UNIT 2
Computer Architecture

Picture 2.1

Learning Outcomes:

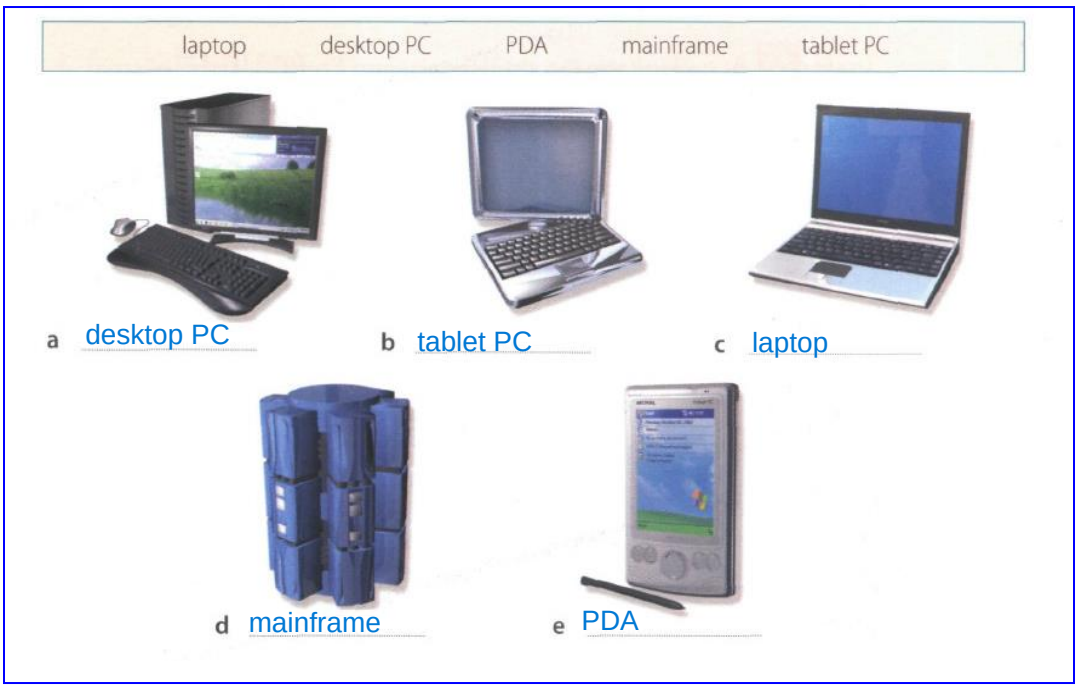
By the end of the lesson, the students are expected to be able to use appropriate English to:

- identify and describe kinds of computer
- read a computer advertisement
- identify parts of computer
- describe functions of parts of computer
- identify comparatives and superlatives
- identify phrases used for presentation
- perform a presentation using phrases explained
- compare and contrast computers and any other devices using comparative and superlatives

2.1. Reading a computer advertisement

Exercise 1: You are going to listen to an extract from an ICT class about **five** types of computer.

As you listen, identify the pictures (a-e) with words from the box.



