**HARMONIZED CURRICULUM**

**BASIC SCIENCE AND TECHNOLOGY**

**FIRST TERM**

**THEME: INFORMATION TECHNOLOGY BASIC 7**

**SUB-THEME: BASIC COMPUTER OPERATION AND CONCEPTS**

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| **WEEKS** | | **TOPIC** | | **PERFORMANCE OBJECTIVES** | | **CONTENT** | **ACTIVITIES** | | **TEACHING AND LEARNING MATERIALS** | **EVALUATION GUIDE** |
| **TEACHER** | **STUDENT** |
|  | | Technology of different ages; | | 1.1 List the different information ages and their features.   * 1. Explain the meaning of technology   2. State the present information age   Identify the tools associated with each information age. | | Developments in information ages and their features  Stone age  Iron age(Hoe and cutlass)  Middle age(Feather pen and ink)  Industrial age(Machine)  Electronic age and computer and internet | Explains the manual and mechanical technologies that were used in early times and how it evolve to what we have | 1. Listen aptly and participates fully in the lesson 2. states the various technologies used in the olden days | White board,  Projector,  The Internet. | 1. state 5 early technology ages and what characterized them 2. State 5 devices that belong to the stone age 3. state 4 technologies that belong to the middle ages |
| 2 | | Evolution of information and communication technology | | * 1. Define information technology   2.2 Define information and communication technology   * 1. List the stages of information evolution.   Describe what happens during each stage | | 1. Invention of printing 2. Invention of telephone 3. Invention of radio 4. Invention of television   Invention of computer etc. | Explain the major inventions that marked an evolution in the use of ICT and brought about further developments in ICT | 1. state the major events and developments that brought about an evolution in ICT | White board,  Projector,  The Internet.  Pictures and videos to further explain the topic | 1. State 3 computing devices that where invented in the early 19th century 2. State 2 inventions that marked the evolution of ICT |
| 3 | | Historical  Development  of Computers | | Students should be able  to:  1. list early counting  devices;  2. state the  problems in counting  large numbers with  those devices;  3. name mechanical  counting and calculating devices; | | 1. Early counting devices (fingers,  stones, sticks, pebbles, cowries,  etc.  2. Mechanical counting and  calculating devices: Abacus,  Slide rule etc. | 1. Describes and  shows different  early counting  Devices.  2. Mentions the  problems of  counting large  numbers with those  early devices, | 1. Observe and  examine the  counting devices,  2: Count given  large numbers  with the devices,  3. Observe the use  of mechanical  counting and  calculating  Devices. | 1. Fingers,  2. Toes,  3. Sticks,  4. Stones,  5. Pebbles  etc.  6. Abacus  7. Slide rule  8. Four  Figure  Table | Students to:  1. name at least four  Early counting devices.  2. Discuss the problems in using those devices.  3. name two  mechanical  counting and  calculating devices; |
| 4 | | Historical Development of Computers contd. | | Student should be  able to:   1. Name electro-   mechanical counting devices; | | Electro-mechanical counting  devices:  - John Napier bone  -Blaise Pascal machine  - Gottfried Leibniz machine  - Joseph Jacquard loom  - Charles Babbage analytical  machine  - Philip Emeagwali | 1. Demonstrates the  use of counting and  Calculating devices. | 1. Observe and  recognize the  Pictures of  electro-  mechanical  devices | 1. Charts  2. Pictures  3. Computer  4. Cardboard cuttings | 1. name two electro  calculating  mechanical  counting devices; |
| 5 | | Historical Development of Computers contd. | | Student should be  able to:  1. Compare electronic  counting devices with  modern computer;  2. State the  contributions of  named IT inventors; | | Electronic counting devices and  modern computer:  i. Herman Hollerith punch  cards  ii. John Von Neumann  machine  iii. Modern machines. | 1. Guides students to  compare and  contrast the  electronic with  Modern computer.  2. Discusses the  contributions of the  various counting  devices to the  Modern computer. | 1. Observe and  recognize  electronic  counting devices  and modern  Computer. | 1. Charts  2. Pictures  3. Computer  4. Cardboard cuttings | 1. mention the  contributions of at  least two named IT  inventors; the  contributions of a  named inventor;  2. state contributions  of a named  inventor; |
| 6 | | Historical Development of Computers contd. | | Student should be  able to:  1. Identify the five  generations of computers;  2. Describe the features of each generation. | | Generations of computers:  - First  - Second  - Third  - Fourth  - Fifth | 7. Describes each  generation of  computers | 1. Match each  generation with  its characteristic  Features. | 1. Charts  2. Pictures  3. Computer  4. Cardboard cuttings | 1. name the  generations of  computers;  2. 8state two features  Of each generation of computers. |
| 7 | | Data  Processing | | Student should be  able to:  1. define data processing;  2. state the stages of data  processing;  3. Describe what each stage entails. | | 1.Definition  2. Data processing cycle:  i. Data Gathering  ii. Data Collation  iii. Input stage  iv. Processing stage  v. Storage Stage  vi. Output stage | 1. Leads students to define and identify data processing cycle/stages.  2. Discusses what each stage involves.  3. Demonstrates how computer can be used to achieve each of these things.  4. Writes the stages on the board. | 1. Identify the stages of data processing.  2. Participate in class discussion.  3. Observe teacher’s demonstration and listen to explanation,  4. Copy the board summary into their notebooks. | 1.Pictures  2. Charts  3. Computer System  4. Appropriate software | Students to:  1. define data processing;  2. list any three stages involved in data processing;  3. describe what is involved in a given stage of data processing; |
| 8 | | Data  Processing | | Student should be  able to:  1. State the features of a computer that make it an excellent tool for data processing. | | 1. Importance of the computer as a tool for processing data:  i. increased accuracy  ii. efficient storage facilities  iii. fast access to information  iv. handles repetitive tasks | 1. Guides students to identify the benefits of the computer as a data processing tool. | 1. Participate in class discussion.  2. Observe teacher’s demonstration and listen to explanation, | 1.Pictures  2. Charts  3. Computer System  4. Appropriate software | 1. State four features that make computer useful for data processing. |
| 9 | | Data and Information | | 3.1- define with examples:  -data  -information  3.2 identify sources of :  -data  -information  3.3- Mention four qualities of good information | | 1. Importance of the computer as a tool for processing data: 2. Increased accuracy 3. Efficient storage facilities 4. Fast access to information   Handles repetitive tasks. | 1. Shows students how to define and identify data 2. the difference between data and information 3. Sources of data and information. | 1. Identifies sources of information and data. 2. Identifies the sources of information and 3. list different types of data | 1. Audio-visual content on data and information 2. Projector 3. whiteboard 4. marker 5. textbook | 1. what is data 2. What are the various tools used in converting data to information. |
| 10 | Computer  Ethics | | Students should be  able to:  1. List ways of taking good care of a computer room! laboratory;  2. state the rules and regulations of computer laboratory;  3. Observe computer room rules and regulations. | | 1. Computer Room Management Ethics:  - maintaining dust-free  environment  - appropriate ventilation  - appropriate lighting system  - setting computer  2. Laboratory rules and regulations:  - arrange chairs and tables in a comfortable manner.  - arrange the computers and their peripherals in an orderly manner | | 1. Leads students on  2.Excursion to suitable computer laboratory.  Guides students to identify ways of taking good care of a computer room! Laboratory.  Ensures that students observe the rules and regulations while working in the computer laboratory. | 1. Participate in class discussions  2. Obey computer room rules and regulations. | 1. Pictures/Charts of an ideal computer room/ laboratory.  2. School computer laboratory. | Students to:  1. list three ways of taking good care of computers;  2. state computer laboratory rules and regulations;  3. obey rules and regulations in a computer laboratory. |

