TECH for Tomorrow

CLASSROOM ACTIVITY

Cyber Forensics: Digital Footprints

Objectives

Students will be able to:

- Analyze digital evidence in order to create and support a claim.
- Consider their own digital footprint and develop an understanding on how to keep it secure.

Overarching Question

What does your digital footprint leave behind?

Activity Summary: In this activity, students will take on the role of digital forensic investigators who have been tasked with investigating a recent store robbery. As such, students will explore the information that can be acquired through someone's online presence and web activity. They will ultimately use the data they investigate to develop a claim on whether the suspect should be brought in for questioning, and they will consider the implications of their own digital footprint.

Grades

4–6

Timing

45–55 minutes

Materials

- Digital Footprint Packet (3 pages), enough for half the class
- Cyber Forensics Report, enough for half the class

Activity Directions

Premise | 5–10 minutes

- Engage the class by drawing a picture of a footprint on the board. Invite students to share what comes to mind when they think of this word, and create a word web with the students' ideas.

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- Then write the word *digital* in front of the footprint image. Challenge students to use the word web to help them create a definition of the term *digital footprint*. After hearing students' thoughts, explain that a digital footprint is the trail of data that you create and leave behind while using the Internet. Sometimes you may know when you are leaving this data behind, and other times you may be unaware.

  Explain that the class will be investigating the kinds of information that can be left behind as a digital footprint. Instruct them to imagine that they are digital forensic investigators. It is now their job to gather and analyze digital information in order to figure out problems and solve crimes. Today, they will be investigating a suspect's digital information as they look into a recent store robbery.

Investigate | 20 minutes

- Brief students with the following information:

  Early in the morning of October 10, Z Shoe Store in Plainville ____ (insert your state here) was broken into and robbed. More than 20 pairs of sneakers were stolen, and many of them were the most expensive brands in the store. There was no security camera, and there were no fingerprints left behind. However, the Plainville Police Department has received an anonymous tip that the robbery was carried out by a student named Sofia Johnson and her friend, both of whom attend Plainville High School.

- Continue to explain: This is where the digital forensics team comes in! One member of your team already worked with the high school principal to investigate school devices that may have been used by Sofia. Any information that may be helpful was put into this packet.
- Divide students into groups of two or three and distribute one Digital Footprint Packet and highlighters to each group.
- Instruct students to review the data as a group, and highlight/annotate information that helps prove if Sofia could be linked to the crime.

  Tip: It may be helpful for students to look through *all* of the information once, and then go back and begin their annotations as they review everything a second time.

Solve | 20–25 minutes

- Distribute one Cyber Forensics Report to each group, and instruct students to use their annotations to make a claim (consisting of both reasons and evidence supporting these reasons) as to whether they think Sofia should be further questioned.

  If needed, take a moment to explain the difference between a *reason* and *evidence*. In this case, for example:

  - A fictional reason that Sofia should not be further questioned could be: Sofia was likely somewhere else at the time of the crime.
  - Fictional evidence to support this reason could be: A photo of Sofia's breakfast was posted on Instagram at the time when the crime was committed.

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- Once student groups have written their claims, thank them for the time they invested in the cyber forensics investigation and ask groups to share what they have written. Based on the majority's conclusion, announce the final verdict on whether Sofia will be brought in for questioning.
- Wrap up by instructing students to return to their everyday selves, and facilitate a discussion around their own digital footprints:
    - What are some of the ways that they may leave a digital footprint online?
    - What are some things they have done that may make their digital footprint larger? What have they seen their friends do?
    - How could they try to leave *less* of a footprint?

  Conclude by emphasizing that students should never share private information, such as their birthdate, full name, or address on the Internet—unless they get permission from a trusted adult. Personal information such as their likes, dislikes, and opinions may be okay to carefully share. However, important organizations like schools, colleges, and jobs may search for their digital footprints, so it's also important to be careful not to overshare personal information!

Extension Ideas

- Students can explore the consequences of digital footprints. This article, focusing on how companies use digital footprints in their marketing, may be a good place to start!
- Students can debate: Posting pictures of babies and children online is becoming more and more popular. Is it okay for parents to create or add to their child's digital footprint?

