MINISTRY OF EDUCATION

NATIONAL CENTRE FOR EDUCATIONAL RESOURCE DEVELOPMENT

NATIONAL SCHEME FOR SECONDARY SCHOOLS

GRADE 7

INFORMATION TECHNOLOGY







ACKNOWLEDGEMENTS

The Ministry of Education wishes to acknowledge the work done by the following persons who were involved in the production of the **Grade 7 Information Technology National Scheme.**

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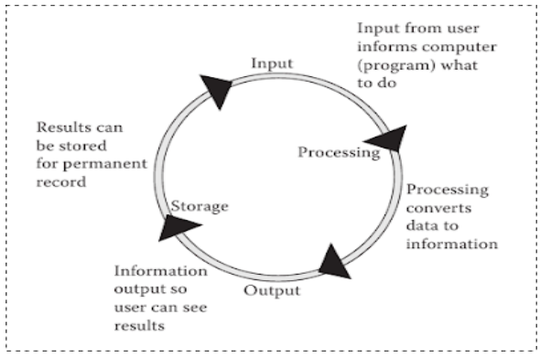
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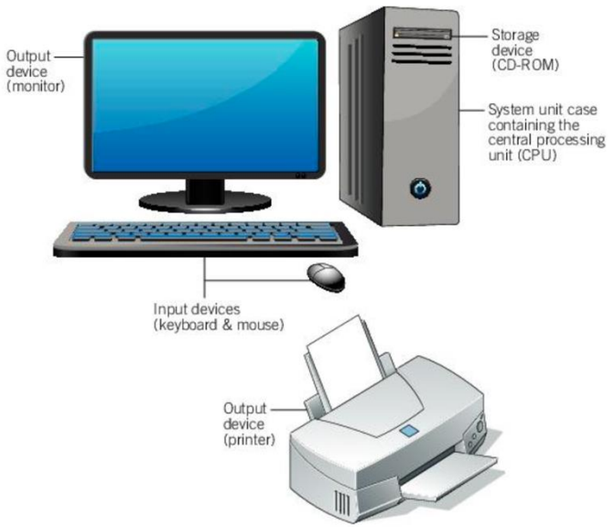
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NATIONAL SCHEME FOR SECONDARY SCHOOLS

CURRICULUM AREA: Information Technology **GRADE 7**

					WEEK 1
TOPIC/SUB-TOPIC	**GENERAL OBJECTIVE**	**CONTENT**	**ACTIVITY**	**RESOURCE**	**EVALUATION STRATEGY**
Section 1: COMPUTER FUNDAMENTALS The Concept of Information Technology.	Students will: i. Develop an understanding of the concept of Information Technology.	**Difference between data and information:** Data is raw, unprocessed facts. Information is processed data. **Definition of Information and Communication Technologies:** Information Technology is the term used to describe hardware and software that allows us to access, retrieve, store, manipulate, and present information. Communication Technology is the term used to describe telecommunications equipment through which data can be accessed. **Definition of a Computer** A computer is an electronic device that input, process, output, and store data. These four basic tasks are represented by the IPOS Cycle.	. Class discussion on why we need computers. Defining Information and Communication Technologies separately. Stating the definition of a computer. Listing the four basic tasks that the computer performs. Drawing schematic IPOS Cycle. Researching the History of Computers.	Oxford Information Technology for CSEC Third Edition Page 6 – 7, 41 Page 3	Oral Quiz Research

		https://as-ict-ria-yves.weebly.com/input-processing-output-storage-and-feedback.html  			
Components of a computer	Students will be distinguished between the major components of a computer system.	The term 'computer generally refers to desktop machines and laptops but it can also include handheld game consoles as well as portable devices, such as smartphones and tablets. The basic components of a computer are categorised as either hardware or software. Hardware This is the name given to the physical parts of a computer. **There are five general categories of Hardware:** a. The Processing Unit (The CPU) b. Input Devices c. Output Devices d. Memory	Class discussion on what is a computer Distinguishing between the two main components of a computer system Stating the definition of hardware Drawing a diagram of a computer and listing the major parts. Stating the definition of software	Oxford Information Technology for CSEC Third Edition Page 6 – 7	Oral quiz Research

		e. Storage Devices **Peripheral devices** are located outside the CPU but are controlled by it. That is, they can be added to a computer system. Input, output and storage devices may be peripheral devices.  **Software** This is the name given to computer programs that tell the hardware how to work. Without software, the computer hardware would do absolutely nothing, as there would be no instructions. Software includes the following types of programs.			

Additional Resources

Websites

IPOS Cycle
https://www.youtube.com/watch?v=j0XOLp_PbgA

History of computers
https://www.youtube.com/watch?v=gjVX47dLlN8
How do computers work?
https://www.youtube.com/watch?v=AkFi90lZmXA

What is ICT?
https://www.techopedia.com/definition/24152/information-and-communications-technology-ict

Other suggested teaching and learning ACTIVITY facilitate students' attainment of the objectives of this Section.

Teachers/facilitators are encouraged to engage students in the teaching and learning ACTIVITY below.

1. Have students research the History of Computers.
2. If a class is not conducted in the Information Technology Laboratory, then make arrangements for students to visit.
3. Discuss rules that must be adhered to when using the Information Technology Laboratory.

