COMPUTER STUDIES
FOR
SENIOR SECONDARY SCHOOL

SENIOR SECONDARY SCHOOL 1-3

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FOREWORD

The Nigerian Educational Research and Development Council (NERDC) has the mandate to develop curricula for use at all levels of the educational system in Nigeria. In line with government reform in education the NERDC was directed by the National Council on Education (NCE) to re-view and re-align the existing senior secondary school curricula to meet the targets of the reform in the context of National Economic Empowerment and Development Strategies (NEEDS) and the Millennium Development Goals (MDG). I am pleased to note that the NERDC has developed the Senior Secondary School Curriculum.

It is therefore for me, a great privilege to present the curricula to all Nigerians for the use of our children now and in the future. I must congratulate all those who contributed to the development of these curricula. I wish to thank most especially the Nigerian Educational Research and Development Council for keeping faith with its mandate, the High Level Policy Committee on Curriculum Development for preparing the policy grounds for the curricula, and the resource person for a job well done.

It is my fervent hope that the teachers and learners for whom these curricula are produced would demonstrate commitment and assiduity in using these curricula. This is a proud legacy to leave for posterity.

With great expectations, I gladly recommend these curricula to all for the purpose of producing the best textual materials, the best in teaching performance and the best learning outcome, and most importantly, for attaining the goals we have set for ourselves in education in line with the Millennium Development Goals (MDGS) and in compliance with the National Economic Empowerment and Development Strategies (NEEDS).

DR. Sam Omiyi Egwu
Honourable Minister of Education,
Abuja.

PREFACE

Following the Federal Government reform in education and the need to attain the Millennium Development Goals (MDGs) and the critical targets of the National Economic Empowerment and Development Strategies (NEEDS), which can be summarized as: value - reorientation, poverty eradication, job creation, wealth generation and using education to empower the people, it has become imperative that the existing curricula for senior secondary school curricula should be reviewed and re-aligned to fit the reform programme. The National Council on Education (NCE) at its meeting in Ibadan in December 2005, directed the NERDC to carry out this assignment. The NCE also approved a new Senior Secondary School curriculum structure namely: Senior Secondary School (Science and Mathematics), Senior Secondary School (Humanities), Senior Secondary School (Business) and Senior Secondary School (Technology), listing relevant subjects for each Stream.

In response to these developments, a High Level Policy Committee on Curriculum Development (HLPC), made up of critical stakeholders and chaired by NERDC, took the initiative to provide the guidelines for re-structuring the curriculum.

Between January 2007 and March 2008, the NERDC convened a meeting of experts and also organized several workshops to produce the Senior Secondary School Curriculum, which would ensure continuity and flow of themes, topics and experiences from Senior Secondary one to Senior Secondary School junior secondary three levels.

The Curriculum reflects depth, appropriateness, and interrelatedness of the curricula contents. Also, emerging issues which covered value orientation, peace and dialogue, including human rights education, family life/HIV and AIDS education, entrepreneurial skills et cetera were infused into the relevant contents of the new Senior Secondary School Curriculum.

In general, the curriculum pays particular attention to the achievement of the Millennium Development Goals (MDGs) and the critical elements of the National Economic Empowerment and Development Strategies (NEEDS).
Since the curriculum represents the total experiences to which all learners must be exposed, the contents, performance objectives, activities for both teachers and learners, teaching and learning materials and evaluation guide are provided. The prescriptions represent the minimum content to be taught in the schools in order to achieve the objectives of the new Senior Secondary School programme. However, teachers are encouraged to enrich the contents with relevant materials and information from their immediate environment, but adapting the curriculum to their needs and aspirations. Thus the curriculum can be adapted for such special needs as nomadic education, non-formal education and education of the physically challenged.
In conclusion, I wish to express profound gratitude to the President of the Federal Republic of Nigeria, Umaru Musa Yar'Adua, for his

vision and tenacity and his financial support for the review and effective implementation of the Senior Secondary School Curriculum"at all levels; all of Which came through the funds allocated to the attainment of the MDGs.

I acknowledge the efforts of the Curriculum Development Centre of the NERDC which coordinated the various activities and workshops that led to the development of the Senior Secondary School Curriculum. The planning, writing and critique teams which were drawn from all parts of this country also deserve commendation.

It is our belief that when these curricula are properly implemented, the future generations of this great country will be better for it.

Prof. Godswill Obioma fman, fiica, fcon, fnae
Executive Secretary
NERDC

COMPUTER STUDIES CURRICULUM - SS 1

TOPICS FOR SENIOR SECONDARY SCHOOL 1 (SS 1)

THEME: FUNDAMENTALS OF COMPUTER

1. Overview of Computer system
2. Data and Information

THEME: COMPUTER EVOLUTION

3. Computing Devices I (Pre-computer age to 19th century.)
4. Computing Devices II (20th century - date)

THEME: COMPUTER HARDWARE

5. Input Devices
6. Output Devices

THEME: COMPUTER SOFTWARE

7. System Software
8. Application Software

THEME: DEVELOPING PROBLEM-SOLVING SKILLS

9. Programming language
10. BASIC Programming

THEME: INFORMATION AND COMMUNICATIONS TECHNOLOGY

11. Communication System
12. Application Areas of ICT

THEME: OPERATING COMPUTER

13. Computer Operation

THEME: COMPUTER APPLICATIONS

14. Word Processing
15. Presentation Package

THEME : FUNDAMENTALS OF COMPUTER

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
1. Overview of computer system	Student should be able to: I. Define computer 2. Classify computer into hardware and software 3. List examples of hardware and software. 4. State the characteristics of a computer 5. Recognize a computer set	1. Definition of a computer 2. Two main constituents of a computer (i) computer hardware (ii) computer software 3. Computer hardware - (i) System unit (ii) Peripherals 4. Computer software - (i) Systems software (ii) Applications Software 5. Characteristics of a Computer	1. Lead students to define computer. 2. Guide students to states the two broad classes of computer 3. Lists example of hardware and software. 4. States characteristics of a computer 5. Displays a computer set 6. Writes notes on chalkboard	1. Participate in class discussions 2. Identify various parts of hardware and software 3. Identify a computer set as electronic machine 4. Copy summary notes from chalkboard to their notes.	1. A Computer set 2. Parts of computer 3. Charts 4. Pictures	Students to: I. Define a computer machine 2. State the two broad classes of a computer set 3. State three characteristics of a computer 4. List two functional parts of a computer
2. Data and Information	Students should be able to: 1. Define data and information 2. State the differences between data and information	1. Definition of data and information 2. Differences between data and information 3. Examples of data and information	1. Lead students to define data and information 2. States differences between data and information 3. Lists example of data and information	1. Participate in class discussions 2. Identify data as written by the teacher. 3. Observe the keyboard letter arrangement as data.	1. Computer 2. Charts 3. Printed materials	Students to: 1. Define data and information 2. State two differences between data and information

THEME : INTERACTION OF MATTER, SPACE AND TIME

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALU GU
			TEACHER	STUDENTS		
	3. State examples of data and information		4. Displays key arrangement on the keyboard as a type of data 5. Guides students to type in alphabets or numbers in a related form into computer as information 6. Writes notes on the chalkboard	4. Enter data into data and information 5. Copy notes from the chalkboard		