**BASIC SCIENCE AND TECHNOLOGY**

**SECOND TERM**

**THEME: INFORMATION TECHNOLOGY BASIC 7**

**SUB-THEME: BASIC COMPUTER OPERATION AND CONCEPTS**

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| **WEEK** | **TOPIC** | **PERFORMANCE OBJECTIVES** | **CONTENT** | **ACTIVITIES** | | **TEACHING AND LEARNING MATERIALS** | **EVALUATION GUIDE** |
| **TEACHER** | **STUDENT** |
| 1 | Applications of  IT in Everyday Life | Students should be  able to:  1. state the uses of IT in daily  activities; | 1. Uses of IT:  i. communication.  ii. timing and control | 1. Prepares charts on  IT uses in everyday life.  2. Shows video clips of IT uses in everyday life.  3. Guides student to:  state uses of IT in everyday life,  4. Assesses and give student projects. | 1. Watch video and note how IT influences daily lives of people.  2. Participate in class discussion.  3. Carry out a project on influence of IT on society. | 1. Charts and Pictures of a:  - Television  - Video  - CD-Rom  - Multimedia computer | Students to:  1. State three everyday life uses of IT. |
| 2 | Applications of  IT in Everyday Life contd. | 1. identify the impact of IT in daily  activities, | iii. Information processing!  management  2. IT and Society. | - identify ways IT has improved their daily living. | 1. Participate in class discussion.  2. Carry out a project on influence of IT on society. | 1 Documentary films  2. Multimedia presentations. | 1. List three ways IT has assisted the societal development. |

