Name:_____

Unit 1 – Hardware and Software ~ 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 1.1 -History and Evolution of Computers

Lesson A – Terms

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

- abacus
- slide rule
- abridged
- polymath
- logarithmic
- trigonometric

Lesson B – Early Computing

If some kindergarten students asked you how computers started, what could you tell them, in two sentences?

Lesson C – Timeline

List the three most significant development in the history of computers, then explain your choices in a few sentences.

1.

2.

3.

Section 1.2 – Integrated Circuits

Lesson A – Terms

Look for these terms as you work through this section. Most of them will appear in the video.

- electronic
- vacuum tubes
- Tyranny of Numbers
- transistor
- integrated circuits
- Moore's Law
- CPU

Lesson B – Moore's Law

In what sense is Moore's Law "more of an observation than a law of physics"?

Lesson C – Integrated Circuits

In a few sentences, describe an integrated circuit.

Then explain why its development has been so important to computer technology.

Lesson D – History of Integrated Circuits

Explain why the manufacture of integrated circuits requires people to work in "clean rooms" wearing "bunny suits."

Section 1.3 Operating Systems

Lesson A – Terms

Look for these terms as they appear in this section. You will need to understand them as they appear in context and some will show up on the unit test.

- operating system
- batch processing
- CPU
- interface
- peripherals
- intermediaries
- device drivers
- memory protection
- terminal
- kernel panic
- MS-DOS
- MS-Windows
- Mac OSX
- traffic controller
- directories
- debugging
- command line
- CLI
- front end developer
- back end developer

Lesson B – Operating Systems Overview

Create a metaphor for an operating system, then explain it.

If a computer were a _____ then the operating system is the _____.
You might say that the computer is a car, person or school, or something else.

Your explanation:

Lesson C – Operating Systems - Crash Course

How, according to the video, is an operating system's memory management linked to security?

Lesson D – Understanding the Command Line

Programmers use command lines to make interacting with a computer more efficient. Explain what it is about command lines which make them so efficient.

Lesson E – Keyboard Shortcuts

What are some keyboard shortcuts which you have been using?

What are a few from this lesson which you plan to learn?

Section 1.4 – Instructions and Programs

Lesson A – Terms

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

- binary
- runtime
- FORTRAN
- BASIC
- SQL
- Unix
- database
- object-oriented
- Perl
- Python
- Java
- PHP
- Javascript
- low-level
- high-level

Lesson B – What is a programming language?

In your own words, what is a programming language?

Which of the languages in this lesson have you heard of before? List them here:

Where have heard about them?

Lesson C – Instructions and Programs – Crash Course video

What is binary and what does it have to do with computer instructions?

Why do you think it is important for students in this course to know about instructions such as ADD, LOAD, JUMP and HALT?