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WEEK 2

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
Types of computer systems i. Super Computers ii. Mainframes	**Students will:** i. Distinguish among the major types of computer systems in terms of processing speed, storage and portability;	**Super Computers** A supercomputer is a computer with a high level of performance compared to a general-purpose computer. The performance of a supercomputer is measured in floating-point operations per second (FLOPS) instead of million instructions (MIPS). Supercomputers contain tens of thousands of processors and can perform billions and trillions of calculations or computations per second. e.g. Cray **Mainframes** These are very large-capacity computers with several CPUs, capable of supporting hundreds or even thousands of users simultaneously. Those such as the IBM zEnterprise mainframe are built with spare components to prevent breakdowns.	Writing definition for a computer. Defining the various types of computers in terms of processing speed, storage, and portability. Listing examples of the types of computer systems.	Oxford Information Technology for CSEC Third Edition Page 34 The Internet	Research

<u>Other suggested teaching and learning activities facilitate students' attainment of the objectives of this Section.</u>

Teachers/facilitators are encouraged to engage students in the teaching and learning activity below.

1. Encourage students to come to class with different types of personal computers e.g. laptops, phones, and iPad.
2. Engage students in group work where necessary.
3. Students can do a presentation based on both activities stated
4. Encourage students to gather video based on supercomputers and mainframe computers

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WEEK 2

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
Types of computer systems i. Super Computers ii. Mainframes	**Students will:** i. Distinguish among the major types of computer systems in terms of processing speed, storage and portability;	**Super Computers** A supercomputer is a computer with a high level of performance compared to a general-purpose computer. The performance of a supercomputer is measured in floating-point operations per second (FLOPS) instead of million instructions (MIPS). Supercomputers contain tens of thousands of processors and can perform billions and trillions of calculations or computations per second. e.g. Cray **Mainframes** These are very large-capacity computers with several CPUs, capable of supporting hundreds or even thousands of users simultaneously. Those such as the IBM zEnterprise mainframe are built with spare components to prevent breakdowns.	Writing definition for a computer. Defining the various types of computers in terms of processing speed, storage, and portability. Listing examples of the types of computer systems.	Oxford Information Technology for CSEC Third Edition Page 34 The Internet	Research

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WEEK 3

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
Microcomputers	**Students will:** i. Distinguish among the major types of computer systems in terms of processing speed, storage and portability;	**Microcomputers:** i. Desktops ii. Laptops iii. Tablets (i) The following devices make the computer function: (ii) Motherboard (iii) Memory – RAM, ROM (iv) CPU (v) Hard Disk Drive (vi) Power Supply (vii) MODEM (viii) Ports (ix) Expansion slots (x) CD/DVD Drive	Writing definition for a computer. Defining the various types of computers in terms of processing speed, storage, and portability. Compiling a scrapbook on the types of computer systems. Listing examples of the types of computer systems.	Oxford Information Technology for CSEC Third Edition Page 34	Research

Additional Resources

Website

https://study.com/academy/lesson/what-is-a-computer-system-unit-function-components-definition.html

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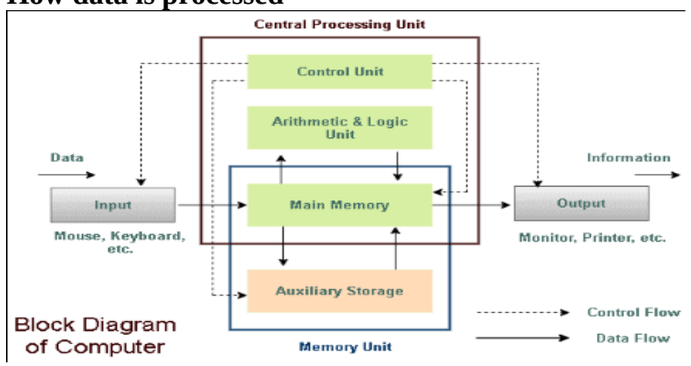
WEEK 4

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
Mobile Devices	**Students will:** i. Distinguish among the major types of computer systems in terms of processing speed, storage and portability;	**Mobile Devices** e.g. (i) Laptops, (ii) Notebooks, (iii)Netbooks, (iv)Smartphones, (v) Tablets, (vi)Game consoles	Listing mobile devices. Explain/describe the types of mobile devices. Comparing these devices in terms of processing speed, storage, and portability.	Oxford Information Technology for CSEC Third Edition Page 35	Research

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					WEEK 5
TOPIC/SUB-TOPIC	**GENERAL OBJECTIVE**	**CONTENT**	**ACTIVITY**	**RESOURCE**	**EVALUATION STRATEGY**
Embedded Devices	**Students will:** i. Distinguish among the major types of computer systems in terms of processing speed, storage, and portability;	**Embedded Devices** An embedded system is a dedicated computer system that is designed for one or two specific functions. e.g. special-purpose systems such as controllers in : (i) Microwaves, (ii) car ignition systems, and (iii)answering machines.	Stating what are embedded devices. List devices which use an embedded system	Oxford Information Technology for CSEC Third Edition Page 35 The Internet	Research

					WEEK 6
TOPIC/SUB-TOPIC	**GENERAL OBJECTIVE**	**CONTENT**	**ACTIVITY**	**RESOURCE**	**EVALUATION STRATEGY**
Components of a Computer System	Students will: i. State the function of the CPU 2. Explain how data is processed	**The Central Processing Unit** This is the brain of a computer and controls how the rest of the computer works. It includes the control unit (CU) and the arithmetic and logic unit (ALU). The CU carries out instructions in the software and directs the flow of data through the computer. The ALU performs the calculations and logic operations. **How data is processed**  	Class discussion on explaining the function of the central processing unit Discussing how data is processed.	Oxford Information Technology for CSEC Third Edition Page 6 - 7	Short answer questions. Drawing