THEME: COMPUTER EVOLUTION

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
3. Computing devices 1 (Pre-computer age to 19th century)	Students should be able to: 1. State features of each of the pre- computer age to 19th century computing devices 2. List their components 3. State their uses	Features, components and uses of: (i) Abacus (ii) Slide rule (iii) Napier's bone (iv) Pascal's calculator (v) Leibnitz multiplier (vi) Jacquard's 100m (vii) Charles Babbage (viii) Analytical Engine (xi) Hollerith Census Machine (x) Burrough's Machine	1. Guide students to states the features of each computing device 2.Displays their components to students 3. States-their uses. 4. Writes notes on the chalkboard	1.Identifiy the size and components of each device 2. Participate in class discussions 3. Copy notes from chalkboard	1. Charts 2. Pictures 3. Any available pre-computer age computing devices	Students to: 1. List Four 19th century computing devices 2. State two features of abacus and Hollerith machine 3 Compare the features of Pascal and Leibnitz Multiplier.
4. Computing devices II (20th Century to date)	Students should be able to: 1. State feature of each of-the 20th century computing devices . 2.List their components 3.State their uses	Feature, components and uses of:: (i) ENIAC (ii) EDV AC (iii) UNIVAC 1 (iv) Desktop Personal Computers (v) Laptop & Notebook computers (vi) Palm Top computer	1. States the features of each computing device 2.Display their components to students 3. States their uses. 4. Writes notes on the chalkboard	1. Identify the size and components of each device 2. Copy notes from chalkboard	1. Desktop computers 2. Laptops 3. Palmtops 4. Charts 5. Pictures	Students to: 1. List Four 19th century computing devices 2.State two features of abacus and Hollerith machine 3 Compare the features of Pascal and Leibnitz multiplier.

THEME: COMPUTER HARDWARE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
5. Input Devices	I. Define input device 2. List input devices 3. State the features and uses of keyboard 4. Operate the keyboard 5. State the features and uses of mouse 6. State how the mouse works 7. Operate the mouse	1. Definition of input devices 2. Types of input devices: ● Keyboard ● Mouse ● Scanner ● Microphone ● Joystick ● Card readers ● Light pen ● Digital camera ● Etc 3. Keyboard ● Structure and function ● Keys on the keyboard - Function keys - Numeric keys - Alphabetic keys - Special character keys - Cursor control keys - Command keys - Etc 4. Mouse - features, functions and operation	I. Leads students to define an input device 2.Displays input devices to students 3.Leads students to list input devices 4.Displays keyboard and mouse in the class for students 5.Guides students to operate the keyboard, mouse and scanner 6. Writes notes on the chalkboard	1. Participate in class discussions. 2. Identify various input devices as displayed in class 3. Identify the keyboard and its features 4. Identify the mouse and its Features 5. Operate the keyboard and mouse 6. Copy Summary notes from the chalkboard	1. Keyboard 2. Mouse 3. Scanner 4. Microphone 5. Joystick 6. Light pen 7. Card reader 8. Digital camera	Student to: 1. Define Input device 2. List two types of input devices 3. State two differen between keyboard and mouse 4. State one common card reader in use today 5. Operate keyboard the mouse.

THEME : COMPUTER HARDWARE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
6. Output Devices	Students should be able to: 1. Define output devices 2. List output devices 3. State the features and uses of monitors 4. Power on the monitor 5. State the types of printer with examples 6. State the differences between impact and non-impact printer 7. Operate the printer	1. Definition of output devices 2. Features and uses of output devices: • Monitor • Printer • Speaker • Plotter 3. Monitor - structure, types and functions: • Type - Monochrome - Color 4. Printer types • Impact - Dot-Matrix printers - Line printers - Character printers • Non-Impact Inkjet printers Laser printers Thermal printers 5. Comparative study of common printer	1 Leads students to define output devices 2 Displays the out put devices in class for students. 3. Leads students to list output devices 4. States the features of monitors and printer 5. Guides students to 'switch on' the mouse 6. Guides students to operate the printer 7. Writes notes on the chalkboard	1. Participate in class discussions 2. Identify the output devices as displayed 3. Switch on the monitor 4. Operate the printer under teacher's guidance 5. Copy notes from the chalkboard into their notes	1. Monitor 2. Microphone 3. Speakers 4. Printer 5. Charts	Student to: 1. State two features of a monitor 2, State two difference between the monitor and printer. 3. State one use of the monitor.

THEME: BASIC CONCEPT OF COMPUTER SOFTWARE

TOPIC	PERFOR MANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
7. Computer System Software	Students should be able to: 1. Define software 2. List the types of software 3. List different types of systems software 4. State examples of system software	1. Definition of software 2. Types of software • Systems software • Applications software 3. Systems software : - Operating Systems - Translators - Tools/Utility programs 4. Examples of Operating Systems • Graphical User Interface (GUI) - Microsoft Windows - Linux . • Command Line - Unix - Microsoft Disk Operating System (MS-DOS) 5. Examples of Translators • Assemblers • Compilers • Interpreters 6. Examples of Utility Programs . • Editors • Anti-virus	1. Leads students to define computer software 2. Leads students to list two types of software 3. Guides students to name different types of software 4. Leads students to state example of system software. 5. Leads students to list examples of operating system 6. Displays operating system environment on the screen 7. Displays software packages in disks if available 8. Writes notes on the chalkboard	1. Participate in class discussions. 2. Identify operating systems displayed on the screen. 3. Identify DOS directory at the C. Prompt 4. Copy notes from the chalkboard into their notes	1. Computer with Windows or Unix O. S. Installed. 2. Chart 3. Pictures	Students to: 1. Define, computer software 2. List two types of computer software. 3. State two examples of system software 4. List two types of operating systems 5. List examples of operating system 6. List two examples of translators.

DEVELOPING PROBLEM-SOLVING SKINGS

C	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
ting on	Students should be able to: I. Define application software 2. State two types of application software 3. List major categories of application packages 4. List packages for specialised areas.	1. Definition of applications software 2. Types of applications software • User application program (programs written by the users) • Application packages 3. Categories of application packages: • Word processing • Spreadsheet • Database • Graphics • Games 4. Packages for specialised areas: • Accounting software • Payroll programs . • Banking software • Educational management software • Statistical packages • Hospital management software • Etc	1. Leads student to define application software 2. Guide students to state types of application software. 3. Lead students to state categories of . application packages 4. Leads students to list packages for specialized areas 5. Displays application packages of 6. Writes note on the chalkboard.	1. Participate in class discussion. 2. Identify application packages as displayed 3. Copy notes from the chalkboard	1. Application packages 2. Charts 3. Pictures	Students to: 1. Define application software 2. State types of application software 3. List three application packages for specialized areas

THEME: DEVELOPING PROBLEM-SOLVING SKINGS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
9. Programming Language	1. Define Programming language 2. List levels of programming language 3. Describe the features of each level 4. List example of programming languages 5. Compare various levels of programming languages	1. Definition of programming language 2. Levels of programming language: • Machine Language (ML) • Low Level Language (LLL) • High Level Language (HLL) 3. Features of each level: 4. Examples of programming languages 5. Comparison of levels of programming languages	1. Leads students to define programming language 2. Displays a stored programming language on the screen 3. States the various' programming language levels 4. Describe features of each programming language level. 5. Lists examples of programming languages 6. Guides students to compare the various levels of programming languages 7. Write notes on the chalkboard.	I. Identify a programming language, if displayed on the screen 2. Identify the different levels of programming language 3. Describe the features of each level of programming language. 4. Copy notes from the chalkboard into their notes	1. Computer 2. A high level language stored or installed (e.g. BASIC environment) 3. Charts	Students to: 1. Define programming language 2. List three levels of programming language 3. List two features of machine language 4. State two advantages of machine level language over high level language 5. State two disadvantages of machine language

