DOYEN PUBLISHERS

HIGH SCHOOL SCHEMES OF WORK

COMPUTER STUDIES FORM 4

(Term 1, 2 & 3)

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COMPUTER STUDIES FORM 3 SCHEMES OF WORK – TERM 1

WEEK	LESSON	TOPIC	SUB - TOPIC	OBJECTIVES	LEARNING/TEACHING ACTIVITIES	LEARNING/TEACHING RESOURCES	REFERENCES	REMARKS
1	1	Data Representation in a computer	DEFINITION & INTRODUCTION	By the end of the lesson, the learner should be able to • Define data • Define information • Classify computers according to functionality with illustration	• Questions and answers • Discussions in groups • brainstorming	• computer keyboard • electronic circuits • Charts • Photographs • Pictures from books	• Longhorn Computer studies Bk 3 page 1-3 • Computer studies by Onunga and Shah page 1	
	2		DATA REPRESENTATION	By the end of the lesson, the learner should be able to • Represent data in digital computers (i) On electronic circuits (ii) On magnetic media (iii) Optical media	• Discussions in groups • Exercises by the teacher	• Charts • Floppy diskettes • Compact disk • Electronic circuit	• Longhorn Computer studies Bk 3 page 23 • Computer studies by Onunga and Shah page 1	
	3-4	Data Representation	DATA REPRESENTATION	By the end of the lesson, the learner should be able to • Give reasons why binary system is used in computers	• Discussions • Question and answer	• charts	• Longhorn Computer studies Bk 3 page 24 • Computer studies by Onunga and Shah page 1	

				• Define bits, bytes, nibble and word				
2	**1**	Data Representation	NUMBER SYSTEMS	By the end of the lesson, the learner should be able to • Define decimal number • Represent data in decimal number system • Represent data in actual number system	• Group discussions • Exercises given and marked by the teacher	• Charts • Simple calculations	• Longhorn Computer studies Bk 3 page 25 • Computer studies by Onunga and Shah page 6	
	2		NUMBER SYSTEM	By the end of the lesson, the learner should be able to • Represent data in actual number system • Represent data in Hexadecimal number system	• Group discussions • Questions and answering • exercises	• charts • simple calculations • Computer	• Longhorn Computer studies Bk 3 page 26 • Computer studies by Onunga and Shah page 7-8	
	3/4	**QUIZ AND PROBLEM SOLVING** **Teacher administers small assignment and revises for better retention**						
3	**1**	Data representation	FURTHER CONVERSION OF NUMBER SYSTEMS	By the end of the lesson, the learner should be able to • Convert binary number to decimal number system • Convert decimal numbers to binary numbers	• Questions and answers • Discussions in groups	• Charts • Simple calculations • Questions papers	• Longhorn Computer studies Bk 3 page 26 • Computer studies by Onunga and Shah page 8	
	2	"	"		• Discussions	• Charts		

				By the end of the lesson,, the learner should be able to • Convert binary fraction to decimal number system • Convert a decimal fraction to binary	• Questions and answers	• Simple calculations • Questions papers	• Longhorn Computer studies Bk 3 page 26 • Computer studies by Onunga and Shah page	
	3-4	**PROBLEM SOLVING AND QUIZ** **Teacher administers questions and answer session for better retention**						
4	**1**	DATA REPRESENTATION	Converting octal numbers to decimal and binary numbers	By the end of the lesson, the learner should be able to • Convert octal numbers to decimal numbers • Convert octal numbers to binary numbers	• Discussion • Question and answer	• Chart	• Longhorn Computer studies Bk 3 page 26 • Computer studies by Onunga and Shah page 12	
	2	DATA REPRESENTATIONS	Converting hexadecimal numbers to binary number	By the end of the lesson, the learner should be able to • Convert hexadecimal to decimal numbers • Convert hexadecimal numbers to binary numbers	• Discussions • Question and answer	• Charts • Simple calculations • Computers • Scientific calculators	• Longhorn Computer studies Bk 3 page 26 • Computer studies by Onunga and Shah page 13-15	
3-4	**QUIZ AND PROBLEM SOLVING** **Can be inform of a question/answer session for retention**							
5	**1**		Symbolic Representation		• Discussions	• Charts	• Longhorn Computer	