					WEEK 7
TOPIC/SUB-TOPIC	**GENERAL OBJECTIVE**	**CONTENT**	**ACTIVITY**	**RESOURCE**	**EVALUATION STRATEGY**
The Central Processing Unit	Students will: i. Write the characteristics of the CPU.	**The Central Processing Unit** 1. Another name for the CPU is _____. 2. The CPU is made up of two units – The Control Unit (CU) and the Arithmetic Logic Unit (ALU). 3. The CU tells the computer how to carry out program instructions. 4. The ALU performs all arithmetic and logical operations. 5. Arithmetic operations are: 6. Logical operations are: >, < 7. The CPU's clock speed determines how fast it performs calculations. 8. The speed of the CPU is measured in Hertz. 9. The two most popular companies that produce CPUs are AMD (Advanced Micro Devices) and Intel. 10. CPUs are also manufactured by Centaur Technologies, Elbrus, and Transmeta Corporation. 11. Examples of the processing units are ____ and ____.	Students will list the components Explain the functions of each component. Writing and answering questions in notebooks. Identifying the CPU.	Heinemann Information Technology for CSEC Page 5, 26	Answering questions

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WEEK 8

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
Input Devices	Students will: i. State the purpose of input devices. ii. understand the different methods of inputting data.	Input devices are used to put data into the computer system **Types of Input Devices** i. **Manual Devices**: Keyboard, Mouse ii. **Touch Sensitive Devices:** Touchscreen, Touchpad iii. **Pointing Devices:** Light Pen/Stylus **iv.Direct Data Entry Devices:** Barcode Reader Smart Card Optical Mark Reader/Recognition Optical Character Reader/Recognition Magnetic Ink Character Reader/Recognition	Stating the purpose of input devices. Listing examples of input devices. Categorising input devices as: - Manual Devices - Touch Sensitive Devices - Pointing devices - Direct Data Entry Devices Compare the categories of input devices.	Oxford Information Technology for CSEC Third Edition Page 8	Oral questioning

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WEEK 9

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
The Keyboard	Students will: i. State the purpose of the Keyboard.	**The Keyboard** i. Definition of the Keyboard This is one of the primary input devices used with the computer. It is composed of keys that are used to type letters, numbers, and symbols and perform additional functions. ii. Listing the Categories of Keys: Alphabet Number Function Cursor Special iii. Writing the functions of some special keys. e.g. Caps Lock, Shift, Backspace, Delete	Writing the purpose of the Keyboard. Listing the Categories of Keys. Writing functions of some special keys. Pasting picture of a keyboard. Explaining what is the keypad. Listing characters that can be found on the keypad. Explaining and listing characters that can be found on the keypad.	Oxford Information Technology for CSEC Third Edition Page 8	Oral questioning Research

Additional Resources

Websites

https://www.computerhope.com/keys.htm
https://www.computerhope.com/jargon/k/keyboard.htm

					WEEK 10
TOPIC/SUB-TOPIC	**GENERAL OBJECTIVE**	**CONTENT**	**ACTIVITY**	**RESOURCE**	**EVALUATION STRATEGY**
The Mouse	Students will: i. State the purpose of the Mouse	**The Mouse** The Mouse is used to control the cursor on the Monitor. Some mice are connected to the computer via cables with a USB connection. Others are wireless (but still need the USB connection). **Mouse Actions** Click – Place your mouse pointer on the item. Press and release the left mouse button. Double click – Point to the item and quickly press and release the left mouse button twice. This action is used to open an icon/folder on the desktop. Drag and Drop – this action is used to move an item on the screen. Point to the item, press and hold down the left mouse button. While holding the button, move the pointer where you want to place the item. Release the mouse button. Right, Click – this action causes a list of commands to be displayed on the screen. To right-click, press and release the right mouse button.	Observing pictures of a computer mouse differentiating between the wired, wireless, and the trackball mouse Discussing features of a mouse and the different mouse actions.	Oxford Information Technology for CSEC Third Edition Page 8	Oral questioning

The Mouse (contd)	Students will: i. State the purpose of the Mouse.	<u>Scroll Button</u> There may be a wheel on your mouse. This allows you to scroll to see text in a long document, web page or spreadsheet that is not presently visible on the screen. Some scroll buttons are designed to be rolled with the finger. Others offer automatic scrolling		Oxford Information Technology for CSEC Third Edition Page 8	Oral questioning

<u>Other suggested teaching and learning activities facilitate students' attainment of the objectives of this Section.</u>

Teachers/facilitators are encouraged to engage students in the teaching and learning activity below.

1. Provide exercises in which students can practice mouse actions.
2. Show students older types of mice (with PS/2 connection).
3. Engage students in research.