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Standards

Standards for Technological Literacy (ITEAA) Standards

- Standard 4. Students will develop an understanding of the cultural, social, economic, and political effects of technology.

  In order to recognize the changes in society caused by the use of technology, students should learn that:

  - B. When using technology, results can be good or bad.
  - C. The use of technology can have unintended consequences.
  - E. Technology, by itself, is neither good nor bad, but decisions about the use of products and systems can result in desirable or undesirable consequences.

C3 Framework for Social Studies

- Dimension 3: Evaluating Sources and Using Evidence
  - Developing Claims and Using Evidence

Common Core English Language Arts Standards

- Reading Informational Texts:
  - CCSS.ELA-LITERACY.CCRA.R.7: Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
- Speaking and Listening:
  - CCSS.ELA-LITERACY.CCRA.SL.1: Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
- Writing:
  - CCSS.ELA-LITERACY.CCRA.W.1: Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.
  - CCSS.ELA-LITERACY.CCRA.W.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

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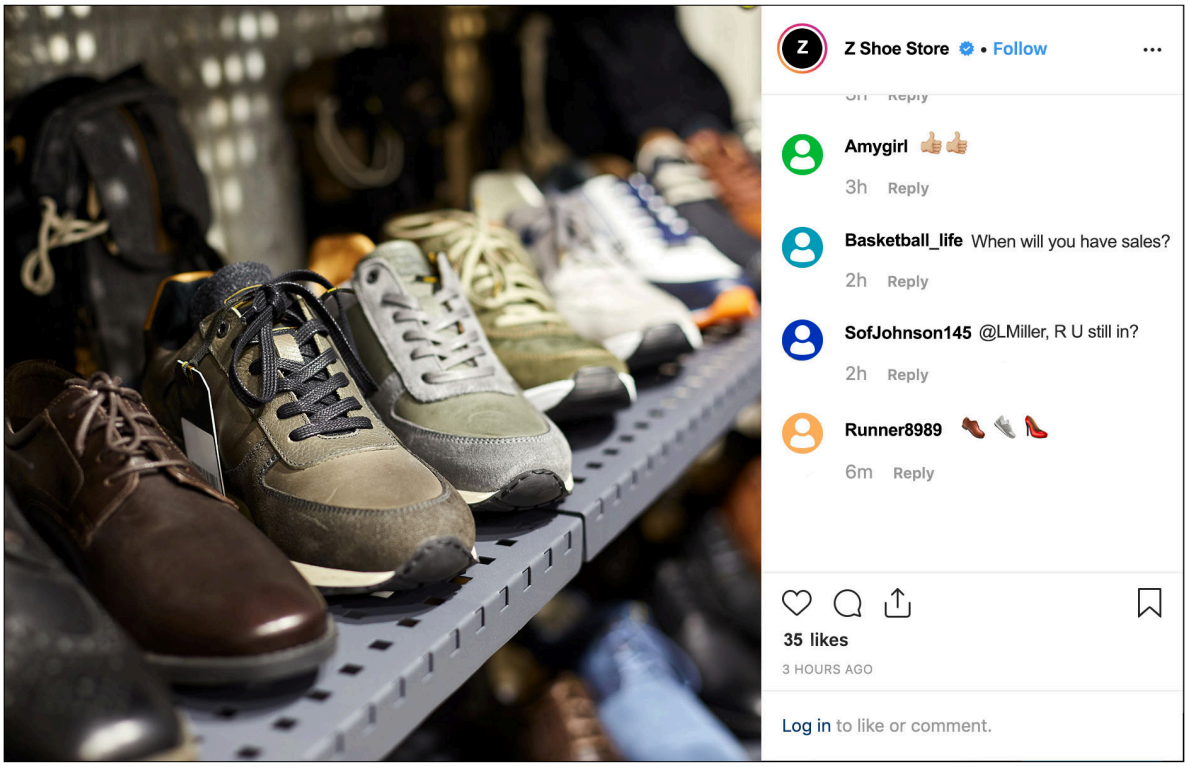
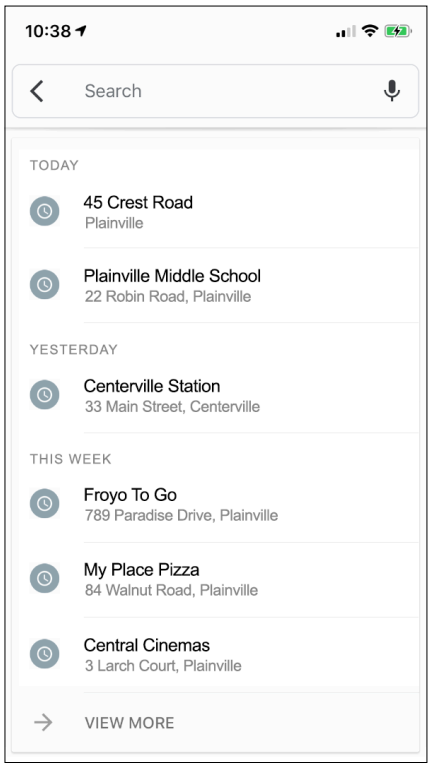
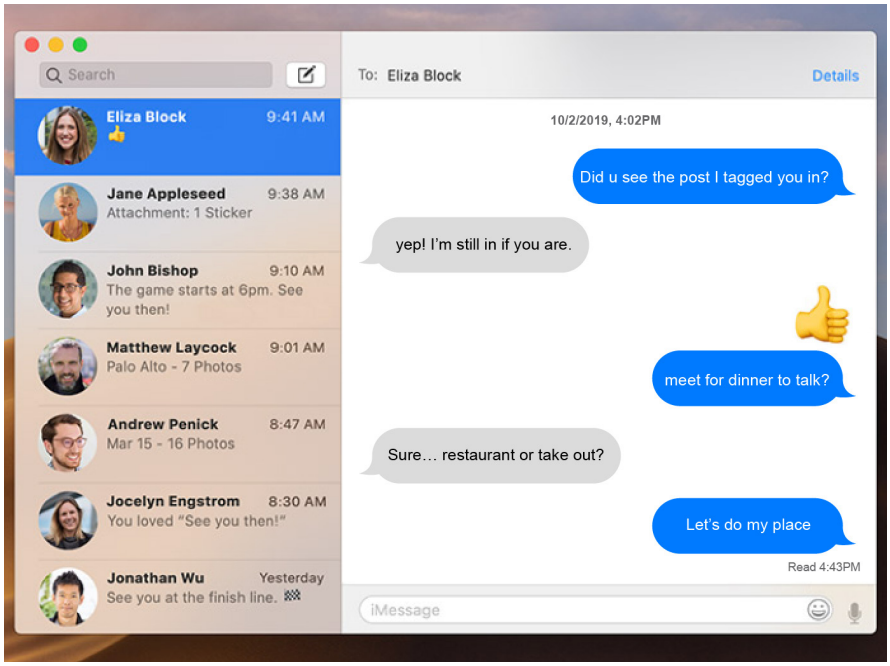
Instagram