Picture 2.2

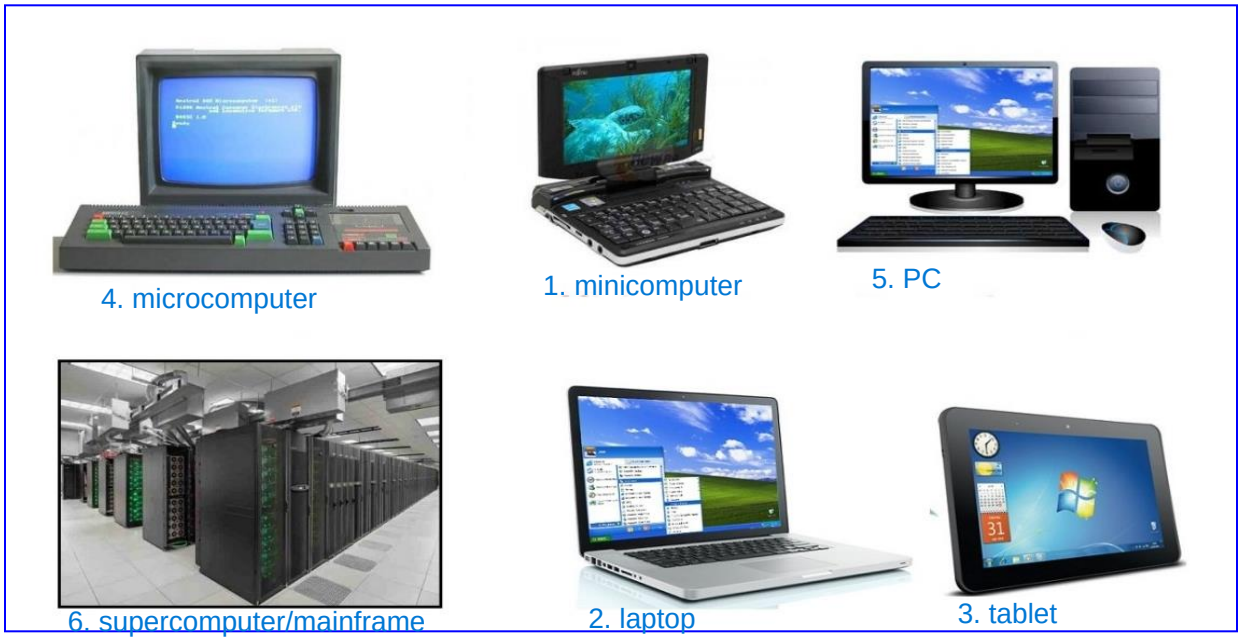
Exercise 2: Listen again and decide whether these sentences are true or false. Correct the false ones.

1. A mainframe computer is less powerful than a PC. (T/F) False
2. A mainframe is used by large organizations that need to process enormous amounts of data. (T/F) True
3. The most suitable computers for home use are desktop PC. (T/F) True
4. A laptop is not portable. (T/F) False
5. Laptops are not as powerful as desktop PCs. (T/F) True
6. Using a stylus, you can write directly onto the screen of a tablet PC. (T/F) True

7. A Personal Digital Assistant is small enough to fit into the palm of your hand. (T/F) True

8. A PDA does not allow you to surf the Web. (T/F) False

Exercise 3: Match these names to the different types of computer.



Picture 2.3

1. minicomputer	3. tablet	5. PC
2. laptop	4. microcomputer	6. supercomputer/mainframe

Exercise 4: Listen to Part 1 of the conversation between a shop assistant and a customer. Tick (√) the correct answers to the questions below.

1. The customer wants a computer for.....

☑ writing	☑ internet	☑ games
☐ graphics	☐ video	

2. A multimedia computer provides.....

☑ sound ☐ telephone

☑ graphics ☑ video

☐ games

Exercise 5: Listen to Part 2 of the conversation. In column A, tick hardware items named. In column B, tick the items the assistant recommends.

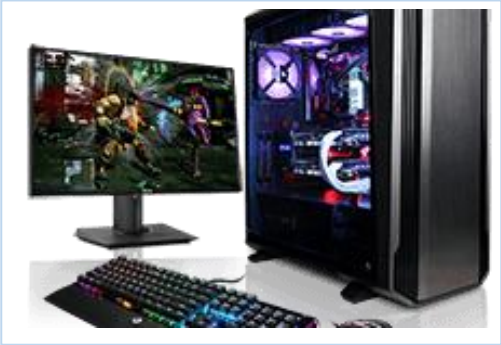
A	B	Device	A	B	Device
☐	☐	multimedia computer	☑	☐	handheld
☑	☑	multimedia notebook	☑	☑	printer
☑	☑	subnotebook	☐	☐	monitor
☑	☐	laptop	☑	☑	Modem

Exercise 6: Study the text entitled ”How to Read a Computer Ad” and then answer the following questions.

