(http://csmatters.org/pd-new)   C - 02

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Cybersecurity and Cryptography

Unit Concept Lessons

Revision Date: Aug 31, 2017
Duration: 90 50-minute sessions

Lesson Summary

Summary: Teachers will learn about cybersecurity and cryptography. They will journal about the trust system of the Internet. They will be assigned to take notes on a news article about cyber attacks. Next, they will be grouped based on type of cyber attack and prepare a presentation about the attack. Finally, they will independently explore two lessons.

Objectives: Teachers will:

- Learn about cybersecurity, cryptography, and cyber attacks.
- Learn about the trust model of the internet.
- Independently explore lessons 3.11 and 3.12

Outcomes:

(Total: 90 minutes)

1. Introduction
2. Journal Activity
3. News Article Activity
4. Group Activity
5. Think & Write
6. Independent Exploration

Learning Objectives

Teacher Resources

CL02_Cybersecurity and Cryptography Folder (https://drive.google.com/open?id=0B5vAY-fhOT-iZ2xMV1ludmJkM3c)

Lesson Plan

TOTAL: 90 minutes

Introduction

The topic of Cybersecurity and Cryptography is introduced.

Presentation

Trust system
"Why do hackers hack?" "Why do kids want to be hackers?" -- This might be a good opportunity to take a more diversity-minded approach. Not all students may find talk of hackers interesting.

Journal

Teachers will respond to the following claim, which is on slide 2:

"The Internet was originally designed to be used by a group of people who trusted each other. This means that it was not built with security in mind, but rather openness and sharing. Now that anybody can access the Internet, users cannot trust everybody else they are connected to. This means that security measures must be put in place to protect users and systems."

Teachers agree or disagree with the claim and provide details to support their answer.

News Article Activity

Teachers will receive an assigned news article, which they will then read and record on a sticky note the following information:

- the type
- definition
- impact of the cyber attack.

They will then place the sticky note on the board in the appropriate group.

Group Activity

Teachers will work together in groups based on the type of cyber attack that they were assigned and prepare a presentation of the cyber attack. The requirements of this presentation are outlined on slide 5 of the Cyber-Security presentation (https://docs.google.com/presentation/d/1PAP1o_Vu6f-OEdp-LaoVp3qn8MdmGcWPM5QddoOicnk/edit?usp=sharing).

Think & Write

Teachers will consider potential security concerns and means of protection of student data.

Independent Exploration

Teachers will independently examine lessons 3-11, 3-12, and all of the available resources, considering relevant pedagogical questions as they examine the materials (Slide 9).

Evidence of Learning

Formative Assessment

Teachers will read news articles and group them based on the type, definition, and impact of the cyber attack. They will be able to receive immediate feedback from instructors based on the way that they group the article(s) that they are given. If there are misunderstandings, the instructor can provide immediate clarification.

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