		DATA REPRESENTATIONS	using coding schemes	By the end of the lesson, the learner should be able to • Explain the binary coded decimal code as a representation Scheme (BCD) • Explain the extended Binary coded decimal interchange code (EBCDIC)	• Question and answer	• Scientific Calculators	studies Bk 3 page 26 • Computer studies by Onunga and Shah page 22-27	
	2	DATA REPRESENTATION	Symbolic Representation using coding schemes	By the end of the lesson, the learner should be able to • Explain the American standard code for information interchange code (ASCII) as a representation scheme	• Discussion in groups	• Charts • Scientific and simple calculator • computer	• Longhorn Computer studies Bk 3 page 26 • Computer studies by Onunga and Shah page 22-27	
	3-4	**QUIZ FOR TETENTION** **Administer a small exam**						
6	**1**		BINARY ARITHMETIC OPERATIONS	By the end of the lesson, the learner should be able to • Represent signed binary numbers using prefixing an extra sign bit to a binary number and ones complement	• Teacher demonstrates • Group discussions • Questions and answering	• Simple calculators • PDA's • charts	• Longhorn Computer studies Bk 3 page 27 • Computer studies by Onunga and Shah page 27	

	2		BINARY ARITHMETIC OPERATIONS	By the end of the lesson, the learner should be able to • Represent signed binary numbers using two's complement	• Teachers demonstrates • Question and answer • Group discussions	"	• Longhorn Computer studies Bk 3 page 27 • Computer studies by Onunga and Shah page 27	
	3-4		BINARY ADDITION	By the end of the lesson, the learner should be able to • Perform seven possible binary additions • Outline the procedure for binary additions	• Demonstration by the teacher • Teacher gives and marks questions • Group discussions	• Charts	• Longhorn Computer studies Bk 3 page 27 • Computer studies by Onunga and Shah page 27	
7	**1**		BINARY ARITHMETIC OPERATIONS	By the end of the lesson, the learner should be able to • Perform direct subtraction • Perform subtraction using ones complement	• Discussions • Demonstration by teacher • Question and answer	• Charts • calculator	• Longhorn Computer studies Bk 3 page 26 • Computer studies by Onunga and Shah page 28	
	2		BINARY ARITHMETIC OPERATIONS	By the end of the lesson, the learner should be able to • Perform subtraction using twos complement	• Discussions • Demonstration by teacher • Question and answer	• Charts • calculator	• Longhorn Computer studies Bk 3 page 26 • Computer studies by Onunga and Shah page 28	
	3-4	**QUIZ AND PROBLEM SOLVING** **Teacher evaluates by giving questions to ascertain whether objectives are achieved**						

8	**1**	Data Processing	DEFINITION AND INTRODUCTION	By the end of the lesson, the learner should be able to • Define data information and data processing • Describe the data processing cycle • Give methods of data collection	• Group discussions • Question and answering • brainstorming	• charts • computer	• Longhorn Computer studies Bk 3 page 32 • Computer studies by Onunga and Shah page 32-35	
	2	Data Processing	DATA PROCESSING CYCLE	By the end of the lesson, the learner should be able to • List stages for data processing • Describe the listed data processing cycle stage	• Group discussions • Question and answering • Brainstorming	• charts • computer	• Longhorn Computer studies Bk 3 page 32 • Computer studies by Onunga and Shah page 32-35	
	3-4	Data Processing	DATA PROCESSING CYCLE	By the end of the lesson, the learner should be able to • Give the errors that influence the accuracy of data and information output • Explain the errors in data processing	• Discussion in groups • Question and answer • Assignments marked by the teacher	• Flash cards • Charts • computer	• Longhorn Computer studies Bk 3 page 35 • Computer studies by Onunga and Shah page 33	
9	**1**	Data processing	DATA INTEGRITY	By the end of the lesson, the learner should be able to • Define data integrity	• Discussion in groups • Illustrations by the teacher	• Flash cards • Simple information system	• Computer studies by Onunga and Shah page 41	