1. What is the memory size of PC? The memory size of the PC is 16 GB dual channel DDR4 SDRAM
2. What storage devices are supplied? The storage devices supplied are 512 GB SSD & 2 TB HDD
3. What size is the display screen? Size of the display screen is 42” TFT flat panel 4K (3840 x 2160)
4. How fast is the processor? The speed of the processor at 3.6 GHz Clock speed, and 800 MHz Bus Speed
5. What is the capacity of the hard drive? The capacity of the hard drive is 2 TB Serial ATA (7200 r.p.m)
6. Which operating system does it use? The computer operating system is Microsoft Windows 10 Professional
7. What multimedia features does the computer have? The computer has Integrated Dolby Atmos Stereo Audio and 8GB GDDR6 NVIDIA PCI-Express video graphics card.

HOW TO READ A COMPUTER AD.

1. Intel Core i7-9700K 9th Generation (Coffee lake). Base Clock: 3.6 GHz, Bus Speed: 800 MHz
2. Mini-tower chassis
3. 16 GB dual channel DDR4 SDRAM
4. 512 SSD & 2 TB Serial ATA hard drive (7200 r.p.m)
5. 8 GB GDDR6 NVIDIA PCI-Express video graphic card
6. Integrated Dolby Atmos Stereo audio
7. Corsair K95 RGB Platinum Keyboard
8. 42" TFT flat panel 4K (3840 x 2160) monitor
9. Microsoft Windows 10 Professional



Picture 2.4

1. The main processing chip called a 'core i7' that was designed and manufactured by the intel Corporation. It operates at a clock speed of three-point six gigahertz and has a front-side bus that operates at a speed of eight hundred megahertz.
2. A small, tall and narrow style of case containing the computer system.
3. Synchronous dynamic random-access memory with a capacity of sixteen gigabyte. It is a high bandwidth, double data rate memory.
4. A Solid-state drive with a 512 gigabytes storage and a hard drive with a capacity of two terabytes that uses a type of connection interface known as Serial ATA. It has a serial data connection rather than the original parallel connection. It rotates at a speed of seven thousand, two hundred revolutions per minute.
5. Electronics for driving the graphics output that has a memory capacity of eight gigabytes and uses a type of connection interface known as PCI-Express.
6. Electronics for controlling the sound output that is built into the main electronics of the computer.
7. The K95 Platinum is a big keyboard. Dedicated media controls and a USB pass-through, a metal volume wheel, RGB lighting. It even comes with an extra set of textured keycaps for the WASD keys.
8. A forty-two inch, flat display screen made from thin film transistors with a resolution of 3840 by 2160.
9. The operating system that is used to control the system.

Oxford English for Information Technology (2011: 11)

2.2. Describing functions of computer

We can describe the function of an item in a number of ways. Study these examples.

Using the present simple 1. ROM *holds* instruction which are needed to start up the computer. ***Used to*-infinitive, *Used for + -ing* form** 2. ROM is *used* to *hold* instructions which are needed to start up the computer.	3. ROM is *used for holding* instructions which are needed to start up the computer. **Emphasizing the function** 4. *The function of ROM is* to hold instruction which are needed to start up the computer.

Exercise 7: Match each item with its functions. Then describe the functions in three ways as the examples on the table above.

Items	Functions
1. RAM 2. processor 3. mouse 4. clock 5. flash memory key 6. monitor 7. keyboard 8. cache 9. DVD-ROM drive 10. ROM	A. controls the cursor B. inputs data through keys like a typewriter C. displays the output from a computer on a screen D. reads DVD-ROMs E. reads and writes to electronic chips on a card F. holds instructions which are needed to start up the computer G. holds data read or written to it by the processor H. provides extremely fast access for sections of a program and its data I. controls the timing of signals in the computer J. controls all the operations in a computer

Exercise 8: With your partner, describe the functions of these items using the forms you have learned before.