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| **WEEK** | **TOPIC** | **PERFORMANCE OBJECTIVES** | **CONTENT** | **ACTIVITIES** | | **TEACHING AND LEARNING MATERIALS** | **EVALUATION GUIDE** | |
| **TEACHER** | **STUDENT** |
| 3 | Information  Transmission | Students should be  able to:  1. define information  transmission  2. list ancient methods of transmitting  information; | 1. Meaning of information transmission.  2. Ancient methods of transmitting  information:  - Oral  - Beating drums  - Fire lighting  - Town crying  - Whistling  - Drawing diagrams  - Making representation | 1. Brings charts/pictures of ancient tools for transmitting information.  2. Leads students to identify these tools.  3. Demonstrates to students how these tools are used in transmitting information,  4. Guides students to identify ancient methods of transmitting information. | 1. Brings relevant Materials to the class.  2. Use the material:  - listen to radio  - make telephone calls  - read magazines and textbooks  - watch television and video  3. Classify information by mode of transmission. | 1. Charts, drums whistles or Pictures depicting ancient modes of information transmission | Students to:  1. define information  transmission;  2. list three ancient methods of transmitting information; | |
| 4 | Information  Transmission contd. | 1. identify modern methods of transmitting information; | 1. Modern methods of transmitting  information:  - Prints  - Telephone  - Telex  - Radio  - Television  - Fax  - Satellite  - Internet  - GSM  2. Modes of receiving information | 1. Brings charts/pictures of modern tools for transmitting information.  2. Leads students to identify these tools.  3. Demonstrates to students how these tools are used in transmitting information,  4. Guides students to identify modern methods of transmitting information | 1. Brings relevant Materials to the class.  - newspapers  - radio  - telephone  2. Use the material:  - listen to radio  - make telephone calls  - read magazines and textbooks  - watch television and video  3. Classify information by mode of transmission. | 2. GSM, Radio, Television, Computer, etc. or Pictures I Charts of these objects.  3. Letters, Magazines, Newspapers | 1. state five modern methods of transmitting information;  4. list two means of transmitting information | |
| 5 | Basic computer concepts | 1-Define the computer system  2 describe its functions | 1. Explain the basic concepts of computers and ICT  2. Explain the functions of computers | 1.Defines a computer system  2. states and explains the functions of a computer system | 1. listens attentively  2. asks questions when necessary  3. take down notes | Textbook,  Projector,  Whiteboard,  Pictures | 1. state the components of a computer system 2. state uses of a computer system | |
| 6 | Input devices | 1-Describe the functions of the keyboard and mouse | 1. Functions of input devices:   -keyboard  -mouse | 1. explains the difference between input devices and output devices 2. shows the students different input devices and how they work | 1. gives other examples of input devise 2. state uses of input devices | 1. Computer studies textbook, Projector, Whiteboard, | | 1. State 5 the input devices 2. what are input devices mainly used for |
| 7 | Output devices | 7.1- Describe the functions of the monitor and printer | 1. Functions of input devices:   -Monitor  -printer | 1. Demonstrates the uses of output devices and their importance 2. Shows the uses of output devices. | 1. gives other examples of input devise 2. state uses of input devices | 1. Computer studies textbook, Projector, Whiteboard, | | 1. State 5 the input devices 2. what are input devices mainly used for |
| 8 | Fundamental computer operations | 1- Describe booting  2- Explain types of booting | 1. Booting 2. Types of booting 3. Steps to booting the computer system | 1. Guides students to state the define booting  2. Leads the students to state and explain the types of booting.  3. Leads students to differentiate  between warm and cold booting  4. Demonstrate the booting of a computer | 1. Participate in class discussions and ask questions.  2. Differentiate between warm and cold booting  3. Boot a computer system | - Computer system- | | Students to:  1. Define booting;  2. State the types of booting  3. Distinguish  between warm and cold booting |
| 9 | Fundamental computer operations | 1-Trouble shoot a computer system  2- Shutdown a computer following the right procedures | 1. Troubleshooting a computer system 2. Steps to shutting down the computer system. | 1. Guides students through the procedure of  -shutting down a computer  -troubleshooting a computer | 1. Shutdown a computer  2. Troubleshoot a computer system |  | |  |
| 10 | Introduction to word processing | * 1. List examples of word processors   2. State the uses of word processors   3. Explain the term word processing   4. Define a word processor   5. State advantages of word processing | 1. Advantages of word processing 2. Simple operations in word processing | 1. Demonstrates to the students how word processors are used and what they are used for. 2. State the different documents that can be created with word processors | 1. define a word processor  2. define word processing  3. state common examples of word processors | Computer studies textbook, Projector, Whiteboard,  Microsoft Word 2013 | | 1. state 3 documents that can be created with word processor 2. state 5 examples of word processors |
| 11 | Word processing – contd | * 1. Create a document using a template   2. Saving documents   3. Create a blank document on MS Word 2013   4. Open/ retrieve an existing document   5. Create a document with a template | 1. Creating documents in MS word   Opening or retrieving documents in MS word | 1. Demonstrate to the students how to use a popular word processor like MS-Word   How to use Microsoft word | 1. State the features of Microsoft word and other word processors. | Computer studies textbook, Projector, Whiteboard,  Microsoft Word 2013  Computers | | 1. state 5 features of word processors 2. state 3 uses of word processors |