WEEK 11

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
Touchscreen and Touchpad	Students will: i. state what are touch-sensitive devices.	**Touchscreen** A touchscreen is a display device that allows users to interact with a computer using their finger or stylus. They are a useful alternative to a Mouse or Keyboard for navigating a GUI (Graphical User Interface). Touchscreens are used on various devices, such as Laptop Displays, Smartphones, Tablets, Cash Registers, and Information Kiosks. Some touch screens use a grid of infrared beams to sense the presence of a finger instead of utilizing touch-sensitive input. **Touchpad** This is a rectangular surface that senses the movement of one or more fingers on its surface. Laptops and Notebook computers have touchpads which function as a Mouse.	Identifying devices that will have touchscreen features. Stating the purpose of these devices. Discussing how to use a touchscreen device. - Tap - Double Tap - Touch and Hold - Drag - Swipe - Pinch Researching the history of Touchscreens and how a touchscreen is different from a Mouse. Listing places where touchscreens are used. Discussing the purpose of the touchpad.	Oxford Information Technology for CSEC Third Edition Page 9	Oral questioning Research.
Additional Resources: **Website:** https://www.computerhope.com/jargon/t/toucscre.htm					

					WEEK 12
TOPIC/SUB-TOPIC	**GENERAL OBJECTIVE**	**CONTENT**	**ACTIVITY**	**RESOURCE**	**EVALUATION STRATEGY**
Pointing Devices	Students will: i. State the purpose of pointing and other input devices.	**Pointing Devices** These devices control the movement of a cursor on a screen. (e.g. a Graphics Tablet, Mouse, or Stylus) **Other input devices** Remote Control Devices Biometric Systems Digitizer Joystick Microphone Sensors Document Scanner	Recapping the input devices that were discussed in previous lessons. Stating what are Pointing Devices. Listing examples of Pointing Devices.	Oxford Information Technology for CSEC Third Edition Page 9 - 10	Oral Quiz

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WEEK 13

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
Direct Data Entry Devices	Students will: i. Give characteristics of the Barcode Reader.	**Direct Data Entry Devices** These devices transfer information automatically from a document – such as a form or Barcode – into the computer. These devices are used when large volumes of data must be entered into a computer system quickly. **Barcode Reader** A barcode reader, also called a price scanner or point-of-sale (POS) scanner, is a hand-held or stationary input device used to capture and read the information contained in a Barcode.	Stating what are Direct Data Entry Devices. Writing the purpose of a Barcode Reader. Researching how the Barcode Reader works and what information it contains. Listing the types of Barcode Readers. Discussing Advantages and Disadvantages of using Barcode Readers.	Oxford Information Technology for CSEC Third Edition Page 10	Research

Additional Resources

Websites

https://www.techtarget.com/whatis/definition/barcode-reader-POS-scanner-bar-code-reader-price-scanner

https://www.jagranjosh.com/general-knowledge/what-is-barcode-and-how-is-it-made-1522059273-1



Scanned Copy of Barcode from a Package of Sunflower Oil

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CURRICULUM AREA: Information Technology **GRADE 7**

WEEK 14

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
Character Readers	Students will: i. Give characteristics of the Optical Mark Reader and Optical Character Reader.	**Optical Mark Reader/Recognition** Optical Mark Reader (OMR) uses paper-based forms on which responders simply mark a pre-defined box to answer a question. The system needs no special equipment to mark a form other than a pen/pencil. The OMR scanner then processes and checks the forms for errors and the data is sent directly into the project database in real-time unless an error is detected. **Optical Character Reader/Recognition** OCR detects shapes and can identify characters. Once the whole character has been scanned, the pattern detected is matched against a set of patterns stored in the computer. The pattern that matches or nearly matches is taken to be the character read. Patterns that cannot be identified are rejected. It is used in mail sorting and credit card billing.	Identifying the OMR and OCR.   Stating the use of each device.	Oxford Information Technology for CSEC Third Edition Page 10	Research

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WEEK 15

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
Smart Card and MICR	Students will: i. state the uses of Smart Cards and Magnetic Ink Character Recognition.	**Smart Card** Millions of people now pay for items using credit, debit, or store cards. The magnetic strip on the back of such a card is 'read' as it is being 'swiped'. This swiping transfers account information and the cost of the items, into the banking system. This type of system is referred to as Electronic Funds Transfer at Point of Sale (EFTPOS). **Magnetic Ink Character Recognition (MICR)** Banks process thousands of cheques each day. Every cheque has a cheque number, account number, and branch code printed on it using magnetic ink.	Discussing uses of Smart Cards and Magnetic Ink Character Recognition. Stating which category of device they belong to. Listing advantages and disadvantages of using Smart Cards and Magnetic Ink Character Recognition.	Oxford Information Technology for CSEC Third Edition Page 10 - 12	Oral Quiz

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CURRICULUM AREA: Information Technology **GRADE 7**

WEEK 16

<table>
<tr><th>TOPIC/SUB-TOPIC</th><th>GENERAL OBJECTIVE</th><th>CONTENT</th><th>ACTIVITY</th><th>RESOURCE</th><th>EVALUATION STRATEGY</th></tr>
<tr>
<td>Output Devices</td>
<td>Students will:
i. Develop an awareness of the importance of output devices.</td>
<td>Output Devices
To get processed information from the computer, you need an output device.

Output means to show, print or store the results of the processed data. The most common forms of output are:

Softcopy
This is not permanent. It includes output from a computer Monitor, audio (sound) from speakers, etc.

Hardcopy
This is a permanent copy since it is printed for you to review away from the computer.

The Monitor</td>
<td>Defining the term ‘output’.

Listing examples of output Devices.

Categorizing the output device as:

<table><tr><th>Softcopy</th><th>Hardcopy</th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>
Writing definition for Monitor.