1. Scanner is a device to convert physical documents or images into digital formats
2. printer is a device that produces physical copies of digital documents
3. CPU is the brain of a computer and responsible for execution command and calculations
4. SSD is a storage device that provides fast data access and retrieval, making it suitable for operating system
5. hard disk driver is a traditional storage that has larger storage capacity but may be slower than SSD
6. ports connector for computer with external devices to transfer data, power supply, and communication between devices
7. mainframe computer it is used for processing large volumes of data, managing databases.
8. barcodes graphical representations of data that encode information about products or items.
9. swipe cards used for authentication, access control, and payment purposes.
10. main memory to temporarily stores data and instructions that the CPU needs while executing programs.

2.3. Comparing and contrasting computer

Exercise 9: Study these details of different types of computer. Find answers to the questions.

Which computer is?

1. The most common? Microcomputer and Personal Computer (PC)
2. Small enough for a pocket? Subnotebook
3. The most common portable? Notebook
4. Used by many people at the same time? Mainframe
5. Used like mainframes? Minicomputer
6. Also called a handheld computer? PDA
7. The most powerful? Supercomputer
8. Not suitable for a lot typing? Handheld or Palmtop

Types of Computer	Notes
Mainframes	Large, powerful, expensive. Multi-user systems – used by many people at the same time. Used for processing very large amounts of data. The most powerful mainframes are called *supercomputers.*
Minicomputers	Used like mainframes. Not as big, powerful, or expensive as mainframes. Less common now because microcomputers have improved.
Microcomputers or Personal computers (PCs)	The most common type of computer. Smaller, cheaper, and less powerful than mainframes and minicomputers.

Types of Portable	Notes
Laptop	About the size of small typewriter. Less common now because smaller and lighter portables are available.
Notebook	About the size of a piece of writing paper. The most common type of portable.
Subnotebook	Not quite as big as notebooks. Can fit into a jacket pocket.
Handheld or Palmtop	Small enough to fit into the palm of one hand. Not easy to type with because of their size. Specialized handheld computer known as PDAs are used as personal organizers.

Exercise 10: Study this comparison of three types of computer.

	Mainframes	Minicomputers	Microcomputers
Size	**+++**	**++**	**+**
Power	**+++**	**++**	**+**
Cost	**+++**	**++**	**+**

We compare things using adjectives in two ways.

1. We can compare one type of computer with another.

   *Minicomputers are **bigger than** microcomputers.*

   *Mainframes are **more expensive than** microcomputers.*

   For negative comparisons, we can say:

   *Microcomputers are **not as big as** minicomputers.*

   *Microcomputers are **not as powerful as** mainframes.*

2. We can compare mainframes to all other types of computer.

   *Mainframes are **the biggest** computers.*

   *Mainframes are **the most powerful** computers.*

   *Mainframes are **the most expensive** computers.*

   With short adjectives (big*, small, fast*), we add *–er* and *–est* (*faster, fastest*).

   With longer adjectives (*powerful, expensive*), we use *more/less* and the *most/ the least* before the adjectives (*more powerful, the most powerful)*.

   Remember some exceptions:

   good – better – the best *bad – worse – the worst*

Exercise 11: Choose the correct adjectives. Then fill in the gaps with the correct form of the adjectives.

light/heavy

large/small

common/good

powerful/expensive

fast/cheap

powerful/expensive

Laptops are [1] lighter than desktop computers, but [2] heavier than notebooks.

The mainframes is the [3] largest type of computer. A minicomputer is [4] smaller than a microcomputer.

Personal computer are [5] more common than mainframes but mainframes are [6] better than personal computers at processing very large amounts of data.