**BASIC SCIENCE AND TECHNOLOGY**

**THIRD TERM**

**THEME: INFORMATION TECHNOLOGY BASIC 7**

**SUB-THEME: BASIC COMPUTER OPERATION AND CONCEPTS**

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| **WEEK** | **TOPIC** | **PERFORMANCE OBJECTIVES** | **CONTENT** | **ACTIVITIES** | | **TEACHING AND LEARNING MATERIALS** | **EVALUATION GUIDE** |
| **TEACHER** | **STUDENT** |
| 1 | word processing - contd | * 1. Add text to a document   2. Select, Delete, copy and paste text in a document   3. Cut and paste text in a document   4. Find and replace text or words in a document | 1. Formatting document in MS word 2. Saving and printing | 1. demonstrate to the students how to format a Microsoft word document 2. explain the difference between formatting and editing | 1. use Microsoft word to create documents 2. using Microsoft word to create letters and letter headed documents | Computer studies textbook, Projector, Whiteboard,  Microsoft Word 2013  Computers | 1. state 3 documents that you can create using Microsoft word 2. state 5 features that makes Microsoft word a good tool for creating memos |
| 2 | System Unit | * 1. List the components of the CPU   2. Describe the functions of the:   -ALU  -Control Unit and  -Main memory | 1. 1 Functions of:   -Central Processing Unit(Arithmetic Logic Unit-ALU, Control Unit)   1. Main Memory | 1. Show the students what a CPU looks like 2. shows the students what a RAM looks like | 1. List the internal components of the system unit 2. state the different parts of the CPU | Projector, CPU, system unit, whiteboard and marker, computers | 1. what is the main purpose of the ALU 2. what does the Control unit do |
| 3 | Introduction to spreadsheet package (MS Excel) | 8.1- Define a worksheet   * 1. Describe basic operations on a worksheet   2. Perform simple calculations on a worksheet. | Using Microsoft Excel   1. Starting worksheet 2. Formatting worksheet 3. Performing calculations using worksheets. 4. Printing of worksheets | 1. explains what a spreadsheet is and the need for spreadsheet packages 2. explains the difference between spreadsheet packages and other application software’s | 1. Create worksheets using Microsoft excel 2. Type data into worksheets and save them. | Computer studies textbook, Projector, Whiteboard,  Microsoft Excel 2013  Computers | 1. state 5 uses of spreadsheet packages 2. what are the steps for opening and closing a worksheet |
| 4 | Classification of computers | * 1. Classify computers by Generations.   2. State features of 1st, 2nd and 3rd generation of computers | 1. Classification by generation  * First generation * Second generation * Third generation | 1. Explains to students Classification of computers by generations 2. why computers are classified by generation | States the various classification techniques and what they entails.  Identify features of 1st, 2nd and 3rd generation computers  Takes down notes | Projector, CPU, system unit, whiteboard and marker, computers | 1. State the major technologies in the 1st, 2nd and third generation of computers 2. what was the major development of the 3rd generation | |
| 5 | Classification of computers cont’d | State features of 4th and 5th generation of computers | * fourth generation * fifth generation | Explains to students  classification of computers  by generations  -why computers are classified by generation | Identify features of 4th and 5th generation computers  Takes down notes | Projector, CPU, system unit, whiteboard and marker, computers | 1. what generation of computer does smart phones fall into 2. What is A.I | |
| 6 | Classification of computers contd. | * 1. Classify computers by Size, and degree of versatility | Classification of computers;   1. By size 2. By versatility | 1. Explains to students Classification of computers by size 2. Explains to students Classification of computers by versatility | 1. Takes down notes 2. identifies computers categorized based on size and versatility | Projector, CPU, system unit, whiteboard and marker, computers | 1. state 2 examples of mainframe computers 2. tablet fall into what category of computers based on size | |
| 7 | Classification of computers contd. | Classify computers by Type | Classification of computers  1. By type | 1. Explains to students Classification of computers by type | State the various types of computers in use | Projector, CPU, system unit, whiteboard and marker, computers | what is the difference between analogue computers and hybrid computers | |

**BASIC SCIENCE AND TECHNOLOGY**

**FIRST TERM**

**THEME: INFORMATION TECHNOLOGY BASIC 8**

**SUB-THEME: BASIC COMPUTER OPERATION AND CONCEPTS**

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| **WEEK** | **TOPIC** | **PERFORMANCE OBJECTIVES** | **CONTENT** | **ACTIVITIES** | | **TEACHING AND LEARNING MATERIALS** | **EVALUATION GUIDE** |
| **TEACHER** | **STUDENT** |
| 1 | The computer system | * 1. Explain the term computer system   2. State the components of a computer system:   3. Describe the term:   -hardware  -software  People ware   * 1. Explain the relationship between hardware ,software, and people ware | 1. Concept of computer system 2. Components of a computer system | 1. describe a computer and its major components 2. explain the difference between hardware and software 3. describe the concept of people ware | 1. state the major components of computers 2. list examples of hardware and software | Projector, CPU, system unit, whiteboard and marker, computers | 1. state 5 examples of computer hardware 2. state 6 examples of computer software 3. state two major categories of computer hardware |
| 2 | Computer software | * 1. Define software   2. State the types of software   3. Give examples of each type of computer software | 1. Definition of software 2. Types and examples of software 3. System software (operating system) 4. Application software (word processing, spreadsheet, graphics etc.) | 1. Explain the concept of Computer software and its categories 2. explain the difference between a program and a software | 1. Listen and take down notes given 2. answer questions asked and ask questions too | Projector, CPU, system unit, whiteboard and marker, computers | 1. what is computer software 2. state 2 categories of computer software and give examples of each |
| 3 | Operating systems | * 1. Define operating system;   2. Give examples of operating system | 1. Definition of an operating system (OS). 2. Examples of operating systems (DOS, Windows, Linux, Unix) | 1. define an operating system 2. state different examples of operating systems | 1. Listen and take down notes given 2. answer questions asked and ask questions too | Projector, CPU, system unit, whiteboard and marker, computers with different versions of windows installed | 1. state four examples of Operating systems 2. state 5 features of Operating systems |
| 4 | Operating systems – contd. | * 1. State the functions of an operating system. | 1. Functions of operating systems (resource allocation, monitoring, utilities) | 1. Explain the major functions of operating systems | 1. Listen and take down notes given 2. answer questions asked and ask questions too | Projector, CPU, system unit, whiteboard and marker, computers with different versions of windows installed |  |
| 5 | Compute  Problem  Solving Skills | Students should be able to:  1. identify a computer program;  2. define a computer programming  language;  3. give examples of computer  programming languages. | 1. Computer programs  - Meaning  - Examples (Logo BASIC, etc.). | 1. Guides students to identify a computer program.  2. Leads students to define and give examples of programming language. | 1. Define computer program.  2. Give examples of computer programming language | Samples of written programs in different computer languages.  . | Students to:  1. identify a computer  program;  2. define computer programming language;  3. Give 2 examples of computer programming language. |
| 6 | BASIC  Program | Students should be able to:  1. state the meaning of the acronym BASIC;  2. list key  statements of  BASIC;  3. write a simple BASIC program. | 1. BASIC Language:  - Meaning of BASIC  - BASIC Character set  2. Key BASIC Statements:  3. Simple BASIC Statements. | 1. Guides students to state the meaning  BASIC.  2. Leads students to list BASIC  statements.  3. Guides the students to write and run simple BASIC program. | 1. State the meaning of  BASIC.  2. List the BASIC statements.  3. Practice writing and running simple BASIC program. | 1. Computer system  2. Interactive instruction,  3. Sample of BASIC program | Students to:  1. state what **BASIC** stands for;  2. list four BASIC statements;  3. write and run a BASIC program on a given task. |
| 7 | Computer Ethics | Students should be able to:  1. list responsible ways of using computer and Internet;  2. identify ways of misusing the computer and internet. | 1. Responsible use of computers and internet:  - Avoiding liquid dropping into the system  - Using dust cover  - Protection from power problem  - Unplugging the system when not in use for long  - Check your e-mail regularly  - Give prompt and polite response to mails  2. Abuse! Misuse of computers. | 1. Guides the students to identify responsible ways of using:  - Computer  - Internet  2. Leads students to identify ways of misusing the computer.  3. Write notes on the board. | 1. Participate in class discussions  2. Make use of computers and internet.  3. Participate in class  discussions.  4. Copy the board summary into their notebooks. | 1. Computer laboratory with internet facilities.  2. Pictures/ Charts of an ideal computer room Laboratory with Internet facilities. | Students to:  1. list three ways of using computers and Internet responsibly;  2. list four ways of .  Misusing  computers and Internet.  . |
| 8 | Number bases | 1. Define number system  2. Explain the concept of Binary numbers and their applications | 1. Number base systems 2. example of number systems 3. Binary numbers and their applications 4. Decimal numbers | 1. Explain the concept of number system 2. Solve problems in number system | 1. Solve problems in binary system 2. Take down notes and answer questions | Projector, CPU, system unit, whiteboard and marker, computers | 1. Why is binary systems important in ICT 2. how do you convert a base 2 number to base 10 |
| 9 | Number bases cont’d | 1. Convert between binary and decimal | 1. Conversion from decimal number to other bases  2. Conversion from other bases to decimal number | 1. Convert from binary numbers to decimal and vice versa 2. Convert from other bases to decimal 3. Convert from binary numbers to decimal and vice versa 4. Convert from other bases to decimal | 1. Solve problems in other number system | Projector, CPU, system unit, whiteboard and marker, computers | State the importance of other number bases like the hexadecimal |
| 10 | Computer storage system | 2.1- Classify storage unit  2.2- State Type of storage  2.3- Types of memory | 1. Classification of computer storage system. 2. Types of memory devices | 1. Explain the concept of storage devices 2. Explain categories of storage devices | 1. Take down notes and answer questions 2. ask questions when necessary | Projector, CPU, system unit, whiteboard and marker, computers | 1. what is main memory 2. why is RAM said to be volatile 3. state 2 examples of storage devices |