THEME: DEVELOPING PROBLEM-SOLVING SKINGS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
10. BASIC Programme Language	Students should be able to: 1. State the full meaning of 'BASIC' 2. List BASIC character setting 3.. List some BASIC statements 4. List BASIC arithmetic operators 5. Write BASIC notations for arithmetic expressions 6. Write simple BASIC programs	1. Meaning of "BASIC' - Beginners All-purpose Symbolic Instructional Code 2. BASIC character 3. BASIC statements: • LET, READ, 'INPUT, DATA, END PRINT 4. BASIC Arithmetic operators 5. BASIC Arithmetic expressions 6. Evaluation of arithmetic expressions 7. Simple BASIC	1. Leads students to state full meaning of 'BASIC' 2. Lists BASIC character set 3. Lists some BASIC statements 4. Lists arithmetic operators in BASIC 5. Writes BASIC notations for arithmetic expressions. 6. Leads students to write simple BASIC program 7. Guides students to run BASIC program on computer 8. Writes notes on the chalkboard	1. State full meaning of 'BASIC' 2. List BASIC character sets and some BASIC statements 3.. Write simple BASIC program 4. Run BASIC. program in the computer 5 Copy notes from the chalkboard to their notes	Computer with BASIC program installed Charts	Students to: 1. State the full meaning 'BASIC' 2. List three BASIC statements List three BASIC character sets 4. Write three arithmetic expression in BASIC 5. Write a BASIC program to calculate the area of a rectangle

THEME: INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT)

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
11. Communication Systems	Students should be able to 1.State the full meaning of 'ICT' 2. State the types of ICT 3. List types of broadcasting 4. List types of telecommunications cations systems 5. List types of data network	1. Full meaning of 'ICT' 2. Types of ICT • Broadcasting • Telecommunications • Data Networks • Information systems • Satellite communications 3. Broadcasting: • Radio broadcasting • Television broadcasting • Satellite TV systems 4. Telecommunications • Public Switched Telephone • Network (PSTN) - Land line • Mobile phone system (GSM) • Circuit Switched Packet Telephone systems (CSPT) • Satellite telehone system • Fixed Wireless Telephone system	I. Leads students to state the full meaning of 'ICT' 2. States types of communications 3. List types of broadcasting 4. Displays available ICT gadgets, radio, television and computer 5. Shows satellite dish in an out-of-class activity 6. Writes notes on the chalkboard	1. Participate in class discussions 2. Identify ICT gadgets 3. Access information on internet or other information devices 4. Copy notes from the chalkboard	1. Computer 2. Radio 3. Television 4. Internet facility 5. GSM phone 6. Fax machine	Students to: I. State the full meaning of 'I.CT' 2. Mention three types of'ICT' 3. List two types of broadcasting 5. List two types of telecommunicatio ns system 5. List two types of data network 6. List two types of information systems

SS 1

THEME : INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
	1. List types of information systems.	5. Data networks • Personal Area Network (PAN) • Local Area Network (LAN) • Metropolitan Area Network (MAN) • Wide Area Network (W AN) Internet 6. Information systems • Data processing system • Global Positioning System (GPS)				

THEME : INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
12, Application Areas of ICT	Students should be able to: 1. State the application of ICT 2. List ICT- bssed Gadgets 3. Operate ICT-bssed gadgetss.	1. Applications of ICT • Teleconferencing • Video conferencing • Tele-presence • Telecommunicatio and networking • Telecomputing • Messaging • Information search, retrieval and archival 2. ICT - based Gadgets • Mobile phones • Computer • Fax machines • Automated Teller Machine (ATM) • Dispensing machines • Point of Sale Machine - Automated Cash Register (ACR) • Radio sets • Television sets, etc 3. Operation of ICT-based gadgets	I. Leads students to list ICT application areas 2. Leads students to list ICT -based gadgets 3. Displays ICT -based gadgets 4. Guides students to operate ICT - based gadgets 5. Writes notes on the chalkboard	1. Identify application areas of ICT in an out- of-class activity or through internet or on pictures 2. Identify ICT - based gadgets 3. Operate ICT-based gadgets under teacher's supervision 4. Copy notes from the chalkboard	1. Computer 2. Television 3. Internet 4. ICT - based gadgets available	Student to: I. State two areas of application of ICT 2. List two ICT -based gadgets 3. State two uses of Specified ICT - based gadgets. 4. State difference between teleconferencing and video-conferencing 5. Demonstrate the operation of a given ICT - based gadget.

THEME: OPERATING THE COMPUTER

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
13. Basic Computer Operation	1. Describe the booting process 1. List types of booting 3. Start-up a computer 4. Identify components of the desktop 5. Run an application program 6. Shutdown the computer	1. Description of the booting process 2. Types of booting: • Cold • Warm 3. Components of the windows desktop • Icons • Task bar • Background 4. Running an application programme e.g. Microsoft Word 5. The process of shutting down the computer	1. Leads students to describe booting process. 2. Leads students tolist types of booting. 3. Displays computer' set in the class 4. Guides students to start up the computer 5. Leads students to observe booting process 6. Leads students to identify icons on the desktop 7. Guides student to run an application program in the computer. 8. Writes notes on the chalkboard	1. Participate in class discussion 2. Power the computer under the supervision of the teacher 3. Observe light blinking as booting continues 4. Run application program under . teacher's supervision 5. Copy notes from the chalkboard	1. Computer 2. Power source	Students to: 1. Describe the booting process 2. State two types of booting. 3. Outline steps for cold booting. 4. State two difference between cold booting and warm booting

THEME: COMPUTER APPLICATIONS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
14. Word Processing	Students should be able to: 1. `Define word processing and word processor 2. List examples of Word processors 3. List the features of a typical Word processor. 4. Identify the features of a Word processing environment	1. Definition of Word processing and word processor 2. Examples of word processor s: - Microsoft word - cord word perfect - word star etc 3. Features of word processors 4. Word processing environment 5. Using a word processor to: • Create • Edit • Format • Save • Retrieve • Print • Close	1. Leads students to define word processing and word processor 2. Lists examples of word processors. 3. States the features of a word processor 4. Displays computer in the class show features in a word processing environment. 5. Guides Students to open a word processing application 6. Guides student to carry out basic operations on word processing hands-on-experience (h-o-e) 7. `Writes notes on the chalkboard for students	1. Participate in class discussions 2. Open word processing environment under teacher's. Supervision 3. Carry out basic word processing operations hands - on-experience (h- o-e) 4. Create document 5 . Edit document. 6 Save document 7. Close document file 8.. `Exit word processor 9. Copy notes from chalkboard	1. Computer 2. Word processing packages	Student to: 1. Define: (a) word processing (b) word processor 2. List two example of word processors 3. State features of a word processor. 4. List steps involved in running a word processor 5. State three basic operation that can be carried out using word processor