				• Give the measurements of data integrity • Accuracy • Timelines • Relevance • Describe the listed data integrity measurements	• Question and answer			
	2	Data processing	DATA PROCESSING METHODS	By the end of this lesson, the learner should be able to • State the ways of minimizing threat to data integrity • List and describe the methods of data processing	• Discussion in groups • Illustrations by the teacher • Question and answer	• Flash cards • Simple information system	• Computer studies by Onunga and Shah page 41	
	3-4	Data processing	COMPUTER FILES	By the end of the lesson, the learner should be able to • Define a computer file • Give the types of computer files • State the advantages of computerized filing	• Discussion in groups • Illustrations by the teacher • Question and answer	• Charts	• Computer studies by Onunga and Shah page 49	
10	**1**	Data processing	ELEMENTS OF COMPUTER FILE	By the end of the lesson, the learner should be able to	• Discussion in groups • Question and answer	• database • chart with relation database	• Longhorn Computer studies Bk 3 page 40	

				• List the elements of a computer file • Describe the listed elements of a computer file	• demonstration			
	2	Data processing	CLASSIFICATION OF COMPUTER FILES	By the end of the lesson, the learner should be able to • Classify computer files • Differentiate between logical and physical computer files	• Illustration by the teacher	• Floppy diskette • Compact disc • Computer video tape	• Longhorn Computer studies Bk 3 page 41 • Computer studies by Onunga and Shah page 50	
	3-4	Data processing	COMPUTER PROCESSING FILES	By the end of the lesson, the learner should be able to • Give the types of processing files • Describe the listed types of processing files • Master files • Transaction file • Reference files • Backup files • Sort files	• Discussions • Illustration by the teacher • Question and answer	• Charts • Flash cards	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 41	
11	**1**	Data processing	FILE ORGANIZATION METHODS	By the end of the lesson, the learner should be able to • Define file organization • List the methods of organizing	• Question and answer • Brainstorming • Discussions in groups	• Floppy diskettes • Compact disk • Video tapes	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 42	

				files on a storage media • Describe the listed methods of file organization			• Computer studies by Onunga and Shah page 55	
	2	Data processing	ELECTRONIC DATA PROCESSING	By the end of the lesson, the learner should be able to • Give the data processing modes • Describe (i) Online processing (ii) Real-time processing (iii) Distributed processing	• Discussions in groups • Question and answer • Illustration by the teacher	• Charts • Flash cards	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 43-45 • Computer studies by Onunga and Shah page 61	
	3-4	Data processing	ELECTRONIC DATA PROCESSING MODES	By the end of the lesson, the learner should be able to • Describe (i) Time-sharing (ii) Batch processing (iii) Multi processing (iv) Multi-tasking (v) Interactive processing	• Discussions in groups • Question and answer • Illustration by the teacher	• Charts • Flash cards	• Computer studies by Onunga and Shah page 612-69	
	12 - 13	**END OF TERM EXAMS AND CLOSING OF SCHOOL**						

