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Lesson Plan
6th Grade Computer Science
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You Leave Footprints- TROPE Module A

0. Abstract

Abstract: Part of a Cyber Safety unit for elementary school students. Target audience is 6th grade. Students will learn that online: they leave footprints, there is no anonymity, information is valuable, online actions have real consequences, and once you put something out it may never come back. This is the first lesson of the unit where students learn about their information footprint and how to manage it.

I. Standards/Skills/Objectives/Assessment

1. Focal Standard or Skill:

a. 3. Information, Media and Technology Skills: Today we live in a technology and media-suffused environment with: 1) access to an abundance of information, 2) rapid changes in technology tools, and 3) the ability to collaborate and make individual contributions on an unprecedented scale. To be effective in the 21st century, citizens and workers must be able to create, evaluate, and effectively utilize information, media, and technology.
   i. Information Literacy: *Use and Manage Information*

      Use information accurately and creatively for the issue or problem at hand.
      Manage the flow of information from a wide variety of sources

In this lesson, students will be introduced to concepts of Cyber Safety. The problem at hand is their safety online, the information they are using to accurately and creatively solve this problem is the curriculum given in this lesson.

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2. Measurable Objective(s):

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Students will be able to demonstrate and understand that we leave digital footprints when we use the internet and once we release something it cannot be taken back. Students will make a diagram of their frequently visited websites, so they can begin to understand their digital footprint. Students will then make pictures of their ideal footprints, one with items they want to keep off the internet and one with the positive items they do want to share.

3. Assessment:

Assessment: Students will complete formative assessments for each module and a summative assessment at the end of the modules. For Module One: Students will create a digital footprint showing their understanding of what things they do and do not want to show online. For the formative assessment at the end of the modules, students will play a Kahoot quiz.

II. Fellowship Connections

1. Fellowship Description:

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1. In The CyBear Fellowship I am assisting a group at UC Berkeley who has a grant from the National Science Foundation to create a K-12 Cyber Safety curriculum. I am helping to develop this curriculum and will be observing a group of high schoolers as they experience the lessons. I will then be providing feedback to help finetune the work before it is published online.
2. I am using my knowledge of pedagogical practices as well as lesson planning skills that I have developed as a teacher. I am also accessing practical experience in cyber safety and how to best deliver that to students.
3. I am being exposed to careers in computer science and engineering as well as working for a research program at a university. We will also experience guest speakers from the NSA and NSF.
4. My sponsor is TRUST research. "TRUST research is addressing technical, operational, privacy, and policy challenges via interdisciplinary projects that combine fundamental science and applied research to deliver breakthrough advances in trustworthy systems."

4. Fellowship Connection to School/Classroom:

Fellowship Connection to School or Classroom: I plan to directly apply what I have learned in my fellowship to my classroom. I am learning about cyber safety and am helping develop curriculum which I am going to teach in my classroom. Though the curriculum we are developing is for a high school and undergrad audience, I think it is of utmost importance that elementary students be exposed to this content too. Students are participating online by the time they are in grammar school, the sooner they learn about their safety, the better.

III. Instruction

1. Instructional Plan:

Engage

Video: The Amazing Mind Reader

Ignite Questions:

-What do you know about your “presence” online?

-What kind of sites do you visit on the internet? What kind of information have you given/shared on them?

-Is it possible for someone to see where you go online? How about what you do on that site?

-Have you ever “Googled” yourself? What did you find?

Explore

My Internet Map

Summary of Activity: Students will create diagrams of the places they travel on the Internet using the Drive app Lucidchart.

Show the students how to connect apps to Google Drive, connecting to lucidchart. Model how to create a mind map by dragging and dropping images and drawing arrows (to draw an arrow simply click on the edge of an image and drag to where you want the arrow to go). Here is a sample. If this doesn’t work for your class, a pencil and paper mind map of the sites that students visit will work too.

-Have students show the different ways they connect (phone, tablet, desktop, laptop)

-Have students try to trace if they go from one site to another (routines)

-Some sites are portals that take you to other sites, try and list those site too.

-Sites that students need to sign up for can be bolded

-fast finishers can Google themselves and explore pipl.com

DISCUSSION:

-Are you surprised at how many different places you go?

-Are you comfortable with all the sites you visit having your information?