Listing the types of Monitors

Pasting pictures or drawing and labelling the different types of Monitors.
e.g. LCD Monitors
LED Monitors
OLED Monitors</td>
<td>Oxford Information Technology for CSEC
Third Edition
Page 15</td>
<td>Oral questioning</td>
</tr>
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CURRICULUM AREA: Information Technology **GRADE 7**

WEEK 17

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
Printers i. Impact Printers	Students will: i. State the purpose of printing devices.	**Printer** This device outputs a hard copy of your work. The choice of printer depends on the speed, quality, and quantity you want to print. Some printers perform the functions of a scanner, a photocopier, and a fax machine. Categories of Printers -Impact - Non-impact **Impact Printers** These strike a carbon or inked ribbon. They are noisy and do not print acceptable graphics. However, they are useful for printing multiple copies using carbon paper, and printing payroll or financial reports that require continuous sheets of paper perforated to tear into individual sheets. **Examples of impact printers are** Dot matrix, Daisy wheel, Train, and Line Printers	Recapping what is hardcopy. Writing definition for a Printer. Categorizing Printers as Impact and Non-impact. Listing characteristics of each type of printer.	Oxford Information Technology for CSEC Third Edition Page 16	Oral questioning

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WEEK 18

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
Printers (contd) i. Non-impact Printers	Students will: i. State the purpose of printing devices.	**Non-Impact** These form characters and graphics on paper by spraying ink or by using heat and pressure. Examples of **non-impact printers are** inkjet, laser, thermal, and Plotters. Inkjet printers use ink and Laser printers use toner. Printers also differ in the selection of text that they print at a time. It can vary between a character, a line, or a page. 3D Printers Three-dimensional (3D) printers are similar to Inkjet printers, but instead, a 3D model is created layer by layer, from bottom upward. However, instead of using ink as with the inkjet, the 3D printer uses melted plastic that sticks each layer to the previous one.	Listing characteristics of non-impact printers.	Oxford Information Technology for CSEC Third Edition Page 16	Oral questioning

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WEEK 19

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
i. Plotters ii. Audio Devices	Students will: i. State the purpose of Plotters and Audio devices.	**Plotters** A **Plotter uses** coloured pens or toner to draw an image on paper. The paper is handled in different ways depending on the type of Plotter. Flashed Plotters hold the paper still while the pens move. Drum Plotters roll the paper over a cylinder, while pinch roller Plotters are a mixture of the two. The advantage of a drum Plotter is that it can produce very large drawings. **Audio Devices** Most computers sold to homes and schools include a sound card. This allows both the recording (input) and playback (output) of sound. Microphones record sound while loudspeakers can play sound to a group of people, however, headphones are more popular for users who wish to listen to the sound without disturbing anyone around them.	Writing definition for Plotter. Discussing the uses of the Plotter. Identifying the types of Plotters. Identifying the types of audio devices.	Oxford Information Technology for CSEC Third Edition Page 17	Oral questioning

					WEEK 20
TOPIC/SUB-TOPIC	**GENERAL OBJECTIVE**	**CONTENT**	**ACTIVITY**	**RESOURCE**	**EVALUATION STRATEGY**
Primary Storage	Students will: Distinguish between Random Access Memory and Read Only Memory.	**Computer Storage** All computers need to store and retrieve data for processing. There are two categories of storage – primary and secondary **Primary Storage/Immediate Access Storage (IMAS)/ Main Memory** ROM –Read Only Memory RAM – Random Access Memory PROM – Programmable ROM EPROM – Erasable Programmable ROM **<u>Random Access Memory (RAM)</u>** 1. It is volatile or temporary. 2. The more RAM a system has, the more information it can handle. 3. RAM holds information that you send to the printer. 4. Extra RAM can be added to a system. 5. It is expensive and is a major determinant of the final price of a computer.	Group discussion on how the computer stores data. Listing the types of primary storage devices. Writing characteristics of RAM, ROM, and Hybrid Memory.	Oxford Information Technology for CSEC Third Edition Page 19	Oral questioning

Primary Storage (contd) i. Read Only Memory ii. Hybrid Memory	Students will: i. Distinguish between Random Access Memory and Read Only Memory.	**<u>Read Only Memory (ROM)</u>** 1. It is non-volatile or permanent. 2. It is essential for the operating system – it stores information that allows the computer to boot up. 3. The information is usually called Firmware. This is a set of instructions that tells the computer what to do when it starts up. 4. The information is fixed at the time the computer is manufactured. 5. Other variations of ROM chips are PROM and EPROM. **Hybrid Memory** These types of memory can be read and written as desired.		Oxford Information Technology for CSEC Third Edition Page 19	Oral questioning

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WEEK 21

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
Secondary Storage Devices ii. The Hard Drive	Students will: i. Categorize devices as Magnetic Media, Optical Media and Miniature Media.	**Secondary Storage** <u>Magnetic Media</u> ➢ Hard Disk Drive ➢ Magnetic Tape <u>Optical Media</u> ➢ CDs ➢ DVDs <u>Miniature Media</u> ➢ Flash Drives ➢ Flash Memory Cards **<u>The Hard Disk Drive</u>** The most common medium used to store data in a computer system is the HDD. In modern computers, the capacity of the HDD ranges from GB to TB. The speed of the HDD is expressed as data transfer rates or revolutions per minute (rpm). This measures the speed by which data can be transferred from the HDD to the CPU.	Listing the types of storage devices. Categorizing each device as Magnetic Media, Optical Media and Miniature Media Writing characteristics of the Hard Disk Drive.	Oxford Information Technology for CSEC Third Edition Page 21	Oral questioning