COMPUTER FORM 3 SCHEMES OF WORK – TERM 2

WEEK	LESSON	TOPIC	SUB - TOPIC	OBJECTIVES	LEARNING/TEACHING ACTIVITIES	LEARNING/TEACHING RESOURCES	REFERENCES	REMARKS
1	1	ELEMENTARY PROGRAMMING PRINCIPLES	DEFINITION OF PROGRAMMING	By the end of this lesson, the learner should be able to • Define programming • List the terms used in programming • Describe the listed terms • Differentiate between source program and object program	• Question and answer • Discussion in groups • Illustration by the teacher	• Charts • Books • Journals • Software • computer	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 47 • Computer studies by Onunga and Shah page 72	
	2	ELEMENTARY PROGRAMMING PRINCIPLES	LEVELS OF PROGRAMMING LANGUAGE	By the end of the lesson, the learner should be able to • Classify the programming languages • Describe the low level programming language	• Demonstration • Q/A	• Flash cards • Charts • books	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 49-51 • Computer studies by Onunga and Shah page 73	
	3-4	ELEMENTARY PROGRAMMING PRINCIPLES	LEVELS OF PROGRAMMING LANGUAGE	By the end of the lesson, the learner should be able to • Describe the high level language	• Q/A • Discussion	• Flash cards • Charts	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 59	

				• State the advantages and disadvantages of low-level and high level languages			• Computer studies by Onunga and Shah page 74-75	
2	**1**	ELEMENTARY PROGRAMMING PRINCIPLES	PROGRAM DEVELOPMENT	By the end of the lesson, the learner should be able to • List the stages in program development • Describe (i) program recognition (ii) program definition	• Question and answer • Discussion in groups	• Flash cards • charts	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 60-66	
	2	ELEMENTARY PROGRAMMING PRINCIPLES	PROGRAM DEVELOPMENT	By the end of the lesson, the learner should be able to • Describe (i) Program design (ii) Program coding	• Demonstration • Illustrations by teacher	• Computer software	• Computer studies by Onunga and Shah page 83	
	3-4	ELEMENTARY PROGRAMMING PRINCIPLES	PROGRAM DEVELOPMENT	By the end of the lesson, the learner should be able to • Describe (i) program testing (ii) Program implementation and maintenance	• Discussions in groups • Illustrations by the teacher • Question and answer	• Flash cards • charts	• Computer studies by Onunga and Shah page 85	
3	**1**					• Chalkboard		

		ELEMENTARY PROGRAMMING PRINCIPLES	PROGRAM DOCUMENTATION	By the end of the lesson, the learner should be able to • Define the term program documentation • State the forms of documentation • Describe the target groups for documentation	• Discussions in groups • Illustrations by the teacher • Question and answer	• charts	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 67	
	2	ELEMENTARY PROGRAMMING PRINCIPLES	DEVELOPMENT OF ALGORITHMS	By the end of the lesson, the learner should be able to • Define algorithm • List tools used in algorithm • Distinguish between pseudo code and flow charts	• Discussion in groups • Question and answer • Illustration by the teacher	• Chalkboard • Charts • Flash cards	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 68	
	3-4	ELEMENTARY PROGRAMMING PRINCIPLES	DESIGNING MORE COMPLEX ALGORITHMS	By the end of the lesson, the learner should be able to • Give comparison between a pseudo code and a flow chart • Design complex algorithms	• Question and answer • Demonstration by the teacher • Group discussions	• Charts	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 68	
4	**1**	ELEMENTARY PROGRAMMING PRINCIPLES	PROGRAM CONTROL STRUCTURES	By the end of the lesson, the learner should be able to • Define program control structures • List three control structures	• Discussions in groups	• Charts • chalkboard	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 72-78	

				• Describe sequence as a control structure			• Computer studies by Onunga and Shah page 93	
	2	ELEMENTARY PROGRAMMING PRINCIPLES	PROGRAM CONTROL STRUCTURES	By the end of the lesson, the learner should be able to • Describe the use of iteration (looping) as a control structure	• Discussion in groups	• Charts • chalkboard	• Computer studies by Onunga and Shah page 94	
	3-4	ELEMENTARY PROGRAMMING PRINCIPLES	Program control structures	By the end of the lesson, the learner should be able to • Describe selection as a control structure • Design a more complex algorithm	• Illustration by the teacher • Discussion in groups • Question and answer	• Chart • chalkboard	• Computer studies by Onunga and Shah page 94	
5	**1**	**PROBLEM SOLVING**						
	2	SYSTEM DEVELOPMENT	Definition	By the end of the lesson, the learner should be able to • Define the term system • Describe a system list • List the characteristics of a system	• Discussion • Question and answer	• Charts • Chalkboard • Journals • Computer • books	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 91-95 • Computer studies by Onunga and Shah page 168	
	3-4	SYSTEM DEVELOPMENT	Information system	By the end of the lesson, the learner should be able to	• Discussion in groups • Illustration by the teacher	• Charts • Flash cards • Chalkboard • Computer	• Computer studies by Onunga and Shah page 170	