IEME : COMPUTER APPLICATIONS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
5. Presentation ackage	Students should be able to: 1. Define presentation packages 2. Name a presentation package 3. List the features of a presentation package	L Definition of presentation package 2. Examples of presentation packages • Microsoft power Point 3. Features of a presentation package: • Creation of slides • Insertion of pictures • Insertion of video and audio • Animation • Slide shows • Creation of graphics • Creating of organizational and other charts	1. Leads students to define and list presentation package 2. States the features of a presentation package 3. Display a computer set 4. Run presentation program(e.g. power point) 5. Guides students to identify the features of a presentation program 6. Leads students to carry out basic operation on presentation program	1. Identify a presentation program environment. 2. Run the program 3. Carry out simple presentation operation with Power point	1. Computer 2. Presentation package (e.g. PowerPoint)	Students to: 1. State two features of a presentation program 2. State the use of a presentation package 3. Outline steps involved in animation

THEME : COMPUTER APPLICATIONS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
		4. Using presentation package -MS PowerPoint: ● Open the application ● Create a new presentation ● Insert slide contents - Text - Graphics - Pictures ● Animate contents ● Add new slides ● Save presentation ● Run slide show ● Print presentation ● Close presentation ● Close application				

COMPUTER STUDIES CURRICULUM - SS 2

TOPICS FOR SENIOR SECONDARY SCHOOL II (SS II)

THEME: COMPUTER HARDWARE

1. The Central Processing Unit (CPU)
2. Memory Unit
3. Logic Circuit (I)
4. Logic Circuit (II)

THEME: BASIC COMPUTER OPERATIONS

5. Computer Data Conversion

THEME: HANDLING COMPUTER FILES

6. Computer files ..
7. Managing Computer files

THEME: COMPUTER APPLICATIONS

8. Word Processing.

THEME: DEVELOPING PROBLEM-SOLVING SKILLS

9. System Development Cycle
10. Program Development
11. Algorithms & Flowcharts
12. BASIC Programming II

THEME: INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)

13. Internet
14. Electronic Mail Services

SS 2

THEME: BASIC CONCEPT OF COMPUTER HARDWARE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
1. Central Processing Unit (CPU)	1. List the components of the CPU 2. State the functions of the ALU and Control Unit	1. Central Processing Unit: • Arithmetic and Logic Unit (ALU) • Control Unit 2. Functions of: • ALU • Control Unit	I. Leads students to list CPU components 2. States functions of ALU &control unit 3. Write notes on the chalkboard	I. Identify each component in an open up CPU 2. Participate in class discussion. 3. Copy notes from the chalkboard	1. Computer 2. Chart 3. Pictures	Students to: I. List the components of the CPU 2. State two functions of the ALU 3. State two functions of the control unit
2. Memory Unit	Students should be able to: 1. State the types of memory 2. Describe primary and Secondary memory 3. State differences between primary and secondary memory.	1. Types of memory: • Primary Memory (Main Memory) • Secondary memory (Auxiliary Storage Devices) 2. Description of - Primary Memory: • Random Access Memory (RAM) • Read Only Memory (ROM) - Secondary Memory . • Floppy Disk • Hard Disk • Flash Drive • Compact Disk (CD) • Digital Video Disk (DVD)	1. Leads students to list types of memory 2. Describes each memory component 3. Displays each component using memory chips in the system unit	1. Identify each main memory compound. 2. Identify each secondary storage device 3. Copy notes on the chalkboard	1. Computer 2. Memory chips 3. Floppy disk 4. Hard disk 5. Flash drive 6. Compact disk 7. DVD	Students to: 1 State two types of main memory 2. List three examples of secondary storage 3 Convert 1.44MB to bytes 4. Draw and label floppy disk:

THEME : BASIC CONCEPT OF COMPUTER HARDWARE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
	4. State the units of storage 5. Convert from one unit to the other 6. List auxiliary storage devices. 7. Compare auxiliary storage devices	3. Differences between primary and secondary memory 4. Units of storage • Bits • Nibble • Bytes • Kilobytes (KB) . • Megabytes (MB) . • Gigabytes (GB) . • Terabytes (TB) 5. Conversion from one unit to the other 6. Comparison of Auxiliary . Storage Devices under: • Size • Speed • Technology (optical, magnetic and semiconductor)	4. Displays auxiliary storage devices as secondary storage 5. State differences between primary and secondary memory 6. Leads students to : compare presently available storage devices (size, memory capacity, etc) 7. Leads students to carry out simple arithmetic on conversion from one unit to the other 8. Writes notes on the chalkboard.			5.`State two differences between floppy disk and compact disk (CD)

HEME: COMPUTER HARDWARE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
3. Logis Circuits *I* *(Standard single logic gates)*	Students should be able to: 1). Define logic gate. 2). List types of logic gates 3). Identify symbols of each logic gate 4). Recognize and state the in/output signals of each logic gate 5). Construct table for each logic gate.. 6). Write simple equation for each logic gate **7). State the differences in the standard logic gates**	1). Definition of logic gate. 2). Types of logic gates: AND, NOT, OR, 3). Symbol. of each logic Kate: 4). Input/output signals for: AND, NOT, OR gates 5). Truth table construction for: AND. NOT, OR 6). Equation for: AND, NOT, OR gates 7). Used of logic gates: - As building blocks for Hardware/electronic Components.	1. Leads students to define logic gate. 2. Guides Students to list types of Logic gates 3). Displays symbols of logic gates on a chart 4). Guides students to identify the signals in each gate symbol 5). Guides students to construct truth table for each gate. 6). Writes logic equations **7). Leads students to state the differences among the three gates.** **8). Writes notes on the chalkboard**	1). Listen to teacher's definition. 2). List types of standard logic gates. 3). Identify the signals. 4). Recognize and draw each symbol for AND, NOT, OR. 5). Construct truth table for each gate. 6). Copy summary from chalkboard into their notes **7). Participate in class discussion.**	Charts Computer Text materials	Students to: 1). Define logic gate. 2). List three types of standard single logic gates 3). Construct a truth table for: (i) AND gate (ii)OR gate 4). State two differences between AND gate and NOT gate 5). Write logic equation for **(a) NOT gate** **(b) AND gagte**

THEME : COMPUTER HARDWARE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
4. Logic Circuits *II* *(Alternative logic gates)*	Students should be able to:- 1). Describe alternative logic gates. 2). List types of alternative logic gates 3). Identify symbols of each logic gate 4). Recognize and state the in/output signals of each logic gate 5). Construct truth table for each logic gate. 6). Write simple equation for each logic gate 7). State the uses of logic gates 8). Construct a simple comparator using XOR	1). Description of alternative logic gate. 2). Types of alternative logic gates: NAND, NOR 3). Symbols of each logic gate: 4). Input/output signals for: NAND, NOR gates 5). Truth table construction for: NAND, NOR, 6). Equation for: NAND, NOR, gates 7). Uses of logic gates: (i) As building blocks for Hardware/electronic Components, etc 8). Construction of simple comparator	1). Leads students to describe alternative logic gates. 2). Guides students to list types of alternative logic gates, 3). Displays symbols. of the logic gates on a chart 4). Guides students to identify the signals in each gate symbol 5). Guides students to construct truth table for each gate. 6). Writes logic equations for each 7). Leads students to state the uses of logic gates. 8). Illustrates how to construct a simple comparator	1). Listen to teacher's description 2). List types of standard logic gates alternative. 3). Identify the signals. 4). Recognize and draw each symbol for NAND, NOR, gates. 5). Construct truth table for each gate. 6). Copy summary, from chalkboard into their notes 7). Participate in class discussion. 8). Construct a simple comparator	Charts Computer Text materials	Students to: 1). Describe a named- example of an alternative logic gate 2). List two types of standard alternative logic gates 3). Construct a truth table for: (i) NAND gate (ii) NOR gate 4). State two differences between NAND gate and NOR gate 5). Construct a simple comparator using (i). NOR/NAND (ii). XOR gates XOR gate

