Name:_____

Unit 4 – Security ~ Learning Guide

INSTRUCTIONS: Complete the following notes and questions as you work through the related lessons. You are required to have this completed BEFORE you write your unit test.

Section 4.1 – Alan Turing

Lesson A – Terms for 4.1

Look for these terms as you work through this section. Some will appear on the unit test.

- Church-Turing Thesis
- Turing Test
- enigma codes
- interrogator
- the Bombe
- hypothetical
- paradox
- encrypt
- decrypt

Lesson B – Alan Turing's Biography

What do you see as Turing's most important contributions to computer science? Explain.

Lesson C – The Turing Test

In your mind, if a computer can pass the Turing Test, can it think? Explain.

Lesson D – Crash Course – Alan Turing

Does Alan Turing deserve to be called the "Father of Computer Science" in your view? Back up your thinking with a few examples.

Section 4.2 Cryptography

Lesson A – Terms for 4.2

Look for these terms as you work through this section.

- adversary
- plaintext/cleartext
- encryption
- ciphers
- ciphertext
- cryptosystem
- steganography
- quantum computing
- non-repudiation
- cryptology
- AES
- asymmetric

Lesson B – Introduction to Cryptography

In what ways was cryptography used before the advent of computers?

Why is it more important to protect the key than the algorithm in a cryptosystem?

Lesson C – Crash Course - Cryptography

What were some of the weaknesses in ciphers over the years which allowed them to be decoded?

Section 4.3 - Cybersecurity

Lesson A – Terms for 3.3

Look for these terms as you work through this section.

- computer virus
- spyware
- phishing
- internet of things
- security updates
- location tracking
- GPS
- third parties
- WPA2
- firmware
- DDoS attacks
- 2-factor authentication

Lesson B – Types of Computer Security Threats and How to Avoid Them

What are some of the ways that you can avoid computer viruses and spyware?

What should you look for to avoid phishing scams?

Lesson C – Smart devices and your privacy

What are some habits that everyone should develop in order to avoid being tracked by digital devices?

Lesson D – Crash Course - Cybersecurity

Why is it important to prevent hackers from accessing your data?

Section 4.4 Hackers and Ethical Issues

Lesson A – Terms for 4.4

Look for these terms as you work through this section.

- e-commerce
- cloud service providers
- cryptocurrencies
- bots
- digital authentication
- firewalls
- intranet/extranet
- data breach
- longtail effect
- crowdsourcing
- multifactor authentication
- VPN
- hackers
- hacktivist
- trojan horse (or just "trojan")
- ransomware
- code injection

Lesson B – E-Commerce

What are some of the developments that ecommerce has made in recent decades?

What are some of the concerns regarding ecommerce that consumers should look out for today?

Lesson C – How to be safe on the internet

What are some of the key takeaways in this lesson that you will consider adopting in order to protect your information and identity?

Lesson D - Crash Course - Hackers and Cyberattacks

Why is it helpful to know about hackers if you are not planning to become one?

Explain why social engineering is the most common way for hackers to get access to computer systems.

How might you know if your computer or phone has been compromised with malware?