				• Describe the listed characteristics of a system • Define information system		• Books		
6	**1**	SYSTEM DEVELOPMENT	Information system	By the end of the lesson, the learner should be able to • State the main purpose of an information system • Give reasons why information system is developed • State the role of information system analyst	• Discussion • Illustrations by the teacher • Question and answer	• Charts • Flash cards • Computer	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 95	
	2	SYSTEM DEVELOPMENT	Theories of system development	By the end of the lesson, the learner should be able to • Describe tradition approach • Describe rapid application development	• Discussions in groups • Illustration by the teacher	• Chalk board • Flash cards • Charts	• Computer studies by Onunga and Shah page 170	
	3-4		Theories of system development	By the end of the lesson, the learner should be able to • Describe the structured approach • Give examples of ways of	• Discussions in groups • Illustration by the teacher	• Chalk board • Flash cards • Charts	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 97	

				information of gathering				
7	**1**	SYSTEM DEVELOPMENT	Stages of system development	By the end of the lesson, the learner should be able to • State and define all the stages of system development	• Illustration by the teacher • Question and answer	• Chalk board • charts	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 97	
	2	SYSTEM DEVELOPMENT	Stages of system development	By the end of the lesson, the learner should be able to • Give the methods used in information gathering • Describe interviews studying of available documents as used in information gathering	• Demonstration • Discussion	• Chalk board • Charts	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 100-104 • Computer studies by Onunga and Shah page 175	
	3-4	SYSTEM DEVELOPMENT	Stages of system development	By the end of the lesson, the learner should be able to • Prepare a questionnaire • Prepare and present a fait finding report • Describe how automated methods are used	• Discussions in groups • Question and answer • Illustration by the teacher	• Sample questionnaire • Chalkboard	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 104	
8	**1**				• Discussions	• Chalkboard		

		SYSTEM DEVELOPMENT	Requirements specification	By the end of the lesson, the learner should be able to • Describe output specification • Describe input specification	• Question and answer	• Charts	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 105	
		SYSTEM DEVELOPMENT	Requirements specification	By the end of the lesson, the learner should be able to • Describe file/data stores • Describe hardware and software requirements	• Discussions • Question and answer	• Chalkboard • Charts	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 109	
		SYSTEM DEVELOPMENT	System design	By the end of the lesson, the learner should be able to • Define system flowchart • Identify common flowchart symbols	• Discussions • Question and answer	• Chalkboard • Charts	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 109	
9	**1**	SYSTEM DEVELOPMENT	Designing a system flowchart	By the end of the lesson, the learner should be able to • Identify guidelines fro designing system flowcharts • Write a system flowchart using a case study	• Discussions • Question and answer • Illustration by the teacher	• Charts • Chalkboard	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 110	
	2				• Illustration by the teacher	• Charts • Chalkboard	• Longhorn Computer	

