DEPARTMENT OF EDUCATION- NATIONAL CAPITAL REGION
SCHOOLS DIVISION OF PASAY CITY

MODULE IN TLE 9 (COMPUTER SYSTEM SERVICING)

First Grading / Week 1 / Day 2

Name of Student: _____ **Grade and Section:** _____
Name of Teacher: _____

Objectives:
Assemble computer hardware in accordance with established procedures and system requirements.

- ***Distinguish the characteristics of computers that have been introduced in every generation.***
- ***Enumerate the different technological devices according to their generations.***
- ***Identify the different types of computer according to its purpose***

Lesson: Classifications of Computer

In this module, you will be able to distinguish and describe the concept of the development of computers based on their capabilities, limitations, sizes, and functionalities.

Computers denote a digital device that performs a specific task depending on the set of instructions. The first electronic computers were introduced in 1940s. The computers were huge and require a group of people to operate compared to today's computer. Not only thousands of times faster, they can also fit on your desk, lap or even in your pocket.

The given classifications of computers are listed according to technology, data operation, storage capacity and function.

ACCORDING TO TECHNOLOGY:

1. First Generation (1951 – 1958)
Components: Vacuum Tubes
Processing Speed: 2000 instructions per/sec
Memory Capacity: 1,000 – 4,000 bytes
Characteristics: Quite large and produced enormous amount of heat; batch processing.

2. Second Generation (1958 – 1964)
Components: Transistors
Processing Speed: 1,000,000 instructions/sec
Memory Capacity: 4,000 – 32,000 bytes
Characteristics: Smaller size, generated little heat, less expensive and required less power than the vacuum tube circuits; real- time processing; overlapped processing.

3. Third Generation (1964 – 1971)
Components: Integrated Circuits (IC)
Processing Speed: 10,000,000 instructions per second
Memory Capacity: 32,000 – 3,000,000 bytes
Characteristics: Smaller size, more reliable, greater speed and capacity than the 2nd gen computers; ability to process several programs simultaneously; time- sharing; multi-programming.

4. Fourth Generation (1971 – present)
Components: Large Scale Integrated Circuits (LSIC) and Very Large-Scale Integrated Circuits (VSIC) chips
Processing Speed: 100,000,000–1 billion instructions/sec
Memory Capacity: up to more than 100 gigabytes
Characteristics: Smaller in size, lesser power requirements, greater speed than the 3rd generation computers; virtual memory.

5. Fifth Generation (present to future)
Characteristics: Artificial Intelligence (AI) and Expert System. It is a specific field concerned with simulating the process of reasoning to shed light on the nature of rational thought.
Examples: *Robotics, Game-Playing, Language and Linguistic Communication.*

ACCORDING TO DATA OPERATION:

1. **Analog Computer**
A type of computer that manipulates process data in continuous form and normally operates revolving. Since the data are represented in continuous form, the actual results are not very accurate. This computer is almost extinct today.
Examples: Thermometer, Watches, Barometer, Speedometer, Measuring Scales

2. **Digital Computer**
A type of computer that used digital circuit and is design to operate on two states namely bits 0 and 1.
Examples: Digital Watch, Digital Weighing Scale

3. Hybrid Computer
A combination of analog and digital computers commonly known as "digi-ana" or "ana-digi".
Examples: Money Counting Machine, Automated Teller Machine (ATM)

REFERENCES FOR FURTHER ENHANCEMENT

- Book: PC Assembly and Troubleshooting, page 2
- Book: Understanding PC Hardware, page 2
- YouTube: https://www.youtube.com/watch?v=CgcQVFEfOmA

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ACCORDING TO STORAGE CAPACITY OR MEMORY SIZE:		
1. Supercomputer	Supercomputer is the most powerful computer available. This high capacity computer that run continuously is being used by very large organizations, mostly big corporations and government institutions. *Characteristics:* High capacity computer *Uses:* *Worldwide Weather Forecasting, Oil Research, Aircraft Design, Mathematical Research, NASA*	
2. Mainframe Computer	This computer is water or air-cooled computer which is capable of great processing speed and data storage. *Characteristics:* Fast and large capacity computer and handled millions of transactions *Uses:* *Banks, Airlines, Insurance Companies, SSS, GSIS, BIR*	
3. Minicomputer	A machine used either as single workstations or as a system feed by network to several terminals. *Characteristics:* Refrigerator-size machine *Uses:* *Used by medium-sized companies for specific purposes like accounting, inventory, payrolls, etc*.	
4. Microcomputers	Microcomputer also known as Personal Computer (PC) is the most common and widely used computer today which you can see in homes, school and in most businesses. *Characteristics:* Computer that can fit on a desk *Uses:* Work station and toolmaker computer.	

Microcomputers come in several sizes, as follows:		
a. Desktop	A desktop is intended to be used on a single location where system unit sits on a desk, with keyboard and monitor located in front.	
b. Laptop	It is a portable computer equipped with a flat display screen and weighs 3.5 to 8.9 kilograms. It is optimized for mobile use and runs on a single battery.	
c. Netbook	Netbook falls in the category of laptop but is inexpensive and relatively smaller in size. It does not have built-in Digital Versatile Disc (DVD) or Compact Disc (CD) drives, and primarily meant for travel.	
d. Personal Digital Assistant (PDA)	PDA is a handheld computer and commonly known as a palmtop. Modern PDAs have phone capabilities, web browser, internet, music and video.	
e. Tablet	Tablet is a mobile computer that is very handy to use. It uses the touch screen technology.	
f. Wearable Computer	This computer can be worn on the body and often used in the study of behavior modeling and human health.	