Minicomputers are [7] less powerful than mainframes but they are also [8] expensive

New computers are [9] cheaper and sometimes [10] faster than older machines.

Laptops are often [11] more powerful than PCs but they are not as [12] expensive as PC

Exercise 12: Put the words in brackets into the correct form.

There are different types of computer. The (*large*) [1] largest and (powerful) [2] the most powerful are mainframe computers. Minicomputers are (small) [3] smaller than mainframes but are still very powerful. Microcomputers are small enough to sit on a desk. They are the (common) [4] most common type of computer. They are usually (powerful) [5] more powerful than microcomputers.

Portable computers are (small) [6] smaller than desktops. The (large) [7] largest portable is a laptop. (Small) [8] Small portables, about the size of a piece of writing paper, are called notebook computers. Subnotebooks are (small) [9] smaller than notebooks. You can hold the (small) [10] smallest computers in one hand. They are called handheld computers or palmtop computers.

Exercise 13: In pairs, discuss who or what you think is:

1. The most difficult game you've ever played.
2. The most exciting film you've ever seen.
3. The funniest program on TV.
4. The most dangerous computer virus.
5. The best blogger or webmaster on the web.
6. The most popular web browser.

Exercise 14: Preparation is essential for an effective presentation. Here are some phrases that can help you delivering a better presentation.

Useful Phrases for Presentation

When giving a presentation, certain keywords are used to signpost the different stages. It's a good idea to memories them and practice them so that they come to your mind easily during a presentation.

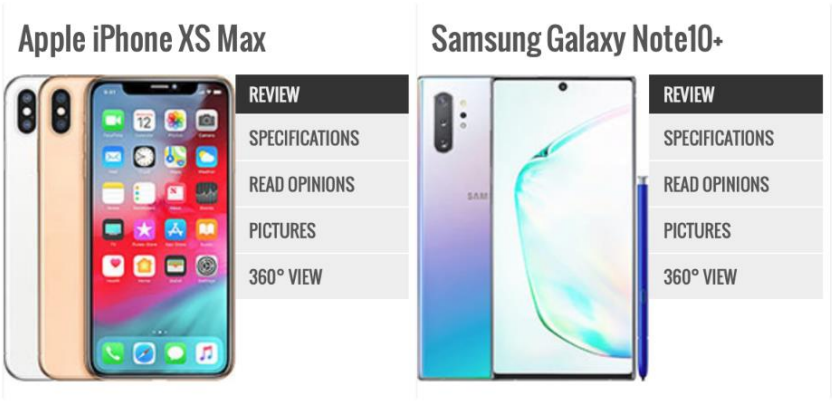
Useful Phrases for Presentation	
Starting the presentation	**Explaining the purpose**
● Good morning/good afternoon ladies and gentlemen. ● The subject of my presentation today is … ● What I'm going to talk about today is …	● The purpose of this presentation is … ● My objective is to … ● My main aim today is to …
Stating the main points	**Introducing the first point**
● The main points I will be talking about today are firstly …, secondly …., next …., finally, we're going to look at…	● Let's start/begin with … ● I'd like to start by ….
Showing visuals	**Moving on to the next point**
● I'd like to illustrate this by showing you …	● Now let's move on to …
Referring to an earlier point	**Summarizing**
● Let me go back to what I said earlier about …	● I'd like to recap the main points of my presentation. First I covered …, then we talked about … and finally we looked at … ● I'd now like to sum up the main points, which were …

Conclusion Inviting	Questions
● I'm going to conclude by … saying that / inviting you to / quoting … ● In conclusion, let me leave you with this thought / invite you to …	● Finally, I'll be happy to answer your questions. ● Now I'd like to invite any questions you might have. ● Do you have any questions?

Exercise 15: Now put the following phrases in the correct groups. Add some more phrases that you know.