			Designing a system flowchart	By the end of the lesson, the learner should be able to • Write a simple book borrowing module flowchart • Write cleaners information system flowchart	• Discussion in groups		studies by Mburu and Chemwa Bk 3 page 110	
	3-4		Designing a system flowchart	By the end of the lesson, the learner should be able to • Write a sample library books management system flowchart • Use data flow diagrams	• Question and answer • Discussion in groups	• Chalkboard • chart	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 110	
10	**1**	SYSTEM DEVELOPMENT	System Construction	By the end of the lesson, the learner should be able to • Define the term system construction • Identify number of technique that can be used to construct a designed system	• Question and answer • Discussion in groups	• Charts • Chalkboard • Information system (Cleaner)	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 110	
	2		System Implementation	By the end of the lesson, the learner should be able to • Define system implementation and file conversion	• Illustrations by the teacher • discussion	• Charts • chalkboard	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 116	

				• Describe factors considered during file conversion				
	3-4		Change over strategies	By the end of the lesson, the learner should be able to • Define the term changeover • List the system change over strategies • Describe three listed changeover strategies	• Discussions • Question and answer	• Flash card • Charts • chalkboard	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 116	
11	**1**		System maintenance and revision	By the end of the lesson, the learner should be able to • Define system maintenance • Define system review • Describe security control measures	• Illustration by the teacher • Question and answer	• Charts • Flash cards	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 116	
	2		System documentation	By the end of the lesson, the learner should be able to • Write a report on case study	• Illustration by the teacher • Question and answer	• Charts • Flash cards	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 117	
	3-4		System documentation	By the end of the lesson, the learner should be able to • Develop a system using a case study	• Illustration by the teacher • Discussions	• A chart • Computer • Printer • Chalkboard	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 117	

12	**1**		System documentation	By the end of the lesson, the learner should be able to • Identify comprehensive system documentation details • Write a report on the case study	• Discussions • Question and answer	• Charts • Computer	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 118-120	
	2,3 & 4		**PRACTICALS**					
END OF TERM EXAMINATION								

COMPUTER STUDIES FORM 3 SCHEMES OF WORK – TERM 3

WEEK	LESSON	TOPIC	SUB - TOPIC	OBJECTIVES	LEARNING/TEACHING ACTIVITIES	LEARNING/TEACHING RESOURCES	REFERENCES	REMARKS
1	1	PROGRAMMING WITH VISUAL AIDS	Definition	By the end of the lesson, the learner should be able to • Define the term visual basic • Start up visual basic • Identify features of visual basic	• Demonstration by the teacher • Discussions • Question and answer	• Chalkboard • Computer • chart	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 122	
	2	PROGRAMMING	Visual basic toolbox	By the end of the lesson, the learner should be able to • Identify parts of the visual basic tool box • Describe parts of the visual basic toolbox	• Demonstration • Question and answer	• Chalkboard • Photograph • computer	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 123	
	3-4		Saving a visual project	By the end of the lesson, the learner should be able to • Save a visual basic project • Open an existing visual basic project	• Demonstration by the teacher • Question and answer • Practical	• Computer • Chalkboard	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 123	
2	1		Visual basic fundamental concepts	By the end of the lesson, the learner should be able to	• Discussions • Questions and answer	• Chalkboard • Charts • Computer	• Longhorn Computer studies by Mburu and	

				• Identify the visual basic fundamental concepts • Describe the listed fundamental concepts		• Simple calculators	Chemwa Bk 3 page 136	
	2		Mathematical operators	By the end of the lesson, the learner should be able to • Identify mathematical operators • Describe the listed mathematical operators	• Discussions • Question and answers	• Chalkboard • Charts • Computer • Simple calculators	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 137	
	3-4		Numeric strings and values	By the end of the lesson, the learner should be able to • convert a numeric string to a value • Convert a value to a string	• Illustrations by the teacher • Discussions • Question and answer	• Charts • computer	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 137	
3	**1**		Project developments	By the end of the lesson, the learner should be able to • Create a program used to calculate the area of a rectangle	• Discussion in groups • Illustrations by the teacher	• Charts • Computer	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 145	

