Cybersecurity**

-Do the “NOVA Cybersecurity Lab Lesson Plan” curriculum found in the curriculum. To access the game used in the lesson, follow this link: <http://www.pbs.org/wgbh/nova/labs/lab/cyber/> Students can play up to level 3 on the “Cybersecurity Lab Game” after the initial lesson is done.

-To learn about cybersecurity, students can explore the following sites:

MIDDLE SCHOOL STUDENTS  
 -Have them visit <https://sos.fbi.gov/> and play the grade appropriate game.

HIGH SCHOOL STUDENTS

-Have them visit <http://www.nsteens.org/> and explore the site. After exploring the site, they should complete the quizzes related to the content :<http://www.nsteens.org/Quizzes>

**Deeper Learning**

*Extend/Elaborate*

-Have students do the research project described in “Research project-Big Data

and Cybersecurity Dilemas.” Give students appropriate time to research, prepare

and present project to the class

*(optional… if you have the time in your classroom, learning basic Javascript*

*principles through this learning tool may be helpful)*

-Use CodeHS to learn the basics of programming. Students and teachers must

visit this same site to create accounts before beginning:

<https://codehs.com/signup/begin>

-Set-up the course and run “Intro to Programming with Karel the Dog (Ace)” with

your students. Website provides much guidance and tutorials to run the

classroom application. It is completely online AND can be done on Chrome Books

-The entire course will take as many as 15-20 hours of classroom time to

complete.

**Prepare to Compete**

*Explain*

-Have students learn about picoCTF Cybersecurity competition through website:

<https://picoctf.com/>

-Students will need to register for the competition and complete a short tutorial.

Follow instructions on this site: <https://2017.picoctf.com/get_started>

to form teams.

**Compete and Evaluate:**

*Test*

Participate in the picoCTF competition

*Evaluate*

Reflect on the competition experience? How did you do? How could you have done better?