**BASIC SCIENCE AND TECHNOLOGY**

**SECOND TERM**

**THEME: INFORMATION TECHNOLOGY BASIC 8**

**SUB-THEME: BASIC COMPUTER OPERATION AND CONCEPTS**

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| **WEEK** | **TOPIC** | **PERFORMANCE OBJECTIVES** | **CONTENT** | **ACTIVITIES** | | **TEACHING AND LEARNING MATERIALS** | **EVALUATION GUIDE** |
| **TEACHER** | **STUDENT** |
| 1 | Safety Measures | Students should be able to state safety measures that need be taken when using computer. | Safety Measures:  The sitting posture  Using the anti-glare protector.  - Positioning of monitor base.  - Illuminating the computer room.  - Maintaining a dust- free  Environment.  - Keep liquids  away from  computers | 1. Guides the students to list the safety measure that need be taken when using computer. | 1. Participate in class discussion. | 1.Pictures  2. Charts | Students to stat four safety measures that n to be taken when using computer. |
| 2 | Graphic  Packages  ‘  - | Students should be able to:  1. describe graphic packages  2. List different types of computer graphic packages.  3. State the general features of graphic packages. | 1. Meaning of graphic packages:  2. Examples of  graphic packages:  Paint, Corel draw, Instant artist, etc. 3. Features: Tool bar, Menu bar, Printable area, Colour palette, etc. | 1. Explains graphic packages.  2. Leads students to identify different types of graphics packages.  3. Guides students to describe the features of graphics packages. | 1. Listen to teacher’s explanations,  2. List different types of graphic packages.  3. Participate in class discussions.  4. Copy the board summary into their notebooks. | Computer system with graphic packages installed, | Student to:  1. describe graphic packages;  2. list four types of graphic packages;  3. state five features of graphic packages; |