	2		Project developments	By the end of the lesson, the learner should be able to • Write a program used to find roots of a quadratic expression	• Discussion in groups • Illustrations by the teacher	• Charts • Computer	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 147	
	3-4		Case construct Looping construct	By the end of this lesson, the learner should be able to • Use case statement that can display the name of a weekday when its number is provided • Write a program using do-loop • Write a program using FOR-NEXT LOOP	• Demonstration by the teacher • Discussion • Question and answer	• Chart • Chalkboard • Computer • printer	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 147	
4	**1**		Working with graphical objects	By the end of the lesson, the learner should be able to • Insert a picture using picture box • Define module and procedure • Declare general subroutines	• Demonstration • Question and answer • discussion	• chart • computer	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 150	
	2		Working with graphical objects	By the end of the lesson, the learner should be able to • Write a general subroutine that	• Demonstration • Question and answer • practical	• computer • printer • chart • chalkboard	• Longhorn Computer studies by Mburu and	

				solves $y= x^n$ given that the value of n are integers			Chemwa Bk 3 page 151	
	3-4		Creating means and dialog boxes	By the end of the lesson, the learner should be able to • Create a dropdown menu • Create a message and dialog boxes	• Demonstration • Discussions • Question and answers	• computer • printer • chart • chalkboard	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 151	
	1		List boxes and control boxes	By the end of the lesson, the learner should be able to • Define list box and combo box • Create a list box and a combo box • Create a project that loads a list of items	• Discussion • Demonstration • Practical	• Chart • Photograph • Computer • chalkboard	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 161	
5	**2**		Visual basic data structures	By the end of the lesson, the learner should be able to • Define the term arrays • Declare an array	• Discussion • Demonstration • Practical	• Chart • Photograph • Computer • chalkboard	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 163	
	3-4		Visual basic data structures	By the end of the lesson, the learner should be able to • Declare two dimensional arrays • Write array of records	• Discussion • Demonstration • Practical	• Chart • Photograph • Computer • chalkboard	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 161	

6	**1**		Data files	By the end of the lesson, the learner should be able to • Define a file • Identify types of files recognized by visual basic • Link visual basic to data base	• Demonstration • Practical • Discussion	• Chart • Computer • chalkboard	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 187-189	
	2	INTRODUCTION TO DATA BASE DESIGN	Definition	By the end of the lesson, the learner should be able to • Define database • Identify relationships in database	• Demonstration • Practical • Discussion	• Chart • Computer • chalkboard	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 187-189	
	3-4		Defining attributes	By the end of the lesson, the learner should be able to • Define a foreign key • Distinguish between an entity and attributes • Create one to many relationships	• Question and answer • Practical • Demonstration • discussions	• computer • chart • chalkboard	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 203-204	
7	**1**		File table structure	By the end of the lesson, the learner should be able to • Create a table • Set primary key and foreign key	• Demonstration • Discussion • Practical	• Computer • Chart • Chalkboard	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 217	
	2				• Demonstration • Discussion	• Computer • Chart	• Longhorn Computer	

			Enforcing Referential integrity	By the end of the lesson, the learner should be able to • Enforce referential integrity between tables • Normalize table	• Practical	• Chalkboard	studies by Mburu and Chemwa Bk 3 page 217	
	3-4		Forms and commands	By the end of the lesson, the learner should be able to • Create a form/ interface • Call for commands	• Discussion in groups • Demonstration • Practical • Question and answer	• Computer • Chart • Chalkboard	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 21o	
8	**1**		Creating reports	By the end of the lesson, the learner should be able to • Describe the tools used to automate database • Create a switchboard	• Discussion in groups • Demonstration • Practical • Question and answer	• Chart • computer	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 211	
	2		Automating database	By the end of the lesson, the learner should be able to • Describe the tools used to automate database • Create a switchboard	• Discussion in groups • Demonstration • Practical • Question and answer	• Chart • computer	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 212	

	3-4		Automating database	By the end of the lesson, the learner should be able to • Create macros • Develop a system using a case study	• Demonstration • Assignment	• Computer • Chart	• Longhorn Computer studies by Mburu and Chemwa Bk 3 page 212	