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WEEK 22

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
i. Removable Hard Disk Drive ii. Magnetic Tape	Students will: i. Understand the concept of Removable media such as Hard Disk Drive and Magnetic Tape.	**<u>Removable Hard Disk Drive</u>** This is a computer hard drive that is mounted in a special plastic or metal cartridge, enabling it to be removed and inserted into other computers with similar removable bays. **Advantages and disadvantages of removable media** Removable media can deliver fast data backup and recovery times associated with storage area networks. It can also help organizations meet corporate backup and recovery requirements because it is portable. Ransomware attacks can be transferred from computer to computer by removable media. **<u>Magnetic Tape</u>** This is also known as data tape and is commonly used for data archival purposes. It is used for off-site storage so that in the case of a disaster, such as a fire, the data could be retrieved from the tape.	Writing characteristics of a Removable Hard Disk Drive and Magnetic Tape. providing a picture of each device in students' notebooks.	Oxford Information Technology for CSEC Third Edition Page 21	Oral questioning

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WEEK 23

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
Optical Disks Compact Disc (CD)	Students will: i. Know what are optical disks and their uses.	**Optical Disks** Compact disk drives are also known as optical disk drives because they use lasers to store and read data. **Types of Optical Disks** (i) CD (Compact Disks) The audio CD plays your favourite music. There is another type of CD that is used only with computers. This is known as the CD-ROM (Compact Disk Read-Only Memory). CD-ROMs contain software or programs that are of the Write Once Read Many (WORM) variety. Compact Disk Recordable (CD-R) and Compact Disk Rewritable (CD-RW) are types of CDs that allow data to be written to (stored on) disks. However, the data on CD-RWs can also be erased. The CD-ROM allows you to access up to 650 MB of stored data.	Defining optical disks. Listing examples of optical disks. Discussing the types of CDs. Stating the capacity of the CD.	Oxford Information Technology for CSEC Third Edition Page 22	Oral questioning

					WEEK 24
TOPIC/SUB-TOPIC	**GENERAL OBJECTIVE**	**CONTENT**	**ACTIVITY**	**RESOURCE**	**EVALUATION STRATEGY**
ii. DVD	Students will: i. Know what are optical disks and their uses.	(ii) DVD (Digital Optical Disks) Digital Versatile Disks are used for storing any kind of digital data and gaming software. They can store much more data than CD-ROMs, enough that full-length feature films can be put on DVD. They are known for replacing the VHS cassette tapes which were used to distribute movies. A DVD-Video holds video programs and is played on a DVD player linked to a TV or Monitor. DVD-ROM, like CD-ROM, holds computer data and is read by a DVD-ROM drive linked to a computer. The massive storage capacity of DVDs (4.7 GB), coupled with the fact that digital technology produces better pictures, is the main reason DVDs replaced videotapes. Blu-ray Disks (BD) were designed to replace the DVD by storing several hours of video using a storage capacity of up to 25 GB. Its main use is for the distribution of video game software and feature films that can be viewed in high-definition resolution.	Defining optical disks. Listing examples of optical disks. Stating the capacity of the CD and DVD. Writing how to care for CDs and DVDs.	Oxford Information Technology for CSEC Third Edition Page 22	Oral questioning

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WEEK 25

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
i. Flash Memory Card ii. Flash Drives iii. Cloud Storage	Students will: i. Explain the uses of Flash Memory Cards, Flash Drives and Cloud-based Storage.	**Flash Memory Cards** These cards are inserted into digital cameras, video game conso1es,1aptop computers, MP4s, digital cameras, mobile phones and other music players. Mobile phones, for example, contain a Subscriber Identity Module, also called a SIM card, that stores the phone's unique number, along with data such as contact numbers and text messages. These cards vary in size, and their storage capacity ranges from 2 GB to 1 TB. **Flash Drives** These devices store large amounts of data, are low cost, non-volatile, lust (to read, but not to write), and electrically reprogrammable. **Cloud-based storage** involves the storage of data by users on multiple computers anywhere in the world. The exact location of this data is not known by its owners.	Identifying Flash Memory Cards, and Flash Drives. Stating the uses of each device. Writing the capacity of the devices. Defining Cloud-based Storage.	Oxford Information Technology for CSEC Third Edition Page 23	Oral questioning

					WEEK 26
TOPIC/SUB-TOPIC	**GENERAL OBJECTIVE**	**CONTENT**	**ACTIVITY**	**RESOURCE**	**EVALUATION STRATEGY**
Software Types	Students will: i. Demonstrate an understanding of system and application software.	**Definition of Software** These are programs that are installed in the computer system. There are two categories of software: - System Software - Application Software System Software is designed to control the performance of the hardware and facilitate the running of application software. There are three types of system software: i. Operating System ii. Utilities iii. Translators **Operating Systems** The Operating System monitor and coordinate software and hardware within a computer system.	Defining software. Listing examples of software. Categorizing the examples given into System and Application Software. Writing characteristics of each type of software.	Heinemann Information Technology for CSEC Page 34 - 35	Matching questions

					WEEK 26
TOPIC/SUB-TOPIC	**GENERAL OBJECTIVE**	**CONTENT**	**ACTIVITY**	**RESOURCE**	**EVALUATION STRATEGY**
i. Operating System	Students will: i. Demonstrate an understanding of system and application software.	The Operating System is the most important program and must be present in all computer systems for other programs to run. When a computer is switched on, the operating system is loaded into memory for the computer to start up. This processing is called BOOTING, Examples of Operating Systems: ✓ Windows 7, 11 ✓ UNIX ✓ Linux ✓ Mac OS	Defining Operating System Writing characteristics of the operating system. Listing examples of Operating Systems	Heinemann Information Technology for CSEC Page 34 - 35	Matching questions

<u>Other Suggested Teaching and Learning Activity To facilitate students' attainment of the objectives of this Section,</u>

Teachers/facilitators are encouraged to engage students in the teaching and learning activity below.