HEME: BASIC COMPUTER OPERATION

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
5). Computer Data Conversion	Students should be able to: 1). Define the terms 'registet' 'address' and business 2). List types of register & their functions 3). State differences between register and main memory 4). Outline the operating procedure of computer data processing. 5). State factors affecting speed of data transfer	1). Definition of: (i). Register (ii). Address (iii) Bus 2a). Types of registers: (i). MDR (ii). CIR (iii). SQR b).Function of each register to be stated. 3). Differences between register and main memory 4). Outline steps in 'data-fetch-execute' cycle in a simple form. 5). Factors affecting speed of data transfer: (i). Bus speed (ii). Bus width	1). Leads students to define each term. 2). Guides students to list types of registers. 3). States function of each register. 4). Guides students to identify differences between register and main memory 5). Outlines steps in data conversion by computer. 6). States factors affecting data transfer 7. Write notes on the chalkboard	1). Listen to teacher's definitions. 2). List types of registers. .3),.Identify the differences between register and main memory 4). Participate in class discussion. 5). Copy summary from chalkboard into their notes	Charts Computer Text materials	Students to: I). Define: (i) Register (ii). Bus 2). List three types of register 3). State one function of: (i). MDR (ii). CIR 4). State two differences between register and main memory 5). List factor: affecting space of data transfer

THEME: HANDLING COMPUTER FILES

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
	7). List computer file classifications 8).State criteria for classifying computer files .	6). File classification: (i). Master file (ii). Transaction file (iii). Reference file 7). Criteria for classifying files: (i). Nature of content (ii). Organization method (iii). Storage medium				
7. Handling Computer Files	Students should be able to: 1). List basic operations on file 2). Create a sequential file 3). Access a sequential file 4). Read and display content of file 5). Describe file insecurity. 6). State effect of insecurity of files 7). State methods for file security.	1).Basic operations on computer files: (i). Creation (ii). Deletion (iii). Retrieval (iv). Copy (v). View, (vi). Update (vii). Open (viii). Close 2). Steps involved in creating sequential file, e.g. EXAMFILE with Math$ & Eng$ Hands-on-experience (H-O-E) using BASIC file processing statements. 3). Steps involved in accessing sequential file above using BASIC file processing statements	1). Guides students to list basic operation in file handing. 2. Outlines Steps involved in file creation using BASIC processing statements. 3. Outlines steps involved in files accessing, using BASIC processing statements. 4. Display an existing file in computer	1). Listen to teacher's explanations. 2). Participate in class discussions. 3). Carry out H-O-E to practice basic operations on an open file. 4). Copy summary from chalkboard into their notes	Charts Computer Text materials	

THEME: BASIC CONCEPT OF COMPUTER HARDWARE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
	8).State differences between computer files and manual files 9). State the advantages of computerized file over manual filing system 10). Limitations of computer filing system.	4). BASIC file processing statements to read and display EXAMFILE above. 5). Effect of file insecurity:- Data loss & its causes. (ii). Overwriting 6. Methods of file security: (i). Use of back ups (ii).use of Anti-virus (iii). Password (iv). Proper label of storage devices, etc 7).Differences between computer files and manual files 8). Advantages of computerized files: (i). more secured (ii). Fast to access (iii). Less laborious (iv). More reliable (vi). Neatly modified 9). Limitations (i). Expensive to set it up (ii). Irregular power supply, etc	5). Describes file insecurity and its effects. 6). Leads class discussion to mention file security methods 7). Leads the discussion to identify differences between computer files and manual filing system. 8). Leads discussion to list advantages of computerized files over manual 9). States limitation of computerized files			Students to: 1). List five basic operations that. can be carried on computer files. 2). Outline steps to be taken when creating a sequential file 3).State one effect of insecurity on computer file 4). State five precautions that must be taken in order to secure Computer files. 5). State two differences between computer filing system and manual filing system.

IC CONCEPT OF COMPUTER HARDWARE

	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
			10. Write notes on the chalkboard			6. State two advantages of computerised files over manual files. 7. State two limitations of computer filling system.

EME: COMPUTER APPLICATIONS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
8). Word Processing	Students should be able to: 1). define Word Processing and text document 2). list some word processors. 3). list application areas of word processing 4). state facilities available in word processor 5). open word processor environment 6). list features in word processor	1). Definition of: (i). Word Processing (ii) text document 2). Examples of Word processors: (i). Microsoft Word (ii). WordPerfect (iii). Corel WordPerfect (iv). WordStar 3). Application Areas: (i).. Offices (ii). Publishing (iii). Journalism (iv). Education. (v). Articles, etc 4). Facilities available in a word processor: (I) type document (ii). Edit document (iii). store document (iv). Move, copy, paste {v). type, using different font types and sizes	1). Leads students to define Word Processing and text document. 2). Leads students to list examples of word processors 3). Leads Class discussion to list application areas of word processing 4).Guides students to open word processor window. 5). Guides students to identify features and facilities available in word processor environment. 6). Supervises the use of word processor by students.	1. Listen to teacher's explanations. 2. Participate in class discussions. 3. Open Word processor in the system. 4. Practise the use of word processor 5. Copy notes from chalk board into their notes	Charts Computer with Microsoft office installed Text materials	Students to: 1). define the term 'text document' 2). list two examples of type fonts in word processor 3). list three facilities in word processor. 4). state the command you will use to (i). save a documents (ii). Open a fil (Iii). exit from 'Word'

THEME: COMPUTER APPLICATIONS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
	7. Use word processor to fine tune text using in features	(vi). Insert, remove words, sentences or paragraphs, etc 5). Features: (i). Editing (ii). Formatting (iii). Justification (iv). Search and Replace (v). Spellcheck/Thesaurus (vi). File mergin				

HEME: DEVELOPING PROBLEM-SOLVING SKILLS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
9. Systems Development Cycle	Students should be able to: 1). Define system development cycle 2). Describe System development cycle. 3). Draw a system development cycle 4). List stages in System Development Cycle 5). Describe briefly, each of the stages involved.	1). Definition of System Development Cycle. 2). Description of System Development Cycle. 3). Stages in System Development Cycle: (i): Preliminary study (ii). Feasibility study (iii).Investigative study (iv). Analysis (v). Design (vi). Implementation (vii). Maintenance (viii). Study review 4). Description of each stage of system development cycle.	1). Leads students to define system development cycle. 2). Describes System development Cycle. 3). Lists the stages involved in system development cycle 4).Draws System Development Cycle 5). Describes each stage of system development cycle.	1). Listen to teacher's explanations. 2). Participate in class discussions. 3. Draw summary from chalkboard into their notes	Chart Text materials	Students to: 1). Define the term 'System Development Cycle' 2). List five stages in system development cycle. 3). Describe the first stage in system development cycle 4. Draw a simple sketch of system development cycle.