- In conclusion, let me leave you with this thought / invite you to … 10. Learning programming may seem challenging at first, but with dedication and practice, you can become proficient in no time.
- Good morning/good afternoon ladies and gentlemen. 1.
- The main points I will be talking about today are firstly …, secondly …., next …., finally, we're going to look at… 5. understanding programming languages, basic programming concepts, practical coding exercises, common programming mistakes
- I'm going to conclude by … saying that / inviting you to / quoting … 9. inviting you to practice coding on your own
- Now let's move on to … 6. understanding programming languages.
- My objective is to … 3. introduce you to the basics of programming
- Finally, I'll be happy to answer your questions. 11.
- Now I'd like to invite any questions you might have. 12.
- What I'm going to talk about today is … 4. the fundamental concepts and tools in programming
- The subject of my presentation today is … 2. beginner programming
- I'd like to illustrate this by showing you … 7. some code examples in Python, a beginner-friendly programming language.
- I'd like to recap the main points of my presentation. First I covered …, then we talked about … and finally we looked at … 8. programming language, basic programming concepts, practical coding exercises

Useful Phrases for Presentation	
Starting the presentation	**Explaining the purpose**
_____ _____ _____ _____	_____ _____ _____ _____
Stating the main points	**Introducing the first point**
_____ _____ _____ _____	_____ _____ _____ _____
Showing visuals	**Moving on to the next point**
_____ _____ _____ _____	_____ _____ _____ _____
Referring to an earlier point	**Summarizing**
_____ _____ _____ _____	_____ _____ _____ _____
Conclusion	**Inviting Questions**
_____ _____ _____ _____	_____ _____ _____ _____



Display	6.5" (16.51 cm) 1242 x 2688 pixels	6.8" (17.27 cm) 1080 x 2280 pixels
Storage	256 GB	256 GB
Camera	12 MP + 12 MP	12MP + 12MP + 16MP
Battery	3174 mAh	3500 mAh
Ram	4 GB	12 GB
Operating System	iOS v12.0	Android v9.0 (Pie)
Sim Slots	Dual SIM, GSM+GSM	Dual SIM, GSM+GSM, Dual VoLTE
Model	iPhone XS Max	Galaxy Note 10+
Launch Date	September 28, 2018 (Official)	August 23, 2019 (Expected)
Brand	Apple	Samsung
Sim Size	SIM1; Nano SIM2; eSIM	SIM1; Nano SIM2; Nano
Chipset	Apple A12 Bionic	Samsung Exynos 9 Octa 9825
Graphics	Apple GPU (four-core graphics)	Mali-G76 MP12
Processor	Hexa Core (2.49 GHz, Dual core, Vortex + 1.52 GHz, Quad core, Tempest)	Octa core (2.73 GHz, Dual core, M4 Mongoose + 2.4 GHz, Dual core, Cortex A75 + 1.9 GHz, Quad core, Cortex A55)
Ram	4 GB	8 GB
Flash	✓ Retina Flash	✓ LED Flash
Video Recording	1920x1080 @ 30 fps	3840x2160 @ 60 fps, 1920x1080 @ 240 fps, 1280x720 @ 960 f
Bezelless Display	✓ with notch	✓ with punch-hole display
Pixel Density	456 ppi	400 ppi
Screen Protection	✓	Corning Gorilla Glass v6
Price	IDR 17.000.000	IDR 18.900.000

Picture 2.5

Exercise 16: In pairs, find two different advertisements of PCs/laptops/any gadgets and write some comparisons (at least 10 sentences) based on their specifications and present it in the class. Use the phrases that you have learned today.

Look at the example below.

Example of Writing a Comparison between Two Things

1. Samsung Galaxy Note 10+'s size is bigger than iPhone XS Max's.
2. The storage of Samsung Galaxy Note 10+ and iPhone XS Max has the same capacity.
3. The price of Samsung Galaxy Note 10+ is more expensive than iPhone XS Max.
4. …..
5. …..