

Unit 2: Looking at Computers: Understanding the Parts

30/01/17

2.1 **Computer's 4 main functions:** (1) input = gather data or allow users to enter data; (2) process = manipulate, calculate, or organize that data; (3) output = display data and info in suitable form for user; (4) storage = save data & information

Data is a representation of a fact or idea. **Information** is data that has been organized or presented in a meaningful fashion.

2.2 **Binary Language** consists of two numbers: 0 and 1. Each 0 and each 1 is a binary digit or bit. Eight bit creates one byte.

↳ In computers, each letter of the alphabet, and each number consists of a combination of eight bits (one byte) - a string of 1 and 0s
↳ For describing large amounts of storage capacity, the terms **megabytes** (1 million bytes), **terabytes** (1 trillion) and **petabyte** (1,000 tera)

2.3 Desktop computers consist of a separate case (called the system unit) that houses the main components of the computer plus peripheral devices.

- Keyboards are used to enter typed data and commands.

2.4 Most keyboards use the QWERTY LAYOUT.

2.5 - Optical mice use a laser to detect mouse movement. Some can be adjusted to provide better ergonomics.

- Images are input into the computer with scanners, digital cameras, and smartphones. Live video is captured with webcams and digital video recorders.

6

Output Devices:

2.7 **Monitors** display soft copies of text, graphics and video. Liquid Crystal Display (**LCD**) and light-emitting diode (**LED**) are the most common types of computer monitors. **OLED** displays use organic compounds to produce light and don't require a backlight, which saves energy.

2.8 There are two primary categories of printers: **inkjet** and **laser**. Laser printers usually print faster and deliver higher-quality output than inkjet printers. However, inkjet printers can be more economical.

2.9 **Speakers** are the output devices for sound. Most computers include basic speakers. More sophisticated systems include subwoofers and surround sound.

Processing, Storage, Connectivity

2.10 **The motherboard**, the main circuit board of the system, contains a computer's CPU, which coordinates the functions of all other devices on computer. It also houses slots for expansion cards, which have specific functions that augment computer's basic functions. **RAM**, the computer's volatile memory, is also located on the motherboard. **RAM** is where all data & instructions are held while computer is running.

2.11 **The CPU** controls all the functions performed by computer's other components. The CPU also processes all commands issued to it by software instructions. The performance of a CPU is affected by the speed of the processor (measured in GHz), the amount of cache memory, and the number of processing cores.

Storing Data & Information

2-12 The **internal hard drive** is your computer's primary device for permanent storage of software and files. The hard drive is a nonvolatile storage device, meaning it holds data your computer needs permanently, even turned off. **SSD drives** have no moving parts so they are more energy efficient and less susceptible to damage.

External hard drives are essentially internal hard drives that have been made portable.

2-13 **Cloud Storage** refers to non-volatile storage locations that are maintained on the Internet. (Google Drive, Drop Box)

2-14 **Optical drives** that can be read from and write to CD, DVD or Blue-Ray discs are another means of permanent, portable storage. (Data is saved by pits that are burned into disc by laser)
Flash Drives & Memory Cards are other portable storage devices.

Connecting Peripherals to the Computer

2-15 The fastest type of port to connect devices to computer is **Thunderbolt**. Most common is USB. Ethernet = Internet; HDMI = TV and gaming.

2-16 Expansion cards can be plugged into motherboard to add ports.

Power Controls and Ergonomics

2-17 Turning Computer Off saves energy - You can also use sleep option instead of turn off to save energy & restart quickly.

2-18 **Ergonomics** refers to how you arrange your computer and equipment to minimize your risk of injury or discomfort.
↳ For example, adequate lighting, not looking at screen for too long, frequent breaks...