STUDENT's ACTIVITY SHEET FOR <u>COMPUTER PROGRAMMING (JAVA NCIII)</u>

STUDENT's ACTIVITY SHEET NUMBER 1
TITLE/LESSON: Overview of Computers and Programming Languages

I. **OBJECTIVES:** At the end of the lesson you are expected to
    a. identify and defined hardware and software components;

A. Content Standard

    The learners demonstrate an understanding of the principles and concepts in demonstrating knowledge of Java technology and Java programming language, and performing object-oriented analysis and design.

B. Performance Standard

    The learners independently and effectively use object-oriented technologies and the use of software modeling, as applied to a software development process, and present one practical & complete object-oriented analysis and design (OOAD) roadmap based on TESDA Training Regulations.

C. Most Essential Learning Competency/ies

    PERFORMING OBJECT-ORIENTED ANALYSIS AND DESIGN (POAD)
    Apply basics of java language **(TLE_ICTJAVA1 1-12POAD-IIfi-29)**

II. **LEARNING RESOURCES**
    A. Materials/IMs Needed:
        Module 1 Apply Basics of Java Language
    B. References
        1. Java Programming From Problem Analysis to Program Design by: D.S. Malik
        2. Java Programming From Problem Analysis to Program Design Lab Manual by: Blayne Mayfield

    C. Additional Materials and Learning Resources

III. **TIME FRAME: <u>100 minutes or 1 day (30 min will be allotted for the lecture part)</u>**

IV. **INTRODUCTION/RATIONALE**

    What is a computer system?

    Computer system consist of two components, the hardware and the software.

Since computers have evolved during the 1950s, there are lot of remarkable breakthroughs until now. During the early times, computer was designed to do specific task. Today, computers were made to be a general-purpose device, which help people in accomplishing their daily task.

What I Need To Know

This activity sheet was created to help you gain knowledge of the different components of computer both hardware and software. This will help you understand how computer system works. The lessons are arranged to follow the standard sequence of the course.

After going through this activity sheet, you are expected to:
1. identify and defined hardware and software components of a computer system.

Note: All activities should be accomplished in your lecture notes, with proper activity label.

What I know

Activity 1.1 Do you know this?

Directions: Check on the pictures below. Identify what is the name of each device and determine its function/purpose. Write your answer on your lecture notes.

A. Hardware:

B. Software

1.   2.   3.
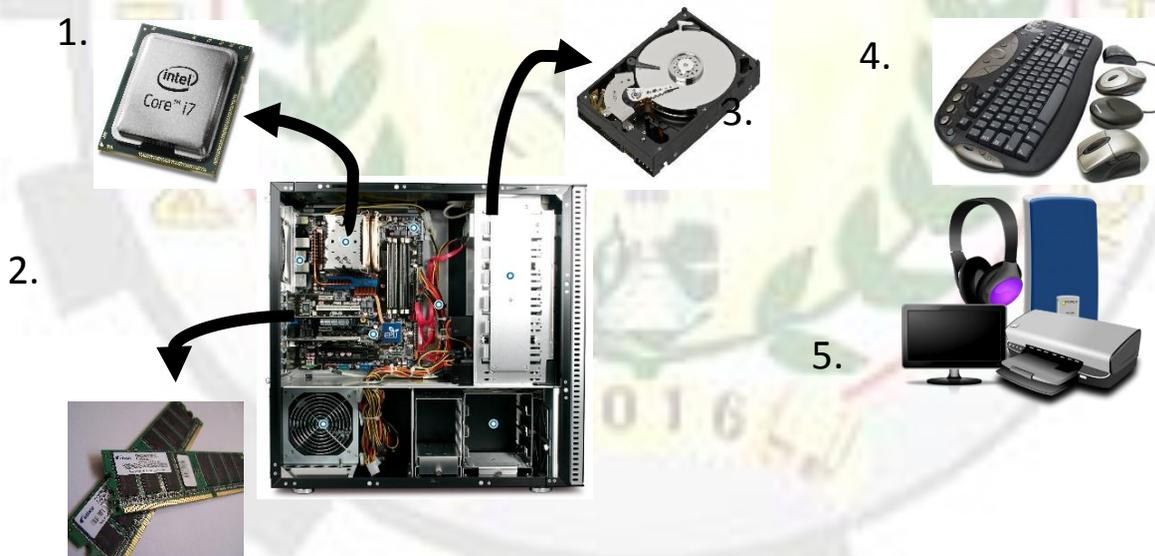
What's In

Activity 1.2 Match Me!