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| **WEEK** | **TOPIC** | **PERFORMANCE OBJECTIVES** | **CONTENT** | **ACTIVITIES** | | **TEACHING AND LEARNING MATERIALS** | **EVALUATION GUIDE** |
| **TEACHER** | **STUDENT** |
| 3 | Paint  Environment | Students should be able to:  1. identify the features of the Paint  environment;  2. list the paint tools;  3. explain the  functions of the various tools;  4. use paint to draw and color simple objects. | 4. The Paint: Paint Environment, Paint tools and their functions. | 1. Leads students to identify and describe the paint environment  2. Explains the functions of the various tools.  3. Guides students to draw and color simple objects using paint. | 1. Identify and describe paint environment,  2. Draw and colour simple objects using paint package. | Computer systems with graphic packages installed (e.g. Paint, Instant Artist, Photo paint, etc.). | Students to:  1. identify features of paint environment;  2. list the Paint tools;  3. state three functions of paint tool;  4. draw and color simple objects (e.g. Nigerian Flag). |
| 4 | IT as a  Transformational Tool | Student should be able  to:  1. state what IT stands for;  2. identify IT *gadgets;* 3. state the benefits of IT;  4. list the disadvantages of  IT. | 1. Meaning of ICT  (Information and  Communications  Technology):  2. Examples:  - Computers  - Telephone (GSM)  - Cellular networks  - Satellite Communication  - Television  - Internet | 1. Provides pictures! Charts of IT gadgets.  2. Explains the meaning of IT  3. Leads students to identify IT gadgets.  4. Guides class discussion on the benefits of IT  5. Guides class discussion on the disadvantages of IT  6. Writes notes on the board. | 1. Observe the pictures/ charts displayed.  2. Identify IT gadgets.  3. Participate in class discussion  4. Copy the board summary into their notebooks. | 1. IT gadgets.  2. Pictures.  3. Charts. | Students to:  1. State what IT stands for;  2. List four IT related gadgets;  3. State three benefits of IT;  4. State three disadvantages of IT. |
| 5 | IT Gadgets | Students should be able to:  1. differentiate between GSM, Fax machine and telephone;  2. create and send messages to one another using the GSM and Fax;  3. store and retrieve information on a GSM handset. | 1. The GSM  2. Fax Machine  3. Telephone etc. | 1. Prepares charts.  2. Takes students to visit business  centers.  3. Guides the class to:  - differentiate between GSM, Fax and telephone;  - make calls on GSM handset;  - create and send messages on GSM handset  - send and receive  Fax messages  - save Text messages, contact address and Telephone number on GSM | 1. Watch teacher demonstrations.  2. Visit business centers.  3. Ask and answer questions.  4. Make calls on GSM handset.  5. Create, send and store massages on GSM handset.  6. Send and receive Fax messages. | 1. Charts or Pictures  2. GSM handset  3. Fax machines  4. Telephones  5. Other communication gadgets. | Student to:  1. state two differences between a Fax, GSM and Fax Telephone;  2. make calls;  3. send messages;  4. create, send, store and retrieve information on GSM handset. |
| 6 | Computer Networks | Pupils should be able to:   1. Define Computer network 2. State Advantages and disadvantages of Networks 3. Differentiate network computers from others 4. State types of computer networks 5. State important of different network Topologies 6. State tools used in networking 7. Use networking tools 8. 3.3 State hardware used in networking | 1. Definition 2. Advantages of Networks 3. Disadvantages of networks 4. Computers in a Network 5. Types of Networks 6. LAN Topologies 7. Networking Hardware | 1. Show the students how network devices work 2. Show the students different network devices and their uses/functions 3. Explain the types of networks to the students. 4. explain network topologies to the students | 1. Watch teacher demonstrations. 2. take down notes given 3. do class exercises 4. Ask and answer questions. | 1. Network devices; Routers, Switches, modems, computers 2. Computer lab with internet access 3. whiteboard and marker | Students to:   1. list 6 network devices 2. state the functions of routers and switches 3. list 5 advantages of computer networks 4. state 5 disadvantages of computer networks |
| 8 | Computer Networks and Internet | Pupils should be able to:  1. define the:  - internet, world wide web (www) ;electronic mail, (e-mail); email address; website;  2. identify:  - Internet  browser  - e-mail address  - Website  address;  3. open an e-mail;  4. write e-mail addresses;  5. mention the benefits of  Internet.  6. mention the abuses of  Internet. | 1. Definition of Terms:  - Internet (the largest computer network in the world.  e-mail address  - worldwide web (www)  2. Internet browser:  Microsoft internet explorer  Netscape, Mozilla,  3. Creating e-mail account.  4. Benefits of internet:  Information exchanges.  e-learning  e-entertainment  faster and cheaper  5. Abuses of Internet:  - Fraud  - Pornography  etc. | 1. Leads pupils to define the Internet, e-mail address, website, web browser.  2. Guides pupils to write valid samples of e-mail and website addresses.  3. Organizes visit to cyber café to demonstrate the various uses of Internet.  4. Writes notes on chalkboard on the uses, benefits and abuses of Internet | 1. Participate on discussion.  Watch teacher’s demonstration and practice writing valid email and web addresses.  3. Copy chalkboard summary into their notebooks.  2. | 1. Internet connected computer lab or cyber café  2. Samples of e-mail address  - musa@hotmail.com  - emekayahoo.com  - kola@onebox.com  - chima@nerdc.org | Pupils to:  1. define the  internet.  2. list three:  - browsers;  • e-mail addresses  - Website addresses;  3. open their e-mail addresses;  4. write valid e-mail addresses;  5. state three benefits of the Internet;  6. State two abuses of Internet. |
| 9 | Internet Environment | Students should be  able to:  1. recognize and name icons in the internet environment;  .  2. send and receive e- mail,  3. chat on the  Internet;  4 link-up with education network tips. | 1.Characteristic  Features  2. Uses of the internet:  3. Network groups. | 1. Takes students to  computer laboratory,  websites for use in the class,  2. Shows students the icons on Internet environment and explain their functions.  3 Guides students to  send and receive mails  - chat on Internet  4. Link up with educational network groups e g SchoolNet, e-school etc. | 1. Go to computer laboratory or visit a cyber cafes.  2. Watch teacher demonstrations.  3. Open their e-mail boxes  4. Use the internet to:  -send and receive mails  - chat with  themselves  - access educational  network groups | 1. Computer laboratory.  2. Cyber cafe•.  3 Off line down loaded websites.  4. List of educational websites and their addresses e.g.  www.nerdcnigena.gov.nq | Student to:  1. name five icons found in Internet environment;  2. state the function of the icons;  3. use Internet to send and receive  .  mails and chat;  4. link up with two educational  network groups |