1. Research the name of the first operating system and the company that produced it.
2. Naming successor operating systems and companies that produce them.
3. Viewing logos of each operating system.

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WEEK 27

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
i. Utility Software	Students will: i. Demonstrate an understanding of system and application software.	**Utilities** Utility software is specialised software that tries to protect and maintain the system software Example: ✓ Disk Cleanup ✓ Disk defragmenter ✓ Anti-virus software ✓ Anti-spam Software ✓ Back-up software - ✓ Compression utility	Discussing the importance of Utility software. Listing examples of utility software.	Heinemann Information Technology for CSEC Page 34 - 35	Written Quiz

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WEEK 27

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
i. Translators	Students will: i. Demonstrate an understanding of system and application software.	**Translator/Language Processors** Computers understand only binary numbers. All other programming instructions have to be converted into binary or machine language. Translators are system software that converts other programming language instructions to machine language. Three main types of translators are: ✓ Assemblers ✓ Interpreters ✓ Compilers	Stating what are language processors. Listing examples of Language Processors.	Heinemann Information Technology for CSEC Pages 34 - 37	Written Quiz

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WEEK 28

<table>
<tr><th>TOPIC/SUB-TOPIC</th><th>GENERAL OBJECTIVE</th><th>CONTENT</th><th>ACTIVITY</th><th>RESOURCE</th><th>EVALUATION STRATEGY</th></tr>
<tr>
<td>i. Units of Computer Storage</td>
<td>Students will:
i. Understand how data is represented in the computer system.</td>
<td><u>Units of Computer Storage</u>

BIT – Binary digIT
This is a single unit of binary number – 1 or 0. It is also the smallest unit of computer storage.

Byte
A group of eight bits is called a byte.

<table>
<tr><th>Unit</th><th>Abbreviation</th><th>Actual Value</th></tr>
<tr><td>BIT</td><td>b</td><td>0 or 1</td></tr>
<tr><td>Byte</td><td>B</td><td>8 BITs</td></tr>
<tr><td>Kilobyte</td><td>kB</td><td>1024 bytes</td></tr>
<tr><td>Megabytes</td><td>MB</td><td>1024 kB</td></tr>
<tr><td>Gigabyte</td><td>GB</td><td>1024 MB</td></tr>
<tr><td>Terabytes</td><td>TB</td><td>1024 GB</td></tr>
</table>
</td>
<td>Discussing how data is represented in the computer system.

Writing definitions for BIT and Byte.

Explaining how the abbreviation BIT was derived.

Drawing table and inserting the necessary information based on the unit of computer storage, Abbreviation, and Actual Value.</td>
<td>Oxford Information Technology for CSEC
Third Edition

Page 20</td>
<td>Written work.</td>
</tr>
</table>

					WEEK 29
TOPIC/SUB-TOPIC	**GENERAL OBJECTIVE**	**CONTENT**	**ACTIVITY**	**RESOURCE**	**EVALUATION STRATEGY**
i. Application Software	Students will: i. Know the purpose of Application Software.	**Application Software** These are designed to solve specific problems or perform a particular task. **Types of application software are:** ● General Purpose Software These can be used by anyone. An example of this type of software is Microsoft Office Suite which includes Microsoft Word, Microsoft Excel, etc. ● Customised Customised software is general-purpose software that has been modified to perform specific tasks for the user. Word-processing, spreadsheet and database programs are examples of general-purpose software that can be customised by automating certain parts of the software or writing and adding programming modules to perform specific tasks.	Recapping by asking students to define software and then naming the type of software that was discussed previously. Stating what is application software. Discussing what are General Purpose and Customised software.	Oxford Information Technology for CSEC Third Edition Page 29	Oral Questioning

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WEEK 29

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
i. Application Software (contd)	Students will: i. Know the purpose of Application Software.	**Types of application software are:** ● Custom-written In contrast, custom-written software, which is also known as bespoke or tailormade software, is software written for use in specific organizations such as the military, in hospitals for medical equipment, or banks and other financial institutions. It also involves specific training, since users need to be able to use it efficiently. ● Specialised Specialised software is written solely for a specific task rather than a range of functions. Examples include the software on your mobile phone for your camera. It will only allow you to manipulate and share photos. Another example would be an online card game, which would only allow you to play that particular game.	Discussing what are custom-written and specialized software. Listing examples of the types of software.	Oxford Information Technology for CSEC Third Edition Page 29	Oral Questioning