Directions: Match the following terms on the left with the appropriate definitions on the right. Choose letters only and write your answer on your lecture notes.

1. Secondary Storage
2. Address
3. Arithmetic logic unit
4. Computer
5. CPU
6. Main memory
7. Hardware
8. Input devices
9. Instruction register
10.   Output devices
11.   Program counter
12.   Application program
13.   Program
14.   Software
15.   System program

a. An electronic device that can perform commands to input, output, or store data, and calculate arithmetic and logical expressions.
b. Computer components including CPU, main memory, input/output devices and secondary storage
c. The brain of computer that consist of several components such as control unit, program counter, instruction register, arithmetic logic unit, and accumulator.
d. Also known as RAM or Random Access Memory.
e. Points to the next instruction to be executed.
f. Holds the instruction to be executed
g. Devices including monitor, printer, and secondary storage.
h. The components of the CPU that perform arithmetic and logical operations.
i. A unique location in main memory
j. Stores information permanently.
k. Devices including keyboard, mouse and secondary storage.
l. Computer instructions to solve a problem
m. There are two types: system and application
n. Controls the computer.
o. Performs a specific task; examples include word processors, spreadsheets and games.

What's New

Activity 1.3 Who Am I?

Directions: Fill in the blanks to complete the sentence. Select your answer on the data bank, and write them on your lecture notes

DATA BANK		
Operating System	Main Memory	Central Processing Unit (CPU)
Keyboard	Mouse	Arithmetic Logic Unit (ALU)

1. The _____ is the brain of the computer and the single most expensive piece of hardware in a computer.
2. The _____ is the primary input device.
3. The _____ monitors the overall activity of the computer and provides services.
4. The _____ is directly connected to the CPU and that all programs must be loaded into it before they can be executed.

What Is It

Computer is an electronic device capable of performing commands. Basic commands that a computer performs are input data, display results, storage, and perform arithmetic and logical operations.

Hardware

A computer is made of physical components (hardware) and programs (software). There are four major hardware components, which include the central processing unit (CPU), considered as the brain of the computer; main memory (MM), also known as the random access memory (RAM); input/output (I/O) devices; and the secondary storage that stores data permanently.

Central Processing Unit and Main Memory
The central processing unit (CPU) is the "brain" of the computer and the single most expensive piece of the hardware on a computer. The more the powerful the CPU, the faster the computer. Arithmetic and logical operations are carried out inside the CPU.
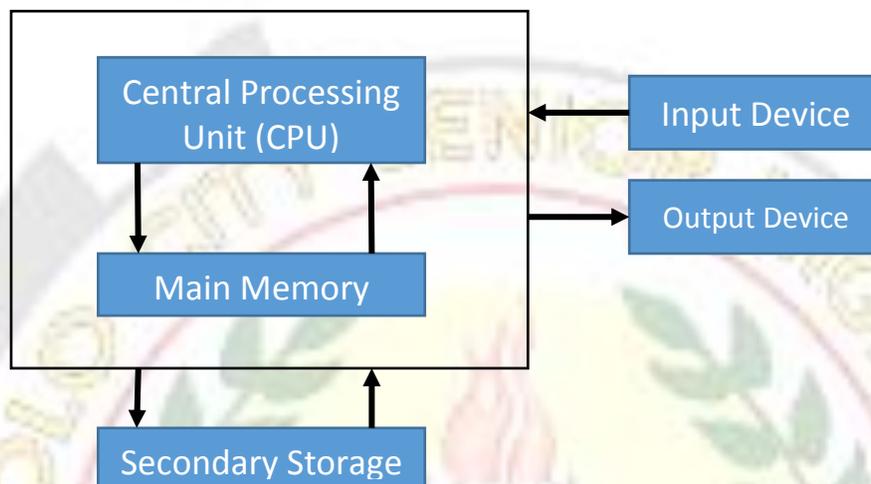
The hardware components of a computer

Main memory, or random access memory (RAM), is connected directly on the CPU. All programs must be loaded into main memory before they can be executed. Similarly, all data must be brought into main memory before program can manipulate it. When the computer is turned-off, everything in the main memory is lost.

