Unit 5 - Cybersecurity

Overarching Learning Goal:

develop knowledge of safe and effective data and cybersecurity practices

Unit Schedule

Time line	Lesson
Day 1	Introduction to cybersecurity
Day 2	Explore cybersecurity issues related to passwords, malware, and privacy
Day 3	Continue with Day 2 lesson if not completed. For anybody else who finished, Investigate other cybersecurity issues
Day 4	Project Day 1: Make a comic strip to educate others
Day 5	Project Day 2: Continue to work on the comic strip
Day 6	Project Day 3: Continue with the comic strip
Day 7	Project Day 4: Completion of the comic strip

Today's Agenda

1. Test your prior knowledge of cybersecurity.

2. Discussion/Lesson
   o What do we need to be careful of when using the internet?
   o Discuss some measures for protect ourselves online

3. Activity – Write an algorithm

Learning Goals and Success Criteria:

Learning Goals:

- Understand the connection between data and security concerning the sharing of information over the internet.

Success Criteria:

- Describe the various aspects of privacy concerning internet usage.

Testing your prior knowledge

True/False?

Using the same password for multiple accounts is a good cybersecurity practice.

TRUE   **FALSE**

Using the same password for multiple accounts is a good cybersecurity practice.

TRUE   FALSE ✓

Phishing is a type of cyber attack that involves tricking individuals into revealing sensitive information.

TRUE

FALSE

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TRUE   FALSE

Public Wi-Fi networks are generally secure and safe to use without any precautions.

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Cybersecurity threats only affect large organizations and businesses, not individuals.

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Public Wi-Fi networks that require a password are generally secure and safe to use.

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VPN – Virtual Private Network

VPN encrypts internet traffic, providing privacy and anonymity online.

NOTE: There are free VPN services, but often they come with some limitations, and they may rely on other revenue streams such as advertising or data collection, meaning that your data may not be completely anonymous.
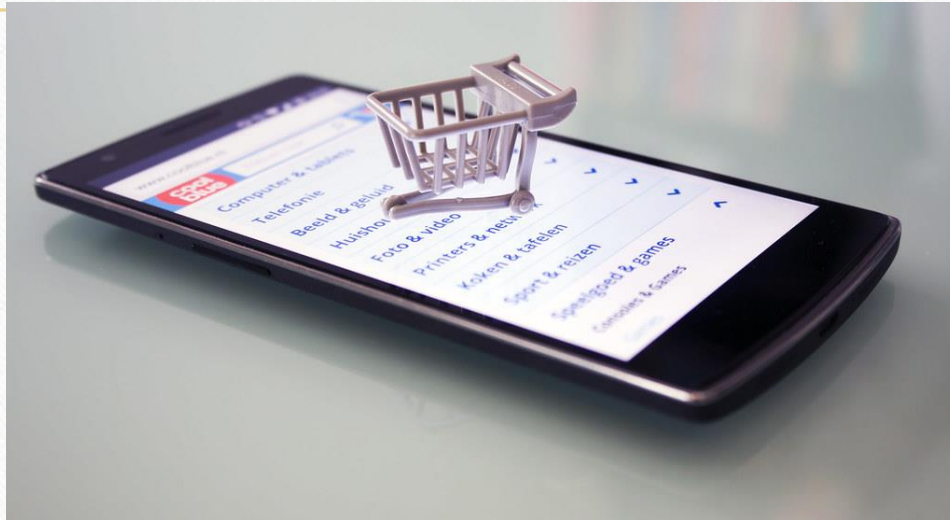
IP Address Security

VPNs protect you against:

Ad tracking, Hackers, Government surveillance, Wi-Fi snoops

1101010011001 **VPN** 1010010110100

Avast

Online Shopping..

HTTP VS HTTPS

- Hypertext Transfer Protocol VS Hypertext Transfer Protocol Secure

- HTTPS encrypts data using SSL/TLS

- HTTPS adds a layer of security to web communication.

- Always check https:// prefix in the browser's address bar

SSL/TLS
(Secure Socket Layer/Transport Layer secure)

Video

- https://youtu.be/hExRDVZHhig?si=K_Cari7zxF-01ptt

Explore webpages – take a look at the prefix of the domain addresses

Any other types that you know of?

We will be looking at cybersecurity issues related to passwords, viruses/malware, and privacy.

[Grouping] Birthday Month

- Line up based on your birthday month (one to twelve)

- Find two other classmates(or three) whose birthday month differs from yours AND your sum must be divisible by 2 or 3.

- For example, someone born in February(2) can be partnered with someone born in April(4) and June(6). 2+4+6=12 (12 is divisible by 2 and 3)

Encrypt the password program (group work) – Come up with an algorithm

- You are given a project to write a program that encrypts a 3-digit password as follows:
- **1. Ask the user to type in a 3-digit password (i.e. 123)**
- **2. Your encrypted password must consist of 3 digits where**
  - The first digit is the sum of all three digits typed by the user. If it is greater than or equal to10, the first digit is the one's digit.
  - The second digit is the product of the first two digits. If it is greater than or equal to 10, the first digit is one's digit.
  - The third digit is the greatest digit of the user-typed 3-digit password.
- **3. Print the encrypted password to the user**
- Therefore, if the user-typed password is 123, then, the encrypted one would be 623.