E: DEVELOPING PROBLEM-SOLVING SKILLS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
gramme elopment	Students should be able to: 1). Define Program 2). State the characteristics of a good program 3). State precautions to be taken when writing program 4). List steps involved in Program development 5). Describe each of the steps in program development 6). List examples of interpreted and compiled programs 7). Draw a flow diagram on how: a) compiler and b) interpreter works	). Definition of program 2). Characteristics of a good program: (i). Accuracy (ii). Readability (iii) .Maintainability (iv). Efficiency (v). Generality (vi).Clear to be understood by others 3). Precautions: (i) Do not rush. Be stable, steady and patient during program writing (ii). No step skipping (iii). Follow order of execution etc. 4). Steps involved in Program development: (i). Problem Definition (ii). Problem Analysis (iii). Flowcharting (iv). Desk checking (v). Program coding (vi). Program compilation (vii). Program testing/debugging (viii) Program documentation	1). Leads students to define Program. 2). Guides students to list the characteristics of a good program. 3). States precautions to take when writing Program 4). Leads students in listing steps involved in Program development. 5).Describes each of the stages 6). Leads class discussion to list examples of compiled and interpreted programs. 7). Draws flowchart on how: (i) compiler works (Ii). Interpreter works	Listen to teacher's definition. 2). Draw flow diagrams for compiler and interpreter programs 3). Participate in class discussions. 4). Copy summary from chalkboard into their notes	Charts Computer Text materials	Students to: 1). Define Program.. 2). State Four characteristics of a good program 3).List the steps involved in program development 4). State one example of: (i). compiled program (ii). interpreted program. 5). State two Precautions to be taken when writing programs.

THEME: DEVELOPING PROBLEM-SOLVING SKILLS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
		5). Description of each of the stages above. 6). Examples of: (i). Interpreted programs (ii). Compiled programs				
11. Algorithms and Flowchart	Students should be able to: 1). Define Algorithm and flowchart. 2). State the functions of algorithm 3). State and describe the characteristics of algorithm 4). Write simple algorithm for problem solving 5). List flowchart symbols 6). State what each symbol stands for 7). Draw flowcharts for solving a given problem	1). Definition of: (i). Algorithm (ii). Flowchart 2). Functions of Algorithm 3). Characteristics of algorithm: (i). Finite (ii). Effective (iii). Unambiguous 4). Writing algorithm for: (i) computing average of a given set of numbers. (ii) evaluation of equation: $y = a(b-c)^2/d+2$ (iii). Printing out the first ten odd numbers, etc 5).Flowchart symbols: I/O, process, decision, etc 6). Use of each flowchart symbol.	1). Leads students to define algorithm and flowchart. 2). Guides students to list the functions of algorithm 3). Guides students to list characteristics of a algorithm. 4). Guides students to write simple algorithms for solving given problems. 5). Demonstrates flowchart symbols 6).States what each symbol represents 7). Guides students to draw appropriate flowchart to solve a given problem	1). Listen to teacher's definition. . 2). Draw flowcharts 3). Practise the writing of simple algorithms 4). Participate in class discussions. 5). Copy summary from chalkboard into their notes	Charts Computer Text materials	Students to: 1). Define: (i) algorithm (ii) flowchart 2). State three characteristics of algorithm 3). Write an algorithm to compute the average of three numbers a,b,c 4). Draw a flowchart to calculate the area of a triangle with base b and height *h*.

THEME: DEVELOPING PROBLEM-SOLVING SKILLS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
		7). Flowchart diagrams for solving a given problem	8. Writes notes on the chalkboard			
12). BASIC Programming II	Students should be able to: i). identify BASIC built-in functions 2). list the built-in functions 3). state the application of each built-in function 4). write BASIC notations of algebraic expressions using built-in functions. 5). write simple BASIC programs using Built-in functions.	1). Built-in functions: (i) SQR (ii) INT (X) (iii) SIN (X) (iv) ABS(X) (v) RND(X) (vi) COS(X) (Vii) TAN(X)	1). Leads students to identify built-in functions. 2). Guides students to list the built-in functions 3). Guides students to state computational application of each function. 4). Guides students to write BASIC notations of the given algebraic expression and others. 5). Leads students to write BASIC programs using built-in functions 6. Write notes on the chalkboard	1). Listen to teacher's explanations. 2). List built-in functions 3). Practise the writing of simple BASIC programs using built-in functions 4). Participate in class discussions. 5). Copy summary from chalkboard into their notes	Charts Computer with BASIC program installed Text materials	Students to: 1). list four built in functions 2). state the use of the following built-in functions: (i). RND(X) (ii). ABS(X) (iii). LOG(X) 3). write BASIC notation for: (i). $a = \frac{(-b+d)}{2c}$ (ii). $z = \frac{x}{Y+c}$ (iii). $c = \frac{9c}{5} + 32$ 4). Write a BASIC program to compute the square root of numbers from 10 to 40

THEME : INFORMATION AND COMMUNICATION TECHNOLOGY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
13). Internet	Students should be able to: L). define internet and some basic terms. 2). List common internet main browsers 3). List features in a main browser window 4). Access internet 5). List services available on internet 6). state benefits of internet to our society 7). visit some websites on internet	1). Definition of: (i). internet (ii) some basic terms: -browse -browser -chartroom -cyber cafe -cyber space -download -e-mail -home page -HTML -HTTP -Internet service provider -Intranet -upload -protocol -web browser -web page -web site 2). Internet main browser: (i). Internet explorer (ii). Netscape Navigator (iii). Opera (iv). Firfox, etc	1). Leads students to define Internet and other basic terms. 2). Guides students to list the main browsers 3). Displays main browser screen and guides students to list features in a main browser 4). Guides students to gain access to internet. 5. Guides students to down load information from internet 6). Guides students to list services available on internet	1). Listen to teacher's definitions. 2). List the main' browsers 3). List features in a main browser. 4). Participate in class discussions. 5). Use main browser to gain access into the internet 6. Down loan information from internet. 7). Copy summary from chalkboard into their notes	Charts Internet ready computer Text materials	Students to: 1). define: (i). Internet (ii). Internet main browser (iii). Protocol 2). list two common internet main browsers 3). list three services available on internet 4). state four benefits of internet to our society 5. State one website address of: a) an HIV/AIDS control organization. b) an examination body. c) Drug control and admin agency.

THEME : INFORMATION AND COMMUNICATION TECHNOLOGY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
		3). Features in main browser window: Title bar, menu bar, tool bar, address bar, etc 4). Internet services: (i). e-mail (ii). E-mail discussion group (iii). Telnet (iv). Usenet (v) FTP (vi) WWW, etc	7). States benefits of internet to society 8). .Instructs students to visit some websites 9. Write notes on the chalkboard	8). Visit some websites on internet e.g.: www. itbegins with you. Org Hint: - web site of NACA, - NDLEA NAFDAC, JAMB, NECO, WAEC, Fed. Min. Of Educ., Etc.		
14). Electronic mail (E-mail). Services	Students should be able to: 1). Define e-mail 2) list services available in e-mail 3) create e-mail address/account	1). Definition of electronic mail 2). E-mail services: (i). sending/receiving e-mail (ii).chatting 3). Steps involved in creating e-mail account	1). Leads students to define electronic mail. 2). Guides students to list e-mail services 3). Guides students to list steps involved in creating e-mail address	1). Listen to teacher's definitions. 2). List e-mail services 3). Practise creating e- mail address	Charts Internet ready computer Text materials	Students to: 1). Define e-mail 2) state the steps you will take in order to have an e-mail address