**BASIC SCIENCE AND TECHNOLOGY**

**THIRD TERM**

**THEME: INFORMATION TECHNOLOGY BASIC 8**

**SUB-THEME: BASIC COMPUTER OPERATIONS AND CONCEPTS**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **WEEK** | **TOPIC** | **PERFORMANCE OBJECTIVES** | **CONTENT** | **ACTIVITIES** | | **TEACHING AND LEARNING MATERIALS** | **EVALUATION GUIDE** |
| **TEACHER** | **STUDENT** |
| 1 | Computer  carrier  Opportunities | Students should be able  to:  1. draw a list of career opportunities associated with computer usage;  2. state the functions of each of these  professionals;  3. list the qualities of good computer  professionals;  4. list the computer professional bodies;  5. state the functions of each of the computer professional bodies and association. | 1. Computer Professionals:  - Computer Manager  - System Analyst  - Programmers  - Computer educator  - Computer engineers  and technicians  - Operators.  2. Qualities of good  Computer professionals.  3. Computer Professional  Bodies:  - Nigeria Computer  Society (NCS)  - Institute of Management  Information System  (IMIS)  - Computer Professional  Registration Council of  Nigeria (CPRN).  - Information Technology  Association of Nigeria  (ITAN).  - Nigerian Internet Group  (NIG). | 1. Displays the pictures of different computer professionals and leads the students to identify them and their functions.  2. Leads students to identify the qualities of good computer professionals.  3. Leads students to identify the professional bodies to which a computer Professional can join.  4. Describes the functions of the computer professional bodies. | 1. Examine the  pictures or charts, and identify the computer professionals and their specific responsibilities,  2. State the qualities of good computer professionals.  3. Listen to the  teacher’s description of professional bodies and their functions.  4. Participate fully in such class discussion. | 1. Pictures/harts showing different computer professionals at work.  2. Pictures/  charts showing different computer professionals at work. | Students to:  1. list four computer  professions;  2. state two functions of given computer  professionals;  3. list four qualities of a good computer professional;  4. list four computer  professional  bodies 5. state the functions of each of the computer professional bodies listed.  , |
| 2 | Computer  Viruses | Students should be  able to:  1. state the meaning of a computer virus;  2. state types of computer viruses;  3. list examples of computer virus;  4. state sources through which a computer can be infected  5. State warning signs of a virus;  6. List anti-virus software available for use with a virus.  . | 1. Meaning of computer virus.  2. Types of computer virus:  - boot sector;  - executable file virus;  - attack on document.  3. Example of viruses: - Trojan horse, Sleeper, Logic bomb, Alabama virus, Christmas virus  4. Sources of viruses:  - infected diskettes; infected CD-ROMS;  - e-mails;  - Internet downloads;  - illegal duplication of Software, etc.  5. Virus Warning Signs:  - slowing down of response time  - presence of tiny dots  - wandering across the screen.  - Incomplete saving of file  - corruption of the system set- up instructions,  - Appearance of strange characters.  6. Virus detection (Antivirus):  - Norton Anti-virus  - McAfee Virus scan  - Dr. Solomon’s Took Kit, etc. | 1. Guides the students  to define a computer virus,  2. Leads the students to identify types of computer viruses and how they are contracted  3. Guides the students to identify anti-virus software  4. Guides the students to identify sources through which a computer can be infected with a virus,  5. Leads the discussion on warning signs of a virus.  6. Guides the students to demonstrate how computer viruses can be detected. | 1. Participate in the class discussion.  2. Note the sources through which a computer can be infected with a virus.  3. Note how computer viruses can be detected  4. Load and run Anti viruses on a computer system. | 1. Pictures of  anti- virus packages.  2. Computer system with anti- virus software installed, | Pupils to:  1. define the term computer virus;  2. list two types of computer virus;  3. list four examples of computer virus;  4. give three sources through which a computer can be infected with a virus;  5. state three warning signs of a computer virus;  6. list three anti- virus software  available for use. |
| 3 | Internet | Students should be able to:  1. identify Internet search engines;  2. state specific uses of the search  engines;  3. use the search engines to obtain information and download materials on the internet.  . | Examples of Search Engines:  - google.com  - mama.com  - ask.com  - yahoo.com  Uses of Search Engines,  . | 1. Takes students to computer laboratory, cyber cafe- or download websites into flash disk.  2. Guide the students to:  - Identify internet search engines and their specific uses;  - use the search engines to obtain information;  - download information from the Internet into diskettes or flash disk. | 1. Visit computer laboratory or cyber café.  2. Watch teacher’s demonstrations search for information using different search  Engines,  3. Execute the projects e.g. students to go to cyber cafe and down load information on:  - HIV/AIDS  prevention/prevalent causes and cure;  - Voter education handbook (VEH). | 1. Computer laboratory.  2. Cyber cafe  3. Off line downloaded web sites.  4. Web site address  Of NACA and other organizations and NGO working on HIV/AIDS. | Pupils to:  1. name three internet search engines;  2. state specific uses of the search  engines;  3. use search engines to obtain information;  4. Download information from internet into diskettes and flash disks. |