-If you have to sign up to use a site, do they have more information about you than other sites? (ans: yes, they do. Sites that you sign up for will ask for your name, email, and often more revealing information too)

Explain

TROPE Module A Slide Deck

Ultimate Paper-Rock-Scissors:

Summary of Activity: Students examine how cookies work by playing a fun game. Pairs play each other at paper-rock-scissors with the winner playing again and the loser becoming a cheerleader for the winner. As the game progresses, pairs become quads and then groups of eight, until you have two large groups. The game can be played out until there is one winner. Once the group is done, the facilitator can rewind the game and track the path of the winner to see who played who. An analogy can then be made between the game and the way we travel on the internet. Just like the game, your path can be tracked by the "cookies" you picked up, just like the people you picked up when you beat them at paper-rock-scissors.

-suggest playing best out of three, but adjust based on your timing needs

-helps to play a very controlled game. Don't let student move on to the next round until everyone has a partner.

DISCUSSION:

-How is the game like how we travel online? (ans: we pick up cookies that allow people to see not only where we have been but in what order)

-As you collect cookies, what happens to them? (ans: they continue to gather unless you delete them from your computer)

-Are there any cookies that are good? (ans: yes. Cookies are what make online shopping carts possible. They also help us save passwords and preferences.)

Cookie Check

Show student how to view their cookies. Here is a handy reference. **this is just the cookies that your computer stores, the websites you use gather even more.*

Elaborate

Where did your data go? game

Summary of Activity: Students will re-post a statement made by one of their classmates to illustrate how you have no control over your information once you let it loose on the internet.

One person writes a statement on the board (something innocuous that might be shared on social media). They leave the room and stand outside, counting to one hundred. As soon as the statement is placed on the board, everyone in the room writes the statement on post-it notes as many times as they can in the time provided. The students then hide the post-its around the room. Once the person who was outside's time is up, they must try to find all the post-its. While they are looking, the other students can continue to hide more notes.

Discussion

-Is it hard to keep track of the post-it notes?

-How likely is it that we'll find another post-it a week from now?

-Even if all the post-it notes are found, is the information gone? (ans: the information is still in people's heads and could be shared again later)

-How is this process like sharing online? How is it different? (ans: just like online, once you share information, you never know where it will turn up or in what context)

Information Footprints.

As a formative assessment, have students create a model of their ideal footprint. Give students the Footprint template and have them fill in one foot with things that are not ok to share and the other footprint with things they want people to know about them. Here is a sample. If your students do not have computers, print the template and let them draw or cut pictures from magazines.

DISCUSSION:

-Is there a difference between the size and impact of your information footprint? (ans: we like to think so. The size is the amount of information and impact is how you choose to share it. The size of your footprint will always grow. There is little you can do to control that in a modern society. However, you can control the impact - how much you share your information and where you choose to share it.

-How much do you think is ok to share online?

-What kind of information should you never share?

Evaluate

Quiz

As a summative assessment, have students play this Kahoot. Kahoot is a quiz website where students compete against one another. The teacher must sign up for a free account to get a class code that students sign into. If you do not have computers for your students, here is a paper and pencil version.

Reflection

What did you find out about information footprints?

Is there anything you are uncomfortable sharing online that is already out there?

In what ways do cell phones affect our information footprint? *(ans: The more you use the internet and the more devices you use, the impact of our footprint grows. Cell phones are an easy way to connect online and with people.)*

What are ways that you can monitor your digital footprint?

(ans: Be aware, Google yourself and know what information is out there about you. Use the privacy settings on site you use, and think before you post!)

2. Additional Instructional Context: (*Optional)*

Additional Instructional Context: This lesson is part of a cyber safety unit consisting of three modules. The other two modules will cover: 1. There is no anonymity online. Anything you do on a computer can and will come back to you. However, identity of others online is never guaranteed. 2. Information is valuable; there are people, businesses and governments who desire it. Privacy should be valued by you too and it requires work.

3. Supply List:

Supply List:

Computer and video projector with internet connection for videos.
All students need to have access to Google Drive.

4. Bibliography:

Bibliography:

Guillaume, Duval. "Amazing Mind Reader Reveals His Gift." YouTube, 24 Sept. 2012. Web. 24 June 2015. <https://youtu.be/F7pYHN9iC9I>.

Larson, Jessica. "Your Information Footprint." *Trope_1*. YouTube, 6 Mar. 2015. Web. 24 June 2015. <https://youtu.be/gmBT1J4uaNs>.

"Teaching Privacy." Teachers Resource for Online Privacy Education. Web. 23 June 2015. <http://teachingprivacy.icsi.berkeley.edu/>

5. Keywords: *(Optional)*

*Enter up to **10** keywords/meta tags separated by commas, so it can be easily searched.*

Keywords:

Computer science, cyber security, online privacy, digital footprint, information footprint, information literacy

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IV. Attachments

Attachments:

Lesson Plan
Footprint Map Sample
Digital Footprint Template
Digital Footprint Sample
Kahoot Quiz