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WEEK 30

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
i. User Interface (ii) Hardware Interface	Students will: i. Understand the purpose of the user interface.	User interfaces are found wherever digital technology exists. How you interact with and use this technology is controlled by the **Computer User Interface,** also known as the Human-Computer Interface (HCI). A user interface involves various ways of capturing or transferring data between a user and the computer system User interfaces can be categorized as (i) Hardware Interface (ii) Software Interface <u>Hardware Interface</u> These are special devices with additional features that will make the interaction much easier. Examples of Hardware Interfaces are: ● Special Keyboards ● Touchscreens ● Sensors ● Game controllers ● Digital Cameras	Discussing what is a User Interface. Naming the types of user interfaces. Stating what is a hardware interface. Listing examples of hardware interface devices.	Oxford Information Technology for CSEC Third Edition Page 31	Oral Questioning

					WEEK 31
TOPIC/SUB-TOPIC	**GENERAL OBJECTIVE**	**CONTENT**	**ACTIVITY**	**RESOURCE**	**EVALUATION STRATEGY**
i. Software Interface	Students will: i. Know what are software interfaces.	**Software interfaces** are available after the Operating System has been loaded, allowing the user to interact with the computer or device through an interface. Software interfaces include online forms for data entry, dialogue interfaces such as navigational systems in some vehicles, and Amazon's Alexa on the Talking Echo speaker unit. There are three main types of software interfaces: **Command-Line Interface** requires you to type in commands using a special language. This special language makes command-line interfaces difficult to use, especially for new computer users. **Menu-Driven Interface** A menu is a list of options from which you can choose what you want to do. Application programs use menus as an easy alternative to learning program commands. Menu-driven interfaces were developed to make the interface friendlier and easier to use.	Discussing what is the software interface. Listing the three main types of Software interfaces. Discussing each type of Software interface.	Oxford Information Technology for CSEC Third Edition Page 31	Oral Questioning

					WEEK 31
TOPIC/SUB-TOPIC	**GENERAL OBJECTIVE**	**CONTENT**	**ACTIVITY**	**RESOURCE**	**EVALUATION STRATEGY**
i. Software Interface	Students will: i. Know what is a Graphical User Interface.	**Graphical User Interface** Computers today have a **Graphical User Interface (GUI)** installed because it is presently regarded as the type of user interface which is easiest to use. The main features of a GUI include its ease of use for beginners, and its ability to cut and paste or 'drag and drop' data and files among applications. However, GUIs require a of memory, which can slow processing time. Sometimes simple tasks take longer than necessary because of the number of functions or steps required. A GUI comprises Windows, Icons, Menus and Pointers also called **WIMP.**	Stating what the abbreviation GUI means. Listing what the GUI comprises. Discussing the features of the GUI.	Oxford Information Technology for CSEC Third Edition Page 31	Oral Questioning
	ii. troubleshoot basic computer hardware problems	Cable, Monitor, Printer, and battery problems.	Discussing and fixing some of the common computer hardware problems. For example, the Printer is not printing. Checking cable connection, ink levels, etc.	Computer systems	Practical Work

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WEEK 32

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
Information Processing Fundamentals	Students will: i. Know definitions of given computer terms.	Definitions of the following computer terms: ● Data ● Information ● Peripheral Devices ● Cloud Storage ● Character ● Hardcopy ● Softcopy Sources of Data: Document Types: ● Turnaround document ● Human readable ● Machine-readable	Compile a list of computer terms in alphabetical order. Identifying sources of data. Stating what is a turnaround, human-readable and machine-readable documents.	Oxford Information Technology for CSEC Third Edition Page 40 Oxford Information Technology for CSEC Third Edition Page 46	Oral Questioning

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WEEK 33

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
The reliability of information obtained from online sources. Validation and verification of data.	Students will: i. Evaluate the reliability of information obtained from online sources. ii. differentiate between validation and verification of data.	Evaluation of information retrieved electronically for authenticity, currency, relevance, and bias. Six (6) criteria should be applied when evaluating any Web site: **authority, accuracy, objectivity, currency, coverage, and appearance**. Data Validation is the computerized checking of data for errors. Data Verification is checking for mistakes such as transcription errors when data is copied from one medium or device to another	Discussing evaluation skills to assist in identifying quality web pages. Differentiating between data validation and data verification	Evaluating Internet Sources | Lydia M. Olson Library (nmu.edu) Oxford Information Technology for CSEC Third Edition Page 42	Oral Questioning

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WEEK 34

TOPIC/SUB-TOPIC	GENERAL OBJECTIVE	CONTENT	ACTIVITY	RESOURCE	EVALUATION STRATEGY
Validation and Verification checks	Students will: i. Know what validation or verification checks should be carried out for a given scenario.	Methods of validation: range checks, reasonableness checks, data type checks, consistency checks, presence, format, and length. Methods of verification: double entry and proofreading (to identify and correct typographical and transpositional errors	Discussing the methods of validation. For example range checks, reasonableness checks, data type checks, consistency checks, presence, format, and length. Discussing the different methods of verification: For example, double entry and proofreading (to identify and correct typographical and transpositional errors)	Oxford Information Technology for CSEC Third Edition Page 42	Oral Questioning

					WEEK 35
TOPIC/SUB-TOPIC	**GENERAL OBJECTIVE**	**CONTENT**	**ACTIVITY**	**RESOURCE**	**EVALUATION STRATEGY**
File Organization	Students will: i. Select the appropriate file organization for a particular application.	File Access Methods ● Sequential ● Serial ● Direct ● Random Application areas: ● Archiving ● Payroll file ● Real-time systems	Defining terms such as field, record, and data file. Listing characteristics of a file. Discussing the various file access methods.	Oxford Information Technology for CSEC Third Edition Page 49 - 59	Oral Questioning