| 4 | Digital  Divide | Students should be  able to:  1. explain the meaning of digital divide;  2. differentiate  between old and new economy;  3. explain the limitation of the old economy;  4. State the benefits of new economy. | 1. Concept of digital divide.  2. Features of old new economy:  - Time consuming  - Labor based  - Mechanical  - Constrained by space, time & distance etc.  3. Features of new economy:  - Digital,  - Time, space & distance is irrelevant  - Technology driven,  - Knowledge based, etc.  3. Limitations of the old economy.  4. Benefits of new economy:  low capital to start business  creates new jobs etc. | 1. Explains the concept of digital divide and its benefit.  2. Guides class discussion on the features of old and new economy  3. Gives students assignment to visit the  following website:  www.eprimers.org  www.nitda.org  www.apdip.net  4. Download information on digital divide from the websites.  5. Guides class discussion on the Limitation of the old economy.  6. Guides class discussion on the benefits of the new economy. | 1. Listen to  teacher’s  explanations  2. Ask and answer question  3. Participate in  class discussion  4. Visit the given website addresses and down load relevant information  5. Identify the benefits of new economy; | 1. Relevant Text  books  2. Web site addresses.  3. Computer systems connected to the internet. | Student’s to:  1. define digital divide;  2. State three distinguishing  features between  old and new economy;  3. State three disadvantages of the old economy;  4. list four benefits of the new  economy. |
| 5 | Database | Students should be able to:  1. explain the following  database terminologies (fields, record, file, and key); | 1. Database  Terminologies:  - Fields  - Records  - File  - Database  - Key, etc. | 1. Explains the meaning of fields, records, file, database and keys.  3. Displays a chart to show forms of database.  4. Writes notes on a chalkboard for the pupils to copy. | 1. Listen to teachers’ explanation.  2. Copy chalkboard summary into their notebooks. | Record books, result sheets, pack of library cards, etc. | Pupils to:  1. Explain basic in database terms; |
| 6 | Database cont’d | Identify various forms of  database;  3. start and open an existing  database;  4. input, store and retrieve information from a database application. | Forms of Data  Base:  - Flat file  - Hierarchical  - Relational, etc. | 1. Explains the forms of database.  2. Displays a chart to show forms of database.  3. Writes notes on a chalkboard for the pupils to copy. | 1. Listen to teachers’ explanation.  2. Copy chalkboard summary into their notebooks. | Record books, result sheets, pack of library cards, etc | Mention three forms of database;  3. Explain how to start and open an existing database;  4. Input, store and retrieve information from database application packages |
| 7 | Spreadsheet Packages | Students should be able to:  1. name some spreadsheet application packages;  2. state the uses of the spreadsheet packages;  3. describe the general features of spreadsheets packages;  4. Load and exit spreadsheet packages. | 1. Examples of spreadsheet package (Excel, LOTUS123, STATVIEW, etc.)  2. Uses of spread sheet packages:  - preparation of daily sales;  - budget;,  - Examination results.  3. Spreadsheet features and terminologies:  - Row  - Column  - Cell  - Worksheets  - Chart  - Data range etc.  4. Loading and exiting spreadsheet packages. | 1. Leads students to the computer lab.  2. Guides students to  name various spreadsheet packages.  3. Guides students through an examination/test result sheet.  4. Guides students to describe the general features of the packages  5. Guides students to load and exit spreadsheet packages. | 1. Watch teacher’s demonstrations.  2. Participate in class discussion,  3. Practice loading, exiting from a spreadsheets package. | 1. Computer system.  2. Spreadsheets packages. | Pupils to:  1. name three’ spreadsheet  packages;  2. ‘state two uses of the spreadsheet packages;  3. mention five features of spreadsheet packages;  4. load and exit spreadsheet  packages. |
| 8 | Worksheets  . | Students should be able to:  1. open, enter, edit and save data in a worksheet;  2. format text, cells and columns in a worksheet; 3. perform simple calculations;  4. print data from worksheets.  : | 2. Worksheets  - Startrig worksheet:  - Data Entry  - Editing  - Saving  - Retrieving worksheets  - Formatting worksheet (text, cell and columns naming etc.).  2. Calculations:  - addition;  • average;  - counting,  - multiplication;  - division, etc.  3 Printing of worksheets. | 1. Demonstrates:  - opening a worksheet  - entering data into a worksheet,  - editing,  - deleting; and  - saving data on a worksheet  2. Guides students to format text, cells, rows and columns in  a worksheet.  3. Guides students to do simple calculations  with spreadsheet.  4. Gives students practice exercises and correct their work.  5. Guides students print data from  worksheets. | 1. Watch teacher’s demonstrations.  2. Practice data entry, editing, deleting and saving data in a worksheet.  3. Practice formatting text, cells and columns in a worksheet.  4. Do simple calculations with spreadsheet.  5. Practice given exercises.  6. Practice printing data from  worksheets. | 1. Computer system with spreadsheet packages installed,  2. Printer,  3. Papers. | Pupils to:  1. open a worksheet;  2. enter data into a worksheet;  3. format text, cell, rows and columns in a worksheet;  4. solve simple mathematical problems using spreadsheet packages;  5. print data from a  .  given  worksheet. |
| 9 | Graphs | Students should be  able to:  1. construct  standard graphs and charts from given records in a  worksheet;  2. edit and format the graphs and charts;  3. identify and select  data range and area for graph constructing. | 1. Creating Graphs;  - Line graphs  - Histograms  - Pie-charts  - Legends etc.  2. Editing graphs  3. Formatting  graphs:  - Line graphs  - Histograms  - Pie-charts  - Legends, etc. | 1. Guides students to identify and select data range and areas for graph construction.  2. Demonstrates the stages of graph construction from records in a worksheet. given  3. Gives students  practice exercises,  4. Moves around to assess students and give necessary assistance.  Note: Use available  data on HI V/AIDS  prevalence and  consequences for the  practice exercises | 1. Watch teacher’s demonstrations, ask and answer questions.  2. Practice graph construction using data in a given worksheet.  3. Do the given exercises, print and discuss their results. | 1. Computer system with spreadsheet packages installed.  2. Printers  3. Papers | Pupils to:  1. state the range  and axis of data in  a given worksheet;  2. create standard  graphs and charts  from the data;  3. edit and format  their graphs and  charts. |