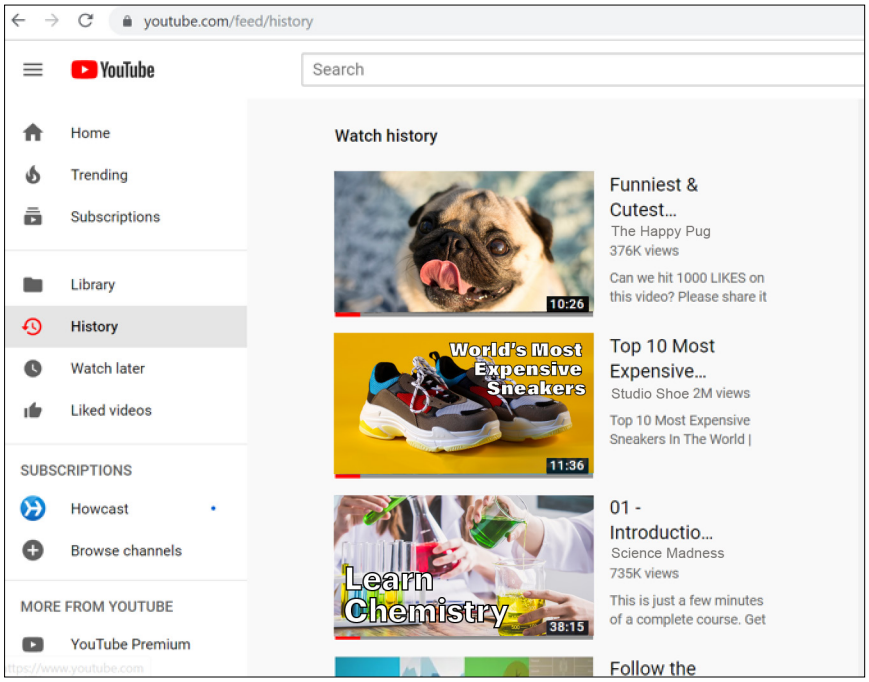
Google Maps



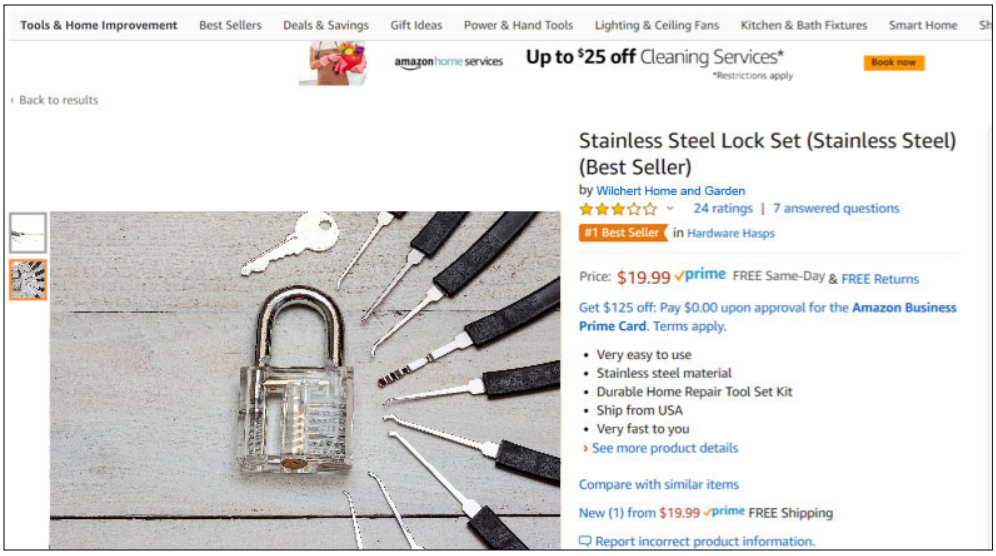
iMessage



YouTube



Amazon Purchase Reviews



Brendan

Fine; cheap construction

August 12, 2019

Verified Purchase

The picks are covered in a black paint that flakes off during use. The construction is otherwise sound.

3 people found this helpful

Helpful | Comment | Report abuse

Brendan

Fine; cheap construction

August 12, 2019

Verified Purchase

The picks are covered in a black paint that flakes off during use. The construction is otherwise sound.

3 people found this helpful

Helpful | Comment | Report abuse

Sophia J.

fun pic set

September 30, 2019

Verified Purchase

I had to return these…Could not figure out how to use them!

One person found this helpful

Helpful | Comment | Report abuse

Cyber Forensics Report

Claim: According to the digital data left behind by Sofia Johnson, we believe that Sofia should / should not be questioned about the Z Shoe Store robbery. We recommend this because:

Reason 1: _____

_____

What specific evidence supports this?

_____

_____

Reason 2: _____

_____

What specific evidence supports this?

_____

_____

Reason 3: _____

_____

What specific evidence supports this?

_____

_____