ACCORDING TO FUNCTION:	
1. Special Purpose Computer	This computer is used for special purposes and usually expensive. *Examples: Computer to control LRT, Traffic Lights, ATM*
2. General Purpose Computer	It can store different programs and performs variety of functions such as inventories, payroll, billing, etc. *Examples: Personal Computer, Respirator in the Hospital and Computers in Making Cars*

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WHAT TO PROCESS

EXERCISE 1: COMPARE

Directions: Compare the following types of computer:

1. Desktop and Laptop _____
2. Analog and Digital Computers _____
3. Transistors and Vacuum Tubes _____
4. Supercomputers and Mainframe Computers _____
5. Special Purpose Computer and General Purpose Computer _____

EXERCISE 2: ACRONYM

Directions: Give the acronyms of the following terminology:

1. "ana-digi" - _____
2. AI - _____
3. CD - _____
4. PDA - _____
5. VSIC - _____
6. ATM - _____
7. DVD - _____
8. LSIC - _____
9. PC - _____
10. IC - _____

EXERCISE 3: FILL THE BOX

Directions: Computers are classified broadly into five generations based on technology. Fill-in the boxes below the generation, years, component, and characteristics of computer built in their respective period.

	Generation/Year	Components	Characteristics
1			
2			
3			
4			
5			

THINGS TO REMEMBER!

Classifications of Computers

1. According to Technology: 1st Gen, 2nd Gen, 3rd Gen, 4th Gen and 5th Gen
2. According to operation: Analog, Digital and Hybrid computers
3. According to storage capacity: Supercomputer, mainframe computer, minicomputer and microcomputer
4. Microcomputers according to sizes: Desktop, Laptop, Netbook, PDAs, Tablet, Wearable computer
5. According to Function: Special Purpose computer and General Purpose Computer

EVALUATION: DISTINGUISH

Directions: Distinguish the classification of computers being described in the following sentences. Choose your answer below and write the letter only of your answer in the space provided.

A. According to Technology **C. According to Storage Capacity** **D. According to Function**
B. According to Operation **E. Microcomputers**

_____1. A type of computer which is intended to be used on a single location.
_____2. They use digital circuits and are designed to operate on two binary numbers, namely bits 0 and 1.
_____3. It can store different programs and performs variety of functions such as inventories, payroll, billing, etc.
_____4. It is a handheld computer and popularly known as palmtop.
_____5. These computers can be worn on the body and are often used in the study of behavior and human health.
_____6. An air-cooled computer that can handle millions of transactions.
_____7. The most widely used computers nowadays which you can see in schools and offices.
_____8. They fall in the category of laptops, but are inexpensive and smaller in size.
_____9. This computer introduced the use of Integrated Circuits and time sharing.
_____10. This computer is almost extinct today.

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ANSWER KEY

EXERCISE 1: COMPARE

1. **Desktop and Laptop**
   A desktop is intended to be used on a single location while Laptop is a portable computer and optimized for mobile use.
2. **Analog and Digital Computers**
   Analog Computer manipulates process data in continuous form and normally operates revolving and Digital Computer used digital circuit and is design to operate on two states namely bits 0 and
3. **Transistors and Vacuum Tubes**
   The first generation used vacuum tube while the second generation used the transistors. Transistor is smaller in size and less expensive compare to vacuum tube.
4. **Supercomputers and Mainframe Computers**
   Supercomputer is a high capacity computer and being used by large organization while Mainframe Computer is fast and large capacity computer and can handle millions of transactions
5. **Special Purpose Computer and General Purpose Computer**
   Special Purpose Computer performs specific functions and General Purpose Computer store different programs and performs variety of functions.

EXERCISE 2: ACRONYM

1. "ana-digi" – Analog Digital
2. AI –Artificial Intelligence
3. CD – Compact Disc
4. PDA – Personal Digital Assistant
5. VSIC – Very Large Scale Integrated Circuits
6. ATM – Automated Teller Machine
7. DVD – Digital Versatile Disc
8. LSIC – Large Scale Integrated Circuits
9. PC - Personal Computer
10. IC – Integrated Circuit

EXERCISE 3: FILL THE BOX

Generation/Year	Component	Characteristics
1. First Generation (1951-1958)	Vacuum Tubes	Large, produced enormous amount of heat; batch processing
2. Second Generation (1958-1964)	Transistors	Real-time processing; overlapped processing
3. Third Generation (1964-1971)	Integrated Circuits	Smaller, reliable than 2nd gen; Time-sharing; Multi-programming
4. Fourth Generation (1971-present)	Large Scale Integrated Circuits; Very Large Scale Integrated Circuits	Less power requirement; greater speed than 3rd gen. Virtual memory
5. Fifth Generation (present-future)	Artificial Intelligence; Expert System	Robotics, simulating the process of reasoning

EVALUATION: DISTINGUISH

1. E
2. B
3. D
4. E
5. E
6. C
7. C
8. E
9. A
10. B