EME : INFORMATION AND COMMUNICATION TECHNOLOGY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
	4). send and receive e-mail (5). open e:mailbox 6). write e-mail addresses 7). state differences between the features of e-mail address and website address 8). Define and practise chatting	4).Steps involved in opening mail box 5). Features in an e-mail address e.g. fmemail@fmegovng.org 6).Differences between e-mail and website address features, e.g. WWW.fmegovng.orgt 7). (i). Definition of chatting (ii). Steps involved in chatting	4). Guides students to create e-mail' address 5). Guides students to open mail box and read mails. 6). Leads students to write e-mail and website addresses and identify the differences in their features. 7). Leads students in class discussion to list steps involved in chatting 8). Supervises chatting in class 9). Write notes on the chalkboard	4). Send and receive e-mail 5). participate in class discussions. 6). Open mail box to read mails 7). Write e-mail and web site addresses 8) Copy summary from chalkboard into their notes		3). state three differences between an e-mail address and website address 4. List two steps involved in chatting

COMPUTER STUDIES CURRICULUM - SS 3

TOPICS FOR SENIOR SECONDARY SCHOOL III (SS 3)

THEME: INFORMATION & COMMUNICATIONS TECHNOLOGY

1. Networking
2. Introduction to World Wide Web (WWW)
3. Cables and Connectors

THEME: COMPUTER APPLICATIONS

4. Database
5. Graphics (Corel Draw)

THEME: DEVELOPING PROBLEM-SOLVING SKILLS

6. BASIC Programming III
7. High Level languages

THEME: CODING SYSTEMS IN 'COMPUTER

8. Overview of Number system
9. Data Representation.

THEME: COMPUTER ETHICS & HUMAN ISSUES

10. Security and Ethics

THEME : INFORMATION AND COMMUNICATIONS TECHNOLOGY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
1. Networking	Students should be able to; 1. Define networking 2. List types of networks 3. State types of network topologies 4. Draw flow diagram for each network topology 5. List network devices 6. State the benefits of networking	1. Definition of networking 2. Types of networks: • Ethernet • Token ring • Arcnet 3. Network topology: • Star • Bus • Ring 4. Network devices • Hubs • Modems • Switches • Routers • Network Interface Card (NIC) 5. Benefits of networking: • Sharing of resources • Ease of communication • Ease of collaboration • Etc.	I. Leads Students to define and list types of networking 2. Displays each network topology in class. 3. Leads students to draw flow diagram for each network topology 4. Leads students to list network devices 5.. Leads students to state benefits of networking. 6. Writes notes on the chalkboard	I. Identify each network topology 2. Participate in class discussion. Draw flow diagrams Star, Bus, Ring networks 4. Copy notes from chalkboard	1. Charts 2. Pictures 3. Cables 4. Network devices.	Students to: 1. State types of networking 2. Define networking 3. State differences between star and bus network 4. Draw a ring network structure. 5. List three network devices

THEME : INFORMATION AND COMMUNICATIONS TECHNOLOGY

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
2). Introduction to World Wide Web (WWW)	Students Should be able to: 1). Describe World Wide Web and state the full meaning of WWW. 2). Describe brief history of WWW. 3). Define basic terminologies of WWW 4). List the WWW protocols. 5). State the benefit of WWW. 6). Navigate through Websites using web site addresses. 7). Recognise the software for website design and its use.	1). Definition and full meaning of WWW. 1). Brief history of WWW (mention should be made of a Nigerian's contribution to WWW). 3) Basic terminologies: (i). WWW (ii). Website (iii). Web page (iii) Home page (iv). Protocols, etc. 4). Protocols: (i) HTTP (iii). HTML 5). Uses/Benefits of WWW: 6). Navigating through websites, e.g.: - WWW.fmegovne.org WWW . waeconline.org WWW .itbgeinswithvou.org WWW.servenigeria.com WWW.radionigeria.net WWW.gtvnigeria.com 7) Software for Web Development: FrontPage	1). Leads students to define and state the full meaning of WWW. 2). Leads students to describes briefly the history of WWW. 3). Lists the Protocols with full meaning 4). Displays and demonstrates a website on the internet.(H -O-E) 5). Leads students to navigate through websites (H-O-E) 6). Displays the FrontPage as used for website development in an internet- ready computer	1). Write the definition and full meaning of WWW. 2). Copy notes from the chalkboard into their notes. 3). Identify and state the full meaning of the protocols. 4). Access; internet. 5) Navigate through Web sites 6) Observe and practise the use of Front Page in web development.	Chart Internet ready Computers	1). Define a website 2. Mention two protocols of WWW. 3. State two uses of Website 4. Name the software used for website development

THEME : INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT)

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
3. Cables & Connectors	1. List network cables 2. List network connectors 3. List types of computer cables 4. List types data cables 5. List types of connectors	1. Network cables and connectors Cables - Twisted pair - Coaxial - Fibre optic - Telephone Connectors - RJ45 - RJ11 - T -Connectors 2. Computer cables and connectors • Power cables • Data cables - Printer cable - Universal Serial Bus (USB) - Monitor cable - Serial cable • Connectors - Male - Female	1. Displays network cables in class 2. Displays data cables 3. Displays power cables 4. Displays male and female connectors 5. Writes notes on the chalkboard	1. Identify the various cables as displayed 2. Participate in class discussion. 3. Copy notes from the chalkboard	1 Power cables 2. Data cables 3. Connectors	Students to: 1. Lists two types of network cables 2. List two types of connectors 3. State one difference between data cable and power cable.

THEME: COMPUTER APPLICATIONS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
4). Database	Students should be able to: 1). Define database and database package 2). State examples of database packages 3). Define the basic terms in database. 4) State the different forms of database organization 5). Recognize and state the features in a computer database format. 6). Create a database 7) carry out basic operations on an existing database.	1). Definitions (i). Database (ii). Database package (DBMS) 2). Examples of DBMS : Dbase III, Dbase IV, Foxbase, Rbase, etc. 3). Basic terminologies: (i) File (ii) Record (Iii) Field (iv). Key 4). Forms of database Organization: (i). network (ii) hierarchical (iii). Relational 5). Computer database format: (i). file designed as tables (ii). Tables composed of rows & columns (iii). Row (record) contains related information. (iv). Column (field) contains specific type of information. 6). Creating database: (i) define the structure (ii). Indicate field type	1). Leads students to define t database and e database package. 2). Guides student to mention examples of database packages. 3). Leads students to state the meaning of basic terms. 4). Lists different forms of database organization 5). Displays an existing database (file) in the system and guides students to recognize the formats and features. 6). Guides students to create a database in the system (H-O-E) 7. Write notes on the chalkboard	1). Listen to teacher's explanation. 2). Create a database (e.g. records of . students in a class) 3. Open an existing database 4) Copy chalkboard summary into their notes. 5). Practise searching and sorting.	Charts Computer Database package, e.g. Dbase (IV) Record books, result sheets. List of students with other information	Students to : 1). Define database 2). State two features in a database format, 3). State three operations that can be carried out on a database 4). List the steps required in order to create a database.