Secondary Storage
Because programs and data must be stored in main memory before processing everything in the main memory is lost once turned off, information must be transferred to some other device for longer-term storage. A device that stores longer-term information is called the secondary storage.

Input/Output Devices
For a computer to perform a useful task, it must be able to take in data and programs and display the results of manipulation of data. The devices that feed data and programs into computers are called *input devices*. The devices that uses to display results are called *output devices*.

Software
Software consists of programs written to perform specific tasks. Two types of programs are system programs and application programs.

System programs control the computer. The system program that loads first when the computer is turned on is called the operating system. Without the operating system the computer is useless. Some examples are Windows OS (Windows 95, Windows 7, Windows 8, and Windows 10 are some), Linux OS (Ubunto, Fedora, and Red Hat), Mac OS and others. The operating system monitors the overall activity of the computer and provides services, such as memory management, input/output activities, and storage management. The operating system has a special program that runs the application programs.

Application programs perform specific tasks. Word processors, spreadsheets, and games are examples of application programs. Both system and application programs are written using programming languages.
Note: Who created all of this software? The programmers!

What's More

Activity 1.4 Remember Me?

Directions: Recall the time during your Grade 11, especially when you are using your school's computer laboratory.

1. What is the operating system installed in the computer?
2. What are the input devices attached to it?
3. What are the output devices attached to it?
4. What are the applications installed into it?

What Have I Learned

Activity 1.5 A Fact or A Bluff!

Directions: Read the statements carefully and then identify if the statements are either a Fact or A Bluff. Write your answer on your lecture notes.

1. A computer system has two components, the hardware and the software.
2. All programs must be brought into the main memory before they can be executed.
3. Software refers to the program runs by the computer.
4. The operating system monitors the overall activity of the computer and provides services.
5. Application programs perform specific tasks

What I Can Do

Activity 1.6 I can do this!

Directions: Write an Essay.

Write an essay on how innovations in technology, such as the invention of mobile technology, lead to advances in software applications. Discuss the impact of the resulting applications to the society.

GUIDE QUESTIONS

1. What technique/s did you use to do the task correctly?

| |
| |
| |

2. How do the technique/s help you in accomplishing your task?

| |
| |
| |

3. Were you able to categorize parts of the computer and its functions? Justify your answer.

4. Were you able to determine the difference of system software and application software? Justify your answer.

Assessment

Quiz #1

Directions: Read the questions below. Answer the questions with a minimum of two sentences.

1. Why is the CPU considered as the brain of the computer?
2. Why is secondary storage needed?
3. What are the two types of programs? Determine their purpose.

Rubric for Scoring:

Category	5	4	3	2
Organization	Information is very organized with well-constructed sentences.	Information is organized with well-constructed sentences.	Information is organized but sentences are not well-constructed sentences.	The information appears to be disorganized
Amount of Information	The question is well addressed and answered with at least two sentences.	The question is addressed and answered with at least two sentences.	The question is addressed and answered with one sentence.	The questions was not addressed.
Quality of Information	The information clearly relates to the question, and supporting details was presented.	The information relates to the question, and 1 supporting detail was presented.	The information relates to the question, but no supporting details	The information was nothing to do with the topic.

Additional Activities

Activity 1.7 Give Me More

Directions: Complete the table by providing at least five examples on each category.

Input devices	Output Devices	Application Software

V. REFLECTION:

Based on the activities conducted, complete the phrase below:

I understand that

I realized that

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