EME: COMPUTER APPLICATIONS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
		7). Basic operations: (i) Searching (Ii) Sorting (iii) Modifying (iv). Generating report				
Graphics ntroduction to orelDraw)	Students should be able to: 1). Define Graphics 2). List examples of graphic packages 3). State features in CorelDraw environment 4). Open CorelDraw 5). Use CorelDraw to make simple designs. 6).Close and Exit CorelDraw	1). Definition of Graphics 2). Examples of graphics packages: (i). Paint (ii). Harvard graphics (iii). Photoshop (iv). CorelDraw etc. 3). Features in CorelDraw environ: (i). Tools (ii). Color palette, etc 4). Opening CorelDraw from Programs (H-O-E) 5). Simple designs: (i). Complimentary cards (ii). Business cards (iii). Birthday/congratulatory Cards (iv). School logo (v). Nigerian flag	1). Leads students to define graphics 2). Guides students to list examples of graphics. 3). Open and display CorelDraw Environment. 4). Guides students to observe the features of CorelDraw 4). Leads students to state the features. 5). Guides students to make use of CorelDraw application to make simple designs 6. Guides students to close and exit CorelDraw. 7. Write notes on the chalkboard	1). Listen to and define graphics 2). State examples of graphics application. 3). Open and display CorelDraw environment. 4). List the features that can be observed 5). Make simple designs with CorelDraw. 6. Close and exit CorelDraw 7. Copy notes from chalkboard into their notes.	1. Computer installed with CorelDraw. 2. Samples of simple designs. 3. Charts	Students to: 1). Define Graphics 2). State two examples of graphics. 3). List three features in CorelDraw 4). State two areas of use of CorelDraw 5. Design school logo using CorelDraw

ME: PROBLEMS - SOLVING SKILLS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
BASIC programme III (One-dimentional array)	Student should be able to: 1). Define Array in BASIC 2). List operations on array 3). Write simple BASIC program on array involving: One-dimensional array i. FOR-NEXT ii. WHILE - END statements iii. DIM statement	1). Defining one-dimensional array (i.e using DIM statement) 2). Operations on Array: (i). Input of an array (ii). Output of array (iii). Arithmetic on array 3).Reviewofthe: (i). FOR - NEXT statement (ii). WHILE - END statements (iii). DIM statements (One dimensional array) 4). Write BASIC Program to: • State data in a vector of 10 integer with and without a FOR-NEXT statement • Calculate the average of a one dimensional array with 100 numeric values • Calculate the area of 10 different rectangles with and without the WHILE- END statement • Output the sum of the first 100 integers • Output the value elements of a given array	1). Leads students to define one-dimensional array. 2). Writes simple program segments on each operations on array. 3). Guides students to write program Using FOR-NEXT and WHILE-END statements. 4). Guides students to write more programs for each segment in content (4). Writes notes on the chalk board	1). Listen to: teacher's definition 2). Write program segments on each operation on array. 3). Write programs using (i). FOR-NEXT (ii). WHILE-END (iii). DIM Statements. 4). Copy notes from chalk board into their notes.	Computer with BASIC program installed. Text materials	Students to: Write a program that reads 10 values into array score of 10 elements. 2). Write a program to output the sum of the first 100 integers 3). Write a program to display the standard deviation of 100 sets of numbers already stored in an array X

THEME: PROBLEMS - SOLVING SKILLS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
7. High Level Languages (H.L.L.)	Students should be able to: 1). Define High Level Languages 2). State examples of high level languages 3). Classify given HLLs based on suitable application. 4). Classify HLL as interpreted or compiled language 5). Identify the features of some HLLs 6). Recognize the fotmat of the HLLs 7) State advantages of HLLs over ML and LLL	1). Definition of High Level Language (HLL) 2). Examples of HLL BASIC, FORTRAN, ALGOL, C, PASCAL, PL/I, LISP, PROLOG, SNOBOL,COBOL 3 (i). BASIC, FORTRAN, ALGOL (Scientific) (ii). C, PASCAL, PL/I {Gen-purpose) (iii). LISP, PROLOG (Artificial intelligent (AI) (iv) SNOBOL Special purpose programming language (SPL) (iv). COBOL (Business) 4). *Interpreted lang:* BASIC (ii). Compiled language PASCAL, COBOL, C. FORTRAN 5). Features of BASIC, C, PASCAL,COBOL	1). Leads students to define HLL 2). Guides students to give examples of HLLs 3). Leads students to classify HLLs based on suitable application. 4). Classifies HLLs as interpreted or compiled language. 5). Leads students to state features of specific HHLs 6). States advantages of HLLs over ML, LLL	1). Listen to teacher's definition 2). Participate in class discussions 3. Copy chalkboard summary into their notes	Chart Reference materials Computer	Students to: 1). List three examples of high level language 2). Classify given HLLs into compiled and interpreted language. 3). State three features of each of BASIC, COBOL and Pascal Languages 4). State two advantages of HLL over ML

THEME: PROBLEMS - SOLVING SKILLS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
		6. Advantages of HLL over ML and LLL.				

THEME: CODING SYSTEMS IN COMPUTER

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
8. Overview of Number BASES	Students should be able to: 1. List digits in the number bases 2. Convert from one number base to another 3. Add and subtract in the number base	1. Review of number bases • Binary • Octal • Decimal • Hexadecimal 2. Conversion in number bases 3. Basic arithmetic in number bases • Addition • Subtraction	1. Leads students list digits in each number base 2. carry out simple arithmetic operation using each number base 3. Writes and carried simple the calculation examples on the chalkboard	1. Attempts simple calculations on number bases 2, 8, 10 2. copy notes from the chalkboard into their notes	Charts Text material	Students to: 1. State the digits in: (i) binary system (ii) octal system 2. Convert a given number in number base to another
9. Data Representation	**1. Define data representation** **2. List methods of data representation** **3. Represent data in different character sets**	**1. Definition of data representation** **2. Description data representation methods:** • **Bits** • **BCD** • **EBCDIC** • **ASCII** **3. Computer character sets**	**1. Leads students to define and list methods of data representation** **2. Display character sets** **3. Write notes on the chalkboard**	**1. Identify different data representation methods** **2. Copy notes from the chalkboard**	**Chart**	**Students to:** **1. List different methods of data representation** **2. State the full meaning of:** **(i) 'ASCII** **(ii) 'EBCDIC'**

THEME : COMPUTER ETHICS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
10. Security and Ethics	1. State sources of security breaches in computer network 2. State preventive measures against security breaches 3. State issues of legal importance to consider when using ICT	1. Sources of security breaches • Virus, worms and trojan horses • Poorly implemented network • Poorly implemented or lack of ICT policy • Carelessness - Giving out personal and vital information on the net without careful screening • Hackers 2. Preventive measures . • Use of anti virus software • Use of fire wall • Exercising care in giving out personal and vital information • Encryption • Proper network implementation & policy • Using sites with web certificate	I. Leads students to list sources of security breaches . 2. Leads class discussion on preventive measures against security breaches 3. Leads students to list prevent and discuss preventive measures against security breaches. 4. Writes notes on the chalkboard	I. Participate in class discussions. 2. Copy notes from the chalkboard	1. Charts 2. Internet ready computer 3. Text materials	Students to: 1. list two sources of security breaches. 2. State three preventive measures against security breaches. 3. Explain the terms: (i) piracy (Ii) hacking (Iii) cyber crimes

THEME : COMPUTER ETHICS

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
			TEACHER	STUDENTS		
		• Exercising care in opening e-mails attachments 3. Legal issues: • Copy right • Ownership rights to - Text - Images - Audio - Video • Web content subject to existing laws of host country • Piracy- software, audio, video • Cyber crimes - Identity theft, - Internet fraud Hacking (Gaining unauthorised access to resources with the intention to cause harm)				